

World Wide Webs: Crossing the Digital Divide through Promotion of Public Access

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“As Bill Gates and Steve Case proclaim the global omnipresence of the Internet, the majority of non-Western nations and 97 per cent of the world’s population remain unconnected to the net for lack of money, access, or knowledge. This exclusion of so vast a share of the global population from the Internet sharply contradicts the claims of those who posit the World Wide Web as a ‘universal’ medium of egalitarian communication.” (Trend 2001:2)

1. Introduction

The spread of Information and Communication Technologies (ICTs) has precipitated a global trend towards increased connectedness, with significant impacts on human consciousness and social relations. Although seemingly transcending territorial boundaries, the benefits of these new technological developments are restricted to those with access to Internet technologies, with implications of economic and class distinctions. As the gap between the ‘information rich’ and ‘information poor’ (mirroring that between materially rich and poor between and within countries) widens, existing inequalities are entrenched and intensified. On the other hand new ICT developments could have the potential to help previously disadvantaged societies and communities ‘leap-frog’ into ‘modernity’ through improved access to information. The matter of bridging what has become known as the ‘Digital Divide’ is of key importance in narrowing the currently widening gap in access to information, as well as to the social, economic, political, educational, health and other networks available through the Internet.

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This paper begins with a discussion of the concept of a ‘Digital Divide’, emphasising the need for a broadened conception incorporating a range of social criteria to be used in assessing and addressing the divide. This is followed by a look at how the City of Cape Town in South Africa’s Western Cape Province hopes to narrow the digital divide through the establishment of Public Access points. The Smart Cape Access Project is used as an example to illustrate the potential impact such centres can have on promoting access for all.

2. Digital Divide

“ICT can reward those who use it well with increased economic opportunities and income, better quality of life, and cultural and political advantages. Those who do not use it are left behind, and ICT disparities exacerbate existing inequities. The overall trend is that privileged countries and groups acquire and use ICT more effectively, and because the technology benefits them in an exponential way, they become even more privileged” (Bridges.org 2005:14)

The concept of a digital divide became prominent in the United States towards the end of the 1990s (Warschauer 2004:11). The ‘digital divide approach’ emphasised differential access specifically to the technology required to partake in increasingly computer mediated communication networks. The concept of a digital divide defined primarily in terms of access to physical technology (computers and telecommunications infrastructure) has come under increasing scrutiny by scholars who stress the need to look deeper into other areas entrenching the divide between the have’s and have not’s of the Information Age.

2.1 Inclusion and Access

Attempts to address the digital divide problem through a focus on providing hardware and software without paying sufficient attention to the human and social systems that must also change for technology to make a difference have led to the failure of technology projects around the world. Such examples support the statement that “*a digital divide is marked not only by physical access to computers and connectivity but also by access to the additional resources that allow people to use technology well*” (Warschauer 2003:6).

Social Inclusion

Social inclusion in the Information Age requires the ability to access, adapt, and create new knowledge using new information and communication technology. Warschauer (2003:10) proposes that four types of resources are essential to access and inclusion, namely:

- **Physical** – computers & connectivity
- **Digital** – content & language
- **Human** – literacy & education, and
- **Social** – communities & institutions.

A more comprehensive approach, including emphasis on these as well as other aspects to be considered in promoting what Bridges.org defines as ‘real access’ to information technologies, which would effectively lead to greater social inclusion, is discussed below.

Real Access

Bridges.org believes that while providing access to technology is critical, computers and connections are insufficient if the technology is not used effectively “*because it is not affordable; people do not understand how to put it to use; or they are discouraged from using it; or the local economy cannot sustain its use*” (2002:5). The concept of ‘Real Access’ aims to assess the extent to which technologies are *usefully* available, not just physically present, and encompasses a range of dimension as summarized in Table 1 below.

Table 1: Real Access (Bridges.org 2002:73)

Physical Access:	Is technology available and physically accessible?
Affordability:	Is technology affordable for people to use?
Capacity:	Do people understand how to use technology and potential uses?
Relevant Content:	Is locally relevant content available, especially i.t.o. language?
Integration:	Is technology use a burden to people's lives or does it integrate into daily routines?
Socio-cultural inequality:	Are people limited in their use of technology based on gender, race, or other socio-cultural factors?
Appropriateness:	Is available technology appropriate to local needs and conditions? What is the appropriate technology according how people need and want to put technology to use?

