

Communal computing and shared spaces of usage: a study of Internet cafes in developing contexts

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Abstract — This paper shares the findings of a contextual enquiry into Internet cafés and their users in Johannesburg, South Africa. High densities of Internet cafés in less affluent areas of Johannesburg have been identified, which speaks to a need for computer and Internet access which is otherwise inaccessible or insufficient at places of home, work or study. Internet café users were found to have distinct patterns of use which are different to current mainstream and previously explored home or work users that feature in more affluent areas. The ‘mainstream’ functions in what we have begun calling a ‘developed world paradigm of use and aspiration’, in stark contrast to Internet café users who function in what we are calling a ‘developing world paradigm of survivalism’. The findings and insights of this paper have implications for how we may understand the usage and value of the Internet and World Wide Web (the Web) in South Africa. Visitation to Internet cafés occurs with high frequency across a broad geographic space that follows areas of residence, places of work and transport routes between the two. The lack of a personal, private and persistent desktop, along with data storage, sharing of computers and the use of portable data storage devices, all have implications for how we should design and conceptualise experiences of web sites and Internet based services for the growing number of Internet café and shared computer users.

1. INTRODUCTION

Late in 2005 Hobbs and Bristow began an investigation into a ‘hub’ of Internet cafés in Braamfontein, Johannesburg – a city centre business district bordering on low income housing areas. At the time we observed 15 cafés in a three-block radius; subsequently we have found an additional 17 cafés in Braamfontein spanning a six-block radius. This observation prompted a photographic essay of the cafés by Hobbs and Bristow and has culminated in this research paper which attempts to further explore Internet cafés in Johannesburg through contextual enquiry.

The enquiry has been conducted by Jason Hobbs, Tegan Bristow and Marc Pienaar and began by geographically mapping visible Internet cafés across certain areas of Johannesburg (the Northern Suburbs, Yeoville, Soweto and Braamfontein). We used a number of assistants and gathered feedback from conversations and observations which occurred during the mapping. We then identified specific cafés across these areas where we could interview café owners (or managers) and café customers. We ran a series of exploratory pilot interviews (one owner and three café users), amended our interview questions and process, and began phase 2 interviews.

Upon completion we had interviewed a total of eight owners and managers (excluding the pilot) and twenty-two user interviews (excluding the pilot). In Braamfontein we interviewed five owner / managers and twelve users; in Soweto, one owner and two users; in Yeoville, one owner and two users; and in the Northern Suburbs one manager and six users. We collated the data and held various discussions, sharing and comparing experiences. The data was then analysed.

We used four standard measures for the statistical analysis: percentages¹, means², medians³ and modes⁴. We used modes in cases where the responses varied too greatly for averages to hold any meaning.

Again we met to interpret this data, looking for problems, mistakes, citing anecdotes and testing the assumptions we went in with. We also started to identify themes that were emerging from the analysis.

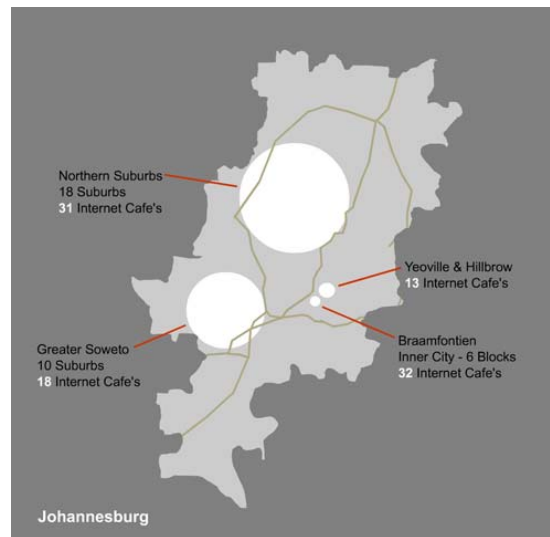
Lastly, we identified ten web sites to audit, based either on users' feedback on the types of web sites they surf or web sites that we imagined would be relevant to this audience. Sectors included government, education, public service, financial/loans, employment, business grants and funding and second-hand automotive. We based the audits on issues around available technology, usability and use that emerged during the interviews and conducted the audits in situ at an Internet café.

