

# An insider perspective on community gains: A subjective account of a Namibian rural communities' perception of a long-term participatory design project

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## Abstract

Community-based co-design takes place within a communal value system and opens up a new debate around the principles of participation and its benefits within HCI4D and ICTD projects. This study contributes to a current gap of expression of participants' gains, especially from an indigenous and marginalised rural communities' perspective. We have collected community viewpoints concurrently over the past five years of our longitudinal research project in rural Namibia. A number of themes have emerged out of the data as extracted by our native researcher, such as the special importance of learning technology, appreciation of the common project goal, the intrinsic pleasure of participation, frustrations about exclusions and other concerns, as well as immediate rewards and expectations of gaining resources. We acknowledge our own bias in the curation of viewpoints, and incompleteness of subjectivities while embedding our discussion within a local contextual interpretation. Through our learning from the communities we argue for a shift in perspective that acknowledges local epistemologies in HCI and participatory design and research. We suggest considering harmony and humanness as the primary values guiding community-based interactions. We discuss several challenges in the collaboration and co-creation of new knowledge at the frontier of multiple cultural, linguist, research and design paradigms. In the absence of generalized guidelines we suggest to pursue local workability while producing trans-contextual credibility.

## Keywords

Participatory Design, rural community, user gains, user involvement

## 1. Introduction

The intent to enhance the quality of technology for end-users through promoting stakeholders' involvement in technology design has been at the core of participatory design. However the fuzziness of the concept of 'participation' itself in regard to existing power-relations, agendas, project goals, evaluation criteria, and value systems has led to an ongoing dialogue within the participatory design community. A major focus has been on techniques and methods for enhancing participation as well as design and technology improvements through user participation, rather than on the benefits gained by the users during and through this process itself.

Participatory Design (PD), with its long and successful record in workplace design, has set out in new territories across the globe. Reoccurring recent themes in the PD community such as civic participation, innovation and community engagement demonstrate its wide application but at the same time raise different challenges and debates in renegotiating principles of PD in new contexts. It would be wrong to assume that the concept of participation is a universal. A comparative study of designing health information systems in South Africa, Mozambique and India provides a strong empirical motivation for appreciating the contextual nature of PD (Byrne & Leopoldo, 2004). It is well known that "in relation to the process of development, cultural

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differences potentially affect the manner in which users are able to participate in design and act as subjects in evaluation studies” (Oyugi, Dunckley and Smith, 2008). Thus Winschiers-Theophilus et al. (2010a) suggests that a true participation, especially across cultural differences, can only be achieved if the participants are equally part of the decisions regarding the process, which can only be achieved if the methods and concepts are problematized. In recent work with a rural community in Namibia, Winschiers-Theophilus et al. (2012a,b) have demonstrated how local values and protocols frame participation in a specific design situation, implying a new meaning for participation within a theoretical African philosophy. Thus in order to comprehend community participants’ motivations, aspirations and gains within a participatory project we need to first understand their socio-cultural context in relation to participation.

This paper is an attempt to depict the view of community participants over an extended period of our long term community-based co-design project in rural Namibia. We first present an overview of our project to set the scene for the exploration of a very particular point of view, namely the one of the community members, rather than our own which has been presented in previous publications. We provide a short theoretical deliberation on participants’ gains promoting a collective capability approach to community participation. Distinct interviews, group discussion and informal conversations about the project with community members are supplemented by personal observations, in-situ and post-situ interpretations principally by the native researcher and to a lesser extent by external researchers.

A number of themes have emerged out of the data, such as the importance of learning especially of technology, attitude towards the common overall project goal, the intrinsic pleasure of participation, as well as immediate rewards and expectations of resource availabilities and privileges of selection for participation. We acknowledge our own bias in the curation of viewpoints while embedding our discussion within a local contextual interpretation. We have chosen to make the experiences and views of the other researchers less visible and have foregrounded the view of the native researcher. Therefore this paper has the limited purpose of presenting the community and the native researcher’s perspective and not exploring all the possible subjectivities. We have delved into Afrocentricity and Ubuntu as an alternative lens to position the analytical work of the paper in understanding what communities get out of participating in PD projects. Anchored in a long term collaboration and continuous dialogue, learning from communities’ perceived gains, we propose communal values and local workability as drivers for user interactions in community-based co-design projects.

## **2. Project context**

### **2.1. Project origin**

In 2008 we established a long-term collaborative research project with a rural community in Eastern Namibia. The overall project aim is to co-design an indigenous knowledge management system where community members, mostly the village elders, can collect, curate and transfer the knowledge digitally to the next generation. The project idea was born out of our own personal interest in sustaining local knowledge and developing tools for indigenous knowledge holders to digitize their own heritage. The Polytechnic of Namibia as well as government agencies recognized the significance of the endeavour. They supported the research project and declared Indigenous Knowledge as one of their main research areas. The establishment of a long term collaboration with a rural community has allowed for a number of unanticipated research questions to be explored, new international and regional researchers to join the team as well as to establish best practices through lessons learned.

In Namibia, an increasing urban migration pattern can be observed and yet many Namibians maintain a close relation with their rural homes, involving frequent visits and financial commitments. During visits to their rural homes they try to maintain traditional practices of food production, animal husbandry and take part in socio-cultural events such as marriages and funerals. Throughout the country the majority of young people have now migrated to urban areas while the elders, the custodians of traditional knowledge, remain in the rural areas. They can no longer transfer local knowledge via common intergenerational oral and experiential ways. Our motivation for the project is informed by a deep appreciation of indigenous knowledge, its local and global value as well as a fear of its loss or misrepresentation. (Kapuire and Blake, 2010)

Thus, the authors explored the possibility of engaging community members from the village of origin of the first author, as a point of departure. The community of Erindiroukambe, in Eastern Namibia, can be categorized as a typical Herero village. This means the permanent residents are elders, toddlers, and a few unemployed youth, with frequent visits from migrant villagers. Village life centres on cattle and other subsistence activities. A sand and gravel road connects the village to a nearby town, cell phone connection is sporadic, there is no electricity supply and a diesel engine operated village water pump. On the other hand, the community consists mostly of Herero people (properly referred to as Ovaherero: English often simply uses the stem without the prefix) and is very distinct from the villages of other Namibian tribes.

## **2.2. Challenges of digitizing indigenous knowledge**

Various agencies all over the world are engaged in the digitization of indigenous knowledge (IK); pursuing different motives, such as cultural heritage, commodification of IK, dissemination of traditional solutions applicable to current challenges, such as traditional medicine, as well as sustainable food and agricultural practices. However IK has too often been reduced to practical techniques and artefacts. This fails to recognize IK systems for their dynamic and adaptive, heterogeneous and distributed, social and collective, and experimental qualities (van der Velden, 2010). This is further reflected in ongoing bifurcating debates in which Green (Green, 2012) argues for a middle ground that allows for intellectual and critical engagement. She points to the “entanglement of indigenous knowledge with the knowledge economy in emerging markets” and questions whether this does not lead to a new reification that puts IK once more into a globalized form of exploitation of indigenous people.

It has been widely recognized that cultural logics and literacies are embedded in the strategies privileged by technology design, thereby replicating ways to organize, make sense of, and communicate about the world (Dourish and Bell, 2011). As current technology and their applications are deeply rooted in a Western Scientific epistemology, it is intrinsically invested with a partiality which privileges certain assumptions, values, definitions, techniques, representation, models, and available technology devices (Winschiers-Theophilus et al., 2012a). “Not only does the information architecture reflect a particular politics of knowledge but it also somehow enacts it.” (Christie, 2004). While local governments and other organisations are committed to preserve, document, and disseminate IK, by developing databases, they are largely unaware of the hidden power of data structures and information architectures in the technologies chosen to support those endeavours. Thus through abstraction and modelling, from a western scientific viewpoint, traditional medicine databases, for example, have omitted essential relations and perspectives of its original knowledge system (Bidwell & Winschiers-Theophilus, 2012b). The knowledge is then represented episodically rather than preserving its semantic and contextual relevance. Seeking to locate technology design within a local development context Bidwell and Sija (2013) have developed alternative designs exploiting the potential of voice-based applications for oral users. Verran et al. (2007), based on their comprehensive work with Aboriginal Australians, re-emphasize the necessity of indigenous knowledge holders to locally develop the

organization and representation system for a digitalized version. Yet at this point mainstream HCI paradigms grounded in a western scientific epistemology still prevail in the development of IK management systems.

### 2.3. Situated approaches in HCI

We have recognized that designing technology for an indigenous knowledge system requires a major shift in design thinking. We have to deconstruct the conceptual framework under which we repeatedly displace indigenous knowledge systems by maintaining a western technocentric point of reference (Winschiers-Theophilus et al. 2012a). Past attempts to ‘localize’ systems was mostly based on culture models, such as Hofstede’s, Trompenaar’s, or Hall’s, which it was assumed can be translated in user interface strategies. These have been increasingly criticized in HCI, particularly by scholars of postcolonial science and technology studies. A major flaw has been the conceptualization of “culture” as an analytic category, which ascribes to it particular attributes, rather than to consider “culture” as enacted in every day practice and active in producing every day experience (Irani, Vertesi, Dourish, Philip, & Grinter, 2010).

