Socio-Cultural Challenges for the Internet in South Africa

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abstract

A key aspect of technology policy in South Africa today is universal access. This sounds like a technological problem, but closer examination shows there are significant cultural problems. As simple a concept as an internet café, for example, does not translate to a culture where coffee is not popular. One has to examine the essence of the concept of the internet café to translate it into something workable in other cultures. Another problem in a multi-ethnic country is language. South Africa has 11 official languages in addition to several others spoken by sizable minorities. Does universal access mean all languages must be accommodated—or does globalization imply English must be forced on everyone? A final complication which makes South Africa interesting is that there is an extremely wide variation across the population in terms of literacy, prior exposure to technology and disposable income. Thus, abilities of individuals to use technology and to pay for it vary widely. This paper examines the cultural and social problems presented by a society as diverse as South Africa in terms of large-scale deployment of the internet.

1. Introduction

This paper considers some social and cultural problems which have surfaced in attempting to make the internet accessible in South Africa. South Africa presents an interesting case in that it provides a mix of both third-world and first-world properties. It has a sophisticated technology sector [Anderson and Bezuidenhoudt 1996, Goodman 1994, Mawhinney *et al*. 1993], and a good educational system—yet a large part of the population was denied effective access to the developed economy during (and prior to, but to a lesser extent) the apartheid years.

Today, the country is attempting to put the past behind it by programmes designed to reduce backlogs in services to disadvantaged communities. One possible model for bridging the gap is the approach used to bring the internet to the former Soviet Union from its European neighbours [Press 1995].

In this context, the internet presents a potentially useful tool. However, there is an unfortunate tradition in the aid community of dumping computers at a problem, then finding that they cannot be used effectively. Reasons for the problem include lack of support infrastructure, manufacturers keen to make a sale, government bureaucracy and

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lack of local training and skills [Odedra *et al*. 1993]—problems which are found throughout Africa [Danowitz *et al*. 1995].

This paper, rather than covering the full range of technical, social and political issues, looks at a few social and cultural issues, based on experience with two projects which had not reached completion at the time of writing.

The rest of the paper is organized as follows. Section 2 presents some background information including statistics and problems encountered elsewhere in Africa. Section 3 describes two projects, KEDI (a development project in a depressed urban area) and Fundani, a project designed to make Computer Science education more accessible. The paper ends with conclusions in Section 4, including discussion of the socio-cultural issues identified in Section 3.

2. Background

2.1 Introduction

South Africa is a country of 37-million people with 11 official languages, as well as a few less commonly spoken languages. While English is widely understood and is increasingly becoming the main language of commerce (in the apartheid era, Afrikaans was strongly pushed as an alternative), a large part of the population is not very fluent in English. This section outlines a few social and cultural issues that are of interest in attempting to make the internet useful in South Africa.

First some statistics on the country are presented. Then, issues of interest to policy-makers are presented. After that some problems with computer usage elsewhere in Africa are presented. Finally, the focus for the rest of the paper is outlined.

2.2 Statistics

37.9 million people in South Africa, and the country has 9 provinces, with very big regional variations in wealth and urbanization.

The proportion of people living in urban areas is largest in Gauteng (96.4%) and smallest in the Northern Province (11.9%), with an average of 55.4% [CSS 1997*a*]. Apartheid education policies included deliberate neglect of education for the black population, which is reflected in Tables 1 and 2. Note that apartheid-era racial labels (although no longer of any legal significance) are retained for statistical purposes. “African” refers to the indigenous population, “Coloured” to mix-race and “Indian” to people of Indian descent. Other groups such as Chinese were treated separately as well under apartheid laws but are too small to include in national statistics.

Year	*Total*	*Africans*	*Coloureds*	*Indians*	*Whites*
1980	5.43	3.63	5.72	6.98	10.96
1991	6.86	5.53	6.94	8.78	11.67

Table 1. Mean years of schooling by race [CSS 1997*b*]

In all tables, as a result of rounding off, numbers do not necessarily add up to the totals

In Table 2, it is particularly significant to note that a high fraction of the African population over the age of 20 has had no formal education at all: nearly 17%. If those who have only had 4 years of schooling, the fraction becomes 26%, i.e., 74% have had sufficient schooling to get them to stage of standing a good chance of becoming functionally literate, reflected in the figure of 76.64% in the literacy table, Table 4. This figure may however be optimistic, since the quality of education for Africans has deliberately been kept low between 1948 and the end of apartheid (which some put as 1990 when the worst laws were rescinded, others at 1994 when the new constitution came in force.

