

Being Participated-A community approach

Heike Winschiers- Theophilus,
Shilumbe Chivuno-Kuria,
Gereon Koch Kapuire
Polytechnic of Namibia
Private Bag 13388, Windhoek
Heikew, schivuno,
gkapuire@polytechnic.edu.na

Nicola J Bidwell
Meraka Institute, CSIR
P.O. Box 395
Pretoria, 0001, South
Africa
Nic.bidwell@gmail.
com

Edwin Blake
University of Cape Town
Private Bag X3 Rondebosch,
7701. South Africa
edwin@cs.uct.ac.za

ABSTRACT

In this paper, we explore the concept of participatory design from a different viewpoint by drawing on an African philosophy of humanness -Ubuntu-, and African rural community practices. The situational dynamics of participatory interaction become obvious throughout the design experiences within our community project. Supported by a theoretical framework we reflect upon current participatory design practices. We intend to inspire and refine participatory design concepts and methods beyond the particular context of our own experiences.

Author Keywords

Community participation, rural interaction design, African context

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H.5.2 [Information Interfaces and Presentation]: User Interfaces – Evaluation/methodology, User-centred design;

INTRODUCTION

Although Participatory design (PD) has evolved over many years in different parts of the world, as one of many paradigms in socio-technical systems' development, its use remains challenging. While a general consensus on the importance of user involvement in design activities has been reached, the concept of user involvement is only loosely defined and therefore varies greatly from one development context to the other. Differing understandings of participation are held by different societies based on local value systems. We often encounter paradoxes when developers and users originate from different socio-cultural values systems, as is more and more frequent in international design teams across the globe. In these situations even the underlying systems of knowledge may be contradictory and incompatible. Local participatory performance is guided by implicit and explicit rules that aren't always obvious to community outsiders.

For example, lower ranking members in a hierarchical society are not expected, though not formally prohibited, to publicly and openly express opinions. This might seem unjust and counter productive from the perspective of an

egalitarian system. Therefore, PD approaches need to account not only for diversity between individual people and groups but also cultural variations and dynamics. (Byrne and Leopoldo, 2004) provide strong empirical justification for appreciating the contextual nature of PD by comparing case studies in designing health information systems in South Africa, Mozambique and India. They conclude that *“there is no single algorithmic best practice regarding participatory design in information systems which is applicable to all situations”*. This is confirmed by Winschiers, (2006), who demonstrated that common PD methods, such as Future Workshops and Brainstorming, which are based on western communication structures, were incompatible with Namibian user groups' socio-cultural habits. Walker et al, (2008) further doubt that methods devised for the developed world will prove appropriate in the developing world. Similarly, in the context we are working in, it is more useful to emphasis on “community” rather than individual” users. Brereton and Buur, (2008) indicate that *“new formats of participation can be characterised by their sensitivity towards new types of network relations among people, the diverse motivations of people to participate, the subtle balance of values and benefits involved in collaborative endeavours, and the inherent power relations between participants.”*

Tacchi and Watkins, (2007) propose that local participation must involve an interpretive approach to understand the socio-economic, cultural and political context that shapes the behaviour and actions of system users. Especially in a cross-cultural context, user involvement should include an appropriation of the design process itself (Winschiers-Theophilus, 2009). This extension of user participation brings about an entire new set of challenges and open questions, regarding issues such as, the change in role of participants and developers, as well as choices of methodologies and their contextual evaluation.

In this paper, we illustrate our own participatory design interventions and reflections within Southern African communities as we explore the theoretical grounds to draw methodological conclusions. Our purpose is twofold, first we seek to learn from our current Southern African rural community project by interrogating and revising our existing conceptions of PD. Secondly, we aim to infuse the evolution of PD with insights from Africa and cross-cultural design so that PD can better serve the global but locally diverse village.

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A CRITICAL VIEW ON PARTICIPATORY DESIGN

The challenges of participation in cross-cultural design contexts are particularly evident in designing and implementing Information and Communications Technologies (ICTs) for socio-economic development. Puri *et al.* (2004) argue that PD and the implementation of ICT in developing countries bring new challenges to fostering and nurturing participation. In this section we first explore the differences between the developers' and users' approach to PD in a typical scenario of ICT for development context in Southern Africa. Major gaps between the two groups are based on contrasting sense of self, individuality and community, orality versus print-based literacy, and technological skills versus local situational knowledge. Considering these differences enables us to review PD concepts and methods appropriate to specific development context while creating a common meaning.