The theoretical problem of looking “out there” from “in here” has been further explored by Taylor (2011), who argued for a shift to an “inside” from “right there,” appealing for a fundamental understanding of the “the mutual, unfolding enactments of ordering, classifying, producing and ultimately designing technology” (Taylor, 2011). In a search for an alternative stance Merrit and Bardzell (2011) proposed that the African philosopher Thiong’o’s language and culture theory provides a tool to face assumptions, cultural communication, and the potential repercussions in cross-cultural design. Winschiers-Theophilus and Bidwell (2013) further alert “us to how phenomenology, and indeed the situated paradigm, privileges first-person subjectivity over communal relationality. In emphasising multiple, often conflicting, interpretations of the site of interaction, over a single objective description, phenomenology often neglects the potential for connectedness”. Thus seeking for an appropriate theoretical framework of our research project we have proposed a shift toward an Afrocentric HCI paradigm (Winschiers-Theophilus et al. 2012a), based on the philosophical concept formulated by the African scholar Asante in his book entitled: Afrocentricity: The theory of social change (1980). Entwined with the basic principle of community harmony and humanness, as promoted in the African philosophy of Ubuntu, we are promoting practices of immersion rather than distance, community consensus rather than individual decision making which has major implications for HCI design practices (Winschiers-Theophilus & Bidwell, 2013).

### 2.4. Project account

We have over time established what we call a community-based co-design approach based on a variety of methodologies and theories, which we have explored and evaluated throughout the project duration. Since October 2008, we have undertaken a number of field trips to the

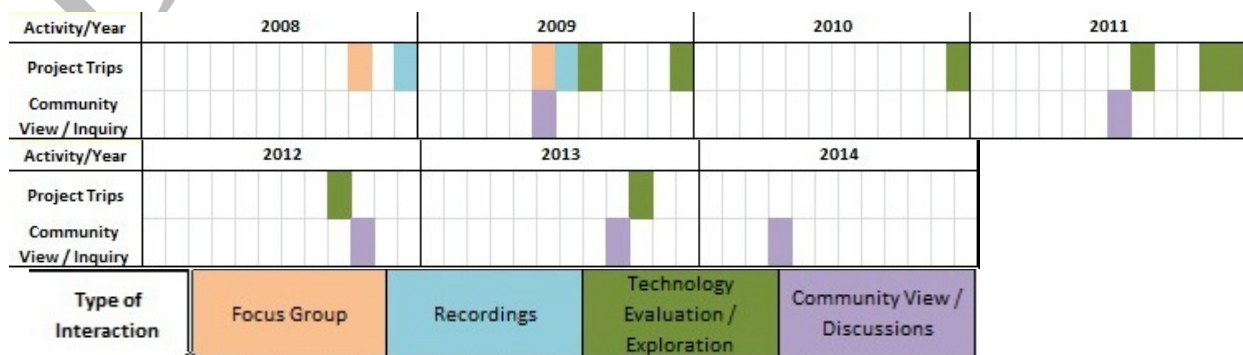


Figure 1: Research site visits and Viewpoint collection visits

community, lasting between three and fourteen days at a time, with irregular intervals of one to twelve months with the highest frequency of research visits being in 2009 (see Figure 1). All technical equipment was only utilized during the research visits and was returned to the university afterwards. The research team consist of a core team from the Polytechnic of Namibia with temporarily affiliated students and staff from Namibia, South Africa, Germany and Denmark. Depending on the specific purpose of a field trip the research team's composition varied, with only the first author of this paper, who originates from the pilot village being part of every trip. He has served as the interface between external researchers and the community members to facilitate sessions and support interpretation of language and cultural protocols. At the first visit the researchers' overall project ideas were shared with the village elders, who expressed their interest to participate in the project. At this point no-one could foresee the length, intensity or activities the project would involve.

In the first year we drew on Ethnographic Action Research (EAR) as delineated by Tacchi et al. (2003). We deployed ethnographic methods in an attempt to comprehend and document the complex cultural setting combined with elements of action research in which participants appropriated media. We collected numerous in situ videos recorded by researchers and community members. Bidwell et al. (2011a, 2011b) analysed and coded all videos, translations and transcripts embedded in ongoing unfolding of activities, informed reflections, ethnography and secondary literature. From this we derived the primary system requirements. Ethnographic inquiry, analysis and reflection served us well in terms of establishing cultural protocols for our specific interactions as well as the overall collaboration and equipped us with a broader understanding of the development context (Bidwell & Winschiers-Theophilus, 2012a). Our analyses have shown that our own ontological and representational partialities can obstruct the negotiation of local meanings and transformations through the use of technologies (Winschiers-Theophilus et al., 2010b). Once we can all begin to navigate cultural protocols and have gained a basic understanding of the context we need to move away from an ethnographic approach. Ethnographic approaches are often concerned about "contamination" of the community by the input of the ethnographer. The essential idea is that the information flows in one direction: towards the researcher. However our aim as designers is inherently interventionist. Moreover in order to enter into a design dialogue the community has to learn about our interests and skills and about the affordances that technology might offer them. This can no longer be regarded as ethnography.

Thus in the second year we moved away from EAR and we shifted the focus to the evaluation of a set of different prototypes (Kapuire & Blake, 2011) and reflections on participatory design methods within a community context (Winschiers-Theophilus et al., 2010c). Thus the method become one of participatory action research (PAR) rather than EAR.

The primary aim of this phase was mutual learning through interaction as anchored in participatory action research. Hayes (2011) raises awareness on the useful application of action research in HCI, emphasising local workability while producing transcontextual credibility. Exploring locally suitable prototypes and knowledge representations, starting from a meta-data knowledge organisation, via a narrator controlled graphical and audio based user interface, to a 3D graphical community context representation, we have identified interaction and conceptual preferences (Kapuire & Blake, 2011). A major breakthrough in terms of user engagement was achieved with the introduction of the 3D graphical representation of the village as a contextual organisation of videos, where the elders expressed considerable feedback (Rodil et al., 2011). From a methodological stance we have explored different techniques and methods situated within a continuous dialogue and embedded in a local theoretical and practical agenda. Over time, we have established and negotiated our own communication and interaction protocols within the design context, as well as fluidly adapted roles and agendas as the project progresses. Having

experienced what we term as ‘being participated’ in the loss of process control we have gained an equal partnership founded on mutual respect, in which conflicts can emerge and at times be resolved. (Winschiers-Theophilus et al., 2010, 2012a, 2012b)

In recent years we have investigated specific topics within the field of perception, recognition and representation deploying distinct methods. Individual and collective drawing exercises informed the implementation of 3D camera perspectives, meaning making and visual representations (Jensen et al., 2012, Winschiers-Goagoses et al., 2012). Further prototype implementations were tested for user interactions as well as for appropriateness of interface elements (Rodil et al., 2012). From card sorting and mapping exercises we derived alternative interface designs (Rodil et al., 2013) which we have implemented in our last version of the tablet based 3D graphics tool which we have called the HomeSteadCreator (HSC). The main purpose of the device is for the user to self-create a 3D context of a story by placing pre-designed 3D objects on an empty surface. The objects were determined by the elders in previous visits. Different usages of the tool have emerged, firstly a cross-cultural communicator of Ovaherero cultural protocols in terms of location based rules and secondly a story-telling extension whereby elders have used the object representations either as triggers to stories or constructed visual representations based on stories. Although major limitations of the tool have been identified in terms of temporal representation, technical constraints of logging and merging 3D with video and audio recordings, its intuitive and playful usability has however also found great interest in other Namibian communities for additional application areas.

### **3. A theoretical perspective on participants’ gains**

#### **3.1. Participants’ gains**

Although user benefits are at the heart of participatory design few attempts, have been made to analyse the participants’ perspectives systematically on participatory endeavours or their gains arising from them. Barki and Hardwick’s (1994) distinguish between “user participation” referring to the assignments, activities, and behaviours of users during the systems development process, and “user involvement” to refer to a subjective psychological evaluation of importance and personal relevance to the users. After a thorough review of participatory design literature Bossen, Dindler and Iversen (2012) confirm a lack of documentation of participants' views and opinions about the participatory process itself. Bossen et al. (2010, 2012) undertook two studies in which participants were interviewed retrospectively after project completion. The first study reported in 2010 was based on a ‘successful’ project and the second study presented in 2012 explored participants’ gains in a ‘problematic’ case-scenario. Bossen et al. (2012) sought to discover frustrations within the problematic-case scenario while reconfirming the benefits already identified in their best-case scenario study. In both cases network-building, and increased work and career opportunities were identified gains whereas the second study established unaligned aims, lack of collaboration structure and different conceptions of technology as participant frustrations and impediments to personal gains. Oakley (1991, as cited in Dearden and Rizvi, 2008) claims a direct relationship between peoples' active participation and project success, yet insufficient research has been done to establish a correlation between general project success and participants’ involvement. Participants perceived gains and impediments are directly related to the aspirations of the participants and their particular context. We argue that aligning participatory conduct with participants’ motivations for involvement will substantially contribute to improving participatory projects. Thus we consider the study of participants’ gains an essential contribution towards participatory design practices and improving collaborative efforts in HCI4D.

### 3.2. Community-based participation

In community-based co-design the success of the process does not only depend on the individual participants' commitment and engagement but also on the overall communities' agendas and cohesion. While there are many debates as to what constitutes a 'community', for the purpose of this discussion we concur with Kepe (1999) that the basic characteristics which constitute a community are shared locale, common ties and social interaction: "these characteristics view the community as a spatial unit, an economic unit and as a unit consisting of a web of kinship, social and cultural relations".

