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The small group subtlety of using ICT for participatory governance: A South African experience

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ABSTRACT

The greater number of government efforts to stimulate participative governance in communities using Information and Communication Technology (ICT) often fall short of expectations. In South Africa extending e-government to communities has been in the form of more and/or better equipped ICT-enabled community centres, called Thusong Service Centres. In this paper, based on action research experiences, we report outcomes of interpretive research into ICT-enabled approaches to participative governance in communities. Using the Diffusion of Innovations theory as an analytic lens, the findings reveal a subtlety that is not often mentioned in the call for participative e-governance; people from communities prefer to work in groups rather than individually. The collectiveness inclination is a common denominator of many developing countries where people choose to come together to leverage the few available resources. Individuals become apprehensive when made to work on their own using the ICT. The research reveals the necessity to re-design ICT to suit small groups as part of participative e-governance rather than the normative ICT design that suits individual work styles. Additionally, the research reveals that by working in groups, communities are more willing to accept the government initiatives that are being energised with the use of ICT. Methodologically, the research revealed the ethical issue that arises from action research in its raising of unrealistic expectations in a community.

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1. Introduction

Many attempts to collaboratively negotiate with communities for locally situated government initiatives often lead to undesirable outcomes. This is despite compelling evidence from various disciplines that the success of government initiatives in communities is closely tied to collaborative negotiations (Grootaert & van Bastelaer, 2002; Putnam, 1993; Sen, 1979, 2001; UNDP, 2007). Collaborative negotiation, considered as the process of mutual and iterative participatory discussion, occurs when the relationships of the stakeholders engaged in the decision making process are considered as being as equally important as the intended shared outcome of the process (HBSP, 2004; Krattenmaker, 2004; Lewicki, Barry, & Saunders, 2007).

Based on a culture of participation in traditional governance the South African Government enters into collaborative negotiations with communities through what is called an *imbizo* (Republic of South Africa, 2010b). At the imbizo, a participatory process of dialogue and interaction takes place to unearth issues, concerns and opportunities in local communities which the government can directly assist with. It is during the dialogue and interaction that government efforts and the promises that the ruling political party, the African National Congress (ANC), has made to the communities and individuals across the country are measured (Republic of South Africa, 2008). At the imbizo, the government is represented by a senior government official such as the Deputy President, Cabinet Ministers, and Mayors. There is a special imbizo, called the Presidential Imbizo, where the President personally pays extended visits to communities and is given an opportunity to directly answer any questions. The imbizo is designed to foster accountable and participative governance down to the individual level. More recently, the term imbizo has been replaced by the phrase *public participation programme*. The imbizo principle does however remain the same.

Imbizos nonetheless have some limitations. Only a few people can attend, the time for discussions is usually very short, and the issues that are discussed are limited to the area of expertise of the invited government official. The irony is that the people who have the greatest need are not able to attend because they do not know their rights or are not confident enough to challenge authority (Woodroffe, 2007). Even though the issues to be discussed are channelled through the more eloquent traditional or community leaders, most are patriarchal and may consciously or unconsciously make exclusions based on gender or social status. Influential elites can moreover influence

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leaders to prioritise personal issues over the real issues that affect the community (Woodroffe, 2007).

Participation at the community level through the imbizo is an important part of South Africa's government policy on participative service delivery called Batho Pele (Republic of South Africa, 2010a). Batho Pele sets out the minimum standards expected from government officials when engaging with citizens typically to attain a public service that is people-centred and people-driven. The difference between an imbizo and Batho Pele is that an imbizo is not part of any policy but is the physical way in which government engages with communities and individuals across the country concerning government programmes. Batho Pele, on the other hand, is policy that lays out how public officials ought to deal with citizens. The principles set out in Batho Pele are all aimed at instigating a participatory approach to public service delivery which is citizen-centred using, among others, strategies which are driven by ICT.

In an effort to fast-track development, South Africa has, since 1999, rolled out ICT in rural areas as part of what were called multi-purpose community centres (MPCC). The MPCCs did not have much success (Legoabe, 2004) and in 2007 were re-branded, re-technologised with more powerful computers and internet bandwidth, and then re-labelled Thusong Service Centres (TSC). TSCs retain the MPCC community essence (Republic of South Africa, 2007). The principle objective of the TSCs is to provide "integrated services and information from government to communities close to where they live as part of a comprehensive strategy to better their lives. The centres are established as hubs of development communication based on Batho Pele values and principles which put people first" (Republic of South Africa, 2007, p. 2).