What follows are the findings of our contextual enquiry, recommendations, insights, themes and an hypothesis which attempts to explain the patterns of use surrounding Internet cafés and how they relate to the broader context of the perceived Internet market and industry in South Africa.

2. INTERNET CAFÉS: GEOGRAPHY AND MAPPING

2.1. Mapping cafés

The mapping of Internet cafés was limited to certain areas of Johannesburg and to those cafés that were visible from the street. Our mapping was not intended to be comprehensive or exhaustive, but rather an overview of densities. We know for instance that people in Soweto are offering the use of their personal home computers and Internet access from their residences to others at a cost, where this is mostly unobservable to us.



Note: These are the figures we recorded in November 2006. The landscape of cafés changes quickly. We have already noted three new cafés in Braamfontein alone.

¹ To represent specific responses as a numerical percentile of total responses.

² The average response.

³ The point at which half the responses fall below and half above.

⁴ The most common response.

There is a stark contrast between the number of cafés in the Northern Suburbs and Soweto as opposed to the ‘café hubs’ found closer to the city centre in Braamfontein and Yeoville. The Northern Suburbs is predominantly wealthier, where people are more likely to have Internet access and a PC at home and at work. Soweto, currently a popular area to live for middle and low income earners, was previously an apartheid township and thus service delivery is still problematic.

The only similar hub of activity in the Northern Suburbs is in the Randburg Mall, which has 6 cafés. We should note that this mall sits alongside a major mini-bus taxi rank⁵ used by people commuting to and from work into and out of the Northern suburbs.

2.2 Area observations and notes from the mapping

2.2.1 Soweto

Here we found 13 internet cafes in total, mostly in or near to new shopping complex developments, or on main roads (the Old Potchefstroom Road). This is a surprisingly small number, given the geographic area. Possible reasons for this are the impact of infrastructural shortcomings⁶, the general difficulties of running a small business there and unobservable informal residential “cafés”, as mentioned above.

People are offering Internet access from their homes, as well as running other businesses from the same location (e.g. hairdressing services). One particular home offers Internet access to children who attend a school across the road. We heard from this particular individual that other people are offering Internet access to others from their homes in Soweto.

2.2.2 Braamfontein

There are 32 observable Internet cafes in this small area alone, mostly with South African users.

Braamfontein and the larger Johannesburg CBD is both an end point for commuters coming into the city and a thoroughfare. People move through Braamfontein en route from Soweto to the Northern Suburbs and other areas. One owner reported that people from other business areas (for instance Sandton in the North) are using the Internet café on their way home, as it offers more private Internet access.

2.2.3 Yeoville

There are 11 cafés in the main street alone (Rockey Street). It appears that residents of surrounding areas are traveling there to use Internet cafes, as they are nearly non-existent in the adjacent suburbs of Hillbrow and Berea (this may be due to security problems in Hillbrow and Berea, compared to Braamfontein, which has many security cameras and street guards).

2.2.4 Johannesburg Northern Suburbs (totaling 18 suburbs that we covered)

The Internet access points are almost exclusively PostNets (mail, courier and stationery services) and Post Offices in the malls that charge a higher than average cost – one may argue that these are not ‘Internet cafés’ per se, at least not in the sense that we see in other areas covered in the

⁵ Mini-bus taxis are the predominant method of public transport

⁶ There are notably few phone lines in Soweto and there is a history of poor service.

mapping. We don't see the same kind of entrepreneur-owned Internet café culture that we see elsewhere. Where there is a PostNet in the area, we seldom find private cafés.

Cafés in these areas are not busy (the owner of one claimed that there was not a big demand for this service because of Internet access at home or work).

The exception, as noted, is the Randburg Mall complex with its six cafés.