THEORETICAL GROUNDING FOR COMMUNITY PARTICIPATION IN SUB-SAHARAN AFRICA

While following a genuine approach to PD, failures can be attributed to an underlying misconception of a common understanding of PD, assumptions of participant roles, underestimation of the complexity of the encounter and disregard for the local values and socio-cultural habits guiding interaction protocols. Underpinning such problems are fundamental tensions around an anti-democratic reading of participation. Democracy is an assumed goal in the development agenda and with few exceptions, (e.g., Beck *et al.*, 2004), is associated with particular communication protocols and methods to enable the successful local uptake, ownership and domestication of ICTs. Thus conflicts arise relating to power relations between culturally-specific systems of participation. Reasoning in Indigenist frameworks which recognise the relationship between what participation means and knowledge practices (Martin, 2003) motivates us to draw upon local epistemologies. Applying such a sensitivity to Sub-Saharan communities means appreciating that the way of life is deeply rooted in a paradigm of "connectedness of all", expressed in the aphorism "a person is a person through other people"¹. This is based on an African (Bantu) philosophy, identified by the term *Ubuntu*², which variously means, "humanity", "humanness", or even "humaneness". This has been expressed by one of the first writers on the topic, (Mbiti, 1990 p.106) as: "I am, because we are; and since we are, therefore I am". While Mbiti never used the term Ubuntu itself, he insists that it is the cardinal point in understanding the African view of humanity. In that sense Ubuntu reflects a critical discourse because it includes the

¹ In Zulu it is "umuntu ngumuntu ngabantu", in Sotho we have "Motho ke motho ka batho babang" while in Otjijherero it can be rendered as "omundu omundu okuza movandu varue".

² Related words are found in many African languages, for example, in Swahili it is "Ujamaa" which was adopted by Julius Nyerere of Tanzania for his brand of African socialism. Since it is a powerful and loaded concept it has also been subject to misuse and overuse (Munyaka and Motlhabi, 2009).

voice of all participants and the building of consensus. In fact that sense of community is much wider than normally regarded in Western societies (it also includes the ancestors). As Mbiti puts it:

"In traditional life, the individual does not and cannot exist alone except corporately. He owes his existence to other people, including those of past generations and his contemporaries. He is simply part of the whole. The community must therefore make, create or produce the individual; for the individual depends on the corporate group".

Storytelling, inclusive decision making and participatory community meetings are key features in traditional rural African communities. In Francophone Africa the term *palaver* is used for this institution. The Congolese theologian Bénézet Bujo, (2009) refers to it as the "efficient institutionalizing of communicative action" (Bujo, 2009)

"In seeking a solution for a problem, they share experiences, refer to the entire history of the clan community, and consider the interests of both the living and the dead. The procedure can be time consuming as it is carried on until consensus is achieved".

Here we focus on two major implications for PD interactions: the role of each participant (community members and developers); and the methodological consequences.

In local rural African communities 'participation' is a long term established practice, observable in daily life; thus, the focus of methods for participation differ from those common in PD. Emphasis is no longer on facilitating a joint design activity which brings individuals together but rather guiding a closed group towards a design output. Thus again we find ourselves asking what is the appropriate role of the outside design practitioner or researcher in relation to the closed community during the joint design interactions. After all, following the Ubuntu principle would suggest:

"I am not just a researcher/developer but part of a wider community encompassing the users and together we derive a communal existence and within that communal existence, I am".

Designers in a community computing context must therefore accept the dynamics and expanded roles which are negotiated after a lengthy initial process of social grounding (Merkel *et. al.*, 2004). Accordingly, as we conform to community ethics, we may have to violate our own pre-defined role.

ORAL USERS' THOUGHTS AND ACTIONS

Much of PD in implementing ICTs in rural development relates to integrating non-local systems of knowledge, such as scientific medicine, education or particular work practices. The systems we use to organize knowledge, such as chronologies, taxonomies, cartographies, authorship, are produced in particular socio-cultural discourses which themselves are entwined with particular values and constructs of community. For instance, written literacy is embedded with values such as freedom to information, "efficiency" and "individualism". A paradox arises when seeking to implement a system to support

local systems of knowledge that are embedded with non-Western values. That is, values inherent in Western readings of participation can displace other knowledge traditions (Green, 2007) with direct impacts on ICTs.

As Sherwani *et al.*, (2009) point out, when a community emphasises the oral information transfer “all information is social and traceable to a person”. This has a major impact on design decisions. For example, in a first implementation of a Southern African Bush encroachment system a sophisticated reasoning shell was used and paths displayed at the interface whenever a decision was proposed to a user. However none of the farmers were interested in logical reasoning but instead wanted information as to whom that they know has followed the proposed decision (Winschiers-Theophilus *et al.*, 2008). Similarly, the design of an Australian GPS-based system aimed to persist traditional knowledge on fire did not support the nuances of information transfer when an Elder passes on his knowledge while “walking country” (Bidwell *et al.*, 2008).