Each TSC has standard government representation for the basic services: social grants, health, education, passports and identity documents. Any further government representation at a TSC is based on the particular needs of the local community. The government envisages having at least one TSC in each of its 283 municipalities before the end of 2014 (Republic of South Africa, 2007, p. 29).

The above efforts to fast track development in the communities using ICT is often critiqued in Information Systems (IS) research for not taking into account the social contexts of the communities in which the ICT implementation is to be done (Avgerou, 2009). More participative approaches to the implementation of these centres and on the use of ICT is needed. It is this latter need on the participative use of ICT in communities which this paper addresses.

1.1. Research background

This paper draws from the PhD of one of the researchers involvement in a longitudinal interpretive research project (Twinomurinzi, 2010). The research project aimed at "*enabling access to human rights through thought processes and web-based Group Support Systems (GSS) tools.*" The research project adopted as a case study the Promotion of Administration Justice Act 3 of 2000 (PAJA). The PAJA is one of the enabling Acts of the Batho Pele policy whose purpose is to overcome the historical apartheid injustices by empowering people to expect from government a reasonable opportunity to make representations before a negative decision. The research project centred on creating an awareness of the PAJA through the use of Group Support Systems. A Group Support System (GSS) is a specialised type of ICT system designed to facilitate people working together towards a goal (Dennis, Wixom, & Vandenberg, 2001).

The research project identified that most people in South Africa, both in government and the public, are not aware of the PAJA and how it empowers them. The ignorance is predominantly attributed to the historically segregated education system where the African majority were prevented from learning certain educational subjects such as mathematics and science. As a result, most people in South Africa are not only unaware of the policies which are meant to empower them but also need to learn how to implement the policies. The primary research questions of the research project were:

- How best can the ordinary South African public be enabled and empowered to exercise their constitutional rights as espoused by the PAJA?
- Can thought processes and web-based technologies be used to support this enablement?
- To what extent would web-based technologies be considered relevant in this process?
- Are these technologies considered potentially valuable in enhancing a better understanding and implementation of the Act?

The PhD researcher is an active member in the research project where he has been ethnographically immersed since 2004. From the primary questions of the research project, the PhD researcher inferred that ICT could be used to emancipate people, and that the first two primary research questions when juxtaposed are equivalent to investigating the role of e-government in contributing to human development. The PhD researcher hence decided to investigate the role that ICT can play in enabling people to collaboratively negotiate with government towards participatory e-governance.

The remainder of the paper is structured as follows. Section 2 reviews the literature on Batho Pele, the Thusong Service Centre concept, and ICT enabled collaboration. Section 3 relates the research approach adopted by the research project, and the accompanying research design and research techniques used to collect data. Section 4 presents and discusses the findings using the Diffusion of Innovations as an analytical lens. Section 5 concludes with a summary of the key findings, practical implications, limitations, recommendations, and areas for further research.

2. Literature review

2.1. ICT community centres in South Africa

Batho Pele is a government policy that sets out the belief set and functional approach to make service delivery in South Africa people-oriented (Republic of South Africa, 2010a). Batho Pele, a Se-Sotho term meaning "People First," is grounded on three important policy and legislative themes (Table 1).

The dictum "*we belong, we care, we serve*" is the Batho Pele motto that guides government officials when engaging with citizens. The eight principles of Batho Pele are consulting users of service, setting service standards, increasing access to information, ensuring courtesy, providing more and better information, increasing openness and transparency, remedying mistakes and failures, and getting the best possible value for money. Batho Pele has a developmental and emancipatory perspective similar to the United Nations Development

Table 1
The themes of Batho Pele (Republic of South Africa, 2010a, 2010b).

Theme	The corresponding policies and acts
Overarching/transversal legislative frameworks	• The Constitution of the Republic of South Africa of 1996 (as amended) • The White Paper on the Transformation of the Public Service of 1995 (WPTPS) • Public Service Regulations of 1999 and 2001
Access to information	• Open Democracy Act of 2000 • Promotion of Access to Information Act of 2000 • Electronic Communications and Transactions Bill of 2002 • E-government strategy of 2001
Transforming public service delivery	• White Paper on Transforming Public Service Delivery of 1997 • Promotion of Administration Justice Act (AJA) of 2000 • Public Finance Management Act of 1999

Program (UNDP) human development philosophy whose reports are entitled "People First: The Human Development Reports" (UNDP, 2008).

The vast majority of South Africans have limited physical access to government services. For example, in rural areas the services can be as far as two days' walk away (Twinomurinzi & Phahlamohlaka, 2005). It is in such areas that the most vulnerable members of society are and where the people are in most need of government services. It is for this inaccessibility reason that the government decided to establish the multi-purpose community centres (MPCC) in every community with an initial vision to have at least ten MPCCs in every municipality in South Africa within five years from 1998 (GCIS, 2001). At the initial 1998 MPCC launch ICT was not considered as an important strategic driver of MPCCs.