Trust:	Do people have confidence in and understand the implications of the technology they use, e.g. in terms of privacy, security, or cybercrime?
Legal Environment:	Do laws and regulations limit technology use and what changes are needed to create an environment that fosters its use?
Local Economics:	Is there a local economic environment favourable to technology use? Is technology part of local economic development? If not, what is needed to make it a part?
Macro-economics:	Is technology use limited by the macro economic environment, e.g. in terms of transparency, deregulation, investment, and labour issues?
Political Will:	Is there political will for government to do what is needed to enable the integration of technology throughout society? Is there public support for government ICT policy?

These elements provide a comprehensive framework to consider in assessing the digital divide, as well as the impacts of initiatives geared towards bridging this divide.

3. Bridging the Divide through Public Access

“Providing access to technology is necessary if the “digital divide” is not to increase, condemning the majority to increased marginalization in the Information Age.” (Benjamin 2001)

Public access points offer free or discounted access to the Internet, email and computers (Thomson 2006). This section explores the extent to which access to life online has been made available to low-income communities in Cape Town through public access provided by the Smart Cape Access Project. Although situated in the relatively well off Western Cape Province, Valentine (2003:1) notes Cape Town to have one of the greatest differentials between rich and poor in the world, thus emphasizing the relevance of such a project aimed at bridging the digital divide in this city.

3.1 Smart Cape Access Project

“By making cutting-edge technology available to everyone, we move closer to social justice and equal opportunity for all.” Nomaindia Mfeketo Executive Mayor Cape Town (quoted in Valentine 2003:1).

The Smart Cape Access Project forms part of the City of Cape Town's attempt to address the digital divide problem, while simultaneously promoting its image as a 'Smart City'. The pilot phase of the project was launched in July 2002 with the installation of 36 computers in six public libraries in disadvantaged areas across the city, namely Lwandle, Delft, Grassy Park, Atlantis Wesfleur, Guguletu, and Brooklyn. One computer in each library was designated for administrative use and linked to the central management site of the entire network, and the other five for public use. By August patrons at the designated libraries had free Internet access for the first time in South Africa. (Valentine 2004:4). By 2006 the project was extended to 98 libraries across Cape Town with funds obtained by winning the Bill and Melinda Gates Access to Learning Award in 2003 (Momsen 2006).

Project Goals

The Smart Cape project's three primary goals, as expressed in project documentation (as quoted in Infonomics 2003:5), are noted below, with added (*in brackets*) comments on how these relate to the various dimensions of Real Access as defined by Bridges.org.

1. "To provide free public access to computers and the Internet" (*physical access, affordability*);
2. "To prove that open source software is affordable, appropriate technology for a public service digital divide initiative" (*affordability, appropriateness*);
3. "To increase opportunities for members of disadvantaged communities" (*socio-cultural inequality*).

More detailed goals, expressed as key success factors for the project (Sooful et al 2002:6, quoted in Infonomics 2003:5), were:

1. "Use of the computers and the Internet for web browsing and e-mail should be at no monetary cost to the user" (*affordability*);
2. "As a consequence, the hardware, software and network management need to be installed and maintained at as low a cost as possible, and provided in such a way so as to readily attract sponsorship and donor support" (*appropriateness, affordability*);
3. "The physical facilities should be placed where people already go for information" (*integration*);
4. "Personal investment by users in the time to develop the ability to make basic use of the facilities provided should have immediate personal benefits (for example, by immediately being able to send

and receive e-mail)” (*integration, relevance, capacity, local economics*); and

5. “The technology solutions utilized should allow technical management – including maintenance – as far as possible to be performed remotely, and require no technical input from the facility staff” (*appropriateness, capacity*).

In addition to these stated goals, Sooful hopes that the Smart Cape project will help stimulate the need for Internet access in general.

“An important barrier to building viable levels of user demand is that until people have experienced the benefits of digital connectivity, they have little or no understanding or desire to take the time, effort, and money to go and find out. This is an ‘*unfelt*’ need: it is hard to understand how disempowered you are by being denied access to information that you don’t know exists and have no way of obtaining and using” (Sooful et al 2002, emphasis added).

This goal relates to the *integration* and *local economics* components of Real Access highlighted by Bridges.org, as it transforms people’s perception of ICTs as part of the local economy.

Who Benefits?