LAN gaming is a feature of the café offerings in the wealthier Northern suburbs, but not in other areas. This suggests the use of the Internet (and networking) as a leisure activity in contrast to how these spaces are marketed and used as business solutions spaces in Braamfontein, Soweto, Yeoville.

2.3 Findings relating to lower income areas and users

There are stark contrasts between the situation in the wealthier Northern Suburbs and the less affluent areas of Braamfontein, Soweto and Yeoville. This section highlights the key observations in lower income areas.

2.3.1 A flourishing internet and PC provision industry has emerged

The cost of Internet access per hour is much higher in more affluent areas (up to seven times more : R5 per hour in Braamfontein vs R35 an hour in Rosebank - approximately US\$0.67 and US\$4.75, respectively).

Access is cheaper in areas where there are more cafés and greater demand, as in Yeoville and Braamfontein; it seems that competition between cafés in high density areas is lowering the cost. We heard that some people travel from Soweto to use cafés in Braamfontein because the latter are cheaper.

The great number and concentration of cafés in Braamfontein and Yeoville is, we believe, in response to the high cost of Internet access and owning a PC and the lack of phone lines in some areas (prohibiting home-based Internet access).

The combination of demand, competition and cheap access, and the high costs of a personal home connection and PC have facilitated the emergence of a kind of self-regulating and informally sophisticated industry to fill the gap.

Specifically, Braamfontein is emerging as a PC and Internet usage hub, with 28 cafes in a 4-block radius. This may also be due to it being a business district, its close proximity to a major university and Johannesburg's main train station, as well as being a thoroughfare for transport from Soweto to other parts of Johannesburg.

2.3.2 Ancillary services

89% of Internet cafés report that their customers use a combination of the Internet and other business services. All the cafés offer printing, faxing, photocopying and scanning. Other services offered include: computer repairs, computer accessory sales, typing services, binding, laminating, company and VAT registration, web site design, web site hosting, stationery, clothes, hairdressing, laundry, and DVD sales and rental.

There is a very strong sense among owners that they are providing an holistic service, which is also evidenced by what they say they would like to start providing in the future. The main things on their lists are: training, sound equipment and stationery, as well as more PCs, binding, and

phone systems. One owner specifically mentioned that the reason for wanting to provide binding is that he wants to offer a complete business service and that this is the missing piece.

Many cafés in less affluent areas offer seemingly unrelated services from the same space e.g. Internet access and hairdressing, laundry, clothing or DVD sales and rentals. We know that this is due to the need to subsidise the very low internet usage costs with other services (50% of the cafés do this).

It is this that leads to the creation of the very idiosyncratic signage that we find outside Internet cafés in these areas.

2.3.3 A nodal user with the need for ubiquitous Internet and personal data access

64% of users interviewed use more than one Internet café. This usage appears to overlap quite closely with their areas of residence, work or study. Only 36% of our users always use the same Internet café.

Most subjects used Internet cafes in two types of areas, with the most common response being that they use two to three different Internet cafés, and these were most often at least one in their area of residence, and one in the area in which they work or study.

Most people use Internet cafés in close proximity to where they live or work, and do not travel significant distances to reach them. We are told that this is because they are already finding themselves in those areas, as their residence, work or place of study is there. The majority, 91% of respondents, have Internet cafés in the area in which they reside, and 95% of these people use them.

68% of respondents use portable storage devices to transport files to and from Internet cafes. This exactly matches the percentage of users who have their own memory sticks. The devices are mostly used to transport documents, CVs, files to be emailed and files received via email. There is clearly a need for portable data storage (mostly memory sticks) and the ability to have files and materials at hand for use in different places.

There is a high frequency of Internet café use: all subjects use Internet cafes a few times a month or more, with the most common (modal) response being a few times a week. All users use the café for half an hour or more, with the modal time being 1-2 hours. Of this time the average percentage spent on the Internet is 94%.

These findings start to paint a picture of high use across multiple cafés in multiple locations around the city. There seems to be an interesting roaming user who is accessing the Internet across the city with their data always at hand.