It is extremely difficult to escape our own traditions of knowledge transfer and recognise the ways power relations affect design decisions. Often we unwittingly adopt a compensatory attitude by considering differences as “deficiencies” to be remedied. For instance, in designing for an ‘illiteracy’ of some sort we often de-centre those logics and skills that we are illiterate in ourselves: HCI commentary on what oral users do not do, cognitively, (Sherwani *et al.*, 2009) decentres what users achieve with words that we do not. It stems from a now refuted view that writing itself enables detachment and objectivity (Finnegan, 2007) with no account of the relation between verbal explanations and schooling practices (Hull and Schultz, 2001). Systems that neglect core processes in transmission can erode special cognitive skills; for instance Western schooling hinders the otherwise superior performance of certain groups of Australian Aboriginal children on visual spatial memory tasks (Kearins, 1978). This brings to our attention that the processes of PD adopted can potentially play a role in devaluing particular logics.

Oral cultures often rely on story-telling as means of information transfer. While story-telling has been deployed as a PD method it rests on prescribing a particular way to tell a story. Conventions of univocal voice, chronology and linearity have emerged within Western media traditions and conceptions of stories and storytelling in a text-based culture and “secondary” orality. Our views of where a story ‘comes from’ and who is permitted to voice it are also cultural; for instance, a Western constructivist view, that authors control narrative and listeners determine meaning, is in stark contrast to cultures where stories are ‘owned’ by ancestors or the land. Internationalizing interfaces with local language or culturally-sensitive icons makes software accessible to those excluded by textual illiteracy; but, to design applications suited to strong oral traditions, we must go beyond re-purposing western styles of recording. To achieve this we need to appreciate storytelling in a way that does not implicitly impoverish the voice of the ‘other’.

Participatory interactions in oral cultures rely on verbal and performed actions, rather than paper or technology based artefact. Thus applicable techniques differ fundamentally.

MERGING PARADIGMS OF ACTION RESEARCH AND PARTICIPATORY DESIGN

PD remains problematic until participants acquire sufficient ICT literacy (Maunder *et al.*, 2007). The goal of designers in participatory community computing is therefore to facilitate the process of learning about ICT (Merkel *et al.*, 2004). Different approaches in the literature aim to alleviate the conceptual gap between developers and users. Walker *et al.*, (2008) suggests “train local people to take on design roles and self-report their progress with the technology as participant ethnography.” Inherent in such a process is that “local knowledge must be explicitly acknowledged, and activities constructed in way that give local stakeholders time and space to safely explore options and make choices in time of change, so that they can gradually, if they so choose, alter their practices to incorporate outside knowledge”(Walker *et al.*, 2008). Blake and Tucker, (2006) described initial thoughts on an approach merging methods from the field of HCI, PD and prototyping under the umbrella of Action Research. The design iterations of intervention and reflections allow a user group to learn about ICTs, their possibilities and malleability, while the developers learn about the socio-cultural usage context (Blake, 2010). Therefore an important focus in PD interactions is the mutual learning of developers and users to create a common meaning about the possibilities of ICT and the development priorities of the community in question. Thus designers and facilitators become technology interventionists, with the purpose of seeding new ideas in the community and jointly reflecting upon the usage and action. Brereton and Buur, (2008) found developing and modifying prototypes, as catalysts, in response to many informal discussions, observations and actual use most effective to understand future use. But most of all, do the phases of joint interventions followed by reflections lead to a better understanding of the design process itself.

PARTICIPATORY COMMUNITY PROJECT

We first introduce the project context and the challenges encountered in the participatory interventions within our project. We then reflect on a number of methodological issues that arose.

PROJECT BACKGROUND

In 2008 we established a formal research cluster at the Polytechnic of Namibia with the intention of developing a community based indigenous knowledge management system with selected pilot communities as a proof of concept in terms of methodology and outcome. The idea arose from our recognition of the importance and value of indigenous knowledge for sustainable development in sectors such as health, agriculture, animal husbandry and many others. While we benefit, on a daily basis, from products and practices grounded in indigenous knowledge systems we also observe a general tendency of fading away of the knowledge and applications. Local knowledge has been passed on over generations through narrations and songs, performed actions and artefacts.

Urban-rural migration has both undervalued and interfered with the knowledge transfer mechanisms that integrally construct the knowledge. The wise elders can no longer directly pass on their knowledge to the next in line, as the latter have migrated, albeit often temporarily, to towns. On their regular visits to the rural area migrants are no longer in touch with the lived practices. We are therefore concerned with the preservation and local re-dissemination of applicable indigenous knowledge.