With time the MPCC initiative lost momentum and by 2000 was scarcely an item in government publications. In 2004, the government renewed its commitment to re-thinking the MPCC initiative and re-branded and re-labelled the MPCCs into Thusong Service Centres (TSC). Thusong is also a Sesotho term that means *a place of relief*. In the TSC business plan, ICT is regarded as an important strategic driver (Republic of South Africa, 2007). ICT is integrated in two ways; firstly through a Batho Pele Gateway Portal office where individuals coming to the TSC must first report; and secondly through a cyber café like extension where computing and internet facilities are commercially made available to the community for training and personal use.

Imbizos, Batho Pele and the TSC programmes are a good indication of the commitment of the government to participatively engage with communities and to facilitate more appropriate and better service delivery. Yet despite the noble intentions, the participatory approach is yet to be attained through the use of ICT. The ICT portal at the TSCs only provides for one-way communication from the government to the public. Participation is still a challenge. This paper explores the role that ICT could play in facilitating the much desired participation between government and people.

2.2. E-collaboration: collaboration Engineering using ThinkLets

ICT enabled collaboration, or more popularly e-collaboration, as a field of research on its own is emergent. It is generally accepted that e-collaboration involves the electronic exchange of information with the goal of the participants playing a role in the outcome of the collaborative process (Kock, 2005). Earlier research on e-collaboration tended to focus on the technology and as such resulted in inconsistent results (Gopal & Prasad, 2000). The over-emphasis on technology with little to no attention placed on the human or social context is reminiscent of the technology determinism that is still broadly adopted in ICT for human development projects (Avgerou, 2009; Heeks & Bailur, 2007). The research project identified with Collaboration Engineering (Briggs, De Vreede, & Nunamaker, 2003) as an appropriate socio-technical approach to e-collaboration.

Collaboration Engineering is an e-collaboration approach where facilitators develop transferable, repeatable, and predictable collaborative processes which can easily be adopted and used by practitioners (Briggs et al., 2003). The fundamental role of Collaboration Engineering (CE) is in training practitioners in the relevant facilitation skills on e-collaboration technology and group dynamics necessary for them to use the e-collaboration technology to create a repeatable process(p. 45). There are three critical requirements for successful CE efforts:

- Easy computer steps to follow
- The e-collaboration technology related facilitation skills must be packaged such that different practitioners using the same packaging will get similar predictable results

- The e-collaboration technology facilitation skills must be packaged such that they can be reused easily to create a new collaborative process by simply re-organising the packages

CE builds around packaging the one to five elemental patterns in which people work together intentionally and/or unintentionally (Briggs, De Vreede, Nunamaker, & Tobey, 2001):

- Divergence – the group moves from fewer to more concepts
- Convergence – the group moves from many concepts to focusing on a few worthy of further attention
- Organising – the group moves from less understanding to a deeper understanding of the relationships within and among concepts
- Evaluation – the group moves to determine the value attached to each concept and the possible consequences of each
- Building consensus – the group moves from having less to having more agreement on each concept.

The principles of CE provided the research project the socio-technical approach that could be imitated to facilitate e-collaboration.

3. Research approach, setting and design

The qualitative interpretive approach was adopted as the research paradigm to identify and harness opportunities for sustained collaboration and interaction between communities and government using ICT. The qualitative approach was preferred because the research involved making inferences based on the subjectivity of human interpretation. Action research was adopted as the research method since the research was investigating a practical problem that involved the context, people and even technology in a participatory manner (Byrne & Sahay, 2007). Action research describes a range of approaches to inquiry which are participative and are grounded in experience and action (Reason & Bradbury, 2001, p. xxiv). Through action research the researchers were able to infer new insights into the community social system whilst at the same time attempting to improve the social system in a quasi-experimental fashion (Kock, 2003, p. 105). Consistent with action research, the researchers were both participants and observers (Whyte, 1991).

3.1. Research design and setting

The research project followed the CE approach as its basis for conducting collaborative decision-making exercises in a workshop style at three research sites. The exercises were repeated nine times in three different field locations in South Africa over three years between 2005 and 2008 (Tables 2 and 3). A locally-recognised institute was selected at each field location: the Siyabuswa Education Improvement and Development Trust (SEIDET) in Siyabuswa, Mpumalanga and bordering Limpopo, the Gijima research lab at the University of Pretoria in Gauteng, and the Lerethlabetse TSC in Lerethlabetse in Lebotloane, North West. SEIDET and the Lerethlabetse TSC are both in predominantly rural areas whilst the University of Pretoria is in an urban area. The common denominator in selecting the

Table 2
Research participants at research sites.