2.3.4 Internet cafes supplementing access

It is interesting to note that people are actively seeking out Internet access beyond that which is readily provided at places of work or study. There are some instances of people with a home PC (or home PC with Internet access) who are still using Internet cafés.

70% of those interviewed have Internet access at work and/or home and/or at their place of study and supplement this use at Internet cafés because off a lack of time to do so elsewhere, restricted access to web sites at work, or because it is cheaper than accessing it at home.

PC and Internet access provided at places of study (as is the case with 70% of the sample) is

unable to sufficiently meet the amount of Internet access that students need for research or other study purposes.

Internet cafés are filling this gap.

2.3.5 African foreign nationals: owners and users

The majority of Internet cafés are foreign-owned and where we find Internet café hubs we also find large numbers of immigrants living in those areas (Yeoville and Braamfontein). It may be that these owners are responding to the needs of immigrant communities from elsewhere in Africa (business, remaining in touch in family, etc) and that this may be stimulating interest, uptake and use by South Africans.

Interviews with café owners revealed that these foreign users are often more Internet literate than South African users. Café owners report that 59% of their users are self-sufficient, and of the 41% of people who ask for assistance, some café owners specifically pointed out that these are more likely to be South African users than foreigners. Furthermore, two of the three areas where the majority of users are South African (60% and 90%), reported high rates of requests for assistance.

3. SURVIVALISM

Due to technological and infrastructural challenges, such as a lack of phone lines, unaffordable fast private connections (ADSL or broadband) and relatively pricy slow connections (dial-up), users may very well be forced into adopting a communal computing model at cafés. It is faster and cheaper to download on ADSL on a shared connection at an Internet café (based on an hourly rate) than on a dial-up from home, and ADSL is unlikely to be affordable for these kinds of users at home. It is thus cheaper to visit an Internet café to get the necessary speed and time saving.

Internet cafés appear to be serving a critical role in expanding the possibility for many people to use the Internet in and around Johannesburg. Cafés seem to be buffering against the high charges and lack of rollout, which are clearly hampering access (which in turn hampers personal development to be gained from the Internet and Web access).

It appears to be the case that our Telcos are not providing a viable means of personal private Internet access for the majority of people in South Africa. It would be worth exploring whether or not people in these areas (and from this demographic) are currently being targeted by advertising for new Internet access product packages from our Telcos.

The majority of cafes report a high rate of repeat usage (65% mean repeat usage). There appears to be a strong basis for surmising that many users have formed some sort of relationship with the cafés and their staff, based on user comments.

Of those who have a PC at home (41%), only 11% have an Internet connection. However a full 100% use the Internet at Internet cafes.

Although personal space and privacy is cited as a concern by some Internet café users, we expected it to be more of a concern. At only 14% this was surprisingly low. The lack of PC ownership and Internet access is being overcome by the use of communal PC and Internet usage spaces.

3.1 Informal education and training on PC-based software, the Web and Internet at cafés

Shared use and communal spaces may relate to Internet cafes and fellow users fulfilling the role of informally educating users. This appears to be area specific - people in Soweto & Yeoville tended to require greater assistance. 36% have used Internet cafés to improve their overall computer skills. 100% of this learning has been informal – either from Internet café assistants or other users.

There is a high demand for training at cafes, although a number of owners did comment that they would like to offer formal training, but have yet to do so. It certainly costs less to be learning informally at a café than to take a formal training course. Nonetheless, 77% of those interviewees learned to use the Internet at school or in a work setting (school 50%, work 27%, home 9%, friend 9%, Internet cafe 5%).

Café owners report that 59% of their users are self-sufficient, which leaves a significant percentage of people who ask for assistance (41%). However, 89% of the café owners report requests from users for more formal training opportunities.

While schools are a logical place to teach people about the internet, there is a generational gap in - Internet knowledge, given that a lot of people had already left school when the Internet came to prominence, and thus have to catch up this learning elsewhere. Furthermore, not everyone has access to the same levels of schooling, and many schools do not have the facilities to teach Internet and Web skills.