Our major design challenge lies in an appropriate translation of an African Indigenous Knowledge System into ICTs, as common data structures, retrieval mechanisms and user interfaces do not support local African oral and performed knowledge systems. Thus to avoid an inappropriate technology driven solution and with the background that we as externals will never fully comprehend the communities' knowledge system, full participation of local communities becomes indispensable. However to ensure a truly PD a number of hurdles have to be tackled, such as the conceptual gulf of indigenous knowledge and ICT, the language barriers, the agenda and role of individual participants, the dynamics of process management and control, trust and acceptance and the type of interactions. The first step in this has to be the adoption of a compatible ethical outlook as embodied in the principle of Ubuntu.

PARTICIPANTS

Our design team consists of community members of Herero ethnicity at two sites in the east of Namibia, local researchers, students and associated external researchers. In both communities one Elder is our main point of contact and is informed of or involved in all project activities. Our research team consists of a Namibian who is a community member of one of the research sites and thus mostly the interface of community and researchers. A second locally-based researcher, of European origin, has resided in Namibia for sixteen years with a research focus on cross-cultural evaluation and appropriation of PD methods. The three external researchers who joined the project in 2009 include: a South African Professor grounded in critical action research with over a decade of ICT projects with African (indigenous) communities; an Australian interaction design researcher specializing in rurally-situated ICT and experienced with Indigenous Australian and African communities; and, a European Professor with skills in encultured conversational agent technology and recent project experiences in Japan. A number of local and overseas students are directly and indirectly involved in specific project parts. External academic partners in Germany and South Africa supervise students who implement different prototypes as specified by us and tested in the field.

RESEARCHERS' PARTICIPATORY GROUNDING

As an international researchers team we take a dialogical approach to PD (Winschiers, 2001). Bohm (2007) differentiates cogently between discussion and dialogue; where a dialogue allows for respect of all participants by suspending judgement and, does not have the aim to convince the other of the rightness of one's opinion, but is seen as a platform, or shall we call it a true participatory method, to jointly create the new not as the sum or the

merge of individual pre-factored ideas. For the purpose of PD users and their activities, interactions and opinions, live in sets of relationships between ourselves, others and the context. We consider any account about users' suggestions and experience, including those that are analytical and those realized by prototypes, to be part of an evolving design product. As designers we experience these accounts as we 'converse' with multiple perspectives and diverse aspects of settings. This sensitizes us to our own relationships with those objects in our enquiry that arbitrate how we align understandings with our users. Second, we frame our design process following a critical action research approach (Blake, 2006), to introduce technology and design concepts. Together these positions mean we undertake a process of reflecting on our current understanding of users and our relationship with them and then introduce appropriate tools for data gathering and interpretation and design conceptualisation

CONSTITUTING THE PARTICIPATORY DESIGN GROUP

EXPLOITING PERSONAL RELATIONSHIPS

The community described in the following was chosen on the basis of one of the researchers having personal roots in that village. The researcher grew up in that rural community and later migrated to Windhoek, the capital city of Namibia. While close relatives remained in the village, the researcher regularly returns and participates in all rural activities as expected by the community. The researcher has his own distinctive personal relationships with each member of the community based on his gender, age, family position and shared history. His kinship facilitates trust building and community members' commitment towards PD.



Figure 1. Researcher with Elders.

In accordance with the community protocol and the research purpose the main point of contact is the village elder, who is perceived to be the most trustworthy and knowledgeable by all villagers. He is the one from whom consent was sought for the project to take place in the village, he is the one being involved in or informed about all research activities. He is also the one supporting the researcher in soliciting involvement from other community members. Each of the researchers was first introduced to him. The elder's relationship and trust with us researchers has built up over several 2-3 day visits. His increasing comfort with the project activities can be

clearly seen on the recordings, where he started off rather hesitant to become the most eloquent narrator today in our and the cameras' presence. All conversations are conducted in Otjiherero, with the researcher from the village translating if appropriate and required and not disturbing the flow of interaction. The researcher is well acquainted with the purpose and objectives of each trip and planned activities thus needs no guidance during the interactions.

DETERMINING ROLES AND AGENDAS

While the original research and development idea of an indigenous knowledge management system was born among the local researchers in the capital and adopted by the external researchers who joined, we identify very distinct motives among the researchers and as the project progresses among the community members. Equally influential to the PD process and outcome are the different roles taken on by the individual participants during each encounter.

In the capital, the external researchers are highly influential in terms of project processes and planning due to their research seniority. However in the rural site the researcher originating from the village is the main actor. The ones of us who are younger and/or female take on the host societies' customary docile roles independent of our professional positions in the capital or our cultural background.



Figure 2. Researchers and Community Member.