We recognize that the concept of 'participation' has its own meaning and dynamics within an existing community outside of the context of a specific design project. Acknowledging communities own interaction protocols as well as the dynamics of a temporary enlargement of the community to include external designers and researchers (as part of a particular design project) constitutes a situational context in which participants' gains can be investigated. Brereton and Buur (2008) point "toward 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". In community-based participatory research much importance has been attributed to establishing and maintaining trust as a basis for successful collaboration between the outside researcher and the community. Thus Christopher, Watts, McCormick, and Young (2008) recommend the acknowledgement of participants' histories, expertise, expectations and intentions within the historical context of the project. They further emphasise the importance of the researchers' presence and listening to community members. Yet this often comes down to an excessively direct attention to the project outcomes and very little ability (for various reasons) to adapt to the interests of the community when they differ from the pre-defined project goals. Conversations with the participants were almost always about the content of the project and almost never about the nature of the collaborative actions or methods used. Since budgets are predetermined it is also not clear if there could be any scope to accommodate particular suggestions from the participants..

### 3.3. A theoretical deliberation

We are hesitant to add too much theoretical superstructure because of the inherent process of "othering" induced by such lenses. This is not to deny that we have operated with several explicit, and probably some implicit, theoretical and methodological viewpoints. We introduce elements of an Afrocentric research paradigm at times concurring and complementing mainstream HCI and participatory design principles and practices and at times challenging their position. The intent of this paper is however that we step back and allow those "other" voices to speak. As Mulemi (2011) points out "Eurocentric methodology tends to create inequality between the 'theory experts' and the 'experience experts'; the research subjects. This separation privileges the researcher's goal for theory formation over the needs of the researched, that is, solving their existential problems." We invite our readers to try to hear the "experience experts" above the noise of theory and deduce implications for their own projects.

In particular we ask our readers in this paper to suspend the characteristic scientific dualism between individual and community. As Mbiti, one of the first writers on African Philosophy, put it (Mbiti, 1990, p 106):

*"Only in terms of other people does the individual become conscious of his own being, his duties, his privileges, and responsibilities towards himself and towards other people. When he suffers, he does not suffer alone but with the corporate group; when he rejoices, he rejoices not alone but with his kinsmen, his neighbours and his relatives whether dead or living. ... Whatever happens to the individual happens to the whole group, and*

*whatever happens to the whole group happens to the individual. The individual can only say: 'I am, because we are, and since we are, therefore I am'.*"

In this paper we deal with two central themes community and participation. We would like to sketch, very briefly, how this alters our viewpoint on these points.

### 3.3.1. African Epistemology

To the extent that there is a specifically African Epistemology it is informed by this community orientated collective stance. Of course no people live in an isolated pocket of humanity and there are profound globalizing influences at work not the least of which is literacy and the influence of a written culture on a previously oral tradition. The process of writing and reading in solitude strikes at the heart of an oral tradition since it removes the communal and interactive performance.

Given the unity between the individual and community, both living and dead, it should come as no surprise that traditional knowledge can be derived equally from empirical and transcendent sources. Ontologically, dualism cannot be postulated in the traditional system of thought. In particular the bifurcation of knowledge into objective and subjective cannot arise in this epistemology: "The possibility of their emergence is subsumed under the unity of existence." (Nasseem, 2003, p 311). No knowledge is possible apart from the object entering into subjective experience.

In relation to the elders Nasseem (2003, p 310) points out that in such an epistemology:

*Although the elder could not be questioned in matters of knowledge, he was not a tyrant. The constraint on questioning was imposed by the degree of certainty essential in all religiously determined systems of thought. Moreover, at a socio-philosophical level, the elder was responsive to the societal demand for collective responsibility.*

### 3.3.2. Collective Development

For Information and Communications Technology (ICT) practitioners one of the most productive ways of viewing poverty and underdevelopment is that of Amartya Sen's view of poverty as capability deprivation (Sen, 1999). In this view "development is an expansion of the capabilities of people to lead the kinds of lives they value" (Sen, 1999, p 18). The general idea for us is that, since ICT is a malleable and universal enabling technology, it could have some role in empowering people whatever their situation.

The problem is that both Capability Theory (Sen, 1999) and ICT are often viewed as individualistic and working on the level of the individual. Bidwell & Siya (2013) among others have shown that ICT can be designed and used equally as a community artefact. We thus turn to Collective Capability which seems to be incompatible with Sen (1999) who considers "the freedom of individuals as the basic building blocks" (Sen, 1999, p 18).

Evans (2002) raised the issue at a Symposium on Development as Freedom.

*Individual capabilities depend on collective capabilities. In fact, as Sen's own formulations about the importance of 'public discussion and interchange' imply, the capability of choosing itself may be, in essence, a collective rather than an individual capability. Sen chooses not to explore these implications. (Evans, 2002, p 56)*

In his response to Evans at the same symposium Sen says "I basically agree with him ... He is right to point out that 'gaining the freedom to do the things that we have reason to value is rarely something we can accomplish as individuals'. Sen objects strongly to the terminology of "Collective Capabilities" when applied to the effects of social interactions and insist that they are *socially dependent individual capabilities*. The intrinsic satisfactions that *occur in a life must*



occur in an individual's life, but in terms of causal connections, they *depend* on social interactions with others.” (Sen’s italics) (Sen, 2002, 85).

Sen does allow for “Collective capabilities” but reserves the term for actions where agency depends intrinsically and necessarily on a collective, such as the capability of Hutu activists to commit genocide or the (potential) capability of humanity to reduce child mortality. No individual could do those things.

In a recent paper Murphy (2014) points out that little has since been said about Collective Capabilities. He then proceeds to make the case that community self-determination has to be an essential part of any capabilities theory and that it is compatible with Sen’s work. He points out that indigenous peoples around the world have been tenaciously struggling for self-determination of their communities. This paper is a record of just such a collective struggle for community-based capabilities.

We also believe that the community of Erindiroukambe are struggling to establish their Collective Capability, not least because *the community would not conceive of it in any other way*. Thus regardless of the theoretical structures we might impose, correctly or not is immaterial, seen from the inside these are Collective Capabilities that are being striven for.

### 3.3.3. Afrocentricity as an alternative lens

In our attempt to interpret and frame the community perspective in a local epistemology we draw on concepts of Ubuntu and Afrocentricity. Ubuntu, an African philosophy, emphasizes principles of humanness, connectedness and consciousness in human actions and interactions, thereby directly influencing design endeavours. Afrocentricity on the other hand can be considered an overarching research paradigm, framing research activities and ethics. Its core focus is the quest for justice, truth, and harmony in the production of knowledge (Reviere, 2001).

We introduce principles of Afrocentricity and Ubuntu not to create a binary with mainstream research paradigms but rather to introduce a fresh perspective which enhances current research practices and foci. We see the distinction primarily as an epistemological one that influences the underlying approaches to gaining knowledge. When considering specific methods each has to be examined on its merits to see if it accords with this epistemology. There is of course no implication whatsoever that a technique that has been used elsewhere cannot be appropriated by a new epistemology. It is mere arrogance and historical ignorance to view spatial visualization, or *any* technology, as inherently “western”, or Persian, or Mayan, or Hindu. We see the fundamental differences between the Afrocentric and the so-called mainstream Eurocentric methodology to be the intent of the research and its outcomes, as well as the role and position of the researcher and the subjects, rather than the methods or techniques applied. Thus while we also find self-reflection and reflexivity forming part of social science research methodologies, the major difference with an Afrocentric approach is the perspective from which a situation is reported. “Ukweli, the first of the Afrocentric research canons, is defined as the groundedness of research in the experiences of the community being researched. In fact, the experiences of community members are the ultimate authority in determining what is true and, therefore, are the final arbiter of the validity of research about their lives.” (Reviere, 2001)

Finally our approach is to be seen as a work in progress based on a deep unease with the often unequal and alienating standpoints of mainstream research paradigms. This paper is a snapshot of our current views.

## 4. Methodology

In this section we only focus on the methods that were used to collect and curate the community members' viewpoints about the participation in the project, rather than the design and development methodology itself, which has been described briefly above and has been published elsewhere.

Firstly the native researcher, being the first author of this paper, engages in an experience-based context description and self-reflection. Secondly we present the approach taken by the native researcher to collecting the community members' viewpoints over the last five years covering the community participants' opinions on the project itself (see Figure 1). Thirdly the method of coding the data, and framing of the themes is explained.

### 4.1. Self-reflection and experience-based expression of context

From a Eurocentric perspective the question of objectivity and validity of a collection and representation of a community perspective prevails. From such a perspective one could argue that the native researcher being involved both in the project and with the community could possibly not get an impartial answer from the elders nor present their view. Yet on the other hand, in the local community context, no uninvolved and thus not trusted person could obtain any more reliable information. Mulemi (2011) reminds us that proximity of an 'ethnographic truth' depends on the researcher-community rapport whereby the latter provide the researcher with "access to privileged truth for unrestricted reporting". Thus based on the long established trust relationship with the community members, we argue that a collection and first interpretation by the native researcher is as close as we can get to a sincere account.

We acknowledge however that "both native and outside researchers bring their own subjectivities to the data collection and interpretation process thereby contributing to the deviation from the truth (cf Asante 1988)" (Reviere, 2001). We have therefore inserted a self-descriptive and reflective narrative by the native researcher to enable the reader to distinguish between the researcher's and the communities' voices. While we certainly do not deny the influence of the other researchers their reflections are only introduced as a nuance on the comments of the native researcher. This paper is here to highlight the voice of the community and its reflection by the native researcher. The researchers' reflections as a group have been provided in other publications (Winschiers-Theophilus et al., 2010, 2012a, 2012b).