This finding ties into the trend in SA of the commercial sector increasingly shouldering Government burden - in this case Internet cafés - without specific intent on the matter from Government. The handing over of traditional government areas of responsibility to the private sector is a strong and increasing trend in South Africa – public safety and policing is perhaps one of the most visible examples of this, with the mushrooming of private security companies, and statistics indicating that these are responsible for the containment of crime, not the police force.

3.2 Portable data storage

There is high use of memory sticks and other devices to transport data – 68% use a memory stick, with 87% owning their own device. Internet cafes report that usage of CD writing services is dropping off due to memory stick use, but CD writing is still used as a way of storing data for transport by users.

It is worth noting that although many users may have a PC at work or home there are limitations to the use of the Internet (or no access at all) in these locations and, as stated above, Internet cafés offer important supplementary access. But because of these geographically fragmented patterns of use the institution of the ‘personal desktop’ or personal data storage on a personal computer either does not exist or does not suffice. In the case of users who do not have PC access at home or work the case above is obviously exacerbated further.

Long-term hard drive storage space is not provided in general (only one café surveyed provides this), while 78% provide CD writing services. The majority of users state that they do not desire hard drive data storage at cafés because of privacy concerns. It can also be surmised that because many use more than one Internet café, they would rather have portable data than data that is stored at one particular Internet café. Again, this points to the ubiquitous nature of people’s computer and Internet usage needs.

There is clearly a very different behaviour when no secure, personal desktop is available and the PC and Internet relationship does not exist at home in any affordable sense.

3.3 The hidden user

One of our initial hypotheses was that people were using Internet cafés on behalf of others who are either Internet-illiterate, or not able to get to the Internet cafés themselves.

The research bears this out: 41% of the subjects use Internet cafés on behalf of other people. This clearly shows that there is a substantial group of people who are also using the Internet, but not personally - thus there are even more users than appear on the surface.

The most common tasks being performed for others are information gathering (66%) – which is heavily weighted towards research for study purposes, but other examples include getting information on cars for sale and on wedding arrangements. This in itself points to a perception of the Internet as a tool to use in everyday life – even among those who do not use it first-hand. Mention was also regularly made of sending email for others, including CVs specifically.

3.4 The Internet and the Internet café as a stepping stone or life-enabler

Through our interviews we found a complete understanding of the broader implications of Internet usage and global connectivity - it is not understood as a single-minded, one task form of usage. 100% of the respondents indicated that the Internet makes them feel more connected to other people. The predominant way in which they describe the Internet and the main reasons they gave for recommending the Internet to others were quick and easy information access and research (64%), and communication (68%). Another 36% also saw it as a business enhancement tool, including a way of finding jobs. There was also an emphasis on the Internet being a means of self-improvement. Further evidence of this is that 95% of users use the Internet for a variety of things, and only 5% (one user) only uses it for a single task, which in this case is email. Thus there is an overwhelming sense that the Internet can be used as an ‘overall tool’ rather than merely a means to accomplish a specific task that the user may have been taught.

Actual stated usage bears this out, with 86% using the Internet for research or study purposes, 36% using it to work or run a business, and 82% to look for jobs. In terms of ‘the hidden user’ people are submitting CVs on behalf of others too. All those interviewed use email (100%), with 86% using the Internet to keep in touch with friends and family in South Africa, and a further 68% using it to keep in touch with friends and family abroad. This is a strong indication of the use of the Internet primarily as an information gathering and communications tool.

There are indications that Internet cafes are functioning as stepping stones for people moving through progressive life phases. The most obvious being the move from student (research and study support at cafés) to careerism (job finding). There are likely to be many services that could be targeted at these users to support related activities.

3.5 The relationship between the PC and Internet Connection

Having and using a PC is not enough – the Internet appears to be an essential adjunct.

It seems that a symbiotic connection has developed between computer use and the Internet – that one without the other leaves the user lacking. There also appears to be a strong connection between document creation and Internet use.