The computers and Internet Access provided by Smart Cape has seen a significant escalation in library membership, proving that there is a high demand for such access. Registered Smart Cape users currently total close to 80 000 people across Cape Town. Interview data collected by Infonomics (2003:29) in their evaluation of the Smart Cape Access project show that users are overwhelmingly young (75 per cent under 25) and male (79 per cent).

The predominance of males reflects similar trends in computer use across the world. Project staff agree that conscious effort should be directed to design ways of including women. Ismail notes that: “We are trying to bring in female volunteers... There is still a hierarchy in our communities. Men are the public face, and girls won’t ask boys how to use the Internet” (Valentine 2003:11), thus observing the cultural underpinnings that reinforce the gender dimension of the digital divide.

Users of the Smart Cape facilities range between the ages of 6 or 7 (noted in Brooklyn), to over 70 (noted in Delft). Jacinta Avontuur, senior librarian at Brooklyn, notes the seemingly natural disposition the smallest children have for using the computers: “It’s amazing. The youngsters know exactly what they’re doing”. The predominance of youth can be seen from the example of the Delft Library, which has around 8,000 members, more than half of whom are under 13 years of age. Children also predomi-

nate in Gugulethu, which has a membership of over 4,000 adults and 5,000 children. (Valentine 2003:13,17,18).

Funding and Sustainability

The project has been entirely dependent on donations and partnerships from private organizations, raising the question of ongoing sustainability, which depends on ongoing funding. Sustainability of donor-funded public access projects is noted as a concern by Benjamin (2000), as well as Bridges.org (2002:72; 2005:8). The most effective means to overcome this problem, according to Bridges.org (2005:8), is by linking the project's sustainability with the effective delivery of social services, which could make public access facilities worth subsidizing over the longer term. Thus the potential problem of funding and ongoing sustainability can best be addressed through ensuring that the project meets real social needs, promoting social inclusion through ensuring real access to the intended beneficiaries. The extent to which the Smart Cape project has been able to do this is discussed in the sections below, respectively looking at people's uses of the Internet, and the manner in which the project has addressed the various components of Real Access as defined by Bridges.org.

3.2 What Do People Do Online?

The most common uses of the Smart Cape Access Points according to the Infonomics Evaluation (2003:32) are surfing the Internet (76 per cent) and email (64 per cent). Other prominent responses included learning more about computers, cited by 58 per cent of respondents, while 51 per cent use the access to find job -or business-related information, 38 per cent for educational information; and 45 per cent to print work-related documents. This section will now explore in more detail some particular uses to which Smart Cape Users cited by Valentine (2003) have put the Internet facilities.

Access Information

Anita Shaw, the librarian in charge of Grassy Park thinks the Smart Cape project is "*a very positive thing. I mean, we're in information service, so through the Internet we can provide extra information, and people like using it*" (Valentine 2003:14). The educational potential of the facility is illustrated by 14-year old Caleb Julius, a frequent visitor to the Brooklyn

library: *"It's better than school. You can learn something here."* (Valentine 2003:19).

An important benefit of the project has been to assist library staff in accessing recent information that is not available in the books on their shelves, thereby improving their efficiency in helping patrons. It is particularly noted that *"many school projects focus on relatively new topics about which the library doesn't have books"* (Valentine 2003:17), for which the Internet provides the perfect solution.

Entrepreneurs

The smart-city strategy of which the Smart Cape Project is part, aims to make relevant information available online in the hope of creating small and medium enterprises (Valentine 2003:6). Indeed a number of individual entrepreneurs have used Smart Cape computers to start their own businesses.¹ As these people become able to pay for additional benefits such as privacy and longer online time, opportunities arise for the establishment of other public access facilities that can operate on a more commercial basis. An example of this is a digital business center in Khayelitsha designed to meet the needs of small businesses. (Valentine 2003,10). In this manner the project's spin-off effects on the local economies surrounding them can clearly be seen, as can the effect of the creation of an 'unfelt need', raising awareness of the potential benefits of ICTs.

Valentine also notes other entrepreneurial ventures that have been witnessed amongst school children and others, some of whom have seized opportunities such as printing of images that are resold at a profit (2003:11), or typing assignments or CV's at a fee (2003:13).

Jobs

While the provision of IT in itself will not create jobs, it can empower people to market themselves, start their own businesses, or gain access to useful information. Indeed numerous Smart Cape users are reported to have found employment by e-mailing their CVs in response to jobs advertisements on the internet. (Valentine 2003:9,13,14,16).