Since once we are sensitive to the hosts' customs the important position of our one researcher gets reinforced and gives him the right influence for interactions with the community members. The researcher has two natural positions within the research and the rural community and assumes a distinct third role at the interface of the interactions. Being a youngster amongst the village elders he is expected to be an active listener only but not an interrogator or initiator of actions. Thus a very delicate act of balancing participatory activities is required. Equally the elder, who is used to be the leading person, needs to be informed ahead of the other community members of any upcoming planned participatory sessions and fully comprehend its purpose and technique. Thus during the first visit, the purpose of the entire project was explained, his commitment to active involvement was obtained. Sample recordings were done with a few directed question and answers as well as free story-

telling.

Only at the second visit were other community members included for a discussion concerning the project, questions of knowledge dissemination and intellectual property rights. None of the villagers could relate to the concept of economic benefits of knowledge. On the contrary, they felt flattered to be consulted and re-emphasised the importance of their traditional knowledge for their identity and their wish to have it broadcast out in the world. One of the expressed hopes was that recordings of their village life and practices would raise awareness of government and other bodies as to how much support in terms of water, electricity and ICT supply is needed. These are relevant points to our project in terms of design space around the current lack of electricity and ICT connections. In terms of immediate economic benefits, we are compensating the community members in monetary or food for their direct availability in project activities.

Currently we are uncertain about community members' own understandings of their active role in the design of the system. For some villagers it has been the first time to use a cell phone or computer applications. However, trapped within our own conceptualisation of ICT solutions and a lack of fully comprehend the indigenous knowledge system we are aware that we cannot design for the community but that only a real PD will lead to a useful and usable system.

MANAGING THE OSCILLATION OF PROCESS CONTROL

During our repeated 2–3 day stays, it became apparent that planned activities related to the project cannot be imposed but must be accommodated within villagers' daily schedules and we must recognise that villagers are busy most of the day. In some instances we spend much time waiting for participants' availability unsure about whether planned activities, often themselves constrained by daylight hours, will take place. This created some anxiety within the research team as we learnt to accept that events would not be as planned but were determined by the community. We learnt to appreciate that villagers' socially oriented activities which may at first sight seem leisurely are a vital and purposeful part of community practice. During each visit we oscillate through different participatory activities, such as researchers participating in community initiated activities, which are either natural or aimed to guide the researchers. On other occasions community members participated in researchers' designed activities such as contextual interviews, technology probe trials and reflections, as well as prototype evaluation.

We now consider the non-planned community driven activities equally important within the overall PD exercise. On the one hand knowledge on community practices led to the researchers' better understanding of the adequacy of design decisions as well as methods, and on the other the researcher participating in user driven activities creates equal grounds for participation. This starts to tackle the often referred to power gap, leading to users' feelings of intimidation and performance anxiety (Sherwani *et.al*, 2009). However, user-driven joint

activities are not always seen to be directly related to design outcomes and might be considered to be a waste of valuable field-work time. The overall project outcome speed seems slow, which at times creates frustrations for both researchers team and community members. The latter expect a finalised system while researchers suspend own design ideas in attempts to minimise pre-empting communities design suggestions. The entire endeavour becomes a difficult act of balancing participant backgrounds and expectations in relation to the process and outcome and role within the project.

PARTICIPATORY DESIGN INTERVENTIONS AND REFLECTIONS

With our commitment to empowering community members to co-design the system, a major challenge was to identify techniques to enhance design thinking among participants while being truly participatory. We, the research team, had numerous discussions regarding the best methods to employ.

PARTICIPATORY COMMUNITY MEETINGS



Figure 3. Elders with Community Researcher.

Our first visits were dominated by community conversations, a long established method for villagers to exchange information, elaborate problems and take decisions. Usually a number of elders and a couple of youngsters are seated in a big circle, with the elders dominating the discussion. Often, we prompted their discussions by replaying previous recordings of the elder. Community discussions centred around the value of preserving and transferring indigenous knowledge and the importance of recording only trustworthy narrators for information veracity and validation. Side remarks identified gaps of knowledge among the people present. We also directed a discussion on intellectual property rights, knowledge dissemination and privacy. We recorded all discussions for post-situ translation and analysis. Our contribution to the dialogue was minimal, mostly due to the language barrier. In some instances, quick and dirty translations lead to misunderstandings from our side, leading to inappropriate questions at the wrong time.

REFLECTION: SPONTANEOUS META-DISCUSSION

Community meetings were the method preferred by our researcher originating from the village as he felt it was closest to the natural communication practice. Contrary to our expectations, upon viewing previously recorded

narrations by the village elder, the community members engaged in a meta-discussion on their own knowledge system. A number of implicit and explicit design ideas were born out of the many community meetings we observed.