	Lebotloane	Siyabuswa	University of Pretoria
Province where research participants came from	North West	Mpumalanga Limpopo	Gauteng
Number of research participants (2005)	29	22	8
Number of research participants (2006)	24 (1 new)	12	8 (1 new)
Number of research participants (2007/8)	16	18	4

Table 3
Average participant representation.

	Lebotloane	Siyabuswa	University of Pretoria
Women	12	8	3
Men	12	12	5
Government officials	9	6	1
Students	2	0	1
Unemployed	7	6	0
Civil society	6	8	6

research sites was a solid institutional base and the availability of computers. Since the limited research funding did not include the provision of computers it meant that the host institutions needed to have an existing computer infrastructure. Also, since the research project was longitudinal, the institutions could provide better grounds for long-term sustainability. Such institutions are usually already established within their communities. The field locations covered four of the nine provinces of South Africa.

The aim of the workshops was to raise awareness about the process involved in the implementation of the PAJA Act. The PAJA Act stipulates the right to procedurally fair, just, and reasonable administrative action to anyone in South Africa and that any person who has been negatively affected has a right to request a written explanation of why that decision was made. Administrative action is any decision or the lack of a decision which could have a negative impact on an individual or a group of individuals. The PAJA Act requires that a procedural process must be followed when requesting or giving written reasons. The PAJA literally advocates for collaborative decision-making between government and the public in arriving at government decisions.

A great deal of consultation with local leaders went into selecting twenty participants from within the local communities. The leaders at each of the institutions played a significant role in deciding who the most appropriate participants from within those communities would be based on a prescribed criterion. The criterion was to have a cross-section of twenty participants ranging from government officials, fellow community leaders, students, pensioners, social workers and those who were likely to attend. Most participants came as representatives of their organisations (Table 3). A substantial effort also went into preparing the actual locations for the workshops in terms of setting up the computers and workshop logistics.

The Workgroup Edition of GroupSystems® (GroupSystems, 2010) was adopted as the e-collaboration technology to facilitate collaboration. In the exercises, the collaborative decision-making process between participants using GroupSystems® was facilitated using real case scenarios. The exercises were designed following a uniform set of procedures, support material, case scenario, instructions, duration, and facilitation with the goal of being able to create possible repeatable patterns of interaction (Fig. 1).

Data was collected in different forms: the electronic logs of the collaborative decision-making from the e-collaboration technology, observations, videotaping, discussions, questionnaires, written feedback, minutes, reports, and attendance registers. The data collection process is auditable because of the nature of the design.

The next section turns to socio-technical theory to make sense of the data that was collected. Socio-technical theory examines the relationship between society and technology and explains the processes through which new technologies are innovated and introduced into society.
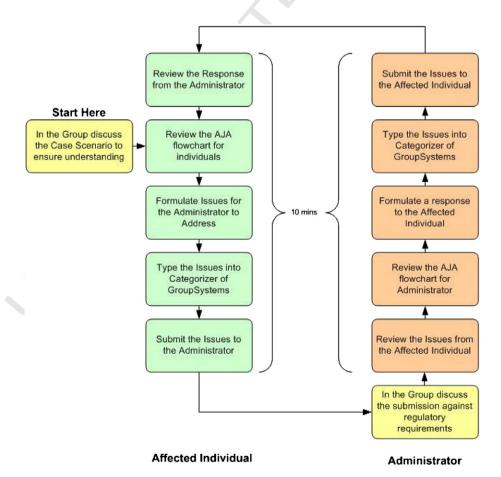

Fig. 1. The participative model of e-governance.

4. Analysis and discussion

Theory in interpretive studies such as this plays an important role in providing insight into social phenomena. Theory can act as both a guide to conduct research and as a theoretical lens to interpret and analyse data (Walsham, 2001, p. 8). There is no theory that can perfectly describe a phenomenon but elements of a theory can be appropriated to understand aspects of the phenomenon. There are two socio-technical theories popularly adopted by Information Systems (IS) researchers to understand the relationship between technology and society: the Social Shaping of Technology (SST) theories and the Diffusion of Innovation theory (DoI). The theories bear a lot on common: they both study the origins and uses of new technologies; address evolution and the rate of technological development; contextualise technology relative to human action, social relationships, and culture; examine the choices that people make about technology; are concerned with the consequences of technology adoption and use; and focus on information flows and communication relationships that foster news ideas and ways of doing things. They however differ in their history, disciplinary roots, theoretical assumptions, and the methodologies (Lievrouw, 2006).