Reflexivity, as used in ethnography, refers to a critical sentience of the historical processes and intellectual or theoretical traditions that effect the assumptions, motivations, and methods we use to study and depict practices, and indeed set up the situations that we analyze (Clifford & Marcus, 1986). This is complemented by an Afrocentric stance which promotes reflexivity and self-reflection, equally: "the researcher is expected to examine and to place in the foreground of the inquiry any and all subjectivities or societal baggage that would otherwise remain hidden and, hence, covertly influence the research activity" (Reviere, 2001). Equally Western participatory design scholars such as Ehn & Badham (2002) suggest that "the collective designer will engage in collective reflection as opposed to striving for cheap point or hiding behind professional ignorance." This directly compares with an Afrocentric approach to research, which promotes cultural, social and intellectual immersion of the researcher as opposed to scientific distance in the quest for truth (Mkabela, 2005). However the focus shifts to the "need for participatory knowledge production where more culture-bound and experience-near concepts of reality are given space for expression." (Mulemi, 2011). Thus the native researcher provides an experience-based account of the community context.



Figure 2: Typical community project meeting: Gereon, Gerard, Job, Alex and Lolo (from left to right)

#### **4.2. Community Viewpoint Collection**

Since 2009, the native researcher has collected data on community members' opinions and perceptions about the project. We briefly describe the collection techniques used in chronological order.

At the second research visit in 2009, in addition to the research activities involving participants' active technology usage, a meeting with community members was held exploring more general research project aims, such as the conceptualisation of indigenous knowledge transfer and possible consequences of digitizing data and processes (Figure 1). The meeting was facilitated by the native researcher, in Otjiherero (in English Otjiherero can be referred to as the Herero language), in a semi-structured focus group manner. Apart from specific questions a free dialogue was encouraged and the native researcher followed the flow of the conversation. Two non Otjiherero speaking colleagues were present at the meeting for whom the native researcher sporadically translated parts of the conversations. Although the discussion itself was content related, remarks made by participants revealed their general understanding and attachment to the overall project aim. The facilitator took notes. The entire meeting was video recorded, transcribed in Otjiherero and translated to English by an independent translator.

In 2011 the native researcher conducted individual semi-structured interviews with two of the elders who have been fully engaged with the project since its inception. Questions were:

- Tell us about yourself and the project,
- Is it helping the community?
- What have you learned from the project?
- This knowledge that you have obtained, will the children learn something from it?
- Do the people in the community need help to develop or do they want to remain the way they are?
- What do they need?

- Will it maybe help the people to help themselves here?

The interviews were video recorded, transcribed and translated by an independent translator.

In 2012, during one of the research visits, a special meeting was held with the village elders and youth who had been involved with the project previously. The meeting was facilitated by the native researcher and was held in Otjiherero, with no translations in between although two non-Otjiherero colleagues were present at the meeting. The main purpose of the meeting was to ensure that project aims and process are aligned between researchers and community members. Issues such as the involvement of women in the project were discussed. The meeting took approximately half an hour and was video recorded, transcribed and translated by the independent translator.

In 2013, the native researcher conducted individual semi-structured interviews with two elders and one youth. They were asked to name three points they like and three they dislike about the project. Then they were requested to suggest improvements or changes to the project process. Furthermore one of the elders explained the project to a community member who was not directly involved. He then prompted him for opinions on it. The conversation was recorded, transcribed and translated by the native researcher.

Furthermore, the native researcher returned regularly to the village (once a month over the weekend for private reasons) and then he engages in the usual rural activities with the fellow community members. At occasions not initiated by him, informal discussions about the project and the team emerged. Statements as made by the community members were recalled and noted as part of researchers' discussions.

Researchers noted down observations, which were shared and documented with the team as part of field trip debriefing sessions. Moreover all design and evaluation sessions were recorded, thus 'side remarks' made by participants about the project itself were retrieved.

Following the first review of this paper, valuable questions and comments from the reviewers prompted us to clarify and explore some of the issues in a dialogue with the community members. Thus Gereon returned to the village with the submitted paper to verify and validate the themes formulated for the paper, engage in further discussions and obtain opinions on issues such as anonymity. The native researcher conducted one focus group discussion with three of the elders and one separate one with the fourth elder due to his unavailability during the first session.

The native researcher explained to the community members about the paper we wrote and tried to convey its significance. Elders know papers get written but do not understand the content written and how important it is. The native researcher opened the discussion as follows:

“ I wrote this letter [familiar concept] to the world so that the world can see what we do together. This letter talks about how you feel about this project we work together on. I wrote this to say how you feel, and your thoughts about the project whether its good or bad for you. All those things we spoke about when I asked questions during the previous visits have been documented. We want the world to know that we have this project and that is how the people feel about it”.

The community members are not familiar with themes as a way of abstracting from a series of conversations and interviews. Themes were defined as “all the different things which sounded very important during the project duration”. For the elders to have an understanding on how the extraction of the themes was done, the native researcher explained that all the recordings were analysed and ideas collected from them. The community members were then taken through this paper theme by theme. The idea was to initiate a discussion based on a theme, and let the community members give their own opinions on it, correct interpretations and add statements.

### **4.3. Theme extraction and framing**

The data was coded using thematic analysis. Thematic analysis is a search for themes that emerge as being important to the description of the phenomenon (Daly, Kellehear & Gliksman, 1997). The process involves the identification of themes through careful reading and re-reading of the data (Rice & Ezzy, 1999, p. 258). It is a form of recognition within the data, where emerging themes becomes the categories for analysis (Fereday & Muir-Cochrane, 2006).

Thus the data, consisting of videos collected since 2008, was carefully analysed by the native researcher, listening to the original recordings in Otjiherero. All statements that related to the topic of project participation were noted. These statements were translated and discussed amongst the authors. They were then clustered under themes/topics. After a first round of clustering the native researcher went back to the previously analysed videos as well as the other videos made during project development to extract further statements or to identify more themes. In this way statements were added to the themes from sources that were not part of the viewpoint recordings. They included asides from community members or comments recorded elsewhere in notes. The coding process involved recognizing an important moment and encoding it prior to a process of interpretation (Boyatzis, 1998).

Framing was done in extensive dialogue between the three authors, where contextual interpretations by the native researcher, information and observation from the other authors, were added for comprehension. We explored differing interpretations in order to clarify and communicate a local community perspective on participatory interactions within the project to the readership.

## **5. Community context**

In this section, the native researcher, Gereon, introduces the wider context of the Ovaherero in Namibia, before zooming in on the location: Erindiroukambe, followed by a self-descriptive narrative. We then introduce the main participants of the project, four village elders who have been part of every activity and have become our co-designers. Many other community members have been part of different sessions and are therefore introduced and quoted within the context. In this section we use first names of all actors to create an ambient of personal and experience-based account of the circumstances.

### **5.1. Gereon's Story**

The following account of history and present situation has been composed by Gereon based on the stories Elders and family members have told as well as his own experiences. He has deliberately omitted secondary literature of non-Otjiherero narrators in the attempt to depicture an authentic subjective context.

#### **5.1.1. Ovaherero in Namibia**

The pilot community is of Herero ethnicity. It is one of the many indigenous ethnicities found in Namibia, with an app. representation of 7%, amounting to 150 000 Otjiherero speakers. They are mostly known as cattle herders. Ovaherero have by and large adopted a dual believe system, practicing Christianity and traditional Ancestry through a Holy Fire in each rural household. Family trees are of great significance. At new encounters between Ovaherero the patriarchal and matriarchal lines are inquired to determine ancestral relationships. Ovaherero are one of the ethnic groups in Namibia who are still strongly linked to their traditional practices and rituals despite the heavy migration of the youth to urban areas. They are very proud of their cultural identity and uniqueness, as displayed in their habits and dressing codes.

Before colonization most of the indigenous groups in Namibia, including the Ovaherero, survived from the lands natural resources and their own indigenous practices. For example, they knew how to grow edible plants in the arid environmental conditions, and they used plants from the environment for healing. Until fifty years ago, the Ovaherero continuously relocated according with their customary nomadic practices of cattle herding. Colonial and apartheid regimes fostered a rural migration to mostly the eastern parts of the country. The Herero people played a big part in the struggle for freedom that led to the liberation of Namibia in 1990. Every year on August 23, Ovaherero visit a town named Okahandja, to pay respect to their late chiefs who passed on decades ago and to get blessings from their ancestors. This day is strongly celebrated to commemorate the people who fought for the country.

### 5.1.2. Past and present of Erindiroukambe

Erindiroukambe is located in the centre of the Otjinene Constituency, north of Gobabis, in the eastern part of Namibia. There are many little streams, but the biggest stream for which it is known is the 'Erindi Roukambe', a stream for horses. The name makes reference to horses because the first settlers to the village had journeyed there over a period of many days with their horses, and when the horses entered the stream for drink, it was almost as though the stream covered the horses entirely; the depth of the stream scared the people, and it was understood then that only the horses could safely enter and leave the stream as and when they wished.

The first residents to the village were refugees from commercial farmers, they had left those farms as indentured workers in the hopes of finding their own pieces of land to settle on and call home. Their aim was to do for themselves, what they have always done for their masters; to grow their own vegetables and to care for their own cattle.

Today there are about 18 homesteads in the village of Erindiroukambe. The community's day activities include animal husbandry; the growing of basic crops such as corn, potatoes, and onions; hunting of wild birds or rabbits and gathering of wild fruit and nuts; securing of camp fences; woman cooking and looking after children; fetching water; after sunset the people sit around the fire, cook and talk about the day and past times. The community works together having the same ideals and aspirations. When there is work to be done, the community will get together and jointly get the work done. It is something that happens intrinsically in the spirit of ubuntu and unity inherent in the community of Erindiroukambe. The people are there for each other and when there are disputes the elders of the community are called to be informed and to give counselling. Generally, no decisions that influence the community members are made without the consent and blessing of these respected elders of the community.