TECHNOLOGY PROBES

With a genuine intention to empower community members and an attempt to reduce our role as aliens recording prompted and natural narratives, we introduced flip-cameras and mobile phones as user generating video-recording devices for knowledge capturing. A number of villagers recorded everyday rural activities, including hand-milking cows, packing tobacco and brewing tea on an open fire. Our detailed analysis of their recordings often revealed that when villagers recorded other community members they often became engaged in the conversation that they were recording. Indeed, at the other research site when we recorded a narrator making recordings or another person recording a narrator we observed how in the first instance the recording narrator quickly shifted his focus from the camera to maintain his focus on his narrative and in the second instance, the recording listener failed to record while he was concentrating. The research team uploaded the video to a laptop and observed villagers discussions around it. We video-recorded this for post-situ analysis and translation.

REFLECTION: ON TECHNOLOGY PROBES SUCCESS

In general, the intervention with a technology probe combined with observation, followed by participant discussions, seems appropriate for the context. On the one side we observe that community members are eager and their familiarity and usage confidence with technology steadily increases. On the other hand it gives us researchers an opportunity to validate early design ideas in situ.

CONTEXTUAL INTERVIEWS

On various occasions we opted for contextual interviews; such as with a number of individual women as they went about their everyday tasks. The interviews focused on the dissemination of traditional knowledge through kin networks, current technology access and use and the value of potential knowledge recording applications to their lives. Some of the women also used mobile technologies we provided. We recorded these discussions on video for post situ analysis. Participants' suggestions of some unique purposes for knowledge recording e.g. supporting intimate kin relations and maintaining networks based on cultural norms specific, and of great value, to the Herero people lead to a set of new design ideas to be pursued.

REFLECTION: INDIVIDUAL'S AND WOMEN'S SENSITIVITY TO RESEARCHERS

Villagers did explicitly express a number of specific design ideas. However in executing our data collection method the preponderance of researchers (one filming, one asking questions, one observing and taking notes) tended to intimidate individual female community member. In all instances the interviewee terminated sessions saying that she had other responsibilities to take

care of. With some exceptions (where interviews extended across an hour) we felt a sense of uneasiness which could have been caused by the cameras, by the presence of strangers (us), or the fact that our village researcher is a male. No similar observations could be made in community discussions, where villagers took nearly no cognisance of the researchers while engaged in the conversation.

DIGITAL PROTOTYPE EVALUATION



Figure 4. Elders evaluating prototype.

We developed a first prototype. In mapping local communication structures we distinguished between the roles of narrator and listener. While the narrator actively indicates for which audience and situation the movie clip is meant, the listener specifies the current situation he or she is in. Appropriate videos for display are retrieved based on the equivalence between the clip's metadata and the listener's profile and current needs. The first prototype was developed by German students without any contextual understanding and so the user interface was heavily text based. We evaluated with a group of community members as guided by the elder and gave long explanations regarding the prototype's purpose and functionality as well as the purpose of the evaluation exercise. It was the first time that any of the community participants ever touched a computer and their attempts were very hesitant. The villagers struggled with the concept of uploading, moving clips between applications, assigning meta-data, entering text even though in their mother tongue.

REFLECTION: FIRST STEPS IN TECHNOLOGY EXPLORATION

For the purpose of validating very specific design ideas the prototype evaluation seems adequate. At this stage the computer literacy and confidence of the community members in regard to change requests is still too low. This will increase over time as we continuously expose them to different technologies. At the other research site, we introduced a mobile story telling application developed from research situated in another Southern African rural community (Bidwell et al, 2010) and left the device at the site to study the usage over an extended time period. The use of text has to be limited and replaced by audio and visual content.

THUMBNAIL SORTING VERSUS DIGITAL VIDEO ORGANISATION

At the other research site we ran a number of activities on the laptop to explore possibilities such as internal video organisation and retrieval facilities using i-tunes. Besides a number of important insights, validations and falsifications of early design ideas we realised that using laptops, at this stage, was defocusing the design exercise that aimed at the conceptualisation of internal video organisation. Thus we reverted to using paper design activities with the community, an idea that we originally dismissed, at that site. We printed and laminated thumbnails, using a great number of recorded stories from previous site visits. The participants sat around a white A1 paper and were given piles of thumbnails then we asked them to group the thumbnails. Participants discussed the thumbnails among themselves and placed them in groups, sometimes sequencing them and used a marker pen to draw links and indicate orders. In the first step the community took out all thumbnails that were from the other research site. Then different groupings were done such as plants on one side, all clips including goats, etc. The sequencing was done in order of temporal day activity.

REFLECTION: IMAGES CAN BE PROBLEMATIC

While the participants engaged well in the activity, we observed their difficulties in recognising the video and the essence of the topic, which is essential for the correct interlinking. We are also uncertain as to whether the participants really grasped the purpose of the activity. As within the research team having discussed multiple knowledge representations and architectures, the activity did not lead to a major conceptual breakthrough.