Social Shaping of Technology (SST) studies examine the relationship between society and technology by exploring the unique social processes and contexts that tone technological innovations (Howcraft, Mitev, & Wilson, 2004, p. 239). SST suggests that political, economic, social, cultural, and organisational factors influence the design and usage of technological innovations. Actor Network Theory is the most prominent SST theory. The Diffusion of Innovations (DoI) theory offers a different linear explanation to the introduction and spread of technological innovations within society. DoI proposes a four stage process in which (1) a technological innovation (2) is communicated through certain channels (3) over time (4) among the members of a social system.

This paper adopted the DoI for four reasons:

1. DoI assists in breaking down the process of implementing an ICT innovation in a coherent set of steps or components unlike the SST which is good on describing the process of innovation but not on explaining (Howcraft, Mitev, & Wilson, 2004). Reflecting on these components can contribute to the sustainability of the innovation.
2. DoI has an appeal for community social issues in its contextualisation of technology relative to human action, social relationships, and culture.
3. DoI is concerned with the consequences of technology adoption and the innovative means of information flow (Lievrouw, 2006).
4. Other SST theories are hard to apply in practical situations (Howcraft et al., 2004) and they avoid moral and political issues which are critical considerations in government initiatives (Winner, 1993).

5. The Diffusion of Innovations theory

The four key variables in the diffusion of technological innovations are briefly elaborated on below.

5.1. Innovation

An innovation is an idea, practice, or object that is perceived as new by an individual or other unit of adoption. Rogers (1995) argues that the characteristics of an innovation determine the rate at which an innovation is adopted. These characteristics are relative advantage, compatibility, complexity, trialability, and observability. Relative advantage is the degree to which an innovation is perceived as better than the idea it supersedes. The greater the perception of relative advantage, the higher the rate of innovation. Compatibility is the degree with which an innovation is socially relevant to potential adopters. Complexity is the degree with which an innovation may be regarded as difficult to understand and use; the easier the better. Trialability refers to the degree to which an innovation may be experimented with on a limited basis. An innovation should be able to have been trial run before it is adopted. If it cannot be trial run, then it is harder to have it adopted. Observability is the degree to which the results are visible to others. The easier it is for individuals to see the results of an innovation, the more likely they are to adopt it. Such visibility stimulates peer discussion of a new idea. A technological innovation which is perceived by individuals to have greater relative advantage, compatibility, trialability, and observability and less complexity has a higher potential for adoption.

5.2. Communication channel

Innovations are based on communication as the process in which participants create and share information with one another in order to reach a mutual understanding. The communication channel is the means by which messages get from one individual to another. Rogers (1995) suggests that, although mass media is good for creating the knowledge about the innovation, interpersonal channels are more effective in forming and changing attitudes.

5.3. Time

There are three sub-elements in time: innovation–decision process is an information seeking process where an individual passes from first knowledge of an innovation to forming at attitude towards the innovation, to a decision to adopt or reject, to implementation of the new idea and to confirmation of the decision. The second sub-element is innovativeness which refers to the degree to which an individual or other unit of adoption is relatively earlier in adopting new ideas than other members of a social system. To this sub-element there are five categories: innovators who are curious about new ideas—these are very important for new ideas; early adopters who are more integrated in a local context than are innovators—they serve as role models and decrease uncertainty for others by adopting it and conveying a subjective message to peers through interpersonal networks; early majority—this group are the large part of the interpersonal networks, usually followings and influenced by the opinions of early adopters; late majority—they adopt a new technology just after the early majority as a result of peer pressure and are usually sceptical about innovations; and laggards—they are suspicious and actually resistant to innovations and change, and so they do not have any impact on local opinions because their point of reference is usually the past. The third sub-element on time is rate of adoption which refers to the relative speed with which an innovation is adopted by members of a system. This is usually measured by the number of people who adopt the innovation.

5.4. The social system

This is a set of interrelated units that are engaged in joint problem-solving to accomplish a common goal. The social structure and norms affect how an innovation will be accepted. The norms refer to the culture. Opinion leadership is an important aspect of the social system, it is the extent to which an individual is able to informally influence other individuals' perceptions with relative frequency. A change agent is one who seeks to influence other individuals towards what the change agency believes is better. A final critical mass is where enough individuals have adopted an innovation that further adoption becomes self-sustaining.