Erindiroukambe has no schools or a clinic, no access to the electricity grid yet a diesel engine operated community water pump. The village consists mostly of elderly and small children who haven't yet reached school going age. School going children are either in hostels of neighbouring village schools and return on the weekends or are with their relatives in town just to return during holidays and help with the daily activities in the village. The middle age generation has migrated to the capital for studies or employment and return regularly to care for their families and homesteads at the village.

### 5.1.3. Gereon's Personal Reflection

*Since birth, I grew up and was raised in the rural area for most of my adolescent years. Our childhood in the village was filled with love and knowledge. Our elders provided us with the necessary food and support we needed to feel comfortable and happy being in the village. During the day, we performed our daily duties with the help of our elders. In the case that we did something wrong they helped us understand what is best. The elders took us into the fields away from our homestead to show us various things, for example, the kind of food you*

*need to eat in case you are lost in the field. At night, the youth sat around the fireplace and elders shared their experiences and wisdom with the youth.*

*Many young people migrated to the urban areas as they grew older, including myself, and only visit the village during holidays. This created a big gap in the transfer of the knowledge from the elders to the youth. The fear of elders passing on without having had the opportunity to share more of their knowledge is a great concern I have.*

*Moving to the urban areas was an opportunity for me to attend high school and carry on to my tertiary education. One day with my colleague at the Polytechnic of Namibia, we discussed the topic of indigenous knowledge preservation. Out of this conversation, a research project was established and my Masters topic framed around it. Today, I feel so privileged having completed a Master Degree in Computer Science. The community collaboration we have had during the period was the foundation of my studies. These studies were part of a long term dream project of trying to design a proper digital Indigenous Knowledge Management System suited for my community at large.*

*Although I subsequently migrated to the city in pursuit of an education, the aim always was to bring expertise and development back to the very people I left behind in my community. The pursuit of happiness if you will was embarked upon for the very reason that we all pursue an in-betterment of ourselves, we do it for ourselves, we do it for our families, we do it to survive.*

*However, as a young man, I kept going back to my community and homestead at every opportunity; and when the opportunity availed itself for a technological solution to the preservation of indigenous knowledge, it seemed only palpable that I be the link to bring such solution to my people, in that technology and science had become the skill with which I had honed myself with in the city.*

*The participants, having seen me grow into a man before their very eyes have grown to love and respect me and have been privy to the knowledge that the research would benefit me in the avenue of academia and of course, as with all research work, we hope too that the work will benefit the people both directly (preservation of knowledge) and indirectly (infrastructural development and diversity).*

*For the duration of this project we have run various experiments and consultation sessions with the community elders to try and find suitable ways for preserving their knowledge: the researchers and elders have become co-designers over time. At different occasions we have also been heavily engaged with most other community members.*

*My role in the project has been difficult but yet very fascinating and interesting, being a community member as well as a researcher. It has been a great opportunity to be part of a team which is going to make a difference in people's lives. I have been the interface between the community members and the researchers. For example, if researchers visit the community for discussions or experimentation or interviews, my role was to create a good stable relationship between the community members and the researchers. During field work sessions I ran the activities and did the minimal needed simultaneous translations.*

*Trust is an important element I considered highly. The community members trusted me as I am part of the community who understand their values and culture. The other researchers trust me, as I understand their values and beliefs. And as being part of the community, the other researchers respected the fact that I know the culture and what is valued by the community members.*



*In this way better communication was created for researchers to get community involvement and participation throughout the years of the study. Members of the community can now actively participate in the preservation of indigenous knowledge in the same way they use their mobile phones they are able to suggest design changes.*

*As a child growing up in the rural areas, I gained an enormous amount of special skills to live in the village. Moving to the urban areas and visiting the village during holidays made me lose a lot of knowledge and skills obtained. For example, as a child, I knew the sound and foot print of every single cattle at our homestead. When I went for education and came back that special skill of remembering the sounds was lost.*

*I was always cognizant of the price at which such sacrifice came of course, and such was that I would lose touch with the ways of my people and my cultural heritage; such is the enticement of that big city life.*

*The project has been a recovery for my mind. Listening to the elders' share their knowledge and experiences has started to teach me things I lost while being in the urban area. I have had the opportunity to do recordings of various activities demonstrated by the elders. So, when I go back to the urban areas, I listen to the talk on the video.*

*Throughout the study, I have acknowledged the importance of the skills our elders possess. I feel so privileged that I can still be true to my roots even though I have been away. With the expertise obtained during the project I can now freely and openly share that exposure with others. I can now proudly sit and try to motivate the other community youth living in the urban areas, to be part of this evolutionary journey for trying to get back their knowledge gained when they were young.*

## **5.2. The 'four elders'**



Figure 3: The four Elders: Gerard, Alex, Veheha, Job (from left to right)

We describe the four elders (Figure 2) individually as they have become the most important participants and co-designers having been continuously involved since 2009.



### 5.2.1. Gerard Kazorundu

Gerard is an elder and a pensioner who first came to the village in 1987, and still resides in Erindiroukambe. He describes the village to be “virimbi vio mukaendu uangombe” which means “the house of Kongwe’s wife”. He never went anywhere else nor did he go for schooling, but just stayed in the village and took care of the cattle. He only goes to the urban areas if he is sick, other than that, he does not go to the city. Even when he goes to the urban area for hospital treatment, he only stays there for a short while, then returns to the village. Asked about the project Gerard says:

*”Now we are in a small project, that we are coming along (many) days with. It is now running for years. It is a good thing, because it is storage of history”.*

Gerard has been actively involved in the project since its start. He has always been an active participant in all visits by the researchers. He has seen the importance of preserving the knowledge from the elders and that has motivated his participation.

As he knows the culture very well, his stories and insights have been recorded. He is always willing and happy to share his knowledge. He commented that:

*“When these history progresses, you would look at it from the storage. There are people that are alive and those who are no more. Then you see that, Oh! This is actually useful storage. So, the grand children, you will say to them come look here. Here is your grandfather, your mother’s father. By then he has passed on to the next live. So you will be able to show the kids their grandfather. That is how he looked, the way he is moving that is him. Maybe the child will believe easily. Rather than telling the children that there was that person. While the person is not there, it is better when he can be seen”.*

When asked about the youth he said:

*“I would say they should move in between and know all. Look, the village has problems, so you should know the village problems. Then you know the city because if you just stay in the village you will never know the city. I mean you should be an open person, in everything. You should just be open. For example, you come to the village and know the village life and the ways of the village, you go to the city and learn the city life, go to the hospital, you do not even know where the hospital is then you have to look for someone to take you”.*

Gerard wants the youth to learn both the urban and rural ways of doing things

### 5.2.2. Job Ujava

Job grew up in Erindiroukambe and has never lived elsewhere. He only attended a small portion of primary school and then went back to the village. According to Job

*“I do not have a lot of school knowledge. I did not go to schools”.*

He has always taken care of the cattle. Besides the cattle herding, he has skills like building houses with wood in the village. “I can build, that is a gift from God” was his statement on what he can do.

According to Job

*“My child who I bring up will be taught by myself. The knowledge that I have, will be taught by me. Which is not his own, which I was born with. I will teach him myself. Stories are good for children. My child should learn from my knowledge. Town knowledge is not needed to over shadow mine. Knowledge should come through mine before learning those of Windhoek while those of the city are kept less than mine”.*

For Job, it is very important that the youth learns the importance of being in the village rather than city life. He is afraid that the youth would use city skills for bad habits, while they should be taught by him, for example, to go dig wild vegetables to eat. Job mentioned that:

*“If he [referring to youth] does not want to listen to me and chose to go eat chips there [referring to the city], then it means he still does not respect my law. Mine is the grass root that I should teach him. It is the wild food, the wild nuts, wild berries, red berries. Wild potatoes and other wild vegetables. That’s why he [referred to youth] should go through me. Before he will start learning to eat chips from you. Then he had carried this of mine”.*

In representing viewpoints Job has been influential in the project. He has participated as he wants to send a message to the youth and others on the importance of knowing your roots first before going to do something else. For him, it is important that others know what survival techniques and food there are in the village as our existence depends on it.

### 5.2.3. Alex Kamaze

He is one of the most talented elders when it comes to using his hands to make something out of nothing, for example, when given spare parts of a broken television, he can use the parts for other things like a radio. Alex used to be a soldier before returning to the village where he has been living since then. He has been helpful in the study as he at least understands a bit of English. Since the start of the project, he has been participating and always eager to be involved. Alex is best known for his humour. Sample stories recorded show the type of stories he enjoys telling: ones that make people laugh. His favourite statement (in English) has been “I know what I do and I do what I know”.

### 5.2.4. Veheha Katjangua

Veheha is a much respected elder who has been very active in the project since it has started. During discussions with other community members, he openly and freely shared his experiences and knowledge. He is one of the community members upon whom the project really depended. His critical reflection based on fundamental questions was honestly conveyed. He has been the one who tested tools extensively and provided critical reflections on the technology.

Veheha has been living in Erindiroukambe all his life. He never went anywhere, but stayed in the village to take care of the cattle. Since becoming a partner in the project he has seen the importance of preserving their knowledge for others to use.