3-D MODEL MAPPING

In this activity we explored the potential of designing a 3-D model of the village as an interface to access videos along the represented locations via RFID tag technology. For this purpose the design session included observing the way participants represented locations by creating a model followed by placing thumbnail images from videos at appropriate places. In the preparation phase we discussed material to be used for the setup of a 3-D model such as realistic toys (plastic or wooden cows, people, trees), clay, natural material (e.g. leaves, cow horns). In consultation with one of the community elders we were advised against using realistic toys as they felt it compromised a serious approach. Thus we opted for large sheet of paper, adhesive clay and a set of 50 thumbnail photos and let the activity unfold naturally. During the activity, first one of the elders took us to four places where herbs grow around one homestead, without any suggestion from us he picked the herb at that location while a younger member photographed him and we registered a GPS co-ordinate. We bought the sample foliage back to the homestead and recorded community members creating a spatial map on the paper by placing the foliage at their relative locations and then selecting and placing thumbnails according to where they thought those clips were filmed.

REFLECTION: MAP VIEWS ARE OF LIMITED USE

Currently we believe the activity was inconclusive. First analysis confirmed additional observations that villagers are not generally used to birds eye-view maps thus the idea of a 3D maps seems inappropriate. Participants walked, confidently, through dense bush straight to locations to collect data points but were much less confidently creating a geospatially accurate, aerial view despite the proximity of these locations. They scaled the map around the immediate area of the homestead in which they performed the activity and were reluctant to extend or re-scale to include more of the village. Further, participants easily sorted the thumbnails to isolate those to place on their map but spent more time talking about people and activities in clips than mapping. They seemed to emphasise people's situated activity in place rather than abstract and generalise from that.

DATA INTERPRETATION

We have had a number of different data analysis and interpretation sessions. For one we had debriefing among researchers where we discussed our observations and dialogue with community members and explore further design ideas and further steps. As all community discussions were held in Otjiherero, translations and interpretations were required for further processing. One of the migrant community members translated our recordings added interpretations, examples from her own experience in the village and contextual elaboration to assist our understanding, and occasionally added her own design suggestions. We also had joint viewing of recordings with researchers from social sciences for different interpretations.

Our participatory approach integrates a 'multi-sited' approach to ethnography (Marcus, 1995). Thus, our account includes ethnography in Windhoek and rurally. In Windhoek we participated in migrated community members' activities, had basic Otjiherero language lessons, in addition to the numerous and extended rural visits.

REFLECTION: TRIANGULATION

We have different participant viewpoints combined with different approaches in the process of sense making. The viewpoints are given by researcher part of research team but also community levels of abstraction, local researchers based on personal and professional local cultural experience as well as external researcher in discussion with non-participant interpreter/translator.

We are in continuous flux of obtaining inside versus outside perspectives employing multiple approaches of sense-making, such as ethnographic studies, insider discussions, and researcher discussions. Personal and observed experiences of Ubuntu are often threaded within our considerations refracting upon not only on the construction of identity within the rural community, or for rural-urban migrants, but also our own. The outsiders amongst us, particularly those with greater or prolonged immersion, have become most acutely aware of cultural contrasts in the way that interdependences between humans produce the sense of humanity, personhood and

identity. We notice through our project activities the consequences that differing concepts about identity can have for design practices and technology use; recognising that, detaching our own and participants experiences of personhood from our practices, automatically disrupts any commitment to 'knowing the user'. Yet, with our many design attempts we realise how our own worldview, sense of self and our known methods trap us. The importance of the community leading the design at large, while we explore specific design ideas for the usefulness and usability, is unequivocal; however facilitating a community's lead is inherently beset by its own tensions and imponderables.

PARTICIPATORY DESIGN ISSUES TO CONSIDER

Having lived the experience and analysed the theoretical grounds of PD from different angles, we have uncovered a number of issues for further consideration while deploying PD in the global but locally diverse village. We believe it is essential that further research and discourses are led in the following areas particularly.

THE UNIQUE SITUATIONAL FLAVOUR OF PARTICIPATION

Each design situation represents a unique context to negotiate for participation depending on the participants, their viewpoints, their agenda and their role within the process and the design context. We have established major differences in the value system of Western versus African societies, directly influencing the concept and practices of PD. For example in most Sub-Saharan rural community 'participation' is a well established value and directly incorporated in collaborative day to day activities. Thus the facilitation no longer needs to focus on joining individuals but rather needs to focus on directing the interactions towards design. Depending on the user community and their own approaches to participation the scope of the methods varies and undertaking an appropriate participation the underlying values system of the design context should be carefully studied and incorporated in the design process. Different approaches can be taken to integrate the local conceptualisation of participation, either to follow a community based participatory interaction or an active method appropriation method driven by the developer and the users. Mutual learning, a well established principle in PD, now serves to inform the design process rather than products' design decisions.

