

**AN EVALUATION OF KEY DETERMINING FACTORS FOR IMPLEMENTING A  
SUCCESSFUL COMMUNAL COMPUTING INITIATIVE IN A DISADVANTAGED  
COMMUNITY IN SOUTH AFRICA**

Wallace Chigona, Jean-Paul Van Belle, Nicole Arellano, Kasper Euvrard & Richard Heslop

Department of Information Systems, University of Cape Town

South Africa

Dr Wallace Chigona  
wchigona@commerce.uct.ac.za

Prof Jean-Paul Van Belle  
jvbelle@commerce.uct.ac.za

Nicole Arellano  
nicole@magicmail.co.za

Euvrard Kasper  
evrkas001@mail.uct.ac.za

Richard Heslop  
richardh@webmail.co.za

Department of Information Systems  
University of Cape Town  
Private Bag  
Rondebosch 7701  
South Africa

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**ABSTRACT**

This paper explores the hypothesis that a consistent set of controllable factors can be identified and manipulated to ensure the success of a communal computing initiative. A qualitative analysis of various stakeholders involved in the Smart Cape communal computing project in the Cape Town (South Africa) is presented. Seven specific variables were drawn from literature on the subject. The intention of the research was to explore the differential effect of each of these seven variables on the usage rate of the centres. The primary means of data collection was through structured interviews with key staff at communal computing centres and a number of users. The findings suggest that these determining factors have varying impacts on the usage of the centres. Although the research was mainly exploratory in nature, it afforded interesting personal insights to enrich and contextualise the findings. However, the research strongly supports the view that ICT-based community development initiatives need be people-focused, not technology-focused. They also need to ensure their relevance by catering to specific needs of the community, not external perceptions of community needs.

**INTRODUCTION**

It is often unrealistic to expect those living in digitally poor areas to acquire their own technology (Ernberg, 1998). A possible solution for bridging the digital divide is a setup where the population are accorded access through shared facilities (universal access). These shared facilities come in different forms including low cost computers (such as the Simputer and Volkscomputer), telecentres and their several derivatives. This paper uses a generic term “communal computing facilities” (CCFs) to refer to these facilities.

CCFs have not been very successful. This has led to the realisation that the task of bridging the digital divide involves more than the techno-centric approach of providing the technology to the disadvantaged communities (Roode *et al*, 2003). We have identified a set of factors, which according to existing literature, is critical to the success of CCFs. However, it is not

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clear whether these factors can be applied equally to all kinds of CCFs. This paper reports on an exploratory research effort to look at how these factors affected public-funded CCFs among the disadvantaged in Cape Town South Africa. The centres are run by Smart Cape.

### **Background**

The current distribution of access to ICT among different communities in South Africa must be understood in the light of the fact that the country had an apartheid policy up to 1994. Due to this apartheid legacy, locations which are predominantly non-white still have minimal access to technology. Miller (1999) notes that while 90% of all whites have telephone in their homes, the figure for blacks stands at 10%. Smart Cape ([www.smartcape.org.za](http://www.smartcape.org.za)) is one of the many initiatives which have been undertaken to address this imbalance.

Smart Cape, an initiative of the Cape Town City Council, provides free computer access and internet connectivity to the residents of Cape Town (Infonomics South Africa, 2003). The access points for the initiative are located in selected public libraries in the city. At the time of the research the project had established access points in six libraries in the city. Each centre has five internet-enabled computers available to the public. This research investigated three of the six centres, namely Guguletu, Grassy Park and Brooklyn.

Guguletu serves a largely black community; Grassy Park serves a predominantly coloured community, while Brooklyn serves a community in which many refugees from central Africa reside. While all three centres are within disadvantaged areas, they are also at different levels of development. Guguletu is characterised by extensive informal housing (*aka* “shacks” i.e. houses built without planning permission and typically made out of corrugated iron and plastic sheeting), Grassy Park is mostly formalised low cost high-density housing. Brooklyn is characterised by formalised low cost single unit housing.

### **USER-RELATED SUCCESS FACTORS FOR CCFs**

Prior to undertaking this and related research, a fairly comprehensive literature survey was undertaken. However, in order to devote more space to the discussion, we have elected to refer the reader to the more detailed discussion which can be found in Arellano *et al* (2003) and is available from any of the authors on simple request. From the literature, seven factors that contribute to the successful CCF implementation were selected. Since the centres are non-profit oriented, the high level of patronage which is evident in all three centres will be

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used as the main indicator of successful implementation (Mchombu, 2003; Menou, 1993 & UNESCO, 1997).