At one discussion with other community members which included other elders and the youth, he mentioned that the youth do not know wild food. If the youth is sent into the field, they might come back hungry as survival techniques are not known to them. So with the project, the youth can learn from the elders and know the different edible food in the wild. He also had a concern that the youth who went for schooling come back to the village and teach their fellow youth irrelevant skills to the village life. The way they grew up was with an elder sitting with the youth at night to share stories with them. Nowadays they do not do that anymore. The project has woken up sleeping community members to realise how important it is to know your culture and ways of doing things in the village. Survival techniques will be known by all and they will keep educating each other.

## 6. Comments and Reflections by Participants

It is apparent that the project has an impact on the community. This was not only in terms of the overt aims of the project (namely digital preservation of their traditional knowledge) but also influenced by the intervention as such and the introduction of new technology.

We discuss the various experiences and comments, organized under several thematic headings. The most emphasised effect by the community members was that of learning new things, especially technology (Section 6.1). In section 6.2 we illustrate the community's response to the actual purpose of the project, namely preserving their traditional knowledge. Another important observation was the expression of the pleasure of participation per se (Section 6.3). While many people are eager to participate a contentious issue remains in the frustration of excluded people (Section 6.4). We grouped the few problematic issues and concerns that were raised under one heading in Section 6.5. The issue around payments and tokens of appreciations were no real source of difficulty (Section 6.6). More problematic were the limitations in budget and resources (Section 6.7). However the most profound effect was perhaps, and we did not think of this beforehand, the self-reflection that was a consequence of having to bring to consciousness much of what was taken for granted about villagers' habits and actions (Section 6.8).

We conclude this section with the responses of the participants to a first draft, their representation and the idea of publication of this paper (6.9). It clearly emerges in that discussion that, as originators of the statements, they want its distribution but with attribution to them and that their real names be used.

### **6.1. Learning 'new things' like Technology**

Initially, the elders in the community were not familiar with technology, such as using video cameras to record stories and viewing the results on a laptop. During the first recordings an elder looked away since he was shy about being recorded. The elders became used to technology by being continuously video recorded during scheduled sessions. Furthermore they saw the potential of the technology when a story about their knowledge was recorded and played back to them.

The introduction of additional technology that they used themselves during recurring visits by the researchers built further confidence in the community members.

After the participants returned with their first time self-recorded videos of any situation of their choices Gereon [2009] asked:

*"How was it? How was your trip? Did you experience any problems recording?"*

*Mutombande(youth) [2009]: "it was ok, no problems but I think it would have been better if there had been an opportunity to ask the guys I was passing by, the ones I was recording, and ask them 'what are you doing?'. Then they would explain to the video and tell me what they were doing."*

Community members became keen to direct and be actors in their own stories, and actually looked forward to being recorded. Very soon the camera work was being done by the community members themselves, both by the elders and the youth. The device triggered much spontaneous storytelling. We observed one of the elders who never expressed himself in the presence of strangers, yet started talking when his son recorded him.

*According to Gerard [2011]: "three things I like [about the project]: it opens up the mind firstly, it also teaches us, because there are things we know and things we do not know. It picks up our individual mind, and puts them together. It strengthens our culture, which is put together, when I am no more alive, then others can know that at this place this happened, and Gerard said this and that"*

During the course of the project, various technologies were introduced. The elders were always eager to be taught.

*"We are learning new things",*

was a popular statement made by the elders.



Figure 4: Veheha constructing a 3D scenario for his story

*Veheha [2012]: Look at today. I never saw that thing [being the tablet] before. Nobody will tell me. So it's one step ahead that we gained.*

*Alex [2013]: Intelligence and knowledge should come in me and I should know computers and laptops.*

The introduction of the technology also reduced the gap between the youth and the elders (Figure 4). While the elders found it difficult at times to learn the technology, the youth found it easy. And so the two parties worked together towards better understanding. If an elder was given an opportunity to test technology, a youth assisted in the event that either one encountered problems. The youth were always eager to try out the new technology provided. The enthusiasm started from the day the project got introduced to the youth and they were given various devices to collect examples of traditional knowledge from the elders. Upon return from such story collection, the reflection showed how much they want to continue using the technology.

*Nanaai [2013]: "We learned different things like touching and using video cameras"*

The learning experience expanded also to other areas such as drawing. As part of some design sessions and for further analysis of local perception and representation we adopted different drawing methods, such as individual completing drawings, different perspectives as well as collective PictIT (a modified Pictionary method) (Jensen et al. 2012, Winschiers-Goagoses et al. 2012). In most instances the elders were hesitant to draw, as they had no previous experience with pen and paper. Yet after overcoming their initial fear they much enjoyed the activity.

*Gerard [2013] "I did not know how to draw. After doing my work, I can take my pen and write or draw, like how we were drawing cattle, goats and drawing a person. Now my shivering is gone".*

Also after the introduction of the tablet with the 3D HomesteadCreator application in 2011, the elders carried on using it a long time after the design feedback sessions were over. The elders re-appropriated the use of a construction of a 3D simulation to a shared storytelling tool bridging the gap between elders and youth.

At the most recent discussion on the topic of learning technology the following conversation was recorded. Gerard [2014] said

*“it is important. Despite not having electricity, it is very important. If we had electricity, and the laptop is left with us someone with more knowledge than us, can teach us more”.*

Gereon [2014] continued with a question addressed to Job

*“Are you happy to learn about computers or are you not?”*

Job [2014] replied by saying

*“They are great things to learn. We do not know computers so if you [referring to Gereon] stayed longer to teach us we will know it”.*

The elders will always say they like to keep being taught. For them there is no education that just ends there. Gerard [2014] said that *“Education just continues”*. There is no ending towards learning new things. The elders said that the time for teaching is too short and the technology should stay out there for them to use.

Veheha [2014] said

*“Where the world is going to you should know this things like laptops. If you do not know them, you will be left behind. That is why I think it is good to know these things”.*

While in the beginning of the project the elders were more hesitant to use the technology as time passed and the prototypes encompassed more of their likes, the elders started engaging and appreciating the learning of new technologies.

## **6.2. (Indigenous) Knowledge Preservation and Transfer**

The community members of Erindiroukambe love the idea of their knowledge being preserved and then being shared with others. Many commented on how this would increase the visibility of their village. This would make them a more important entity in the larger society.

*Rii (youth) [2009]: “we are actually proud of what we are doing so we do not mind if other people copy us or use the knowledge to the best of their advantages. We do not have a problem with videos being shown overseas, we would be very proud of that”.*

In traditional practice the elders share their experiences with others, not knowing whether they are listened to or whether their message is to be transmitted further down a chain of storytellers and listeners. Elders were eager to be part of the project as a means to transfer their knowledge to the world, even when they are no longer alive.

*Gerard [2011]: “The children will learn a lot, especially those at schools it will be very beneficial. It will open you up, it will give you the knowledge you need”.*

The project participants see the successful transfer of indigenous knowledge as important, which makes them proud to be part of this project. Before the program was proposed, elders feared for the preservation of their heritage and legacy, since they felt that the young people today do not understand the importance of knowledge and knowledge preservation.

A passer-by, in 2013, who resides in another village, was informed about the project by an active member. He showed his appreciation of what the researchers are doing with the community members:

*“it is beautiful work. It is the truth which our elders are saying. One thing I just learned now is that in the future, when a youth takes a camera, they will be reminded about their elders. It is a beautiful picture for the ones who are coming in the future. The kids or youth, who will be born in the future, will learn about their family. Even if the elders are no more, the future generation will be taught about the current elders and knowledge”.*

Gereon [2014] asked the elders whether they are happy that their knowledge is being stored and taught to other people. Two elders replied almost at the same time that they are very happy about it.

Gerard [2014] continued by saying

*“We like it a lot. I heard some words on the radio from our higher institutions. If they collect people from society and Elder Kaputu (a well-respected Herero man who knows the culture fully) and also this other lady Rhuu Veseevete as she knows the culture well to come and share this knowledge and take to schools to show it to the others who were not there. This knowledge should be kept because this is important knowledge; so that it does not fade out and that we do not inherit other people cultures but be able to keep our cultures even if some are educated”.*

The elders feel it is important for their knowledge to be shared with others. They believe that we all live in a knowledge sharing society, where each one learns from each other, like in the project. So if they share their knowledge with others, they wait for the world and others to teach them in return. At the end, they share knowledge equally. For example, when they talk with the research team they pick up two or three new concepts. For them it is important as they have learned from the team.

To see how the elders feel about them teaching others Gereon [2014] asked a question

*“How do you feel now that you are part of teaching other people?”*

Gerard replied

*“I like it a lot that I can have my knowledge stored and teach others. I would like to share so that he can go teach others. Being part of this project is something very significant. When you go to sleep you wake up and realize that certain things should be like this and that”.*

For example in the department of livestock and agriculture there are elders who are very skilled and more knowledgeable than others. Elder Gerard referenced another Elder Kaputuaza who was part of the discussion who has more knowledge than them in this sector. When you teach others, you make sure they do not encounter a situation where they are stuck to solve a problem. So when you are no more around, they would have taught others and the message keep moving forward from generation to the new generation. According to the elders, in today's world knowledge should be recorded and it must be ensured that people teach each other. It is vital to teach because when you have taught others, your name becomes the reference to the knowledge.

Elder Alex [2014] commented that

*“Whoever is going to hear the story will know that this is what Alex was saying”.*

If they can teach others it is a way to boost their own pride as they feel as being part of sharing their expertise and skills. One elder Veheha [2014] felt we have seen things from other countries and we started to like them and that for him is important for other people to see their things to.