5.5. Criticisms of Diffusion of Innovations theory

DoI is criticised for being technologically deterministic in its treatment of innovations as a given, unitary and stable phenomenon throughout the diffusion process, and in its assumption about a linear

rate of adoption as depicted in the S-shaped curve. DoI's linear top–down suggestion of how the four variables come together towards the adoption and implementation of an innovation does not apply to the complex societal mix and participatory approach that the research was investigating.

Innovations include processes of design and use, negotiation and consensus, engineering specifications, market demand, channels and content, the material, and the social in a dynamic relationship between contingency and determinism (Lievrouw, 2006). Determinism attempts to impose uniform structure to attain preconceived outcomes whereas contingency is accepting of the variety of situations due to uncertainty. DoI in this respect, in terms of the origin of the technological innovation, the actors, dynamics, and the distributive channels leans more towards determinism yet with regards to choice and consequences, it leans more towards contingency. ANT, on the other hand, leans more towards contingency on all counts.

5.6. Analysis using DoI

5.6.1. Innovation

The research project innovation was the use of e-collaboration technology in a workshop setting to assist in raising awareness about the PAJA. The rate at which the innovation was adopted is reviewed through the four innovation sub-lenses: relative advantage, complexity, trialability, and observability.

5.6.2. Relative advantage

Relative advantage can be assessed using economic and social indicators such as costs and individual perceptions. Perceptions of relative advantage are considered to be directly proportional to the rate of innovation.

The research participants noted that it would make more economic sense to use such an e-collaboration technology to interact with government rather than the alternative of travelling to the next government service delivery point, wait in line and hope that the request will be accepted. For example, some of the comments typically included:

S01117: "*save me time and money (travelling expenses)*"

S01120: "*I will not (use) more money for transport, faxing etc.*"

It is easy to understand the convenience that ICT can offer when used as a means to collaboratively interact with government seeing that in most non-urban areas, it costs in the region of R50 (equivalent of about $8) to travel to a government centre to access the same services. R50 is a lot of money for many people living on the outskirts of communities. In instances when the government service is not ready, people are easily told to return another day. The implication of returning only to be informed that the application or service is further delayed or has been denied is financially and emotionally devastating.

In terms of the social benefit, the participants from the rural communities were evidently excited to be able to use computers to interact with government officials. Interaction with government is generally regarded with fear probably reminiscent of the old apartheid regime. ICT provided a non-threatening environment.

S01107: "*It is a simple way to answer me for my application, because answers comes fast, rather than going there (physically).*"

S01101: "*Because computer(s) make thing(s) easy and fast, the administrator (can) help people because of the (bad) living conditions.*"

On the other hand, the participants from the urban areas were very sceptical about ICT having any ability to contribute to participatory governance. The following expresses the typical urban sentiment:

UP07: "*I really have to think more about this—the hacking and misuse of this technology is worrying; will it really make things quicker and effective? In some ways yes it might and other ways no. I still believe we need some human contact/element in our service of one another. Where there is more parity may ok but let us make sure we don't increase gap between economic resource parity but decrease it. Thank you for thought provoking day.*"

UP12: "*I don't think our government officials are ready for this. Besides, our people in the deep rural areas of our country—also some urban areas don't have access to technology. Government officials need to be acquainted in working with (coordinating) people in line with the Batho Pele principles. I think technology needs to be used in a limited way. We cannot work like robots. A face to face intervention is always recommended.*"

In summary, the e-collaboration experience was socially and economically perceived to be better than the traditional non-ICT means of communicating with government in the rural areas. It was, however, not socially perceived to be better by the people in the rural areas.

It remains a question as to the extent to which the finding in the rural area is a result of the novelty of the technology or other social factors. As with most technology adoption, technology users become more particular as they become more familiar with what the technology can achieve for them, as may be the case with the people in the urban areas.

5.6.3. Compatibility

Compatibility is the degree with which an innovation is socially relevant to potential adopters. The research participants were not selected by the researchers. It was the task of the community leaders to choose twenty adults (above eighteen years of age) from a range of sectors regardless of background (Table 3). The cross-section of representation of government officials, community leaders, not-for-profit organisation representatives, people with disability or differently abled people, poor people (indigents), students, teachers, the employed, and unemployed and representatives from the business community.

In terms of compatibility, at the first workshop in 2005 at Siyabuswa, a total of about fifteen computers had been set up to be used. However, on the day of the workshop, only five were usable; there was a hardware and software problem that had rendered the rest of the computers unusable. Initially, it has been envisaged that each person would use a computer individually and it was evident that a number of people who had never used a computer were apprehensive and were already murmuring about what to do. Hence, because of the computer problem, it was decided that the participants would work in groups. It turned out that working in groups was preferable to working individually as people were then able to come together and in the small groups comfortably have a discussion before using the computers. Whilst working in the small groups, participation was enthusiastic.