¹ An example of such an entrepreneur is Xolile Mzonyane, who used the Smart Cape facility at the Guguletu Library extensively in starting up his franchised cell phone facility *"I did all my projections on these computers, browsed the Web, saving myself transport money and what I would have had to pay online."* (Valentine, 2003:18).

Communication with Relatives/friends Abroad

Communication with distant family and friends via e-mail, and increasingly chat services, is commonly reported. (Valentine 2003:14,16; Infonomics 2003:32). A large community of foreign Africans, often refugees from Angola and Congo, make regular use of Smart Cape computers, commonly to get information about their home countries, or keep in touch with family elsewhere. (Valentine 2003:16,19).

Connecting with Global Networks

Use of the Internet to connect with global networks is noted by Ismail, who indicates that most of the women who use the computers are active in nongovernmental organization such as battered women's associations. *"These users are looking for information and how to network with other organizations, both locally and nationally."* (Valentine 2003:11).

Public Input

The potential of the Internet to be used in communication with citizens to obtain public input was illustrated by the "Listening Campaign"². In one day following Smart Cape's online posting of a questionnaire soliciting citizens' views as part of this campaign, more than 700 responses were submitted. (Valentine 2003:7).

Games

An interesting phenomenon noted once the Smart Cape Project was upgraded from the original 6 pilot projects to libraries across Cape Town (including the city's more affluent suburbs), was that children from poorer and richer communities all converge around the increasingly popular pursuit of the online game Dragonball Z. While some staff disapprove of this use of the facilities, project managers find the social phenomenon, indicating convergence between children of different races and socio economic status, worthy of appreciation (Momsen 2006).

²An initiative by Cape Town Executive Mayor Nomaindia Mfeketo to obtain information about citizens' most pressing concerns.

3.3 Does Smart Cape Provide Real Access?

This section notes the manner and extent to which the Smart Cape Access Project meets the Real Access Criteria identified by Bridges.org.

Physical Access

The primary aim of the Smart Cape Access Project, and Public Access facilities in general, is to provide physical access to ICTs to previously disconnected communities. In this the project has succeeded with its initial pilot investment in 6 Public Libraries having been expanded to now include 98 libraries across Cape Town. While the project caters well for disadvantaged urban communities in Cape Town, it does not however (yet) address the needs of rural areas.

Affordability

Ismail stresses the importance of public access to be offered free of charge, which is the only way in which it can be truly affordable for the sectors of the community for whom it is intended: *“If the city wants to succeed by offering people Internet access, it must be offered free. Citizens, especially previously disadvantaged citizens, are not going to spend 10 Rand (US\$1.50) for 30 minutes at an Internet café when that money is needed to put bread on the table.”* (Valentine 2003:6).

Capacity

An evaluation of users’ capacity to use the Smart Cape facilities noted that 56 per cent of interviewed users rated their existing skill levels as adequate or more than adequate; and nearly 40 per cent of online respondents said they could do everything they wanted at first use. (Infonomics 2003:31)

By taking into account the generally low level of computer literacy among librarians, as well as their apprehension about dealing with new technology that might require more time than they could afford (Valentine 2003:6), the design of the project fulfilled the critical success factor noted amongst project goals stipulating minimal technical inputs by library staff.

Relevant Content

The issue of language is a common concern in digital divide discussions, where the predominance of English is often cited as constraint for other

language speakers, specifically in the developing world. This has been considered in the project's design, whereby users can log on in English, Afrikaans, and Xhosa, comprising the three official languages of the Western Cape. (Valentine 2003:4).

Local Web content relevant to communities using the Smart Cape computers has been created in partnership with local companies and organizations. This has included the linking of Web sites of nongovernmental organizations funded by the government of the City of Cape Town, as well as other partners, such as the Medical Research Council and its AfroAIDS site, to the Smart Cape Web site (Valentine 2003:6).

Integration

Locating the Smart Cape Access points in local libraries, which is where people traditionally go for information, integrates the project with community activities. The extent to which these access points are being actively used, with people queuing for their permitted 45 minute sessions, proves that indeed this location is regarded as effective and suitable for communities.