Table 3 illustrates the large differences between provinces, with Gauteng and Western Cape clearly in the lead. Generally, urbanization is a factor in the number of years of formal education, reflecting the extent to which rural poverty tended to result in children being forced out of school at an early stage in the past.

Level of education	*Total*	*Africans*	*Coloureds*	*Indians*	*Whites*
country total	22,100	15,676	2,079	644	3,700
None	2,864	2,640	182	34	8
Grade 1 to Grade 3 (Std 1)	813	706	96	6	4
Grade 4 (Std 2)	868	776	82	9	2
Grade 5 (Std 3)	927	801	108	12	5
Grade 6 (Std 4)	1,181	979	169	23	10
Grade 7 (Std 5)	1,516	1,233	235	34	14
Grade 8 (Std 6)	2,084	1,533	305	71	176
Grade 9 (Std 7)	1,382	1,056	186	36	104
Grade 10 (Std 8)/NTC I	2,442	1,472	231	90	649
Grade 11 (Std 9)/NTC II	1,543	1,242	100	44	158
Grade 12 (Std 10)/NTC III	4,131	2,110	268	207	1,545
Diploma/certificate with Grade 11 (Std 9) or lower	173	110	9	3	50
Diploma/certificate with Grade 12 (Std 10)	1,300	634	78	39	549
Degree	649	188	24	35	403
Other	5	1	-	-	4
Unspecified	223	194	8	1	19

Table 2 Level of education by population group (aged 20 years and older) (thousands); "-" means zero or not applicable—1995 figures [CSS 1997*b*]

Year	*total*	*W Cape*	*E Cape*	*N Cape*	*Free State*	*Kwa-Zulu-Natal*	*North West*	*Gauteng*	*Mpuma-langa*	*Northern Province*
1980	5.43	7.63	4.63	5.42	5.13	4.91	4.35	7.35	3.92	2.82
1991	6.86	8.45	6.65	6.25	6.50	6.48	5.75	8.59	5.34	4.61

Table 3. Mean years of schooling (aged 25 years and older) by province[CSS 1997*b*]

Year	*total*	*Africans*	*Coloureds*	*Indians*	*Whites*
1980	74.43	66.03	84.05	91.64	98.90
1991	82.16	76.64	91.06	95.48	99.52

Table 4. Adult literacy rate by race (%) [CSS 1997*c*]

Table 4, as previously mentioned, shows the adult literacy rate by race, illustrating the gaps created by apartheid. The trend is towards improvement as a result of policies aimed at encouraging children to stay in school longer, but many decades of neglect will not undo the damage done to the school system.

Table 5 again illustrates the rural-urban gap, this time in the differences in literacy rates across provinces.

It should be noted that the rural-urban gap is not the sole reason for the differences; the Western Cape for example has a substantial rural population but is a relatively wealthy region by virtue of its history as the region longest settled by colonial invaders (since the 17th century).

2.3 Policy Issues

Given the above statistics, how does the government see access to the internet?

In general, equity and undoing past injustice are major issues in the new South Africa. For example, the two companies which were granted cell phone licenses were required to provide a low-cost service to disadvantaged communities, including in rural areas.

Year	*total*	*W Cape*	*E Cape*	*N Cape*	*Free State*	*Kwa-Zulu-Natal*	*North West*	*Gauteng*	*Mpuma-langa*	*N Prov-ince*
1980	74.43	89.97	71.19	72.51	74.30	71.09	67.31	87.61	61.35	55.96
1991	82.16	94.57	72.34	79.83	84.42	84.26	69.46	92.91	75.48	73.64

Table 5. Adult literacy rate by province (%) [CSS 1997*c*]

Support for all official languages, while a goal which is paid lip service, in practice has proved impractical, and there is a trend towards English becoming the lingua franca. Under the previous constitution, English and Afrikaans were the only two official languages, and the National Party favoured Afrikaans over English.

In the short term addressing rural poverty has taken the form of more down-to-earth issues like providing clean water, although there is research into issues like low-cost satellite communication. In urban areas, an important focus is redeveloping communities that were damaged during the years of conflict. Here, the important issues are:

- developing local business
- increasing employment
- building skill levels

2.4 Problems Elsewhere in Africa

In North Africa, a particular problem has been the fact that Arabic is a common language, and requires not only a different language but also a different script, which tends to delay adoption of new technologies. In addition, many governments are bureaucratic and resistant to change, especially as the change may lead to more openness [Danowitz *et al*. 1995].