THE ROLE OF PARTICIPANTS

In many PD situations, the developer takes on the role of a facilitator and change agent at the same time, which is in itself problematic. Moreover in many PD interactions, the developers consciously or unconsciously take over the role of designers fostered through their choice of methods and later modelling techniques. We are conscious that each participant, developers as well as community members, influences the design outcome in one way or the other. Therefore, particular sensitivity from the developers is required in allowing for appropriate participatory interactions followed by rightful translations into system implementations, being aware of their own design bias and role within the design process. Learning

from the experiences over years of working with communities we realise that a change of role has to take place. In a truthful participation, the nature of participation itself should be negotiated within the context of the project, rather than consciously or unconsciously realised as meta-participants (developers) impose pre-determined techniques which subvert local cultural norms.

COMMUNITY-CENTRED PD

Designing with established communities differs drastically from designing for organisations or individuals. A community is a well established network of people based on among others personal links which are not necessarily transparent to the outsider. Any interaction takes place within this composite system. Brereton and Buur (2008) recognise the complexity of the relational network, preventing the appointment of individuals for a 'user workshop'. Inspired by concepts of Ubuntu, the interactions and interrelations are at the core of each encounter and much more time is spent on seemingly irrelevant discussions and activities but these are essential for ensuring collaboration. For many years, we have now conducted usability evaluations and design sessions with rural communities always with groups of self-assigned members. This practice has proven very effective as the users have many spontaneous and design informative discussions during the sessions, which would not have occurred in individual settings. The community members outnumbering the researchers as well as being in their own familiar environment often take the lead of participatory interactions, even if they were introduced by the researcher team. A continuous deviation of planned activities in terms of timing, process, and expected outcomes driven by the community yield the developer team to a feeling of "being participated". At first an uncomfortable sensation for the loss of design process control occurs followed by a feeling of release that the community is empowered to lead their own process though in a different way.

LACK OF VALID MEASUREMENT

Monitoring and evaluation are important part of reflecting on the changes that are taking place within the community but an aspect in which many projects in the development arena fall short. When it comes to measuring the success of a participatory method such evaluations are beset with dilemmas in identifying ways to compare processes and outcomes without bias. The literature is awash with reports on the incompatibility of evaluation methods with different cultural settings. For instance after studying cross-cultural evaluations on three continents, Oyugi *et al*, (2008) concluded that even an evaluator situated in the users' culture cannot compensate for methods that are inappropriate to the context. Winschiers and Fendler, (2007) inspected the underlying values and meaning of concepts inherent in usability evaluations; they found that Namibian user groups did not prioritize effectiveness and user satisfaction in the way we typically evaluate "usability". Thus in the absence of a common understanding of the concept of 'participation' and its corresponding methods evaluation beyond the contextual perception and expression of the participants

seems impossible. Much research should be done in this field.

CONCLUSION

We have explored the consequences of differing societal values for appropriate Participatory Design (PD) concepts and practises within a given context. In the specific case of the people we worked with we found that "participation" is already a core value of the community. It has far reaching consequences for the researchers to the extent that we have introduced the idea of "being participated" to show the fluidity of the leadership role which cannot any longer be expected to lie with the researchers: our own notion of participation is being altered by the interactions.

Developers still carry the responsibility for their share within the final product, through their own (re-)conceptualisation of 'participation' and ability to perceive and integrate the target communities' participatory practices. Ideally participation is negotiated within the design context itself and the PD process appropriated. The role of the developer varies depending on the design context. Most of all the developer has to be seen as part of the community of participants. In a setting like ours, where the socio-economic and knowledge systems between developers and users differ drastically, mutual learning is a pre-requisite for truthful participatory interactions. On the one side user communities need to acquire sufficient technological knowledge to contribute to the design while on the other side the developers need to understand the domain and context of application, but more importantly appropriate communication and interaction methods.

Considering concepts from Ubuntu which are broadly shared in many parts of Africa and lived examples of participation as found in other African rural communities allow us to generalize these lessons to sub-Saharan African cultures. Working in such communities gives researchers an opportunity of "being participated" rather than actively facilitating participation. African communities have deeply anchored participatory practices yet lack technological innovations. Therefore the emphasis of developers should be intervention driven introduction of technology, thereby enhancing the communities' technological skills and ability to actively contribute to detailed design decisions. In the absence of a valid evaluation framework, continuous reflection phases throughout the design process with all participants involved serve to re-align methods and decisions.

Having illuminated the complexity of cross-cultural PD activities in theory and practice, we hope to contribute towards a discourse in re-thinking concepts and methods of PD in the era of globalisation. This is not to say that we move away from the core values of PD but rather that we seek to strip them of unconscious cultural biases.

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