Socio-cultural Inequality:

Issues of socio-cultural inequality are being addressed by the project in that it provides access to those in poor or disadvantaged communities who have no other affordable access. With regards to gender and age distribution the user profile is however heavily skewed, with males comprising approximately 79 per cent of users, and 75 per cent being 24 or younger (Infonomics 2003:29).

Situated in Cape Town, the project does not address the urban-rural divide in promoting socio-digital inclusion. The fact that the funds obtained from the Access to Learning Award were applied to expand the project to all libraries in Cape Town (many of which are situated in more affluent suburbs of a city situated in South Africa's relatively well off Western Cape Province), might be questioned with respect to its stated aim of extending access across the digital divide.

Appropriateness

The Infonomics Evaluation notes the choice of an open source technology platform as appropriate as it has enabled low-cost provision of the service. *"The applications provided enable most users to do most of what they wanted. There is, however, demand for applications that are more com-*

patible with commonly-used packages such as MS Office. In addition, users were limited in the achievement of their goals by the speed of the network.” (2003:50). The fact that minimal technical maintenance by library staff is required as noted above with regards to capacity, can be considered appropriate use of resources.

Trust

Although privacy of personal information was not an issue for most users, the physical layout of the workstations has led to security risks in that usernames and passwords were reported as stolen by onlookers (Infonomics 2003:50). The need for privacy has been cited as amongst the motivations for those who can afford it to seek other alternatives, such as the digital business center in Khayelitsha.

Legal Environment

Although an enabling national regulatory environment is in place in South Africa, high telephone costs, as well as the cost and limited availability of high-speed bandwidth are barriers to low-income households and emergent entrepreneurs (Infonomics 2003:50).

Local Economics

Infonomics, (2003:50) note that local economic development policy and industry practice promote ICT usage. The extent to which the project has stimulated other local economic spin-offs can be seen from the way in which it has been used by local entrepreneurs in setting up new businesses due to a demand created by people realizing the potential benefits of ICT in their lives.

Macro Economics

Macro-economic issues are largely linked to the legal environment and the need to foster inbound investment, good political governance and a fluctuating Rand. Infonomics (2003:51) notes the fact that the ICT industry is undergoing some financial pressure, which impacts on opportunities for innovation, job creation, capacity building and empowerment.

Political Will

Falling within the City of Cape Town's Smart City Initiative, the Smart Cape project has political buy-in within the City of Cape Town Municipality. Users and library staff are all supportive of the project. (Infonomics 2003:51) The expansion of the project from the pilot phase in which 6 libraries were targeted, to the 98 libraries now included demonstrates the degree of support the project still has at present with those responsible for its funding and implementation.

4. Conclusion

Although indeed still far from being "*a 'universal' medium of egalitarian communication*" (Trend 2001:2), the World Wide Web does present unprecedented possibilities for the flow of information in the 'global village'. Such possibilities can only be realised if the current "*exclusion of so vast a share of the global population from the Internet*" (Trend 2001:2) is effectively addressed.

The digital divide denotes inequalities in access to information technologies existing between different countries as well as within countries, between geographical regions and population groups. Attempts to bridge this divide through purely 'digital solutions' have met with little success, which has led to the incorporation of a more human oriented approach, recognising the inherently social nature of *information* and *communications* technology. This paper proposes an emphasis on social inclusion and ensuring real access, incorporating components related to the social dimensions of the digital divide.

The Smart Cape Access Project in Cape Town forms part of the Smart City Strategy. The project has helped to increase the number of library users, assist the unemployed in finding jobs, and demonstrate the value of free access to technology. While important lessons in effective provision of real (public) access can be learnt from the Smart Cape project, it must be recognised that this project is situated in the vibrant urban centre of one of South Africa's better resourced provinces. Donor funding and assistance has been attracted through dynamic marketing of the broader 'smart-city' strategy. South Africa in turn is the continental leader in Internet provision. Replicating such efforts in resource-poor rural areas could be more challenging and present different obstacles.

The key factor of funding as prerequisite for sustainability for such public access initiatives can most effectively be addressed through emphasis

on the role such access can have in socio-economic upliftment. This in turn requires a comprehensive approach addressing real social needs, including capacity of users as well as those who must implement the project on the ground, and the provision of relevant information in an understandable format. The key argument of this paper, emphasising the human elements of social inclusion and real access in bridging the digital divide, is most succinctly summarised by Bridges.org (2002:12), noting that “[i]t's not about the technology, it's about the people”.

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