*Local buy-in:* It is essential to get the backing of the community. This is achieved by getting the community involved in the project from the outset and ensuring the community ownership of the project (Bridges.org, 2002).

*Local champion:* A champion is an individual who has influence in the community and commands respect. Having the support of local champion encourages involvement of the other members of the community (Bridges.org, 2002; Ernberg, 1998).

*Usefulness and relevance of service to community needs:* CCFs should provide services and content that meets the needs of the community (Colle, 2004; Ernberg, 1998).

*Location:* CCFs should be located at a place where people visit to do other activities such as shopping. The location should also be easily accessible (Colle, 2004). It is also necessary that the location should be equally inviting to different groups of people.

*Marketing and public awareness:* Advertising and public relations promote awareness of the existence of the facility. Colle and Roman (2002) point out that community members must first become aware of the telecentre and its services before they will get involved in it.

*Reliability of facilities:* This refers to the frequency and the duration over which the services are unavailable. When the facilities are excessively unavailable users may lose trust in the service and reduce the usage (Bridges.org, 2002).

*Staff training and user support:* CCF staff should be trained on the available applications so that they can provide assistance to users. “Without training, a community telecentre will be stillborn: operators will not be able to help users, and users will stay away because they don't know what to do with the available technology.” (Gómez *et al*, 2001)

This paper examines how these factors affect the use of public funded CCFs among the disadvantaged communities around Cape Town.

## **RESEARCH METHOD**

Since this research project was exploratory in nature and we were mostly interested in the people's opinion of the factors which affect their use of CCFs, we opted for a qualitative approach to our study. It is anticipated that follow-up research may be more quantitative in

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nature and use a questionnaire and larger sample to statistically confirm our current tentative findings.

### **Sample selection**

For practical reasons, we used CCFs operating within reachable distance from our base and thus settled on the Smart Cape initiative. In selecting the three centres from the six available, judgmental sampling process was applied. This approach is described as involving the researcher hand-picking the sample because to his/her judgement, they are typical to what he/she wants (Ofo, 1994). The intention was to choose CCFs that were representative of varied communities representing different races, cultures, needs and economic levels. The purpose of such a sample selection was to investigate whether any obvious inter-community differences arose, and how important the localised influences were.

Since this is an exploratory, qualitative study, we decided not to operationalise the “level of success” or usage rate in a strict methodological manner. For all three centres it was found that, although no formal log books (written or electronic) were available for analysis, the available work stations were generally being used at close to capacity levels *whenever they were operational*. From the frequent queues which were evident and the responses from the respondents, it can be deduced that the user demand outstrips the supply and thus other factors than intention or desire to use determine actual usage rates. This is in sharp contrast to some other, less successful community ICT initiatives such as, for instance, more than half of South Africa’s MPCCs (Multi-Purpose Community Centres) which have become “white elephants” and are severally under-utilised (Benjamin, 2001). The CCFs under investigation can all be categorised as “successful” in terms of usage. Hence the focus of our data analysis is on the differential influence of the various success factors.

### **Data collection methods**

At each of the CCFs, a single structured interview was conducted with a staff member. A different structured interview was conducted with approximately 7 users per CCF. The interviews were tape recorded and transcribed into a data collection framework document.

The questions for both the staff and the users were mainly aligned with the factors identified in the previous section. Although the services are offered free of charge, an additional question on affordability (the price they would be prepared to pay for the service) was also included in order to assess the value the users put on the facilities.

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### FINDINGS AND IMPLICATIONS

This study does not aim to investigate the details of individual determining factors, but rather identify common threads across these factors, and the collective effect of them on the usage of the CCFs. For this reason, answers of a similar nature from users at the same CCFs have been clustered and recorded as a single entry. This has been done so that common responses across all centres are more easily identifiable. Additionally, the small sample size does not lend itself to quantitative inferences based on proportional analysis. However, where appropriate, data has been represented in percentage form simply for ease of use.

#### General findings

##### *Staff responses*

The five computers which are available at each CCF share a single dial up modem connection which makes internet access extremely slow. Normally, users are limited to 45 minute sessions. Guguletu gets a daily average of 50 users while Grassy Park and Brooklyn each gets an average of 60 users. As stated earlier, this is pretty close to full operational capacity when taking into account the restricted opening times of the library and occasional system unavailability.

##### *User responses*

General users' responses are summarised in Table 1.