The problems of North Africa are clearly greater than South Africa's problems. While English is a minority language in South Africa, it is widely understood, and other languages (excluding some very small minorities like Chinese) are written using the Roman alphabet. Also, while the governmental culture inherited from the apartheid years is bureaucratic, the trend is towards more openness. For example, the government sold a substantial share of the telephone company, Telkom, in a move towards privatization. Part of the deal was a limited-time monopoly on voice services (excluding cell phones). Telkom has attempted to claim that its voice monopoly also extended to internet services, but has lost every attempt at asserting this claim through regulatory bodies and the courts.

Closer to home, other countries in Sub-Saharan Africa have experienced considerable frustrations in attempting to use computers, resulting from dumping of inappropriate boxes in the name of aid, lack of reliable power supplies, lack of policies and strategic plans, few university computer science degree programmes, and general lack of know-how [Odedra *et al*. 1993]. Given all these obstacles to successful adoption of technology, it should be no surprise that usability issues, particularly problems presented by multicultural societies, have barely been addressed.

In South Africa, we have the potential to do better. We have over 20 universities, most of which offer a computer science degree. Although a survey in 1992 showed

than in only 5 of the 21 departments (Computer Science and Information Systems) did more than half the faculty members have doctorates [Wood *et al*. 1994], some departments are reasonably well-qualified and equipped*. The developed part of the economy has a long tradition of software development, and infrastructure at least in urban areas includes a robust electricity supply network, and increasing access to telephone lines. We should therefore in principle be in a position to avoid the traditional aid trap of dumping inappropriate equipment at a problem, without proper analysis of the problem and how to solve it.

2.5 Focus

There are many issues which could be covered, including technical problems and potential projects. This paper focuses on socio-cultural issues, with two specific projects used as examples.

The major issues arising from the above background which are addressed here are:

- usability by people with limited education, especially linguistic issues
- situating the internet in an appropriate cultural context
- access given wide disparities in disposable income

3. Examples

3.1 Introduction

The two projects described here are still in progress, and are very different in scope. However, both present opportunities to consider principles which apply more widely.

The KEDI project (Katorus Economic Development Initiative) is a wide-ranging project to upgrade a community ravaged by conflict in the lead-up to the 1994 elections. The aspect described here is a small component of the project, an attempt to set up resource centres to aid in identifying local talent for government projects, as well as aiding small businesses.

The second project, Fundani, is a joint initiative between The Internet Solution, South Africa's largest internet service provide (ISP), and the author's department. The goal of Fundani is to provide tutorial material on web pages in a form which is accessible to students with limited prior exposure to technology, especially those whose home language is not English.

* In the author's department, all faculty members have a PhD or equivalent.

3.2 The KEDI Project

The Katorus Economic Development Initiative is a large-scale government-backed project, aimed at uplifting an area hit hard by violence in the run-up to the 1994 election.

The particular project within the KEDI plan reported on here was intended to fulfill two major goals:

- provide a database of community skills, since it was a government policy that local skills be employed in community projects
- provide an information resource for small businesses, especially those wanting to convert from informal trade to being part of the formal economy

These two goals were linked. It was assumed that contractors on government-sponsored projects would have to keep proper books, pay taxes, etc. The database would be free advertising for potential contractors, while the information resource would be necessary for them to meet contracting requirements.

Two issues were considered important in the project: design for usability (a hard issue, even for relatively simple systems [Gould *et al*. 1987]), and providing a suitable cultural context for internet usage. Design for usability was considered an issue under control as previous methodology could be applied [Machanick 1989, 1992]. In passing, it should be noted that the strategy proposed was one of incremental, experimental development, with behavioral studies of usability, as opposed to the typical "aid" model of dumping PCs in a room and then wondering what to do with them.

However, while there was sufficient interest in the internet among more sophisticated communities [Machanick 1995], the question arose as to how to make an internet resource centre an approachable environment for new users who were unfamiliar with technology. "Westernized" communities could appreciate the concept of an internet café, of which there were already several examples in Johannesburg and other major cities. However, a coffee culture was not popular among the unemployed, manual laborers, artisans and other sections of the community at whom the KEDI project was aimed. The nearest equivalent the project management team could think up was an internet shebeen*, which did not seem to be a marketable idea.