In summary, the CE approach was compatible for people working with ICT in smaller intimate groups of people rather than individually where the individuals were more apprehensive of the ICT.

5.6.4. Complexity

Complexity is the degree with which an innovation may be regarded as difficult to understand and use. The easier it is, the greater the potential to be adopted. Working on the computers was carefully facilitated by the researchers. The researchers assisted groups which did not have anyone with typing skills. This was acceptable

to all the groups. The groups would then get together and discuss the case, and give a response.

The group approach to communication also overcomes the lack of computer skills or even illiteracy if a mediator could be appointed for each group. The suggestion fits in with another government initiative which holistically trains community development workers to assist such people to interface with government. Working in groups as well as the provision of a mediator to use the ICT greatly reduced the complexity of the innovation.

5.6.5. Trialability

Trialability refers to the degree to which an innovation may be experimented with on a limited basis. An innovation should be able to have been trial run before it is adopted. If it cannot be trial run, then it is harder to have it adopted.

At each of the workshops, it was emphasised that the researchers were conducting research and requested the participants to be as open about their experiences as much is possible. The researchers continually emphasised that feedback would enable an improvement of research on the process of participating with government using ICT.

Despite the continued reminder that this was a research project, the researchers constantly received requests from research participants to assist them with the ICT so that they solve similar community problems. The participants' expectation that the researchers would assist outside the research raised an ethical issue of action research especially in the rural communities about research raising expectations which cannot be met.

Action research often raises the expectations of participants who assume they will be rewarded in some way—not necessarily in monetary terms but that there will be a favourable outcome. Even though the researchers articulated that they do not have the power to effect such changes, it was hard to control the expectations of the participants.

In summary, action research provided a conducive method to trial run the innovation yet at the same time, presented ethical issues around raising expectations.

5.6.6. Observability

Observability is the degree to which the results are visible to others. The easier it is for individuals to see the results of an innovation, the more likely they are to adopt it. Such visibility stimulates peer discussion of a new idea.

The exercises were well captured by the participants. Several participants commented at the second workshops of 2006 that they had received opportunities to share their experience and to leverage their new knowledge of the PAJA as a result of the workshops. Some of the responses included:

S08July2006: *"Yes. One of the members involved in the workshop helped another member also at the workshop, this was in concern of a transfer of a child grant that was transferred to the bank but was paid to a wrong person. The one member went to the another and they reapplied and stop(ped) the wrong transaction."*

In summary, the degree of observability of the e-collaboration experience was very high.

An innovation which is perceived by individuals to have a greater relative advantage, compatibility, trialability, and observability and a less degree of complexity, the greater the potential that the innovation will be adopted. The potential that e-collaboration as an innovative tool to collaboratively negotiate with government was therefore high.

5.6.7. Communication channel

This is the process in which participants create and share information with one another in order to reach a mutual understanding. Interpersonal channels are effective in forming and changing attitudes.

The research design in terms of the social setup was such that groups could interact with one another in real time and to a limited extent anonymously. The researchers used the Categoriser tool of GroupSystems® which is ideal for enabling people negotiating with each other to come to a mutual understanding with the assistance of a facilitator. The researchers allowed interpersonal communication between the participants and from the comments on observability, there seemed to have resulted in new and changed attitudes.

CE using ICT as the communication channel formed an important part of the research, CE advocates for the creation self-driven facilitation packages that will not need an external facilitator. Group Support Systems proved to be an appropriate communication channel to enable participation between the participants and government officials.

On the other hand, there were concerns from the urban areas that ICT as a communication channel might rather exacerbate the problem of unemployment and poverty. The fear of greater problems as a result of ICT being introduced as a communication channel is not new. The necessity therefore to emphasise that the use of ICT is not a foe but an ally is important.

In summary, e-collaboration offered a better communication medium that enabled participative collaboration between government and citizens. The scepticism of job losses because of ICT would have to be dealt with as an important process of introducing the innovation to communities.

5.6.8. Time

In the three years in which the research was carried out, the research participants were intentionally limited to those who attended the first sessions in 2005. It was for the sake of retaining research validity and to pick up the effect over a period of time. Despite attempting to restrict the size of the research participants, there were constant requests to allow their other community members to participate and to spread the research into other areas so they too can share the same learning experience. For example this comment expresses more emphatically this urgency:

S08July2006: *"The community must be informed of such initiatives and how best they can benefit. This should be a gradual process and not an initiative that is introduced and abandoned to die."*

The aspect of time was therefore not measurable but from the requests to expand and allow more people, it can be inferred that the research participants passed from first knowledge to forming positive attitudes about the use of ICT to collaboratively negotiate with government.