Then their knowledge can be adopted by others so that they can know more things. Veheha [2014] added by saying

*“We store to give to other people. You cannot just get knowledge from Kanguu and not willing to share yours”.*

### **6.3. Intrinsic Pleasure of Participation**

Elders, who have been actively involved from day one, would always want to say something. As an observation, two elders were arguing who will start first to talk during a focus group discussion. When given the opportunity to share their knowledge with others they do it freely.

*Ratindana(Elder) [2009]: “ We all think that it is good things. As from my side, it is good education. It’s educating each other. Like now I’m being educated. And the others [being the researchers] are educating us. Sharing of knowledge. It is very important.”*

Sample stories recorded were demonstrated to the elders to see if the representation of their stories via video is vital. At that gathering, they laughed with each other as they listen to a story. Seeing each other made others excited to also want to be recorded. Elders could relate that if they are no longer alive, others would see the story they told with their face. This would be a great indicator that they would be remembered for ever. An elder commented that it is a privilege to be part of the study.

*Job [2012]: Look now Kanguu [Gereon’s other name]. You have come many times now. If we did not see this as important we would not have come spend time here till now. We would have surrendered long time back. This is very fun. That is why we are here till now. So this is beautiful work. We like it till our bones<sup>4</sup>.*

We have observed that the community members look forward to the researchers visit. In most cases they gather at Gereon’s homestead. The moment community members became aware that the researchers are in the village they quickly finish their daily tasks to participate in project activities.

*“I will come now, have to quickly finish milking the cattle, so no need to come pick me up, I will come by myself”*

was a reply by Kahaeka [2009] when informed that sessions will be taking place.

Even after a long day of joint work, they assure us at their own accord that they are always happy when we come. Normally at the end of the day, food is prepared and all participants share a meal sitting around the fire. The elders mention that it is a pity that the researchers except the local ones do not understand their language. Some elders do not understand English and want each word they say translated to show their appreciation. Every visit, one of the elder woman cooks special cookies for the researchers as she knows how much they like them. Over multiple visits, the relationship between the community members and researchers has become much stronger.

The elders requested to keep researchers’ t-shirts so they can be reminded of them once they are gone. During a next visit, the community members wear those t-shirts to show their bonds. One of the researchers got a name from an elder: “Mbatjandangi”, which means “I say thank you”. It is out of deep respect and appreciation that he was given a Herero name.

Gerard [2013] asked about possible improvements to the process said

*“nothing should be changed, it should run like this even till next year”.*

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<sup>4</sup> This phrase means that the appreciation goes so deeply that it is beyond heart and mind and reaches into the bones.

Gerard has used the “next year” as a figurative time in the future to express the desire of a continuation of the project itself for longer time.

Elder Job [2014] said

*“I also see it that way. This are just good things. It is delightful to us. That is why we ask when the research team is coming back”.*

Veheha [2014] commented that he is happy to participate and be part of the project and added by saying

*“So I do not get lost and hear from other people that there was a project like this”. By this he meant that he does not want to be left behind while the world is changing.*

Gereon explained that this refers to the way people in the community follow routine lives with the same work every day, over and over. The project has introduced a different perspective into their lives. So Veheha does not want to be left behind when it comes to knowing things happening out there like new technology.

*Veheha added on by saying “If my knowledge is being known by another person, I will always feel good”.*

#### **6.4. Participants’ selection and exclusions**

Erindiroukambe consists of approximately 18 households with an average of ten people per household. Depending on the time of the year more or fewer community members may be present, and they are engaged in specific activities. Some elders liked the idea of the project but were less involved for various reasons (like being busy). Thus the availability of community members to participate depends on a number of factors. In addition affinity and cultural protocols determine selection and exclusion.

##### **6.4.1. Elders versus youth**

At project initiation the most respected village elders were assembled by Gereon and introduced to the project. Gerard was considered to be the wisest of the elders, always eager to share his indigenous knowledge with the researchers, and therefore became the entry point. At each visit Gerard was the first person to be informed about the planned activities, as well as asked for his opinion. For example the categorisation of elders and youth does not correlate with the real age, which often people do not know, but with who is considered to be knowledgeable and respected. Thus if the design session required to distinguish between elders and youth, such as one of the drawing exercises, Gerard informed us who in particular belongs to which category. Thus we had elders and youth as young or old, respectively, as 35 years. Similarly, when meetings were held, although the youth was present they did not express themselves in the presence of the elders. Equally when new technologies or activities were introduced the youth showed great eagerness to start yet the elders were engaged first. Youth were frustrated at times, as an elder will take long to navigate with a tablet, or perform an activity on a tablet, and they had to wait for their turn with patience. However as these principles are obvious in the cultural context no statements were made in this regard neither by the elders nor the youth.

##### **6.4.2. Men versus women**

Women joined the activities only on rare occasions. Sessions were held mostly at Gereon’s house or at other community member’s place. If more than the core design team of the four elders was required for design or evaluation sessions, then the researchers assembled available and willing community members. In most instances the ladies in the village refused to join as they were busy



with household activities. The few ladies that did join the sessions interrupted half way as they then started preparing the food for all participants involved in an exercise, as per local customs.

Considering the participatory interactions from a gender perspective we actively pursued the matter in two ways. On the one hand we visited the women in their own homesteads one by one, where they heartedly welcomed us, evaluated technology prototypes and gave valuable feedback. On the other hand at one of the men only meetings we prompted the discussion about including women.

*Gereon: If you look around now, there are no women. What do you think about that? Is it a good or bad think? Do you think that they should be part or not part of the discussion?*

*Kahaeka: They could be part of the discussion. But at first you look at the spirit of the people you are around with. So like next time when you meet the women, you first look if their spirit will go together. Because every person has their own opinion. Like us all together now we really think this is very important. So like when we discuss with the women. It is bringing two groups together. So it will be a big thing. If I stand up now and share it with any women around. They might say, do not tell me this. When you start going around, one person will like it and another might not. So they might just end up being only two. Or they will even be more than us, as they might start liking something.*

*Gereon: So should the women be involved*

*Job: Big time*

*Kahaeka: As you moving around you will be teaching anyone. Then you will get one who is interested and another who is not. That will be their own choice. One might want and the women becomes a lot.*

At one of the card sorting exercises Veheha explains:

*The homestead falls under a woman. So if a woman is there she can say put this there. The woman at the homestead gathers things around together. So that is how the man and woman relate to each other at the homestead. So when you educate a woman you also teach the community. I just do not know why it is said like that.*

We have been presented with an interesting circular argument indirectly saying that decisions are discussed at home between men and women, yet at public meetings only the men have a voice, which coincides with our observations. The women were not involved in the group discussions, but when given an opportunity separately, they freely shared their experiences. This is not completely without resentment. An elder woman listened to the discussion but could not be part of it and said afterwards that she had wanted to say something, but could not.

#### 6.4.3. Community politics

The decision of inclusion and exclusion was mostly taken by Gereon based on his own relations to the different members of the community. Thus a conscious exclusion of some community members was made on the basis of long term unresolved family issues, such as inheritance debates, jealousy, communication gaps and other problems.

During some sessions, additional community members that were passing by joined in later yet were not always received whole heartedly. It created frustration for the ones who were left out and they asked Gereon why they were not called to participate. An elder Kahuikēe [2009] asked

*“why did you not come test me what you tested others?”*

Nothing in the village is a secret, whatever happens in a day is known to others on the same day. The community members not participating normally get told by others about the activities taking place. When the researchers drive around the village uninvolved community members expressed their frustration and asked why the sessions never involved them.

In one particularly controversial trial, five solar panels were deployed to support telephones linked by a wireless mesh network. The locations were determined by Gereon based on a trust relationship. Non-selected members showed frustration as they also wanted access to the panels. One community member felt that:

*“each homestead should get solar panels....why can’t the solar panels be placed at my place to, talk to your researchers so that one is placed at my house” [Kambirongo, 2011].*

Besides the technical failure of the meshed network and the university equipment regulations, the emerging resentments among community members caused by the solar panels, motivated us to withdraw the equipment. Various community members who got introduced to the setup frequently asked where the solar panels are and when the connection will be installed.

Re-discussing the issue of the selection of participants in 2014 the elders felt that perhaps only a toddler who cannot talk Otjiherero can be excluded, but the rest of the community can be involved. They believe that those younger catch things fast and are more educated as they feel that they are old and are slow in catching up. So it is important to have a mixed group, as they can teach and help each other.

Due to rankings in the community of elders being the ones in charge and the youth just there to accept what the elders says, Gereon prompted another question to see how they feel about when the elders participate with the youth, and if the children should be part or have a separate session, and if men and women should participate together. In most cases the women are less involved as they are busy running the homestead duties. So it was important for the elders to discuss if it is good if the women are involved or not. The elders felt that whether one is a women or a child one should be included. If you exclude some then there will be no knowledge at all.

Veheha [2014] said

*“The children will keep it for a long time, by then we are gone. The ladies: you usually say to teach a lady is to teach a community”.*

One of the elders felt that others should adopt and learn from his knowledge and that it is his duty to give. If he does not give, then there will be no knowledge shared. They also strongly feel that the women should be actively involved as they are the co-owners of the community. An elder commented that if the women do not want to participate, it is when they do not want their knowledge to be stored. Probably they want to keep theirs to themselves but they should be included still.