Of those who have a PC at home (41%), only 11% have an Internet connection. This speaks to a lack of home connectivity amongst this sample. However a full 100% use the Internet at Internet cafes. This shows that having a PC at home is not enough for the users – the Internet has become necessary to make the home PC “functional”.

4. DESIGN RECOMMENDATIONS

Current global themes that relate to our users include: Web-based applications (server-side software) for instance, Google Spreadsheets; developments in ubiquitous computing via accessible hardware (in this context even RSS via an Internet café PC starts to move towards a kind of ubiquitous computing); convergence (especially around the use of mobile phones – mobile phones are the digital ‘success story’ of Africa and 100% of our users own a mobile phone); personal data storage, portability and access on-the-go.

It is worth noting that many of the recommendations include suggestions that we take for granted as best practice (although these are often not employed by web sites), but that in the Internet café environment best practice often becomes a mandatory requirement. For instance, a lengthy form process that does not inform the user of what information will be required and that does not allow a user to save progress will be unusable because it will require multiple visits to the Internet café.

- Be empathetic: this user is not *just* visiting the web site; they are traveling some distance to visit an Internet café, to visit the web site. This should form part of the way we conceptualise the user interacting over time.
- The Internet café user should become a standard persona and scenario which we add to the existing ‘home’ and ‘business place’ users.
- Maximise use of Web-based software without the reliance on a persistent desktop (with the ability to save and store data server-side for repeat access across visits).
- Assume the user does not have immediate access to a personal private desktop or information ‘in the room next door’. It may be safe to expect use of memory sticks, but this again should not be automatically assumed.
 - If multiple visits are anticipated in order to complete tasks, stages or progressive phases, make it easy for users to pick up from where they left off.
 - Attempt to reduce the amount of personal information required to complete tasks. When this is unavoidable, explain why it is required, be explicit about what information is required up-front (offer a printable list) and allow users to easily drop out, return and pick up from where they left off.
- A reliance on persistent cookies that recognise a user will cause privacy concerns, disorientation and cannot be counted on (in most cases cookies are deleted from Internet café terminals daily).
- Allow users to save information and behaviour choices (preferences) server-side.
- The user does not own or have control rights over the PC at the Internet café, so executable files and plug-ins cannot be chosen to be installed. Use lowest common denominator technology.
- The site should make an effort to communicate that a relationship can be built via the web site. The information architecture should support use across multiple visits. The organisation of information around user needs through lifecycle phases will help to grow the online relationship.
- Do not use complex interfaces; rather make an interface learnable across tasks and emphasise process driven interfaces. Employ simple navigation and use explicit labeling.
- Be mindful of addressing privacy concerns.
- Time is money at the café and although ADSL is used, low-bandwidth web sites still score highest for satisfying users.

5. CONCLUSION

It is clear that Internet cafés are in great demand for their profound role in assisting their users with answering life needs like; job finding, education, communication, information gathering and research. This role, however, mostly includes filling a gap that has been created by the high costs of connectivity, the cost of a PC and the need and associated cost of both used in conjunction.

There is clearly large potential for government, municipality, education, non-profit and business sectors (including Telcos) to speak to this audience. We believe that this audience can be addressed both within the Internet café itself and via the Web.

The users of Internet cafés and their style of use at Internet cafés are not included in the major quantitative South African surveys⁷ on Internet use which tend only to explore users who own a PC or laptop and who are connecting from home or work. These surveys typically find that 10% of the South African population is online.

In addition to researchers, we believe that many of our large corporate companies, the Telcos and our own design industry also look to these home and work users as 'the market'. This market is affluent, more affluent than we believe the Internet café user is. In pure marketing terms this audience probably falls within SU-LSM 7 – 10 [⁸] constituting roughly 26% of our overall population. These users are not likely to be found in the less affluent areas where Internet cafés have been found to be flourishing. In our experience, this is the audience traditionally thought of as Internet users and the market for Web-based services and advertising in South Africa.