5.6.9. The social system

A social system is a set of interrelated units that are engaged in joint problem-solving to accomplish a common goal. In the research project, the participant groups consisted of a cross section of people from within the communities. The researchers as change agents sought to influence members of the communities towards understanding the PAJA and the potential use of e-collaboration technology to collaboratively negotiate with government.

A final critical mass of the social system is the critical mass where enough individuals have adopted an innovation that further adoption becomes self-sustaining; the basis of the CE to create a self-driven repeatable and predictable pattern of action which is contextually self-sustaining. Unfortunately due to the financial constraints of every research the funding run out at the end of 2008. The paper nonetheless posits that it would require buy-in from government to implement such a participatory approach using ICT.

6. Conclusion

In reflecting on the purpose of this paper to investigate the role that ICT can play in facilitating the much desired participation between government and people, the findings show that ICT, particularly when innovated as a critical part of the social structure of a community, appears to create a shared space where communities can engage with government. Whilst many people in the communities in South Africa are still afraid to directly interact with government in reminiscence of the apartheid style of governance, ICT was able to ease the community members into the same space and cause them to feel that their ideas were recognised.

The research also revealed that people from communities prefer to work in groups rather than individually. The collectiveness is a common denominator of many developing countries where people choose to come together in order to leverage the few resources that are available. When made to work individually, the members of the communities become apprehensive. It is therefore a principle of design to consider using e-collaboration where ICT enable groups of people to interact with government rather than people in their individual capacities.

E-collaboration can be blended into South Africa's public participation programme (formerly called an imbizo) where the ICT is innovated using the Collaborative Engineering approach (Briggs et al., 2003) to create the enabling environment that allows true participation. The enabling environment overcomes the trend at the imbizos where critical issues may be avoided in preference for other non-critical community issues as determined by community elites, influential people, or even as a result of time limitations. The recommendation is plausible seeing that ICT is already being rolled out across South Africa. Further, the mobile phone penetration in South Africa, currently standing at 92.67% (ITU, 2010), means that mobile phones are a prime candidate to facilitate participation as part of an e-collaboration effort. The popular social networking applications such as *mxit* and *tweeter* can be used as mobile tools that allow any individual with a mobile phone to participate with government. However, since mobile phones are typically used individually and not in groups it is worth investigating further the use of mobile phone by groups for collaborative purposes. Regardless, there is a need to affirm that ICT does not necessarily lead to a loss of jobs.

The research also shows that e-collaboration presents a meeting of a bottoms–up and top–down approach where government can actively explain its intentions to communities whilst at the same time, the communities express their needs. In the process both government and the communities learn from each other. The result if focused on a development initiative for the community would lead to a more acceptable initiative which will work rather than an imposed initiative however good its aims, that will not be accepted.

South Africa is emphatic on its development goals in terms of creating a national heritage of empowered citizens working in close collaboration with the government. The use of ICT to fast-track development initiatives at the national level has some challenges most notably the community failure to adopt the initiatives and the inability to correctly harness the ICT resources currently being rolled out. The paper shows that when ICT is used as a means for participation based on practical issues facing the community and its individuals, the chances of acceptability of the ICT are much higher.

The research argues that e-collaboration is suitable in communities even when citizens do not have basic computing or literacy skills. The research found that there are sufficient resources to operate ICT in every community in South Africa, which resources are culturally happy to assist such small groups to interact with government.

This being research, the paper is only able to posit that if government adopted the above re-design of ICT in its communities to suit small groups, the participatory governance would be enhanced using ICT.

In terms of methodology, whilst action research was excellent in practically acquiring an understanding of community practices, the research encountered the ethical problem of raised expectations. The research participants assumed they would be rewarded in some way—not necessarily in monetary terms but that the researchers owed them something. Despite every effort of the researchers to articulate the limitations they have in terms of funding and influence with government programmes, it was hard to control the expectations of the participants.

6.1. Further research

The research shows the need to re-consider the design of community ICT, whether the artefact is the traditional computer or even the mobile phone, to cater for groups rather than individual usage. The suggestion alludes to the adoption of design research as a possible research method to investigate the creation of such an ICT tool. With the creation of the tool it would be necessary to implement the participatory e-governance approach in an existing government initiative.

7. ~~Uncited reference~~   Q7

~~Twinomurinzi and Phahlamohlaka, 2006, September 18–20~~

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Jackie Phahlamohlaka... still to be uploaded. Q8