	Guguletu	Grassy Park	Brooklyn
It's free	4	3	2
Helps type out CV's and apply for jobs	3		
Word processor and cheap printing	2	4	
Internet access		7	2
Close-by		4	
Government is assisting public in finding employment			1
Local community is learning about computers			1

*Table 1: The best thing for users about the CCFs.*

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For the majority of users, the worst thing about the CCFs is the slow internet connection. Other problems that were mentioned are: “learning the software is difficult”, “have to queue for a long time”, “computers are old and often out of order” and “there is no privacy”.

### **Local buy-in**

#### *Staff responses*

At all the CCFs no community members were involved in the implementation. Grassy Park manager and staff live in the community. By contrast, the staff in the two other CCFs live outside the respective communities. All of the managers felt that this did not affect the usage of the CCFs. The Guguletu manager suggested that the reason for this was that “the library was already well established, prior to the start up of the centre and so many people already knew and felt comfortable with the staff.” The Brooklyn manager, however, felt that employing community members at CCFs could encourage members from the community to join. “They would be able to assist new members fill in their address details in the registration form.”

#### *User responses*

Four out five Guguletu respondents felt the CCF staff should come from the community. The main reason given was familiarity. Most members and potential members would find it easier to approach someone they were familiar with for assistance. In contrast, all respondents from the other CCFs felt that CCF staff does not have to come from the community since it “does not matter where they come from as long as they can do their job.”

#### *Implications*

The absence of local buy-in did not seem to play a big role. A possible reason for this rather surprising finding could be that the CCFs are set up in local libraries. Starting up a CCF within an operational community organisation such as a library, using existing staff members to run the CCF, seems to be a huge benefit. The community is already familiar with the organisation and its staff and thus the initial barrier of adapting to new environment is reduced. The CCF is seen as an extension of the existing system to expand the knowledge resources to include those offered through ICT. The community, therefore, tends to view the CCF as additional resources in the library.

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It is also interesting to note how culture affected different perceptions on buy-in. The majority of Guguletu respondents considered it important that CCF staff should come from the community. The respondents from the other communities did not consider this as important. Further work is necessary to establish the actual cultural basis for the differences in reasoning.

### **Local champion**

All users indicated that there was no (personal) champion who influenced them to use the CCFs. Guguletu and Brooklyn staff indicated that there is no leader who plays the role of a champion. However, the Grassy Park manager indicated that there is an influential person within the community who “probably encourages the people to use the centre.”

### *Implications*

Despite the fact that there was no individual champion for two of the three centres, all projects received support from the community. But, according to the users and the managers, the communities are very supportive of the local libraries. Thus it could be assumed that the library itself – either as an institutional actor or through its staff – is fulfilling this role of the local champion.

### **Usefulness and relevance of services to community needs**

#### *Staff responses*

The CCFs offer word processing, internet, email, spreadsheets and presentation packages. Of these, the Internet, word processor and email are used the most. E-mail is especially popular at Brooklyn since the refugees community needs to communicate with their families back home. Adults appear to use the CCFs mainly to search for employment opportunities; prepare job applications; and apply for jobs online. Not surprisingly, scholars use the CCFs for Internet, email and project writing. At Guguletu, staff assists users in job searching. Responding to popular demand, Brooklyn is planning to implement a CV-creation wizard which will walk users through a process of creating their own CVs.

#### *User responses*

Table 2 provides a summary of what users actually do when using the CCFs. Employment related services (job searching and CV typing) account for the highest use: 10.

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	Guguletu	Grassy Park	Brooklyn	Total
Working on school projects	1	6	2	9
E-mail	4	3	2	9
General Internet browsing	4	2	1	7
To find employment	3	1	3	7
Type CV's	2	1		3
Write business plan	1			1
Run consulting business	1			1
Exploring available software			1	1
Looking for training			1	1

*Table 2: What users use the centres for.*

### *Implication*

The CCFs are offering services which the communities need.

### **Location**

#### *Staff responses*

Staff at all the three CCFs feel that the respective locations of the centres are ideal. All centres are walking distance from public transport routes and central to the local and surrounding communities. In addition, the Brooklyn manager noted that the library is a very suitable place for the CCF. Having CCF in the library makes people use the other services offered by the library. "The impact of the computers as an educational tool is extended through the other medium available in the library."

#### *User responses*

Table 3 summarises the factors users like most about the locations of the CCFs. Only two Grassy Park users had reservations about the location. For one, it is far from her home while for the other it is too close to public transport terminal and, therefore, too noisy and risky.