The best alternative considered was to sells the resource centre as an internet spaza shop. A spaza shop is an informal shop, often in a shack, the informal equivalent of a convenience store.

The notion was that the resource centre would be made to seem as friendly as possible, and sold as something like a traditional spaza shop where you could buy a

* In the apartheid era, the government implemented a partial prohibition on liquor sales to Africans as a result of which illicit drinking houses—mostly since legalized—were very popular.

variety of services in a friendly environment. Training of people from the community to operate the centre so it would be seen as belonging to the community was considered essential.

Another aspect considered in terms of making the project acceptable was to persuade African Computer Science graduates to participate at least in a nominal way, to act as role models, so the use of technology was not seen as "foreign". Another important aspect of making the concept acceptable was the idea of doing participatory design, refining not only the details of how the system worked but also its goals with community involvement.

The proposed design process was to start with a simplified system with only a server and a single internet client machine in a single location, with the emphasis at that stage on clarifying design goals, winning acceptability and assessing feasibility. The rest of the design, it was proposed, should develop as a result of feedback from the initial system. In this way, it would become a community-based project. As users became trained in the system, they would be encouraged to give feedback on the design, so they would feel ownership.

To make the project sustainable, it was intended that businesses—that were required to employ local talent on government contracts—should be sold access to the database. In this way, internet resource centres which could potentially extend to a wide number of uses could gradually be introduced to a wider and wider section of the community, starting in urban areas (especially those earmarked for upgrade like the Katorus region).

What actually happened was that the Gauteng provincial government refused to release funding because there was no complete plan and they expected something closer to the traditional aid model, in which a bunch of boxes was bought, with software and usage secondary considerations. When the author of this paper left on sabbatical, the project had progressed to the point of buying PCs, without any clear goals in mind.

3.3 Fundani

Fundani ("learning together" in Zulu) is a project aimed at putting together web-based educational materials, using graphics, sound and animation to compensate for users' lack of English skills [Fundani 1998].

While Fundani superficially appears no different to other attempts at creating multimedia educational tools, it draws on the multicultural background of students in the author's department, where approximately 30% of students are African. Some sample lessons have been created to explain internet concepts, with the alternative of having the text read out using a recording.

Fundani could fill a crucial gap in the KEDI project: providing a ready resource of skills in internet content creation among students who understand the cultural context of disadvantaged communities.

Another important potential win is that it could demonstrate to government officials that we do indeed have local skills in place to develop systems like the abandoned KEDI project.

Furthermore, it could be a test bed for evaluating the kind of socio-cultural ideas that the KEDI project attempted to explore. Since Fundani is funded as an academic project, it is possible to work on experimental approaches, without having to deal with misguided aid-oriented procurement procedures.

4. Conclusions

The experience of the KEDI project was frustrating; a number of interesting ideas were in place to develop a system that would have broken out of the traditional aid mold, yet political factors resulted in the project being derailed, and put on a course which seems unlikely to be very successful. The key lesson is that the lack of success in adapting technology to Africa may well lie in inflexible bureaucratic attitudes, rather than in lack of good ideas, skills and infrastructure. Certainly, the Fundani project raises the opportunity to investigate the issues intended to be addressed in the KEDI project more successfully.

Informal discussion with potential participants in the KEDI project revealed that there was interest; it was just a matter of getting the details right.

The key cultural challenge it appears is not a problem with the users, but perceptions of African government officials who do not believe in local capacity to develop original ideas, and expect aid to come to the rescue in the form of pre-packaged solutions, even though this idea has long been discredited in practice. After all, African people have had little difficulty in adapting to western technologies like television and cell phones, when given the opportunity.

If we are able to build successful projects of this nature in South Africa, we could provide a very useful example to other developing countries with similar multicultural societies, and with similar under-developed sectors. The major resource we have in our favour is relatively well-developed universities—with a growing number of African graduates whose competence can be used to break down official attitudes that all good things have to be imported. Despite the obstructionist attitude of one regional government department, the general attitude of the government, though, is supportive towards development, which means the long-term future for such projects is positive.

In the long run, given the wide range of problems found in a society like South Africa which are not mirrored (at least to the same degree) in developed countries, including a large number of languages, a wide variety of cultural practices (including variations in leisure-time activities), and a wide disparity in education and income, we are going to have to develop solutions different to those we can import. The essential prerequisite is local skills, otherwise social and cultural gaps will not easily be bridge—

most particularly the culture of helplessness that says Africa is not capable of finding its own solutions.

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