The Internet café user probably falls into the 'middle of the pyramid', occupying what we would imagine to be SU-LSM 3 – 6 (roughly 55% of the overall population).

Throughout the process of conducting this contextual enquiry some of the researchers found their preconceived ideas of Internet cafés and their users have been challenged. A large proportion of users were more sophisticated than anticipated. This was revealed in the types of software that people are using, the web sites that they visit, and the tasks that they use the Internet to accomplish.

While telling people about our research, we came across other preconceived and overtly negative views that are held: that Internet cafés are fronts for drug dealers and that people using cafés are responsible for email scams and fraud.

We believe that these views and the general lack of research and interest in users who cannot afford to have a PC at home with an Internet connection stem from a mentality or mode of thinking that we refer to as a 'developed world paradigm of use and aspiration'. Users who do not confirm or fall within a developed world style of use do not seem to feature in this idea of meaningful or serious use.

The Internet café, its user, the distribution of cafés across Johannesburg, the nodal pattern of use, data portability, supplementary use and ad hoc skills development fall into what we are calling, a

⁷ These include studies conducted by Webchek (the South African Strategic Internet and ICT Insights and Research Company) and BMI-Technology. It is not clear from the World Wide Worx web site if their "Goldstuck Report: Internet Access in South Africa 2005" includes access via Internet Cafes.

⁸ The South African Advertising Research Foundation Living Standards Measures are the most widely used marketing research tool used in South Africa. It divides the nation into LSM groups based on living standards criteria.

“developing world paradigm of survivalism”. This style of use is in line with other modes of survivalism that we see in regards to technology in the developing world - for instance one mobile phone shared among multiple SIM card holders. Research conducted in East Africa (Uganda, Kenya and Tanzania) under the title “Into(context) Appropriate Technology for East Africa” into the use of technology to assist micro-loans facilitation from abroad has come away with similar findings citing various principles and recommendations for the use of technology. These include the need for shared access due to the high cost of hardware, the need for ubiquitous solutions, user’s eagerness facilitating informal self-education and decentralized solutions (Thompson, J & Rodriguez, J. 2006).

The knock-on effect of the “developed world paradigm of use and aspiration” may extend into or may be the result of: geographic prioritisation in provision of access to phone lines and Internet connection, product modeling and pricing of Internet packages, allocation of corporate budget when determining channel-based marketing spend, style of design, design aspiration (and inspiration) and the provision of Web and Internet based services to markets.

Most importantly it affects ‘what we see’ and how we interpret what we see. We recommend shifting our perceived notion of where ‘value lies in the Web’ in South Africa. The ROI argument required for business should not overshadow the value that the Internet and Web holds for users that do not sit within the mainstream of our understanding of where and how the web is perceived to be used in South Africa. Where currently we use e-commerce or online banking self-servicing as measures to determine the success and value of the Web, perhaps we should be broadening the net to other kinds of online transactions like those facilitated by job web sites, government web sites, email and even more broadly informational websites that assist in empowering users in making important life decisions.

At the level of user experience and information architecture design we would recommend that when conceptualising web sites, an Internet café ‘persona’ be added to the already considered home and work user scenarios.

Increasing use amongst the Internet café audience could be stimulated by the dynamic between three components:

1. Increased accessibility to computers (or other data transfer and storage devices) with Internet connectivity.
2. Appropriate design.
3. Developing and creating awareness of digital services relevant to this market.

Lastly, we would recommend giving thought to opportunities that could exist at the intersection between:

- sharing computers
- storing and managing data without the use of a personal, persistent desktop (a PC)
- access via multiple Internet access points (or nodes)
- portable storage devices

For instance, a ‘remote desktop’: interface driven, with server-side information storage, Internet linked, password-protected, where a user can both upload and download information (from a local source or server-to-server) with permissions-based sharing.

6. ACKNOWLEDGEMENTS

This research has been kindly supported by a Progress Grant from the Information Architecture Institute.

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