	Guguletu	Grassy Park	Brooklyn
Proximity to transport	3	6	2
Proximity to home	2	2	1
Centrality	1	5	3

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Sociable meeting place	1		
Access to the library services		3	1
Secure place		1	

*Table 3: Factors users like about the location of the computer facility.*

### *Implications*

The findings confirm the literature about the location of CCFs. The success of the location within a library concurs with the suggestion that CCFs should be “located in or near places where people already tend to come together” (Bridges.org, 2002). An interesting observation is that the libraries are not close to retail or commercial areas. This means that users wishing to access the CCF are required to commute to the library specifically, rather than include it in their regular errands. It can be concluded, therefore, that these neighbouring services need not be retail or commercial.

Two responses were of significant interest. A Guguletu respondent focused on the importance of the sociable aspect of the location, favouring the presence of numerous people. In contrast, two Grassy Park respondents noted that they felt that their safety was compromised when visiting the CCF because of the numerous people using the adjacent bus terminal.

### **Marketing and public awareness**

#### *Staff responses*

The launch programmes for the respective CCFs generated significant media attention. Smart Cape posters in and outside the libraries are also used to advertise the CCFs. In Brooklyn, most people find out about the CCF during Library Week. The packet of information which the library distributed in the current year included information on the CCF. Currently, the CCFs do not advertise through any media. The Grassy Park manager noted that its community finds out about the CCF through word of mouth.

#### *User responses*

User responses on how they first found out about the CCFs are summarised in Table 4. Only four users (two - Grassy Park and two - Brooklyn) believe that most people in the community do not know about the CCFs.

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	Guguletu	Grassy Park	Brooklyn
Saw while using the library	3 (60%)	4 (40%)	4 (57%)
Word of mouth	2 (40%)	5 (50%)	2 (29%)
Local news paper		1 (10%)	
Launch event			1 (14%)

*Table 4: How users first found out about the CCF.*

### *Implications*

Given the number of respondents who found out about the CCFs while using the library, there seems to be a significant marketing effect by virtue of being ‘attached’ to an established community service facility. In addition, word of mouth played a very significant role. This seems logical given the economic position of residents, and consequently, their limited access to the more costly media types.

### **Computing capacity**

#### *Staff responses*

Guguletu and Grassy Park staff indicated that there are not enough computers at the CCFs to meet the demand. Often people queue for computers. An increase in the number of computers would bring more users to the CCFs. However, and contrary to the opinion of its users, the Brooklyn manager claims it has enough computers and users rarely queue for computers.

#### *User responses*

Only a Grassy Park and two from Brooklyn respondents feel that there are enough computers at the CCFs. Other than two (one from Grassy Park and one from Brooklyn), the rest indicated that they often queue for computers. All users but one (from Grassy Park), indicated that they would use the CCFs more if there were more computers.

### *Implications*

An evaluation of the Smart Cape Project noted that capacity was one of the bottlenecks of the project (Infonomics South Africa, 2003). The results support this proposition. However, in disadvantaged communities users appear to be willing to wait for the (free) service rather than go elsewhere and pay.

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### **Reliability of facilities**

#### *Staff responses*

Smart Cape has a central help desk where faults are logged. Most problems can be sorted out over the phone. Support staff is sent out to the CCF to attend to severe problems. On average it takes between one and three days to fix a problem. CCF staff is not trained on how to fix software problems. However, they can fix simple problems such as those which require mere rebooting of the computers.

#### *User responses*

43% of the total respondents were of the opinion that the computers are often offline. The majority of the Guguletu and Brooklyn respondents said they wait when the computers are offline. The majority Grassy Park users wait or leave depending on the urgency of the work.

#### *Implications*

Computers at the CCFs are often online. It was observed that most users wait for computers to become available simply because they cannot find free service elsewhere. This suggests that reliability may not as important to users as the price of the service.

### **Staff training and user support**

#### *Staff responses*

The library staff has received training on the applications available in the CCFs and is able to assist users. The most common problem faced by the Guguletu users is the lack of familiarity with open source software; but staff can assist with this problem.

Even though all the managers believe that public (i.e. user) training would be beneficial, none of the CCFs offer it. Staff shortage and lack of skills among the personnel were cited as the reasons for this. In addition, one of the staff members believes that the City Council fears that free public training would interfere with the council-sponsored businesses which offer training at a fee.

In Guguletu there is no staff specifically dedicated to the Smart Cape project; all staff is able to help out with user problems; as a result there is always someone available to help. In contrast, both in Grassy Park and Brooklyn, two people are allocated to the CCFs and the other library staff can help when the allocated staff is otherwise occupied.

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### *User responses*

All the users but one (Grassy Park) are satisfied with the support from staff. 90% of the users would attend a basic training course while 95% would attend an advanced course.

### *Implications*

Whilst there is no formal user-training, the training which the staff received tends to trickle down to the users. Users are often found assisting each other. This skills transfer is a key benefit of CCFs.

## **Pricing and affordability**

### *Staff responses*

All the staff feel that it is important that the service is offered for free. Due to high rates of unemployment, the majority cannot afford to pay for the service.

### *User responses*

The majority of the users said they would only continue using the services if the prices were low. Table 5 summarises the users' responses to what sort of price they would consider to be fair. Note that the average charge at Internet Cafés is R5 per 15 minutes (i.e. R15 for a 45 minute slot).

Centre	Price range for 45 minute slot (in Rands)	Justifications
Guguletu	1 – 3.75	<ul style="list-style-type: none"><li>• That is what I can afford.</li><li>• That is a fair price for what is offered.</li><li>• That is what I would be willing to pay.</li></ul>
Grassy Park	3.75 – 7.50	<ul style="list-style-type: none"><li>• That is what I can afford.</li><li>• That is a fair price.</li><li>• Printing is still an additional cost.</li></ul>
Brooklyn	7.50 – 15	<ul style="list-style-type: none"><li>• Similar to prices at an Internet Café.</li><li>• Must be less than internet Café s prices.</li><li>• That is a fair price</li></ul>

*Table 5: What they would be willing to pay for the services*

### *Implication*

This factor was used to obtain some measure of the elasticity of demand with respect to price. Many development organisations believe demand for ICT access to be almost perfectly elastic at a zero price. The finding of this research was that users, even those from disadvantaged

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communities, felt that the service warranted a substantial “fair price.” An important observation is that this “fair price” correlates with the general income level of the community.

### **TENTATIVE LESSONS LEARNT**

#### **Communal computing facilities in well established institutions**

When the CCFs were established, the communities had already established trust in the library system. In a way, the library acted like a local champion to the community. Operating inside a library also assisted with the marketing the CCFs. It was observed that most users found out about the CCFs while using the library. A case was also noted where the library marketed the CCF whenever they were marketing their services. It is also interesting to note that a number of users indicated that when they have to wait for a computer, they make use of the other services available in the library. It can be argued that this certainly reduced the levels of frustration the users faced when they had to wait.

The libraries also benefited from the marriage because indications are that the CCFs increased the usage of the library services. As the Brooklyn manager notes, the CCFs and the other services offered by the library complement each other well as sources of information and knowledge. Similar success stories have been recorded where telecentres have been located in post offices (UNDP, 2003). However, care must be taken when deciding on which institution a CCF should pair with. Some locations may not be conducive to certain categories of the community based on gender or religious beliefs (Colle and Roman, 2002).

#### **Demand for information among the urban poor**

Possibly the main explanation for the success of these CCFs is the high level of demand among the urban dwellers. The urban poor have enormous demand for information which is not adequately met (Shilderman, 2002). An additional consideration could arise from the fact that the urban poor are probably more exposed to technology than their rural counterparts.

#### **Possible cultural factors**

Owing to the differences in culture and economic status of the three communities, we expected a number of differences in our findings for the three CCFs – which was the main original motivation for the research and the qualitative methodology which was adopted. However, as it turned out, most factors were similar for all the CCFs. However, there are a few differences worth noting: One was with respect to the view on whether the CCF staff

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should come from within the community or not. Another difference was in respect of the ideal location of a CCF. This possible cultural difference emphasises the importance of focusing on the local community. CCFs cannot be successfully implemented compliant to external objectives; the solutions must be tailored to the local context and sensitive to the culture of the community.

### **CONCLUSIONS**

This research supported most of the general factors identified in the research as necessary to the success of communal computing as also being relevant to centres operating among the urban poor. However, it has also been shown that a few of the factors do not appear to be very significant. It can be argued, therefore, that there are no universal rules which apply to all kinds of CCFs. There is a need, therefore, for further research to identify how different factors affect CCFs in different contexts.

Another interesting finding from this research is the confirmation that “piggy-backing” a CCF onto an already well established public institution proves to be beneficial. In this particular case operating from a public library helped in creating exposure for the centre. Finally, it was also noted that, instead of requiring a community leader to act as a local champion, an institution – in our case the library – could also act as the local champion and caused the community to buy-in the centre.

Future research should focus on making the findings more representative by enlarging the sample size and finding a more heterogeneous mix of both successful and less successful initiatives. This would possibly be less resource-hungry by means of a more quantitative approach though the quality of the responses could well suffer. It is finally proposed that future research adopts a methodologically more substantive indicator for CCF usage rate and success.

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