Even though a community work together, there are still some community politics which divides them. So Gereon wanted to find out from the elders about the case where there is a person they do not like: what should happen then. An elder commented that the person can just come. He will just come for that purpose, and they do not need to talk to each other. They will not be at war but keep their personal issues apart as they are both at the project to share their knowledge and to learn. One of the elders said that if the person is an enemy to Kanguu (Gereon’s other name), then the person should not come. Gereon turned the situation around by asking if the person is the enemy to them and not Kanguu. He can just come so he can be taught like how they are being taught. Veheha [2014] said

*“When we are in the project and we don't understand each other I mean it will be that we both are not cooperating and on the project we should work together”.*

## **6.5. Issues and Concerns stated**

Interactions with the community members occurred via various methods like group discussions, questions, experiments, etc. Even though the community members love the interaction, one youth [Nanaai, 2013] mentioned his problem with the questions:

*“the project contains difficult questions. Some questions are easy and some not. The difficult questions make you go think about them later”.*

Initially an elder [Rii, 2009] grappled with the idea that

*“some people are sharing information for money making purposes”.*

Once they realized that the purpose of the project is to help the nation, they were more than willing to be part of the journey, as indicated in his statement quoted in an earlier section.

More concerns arose about the future as expressed by Gerard

*“what will happen once the project is completed?”*

They are afraid that once the project is over they will be forgotten. They would then miss the excitement of learning all the new things from the project, and also miss being part of discussions, sharing experiences, and their stories. During regular visits by Gereon, various community members frequently asked when the research team would be coming back.

*Nanaai [2013]: “the team should not stay away long. They should come even by the end of the month”.*

Gereon asked Nanaai,

*“do you like it when they [the team] are here?”*

and he replied

*“they are good people”.*

Equally, Julius [2012] complaint that he had waited nearly one year for our visit (as he missed one trip when he was not in the village). As much as the strong interpersonal attachments enhance the participation they equally create expectations and hope for an endless collaboration.

## **6.6. Tokens of appreciation**

The community members always take part in the project activities voluntarily without claiming anything. People just participate, and never say that they wanted something once they are done for the day. However it is customary for visitors from the city to bring gifts to the village elders (it is furthermore the expectation that the elders will share such gifts with their homestead and its visitors). It is commonly understood as well that one deserves some sort of reward for working hard. However such payments are generally not discussed or negotiated beforehand in the Namibian culture. So the participants likewise never spoke about payments. At the end of the visit, the participants received some remuneration from the researchers for having been part of the project activities. It was done at the end of a trip since we do not control the number of participants who might join in while we worked on a fixed budget. It would look awkward, if some community members were paid and some not because we had run out of funds. They never argued amongst each other on whether one community member got more money than the other. Even when the researcher from the community went back to the village for personal visits they never mention anything about money. The community members always accepted whatever they

got as a reward for their work. Payments were either money or food. They appreciate the rewards in any form.

At Gereon's most recent trip he engaged the community in a discussion around payments and expectations. One of the elder mentioned that what they get does not hurt them and that it is fine. With the remuneration they get, they can buy "tea and shoe polish".

Gereon [2014] further asked:

*"Do you see it as a payment or is it to show that we are working together?"*

Gerard [2014] replied by saying

*"Is not a payment is just a way of working together. Is not a payment, is not an exchange its cooperation".*

One of the elder Job [2014] added on

*"The little gift we get is enough. Especially for me is enough".*

Alex than further mentioned

*"When we started this whole project you came to us. We never even expected to get a thing from it. Therefore it became a wonderful thing to us. Like wow, from this education to get a little gift".*

Veheha said on

*"I do not think it is a payment. I just think it is to make us feel good as people that come a long way together. I don't think it is necessary to be at the level of being educated and while we are being taught, to expect a payment".*

Veheha [2014] added on

*"I just feel good. I mostly feel good when I obtain those knowledge's. Therefore I feel good even I get something or not. I remain feeling good. I mostly feel good because I got knowledge".*

The only thing community members kept on asking for were photos to be printed for them.

*"It is so nice to receive things and pictures of us" [Nanaai, 2011].*

## **6.7. Limited Resources**

At this point of time we have not left devices behind after our research trips. Sometimes this dearth of technology led to people offering their own. For example, after a group discussion with the community members, a youth with excitement about the project suggested that he will do recordings with his Samsung phone.

*"I will record with my cell phone" Rii's [2009]*

Generally the community would have preferred it if we always left the recording technology behind in the village for their use and this was a frequent question. They wanted to do recordings in their own free time while performing their daily activities or while being in the field.

*"If you leave me with the tablet I could record various things for you, while you are not here" [Julius, 2012].*

*Gerard [2011]: "If I could keep the video camera, it would be very useful to me. I could travel and move around with it in the village, and record some things or some incidences*

*that I feel useful or very important. Perhaps I would go to a wedding and record what people are doing and related cultural activities. Or I could come to a person who is slaughtering cattle, or skinning them and record and perhaps ask questions, why that part?, why are you doing it like that?, why are you cutting it that way and so on? It would be very useful if I could keep it and record with it, some recordings of what is happening around this village”*

The same person, explicitly requested Gereon to bring the recording devices for a huge wedding that took place at the village in 2013.

Elders also wanted laptops so that they could watch what they recorded. During regular visits by the researchers their daily activities are recorded and played back to them. This led to the community elders wanting devices for recording while in the field and then showing others what they found. However a major challenge has been the charging of the devices.

At times, community members were taking turns in using the devices. There is a need from the community members to be provided with more devices during an experiment to avoid the waste of time waiting for their turn to use a device and community members would not become bored waiting for their turn.

In addition to technology for the project the community members also wished for other things like boreholes (tube wells) and a powerful solar system for pumping the village water. They felt that this would establish the village in the modern world. A community member questioned

*“why can’t the solar panels be used for something else useful rather than be used for connecting telephone lines, which is not useful in the village?” [Bertha, 2012].*

At the most recent discussion in 2014 the elders requested again that the equipment like cameras should be left with them to use. They want to capture anything they see that is interesting. It is also for them to learn and teach each other how to use the equipment. Gereon brought up the topic of the panels which were supposed to be used to power the mesh network to see how they feel about them being taken back and whether the panels should have been left with them even though the trial run of the mesh network was not successful. An elder strongly felt that they should be brought back so that they can use them. They all want the equipment to be left behind. However at this point of time the Polytechnic of Namibia regulation on equipment does not allow us to hand over the equipment thus separate funding must be sourced.

## **6.8. Self-Reflection through intervention**

When we asked the elder Alex [2013] to name three important things that he likes about the project, he mentioned

*“it first looks for your insight in what you are thinking inside”*

the second thing is

*“you have to look how the world is like, for example why is this tree dry, why is this tree wet”,*

and he gave several more concrete examples. The third thing he wanted us to know about the project is

*“it is beautiful work and it triggers your own wisdom when you are about to start doing something, because within this project, even if I scratch myself [pointing behind his ear] and you then ask me ‘why are you scratching yourself at this specific place’ it is because it will be teaching me, I myself I will know, I will know this is the place where it is itching. It gives one the wisdom so that one knows exactly what one is doing.”[Alex, 2013]*

We obtained similar comments from the other elders involved in the process, demonstrating a deeper consciousness of themselves that was brought out by this project. We had not originally anticipated that this would be an effect of the project.

Equally a major change in the perception of themselves in relation to the outside world was noted over time. For example an early statement by Gerard [2009]:

*“A video can be shown somewhere else where people can realise and see that we are living this way and then will see we can help them this way by giving them food and so on”.*

expresses his expectation of help from outside to improve the life in the village while later on he becomes conscious of his knowledge and what he has to offer the world. Thus he then considers videos taken to be broadcasted to teach the world outside.

## **6.9. Participants’ representation in publications**

After the paper was first submitted, and in part motivated by the remarks of the reviewers, Gereon returned to the village to ask the elders what they thought about it. He had a copy of the draft. Of course the concept of academic publishing had to be conveyed as best he could.

Gerard [2014], felt that they have come a long way with the project. He wants the project to advance and take higher steps till it reaches the top of a tree. So that they can lift up their hands high with joy to say that this is what they wanted.

Alex [2014] acknowledged the paper presented. He felt that this project and the researchers are really working hard. He showed appreciation to Gereon. Just by seeing that it was typed, the elder realized that there is actually progress and that their work is actually going overseas in this paper. The elder said thanks. They then mentioned a local magazine the Omundu Magazine with a wide Herero audience in which they would like to be published with pictures and names.

Gereon [2014] asked

*“When we wrote the paper we used your names, like I said Gerard, the question is would you like your names to be used or do you prefer other names?”*

Elder Alex [2014] started with a joke towards Elder Job by saying

*“Maybe you called, uh, Kamangarate (a funny name they call Job)”*,

but he without doubt said

*“I want my real name to be used, because it is my name, a name that I am known by not a name like Kamangarate”.*

Gerard added on by saying

*“Look this paper is going to the whole world, and the whole of Namibia and no one knows Kamangarate for example. They know Alex as he is part of this project while Kamangarate is not known. Even if he dies and is being announced over the radios, he is just not known as Kamangarate but as Alex the one from Erindiroukambe”.*

The elders want their real name to be used and not other names.

Veheha [2014] said

*“I think its fine for my name to be there because even if we look at different things there is always a person's name will be referred to. Maybe it might not be the real one as we do really know each other. If my name become famous in other countries I will feel good that my name seriously got to that level. I will feel very good”.*

It is clear from this discussion and their expression of their desire to be known that their contributions should be attributed and recognized.

The community members have given their informed consent for photographs to be taken and published as widely as possible. However at one staged group photo shooting one of the elders expressed his concern with his clothing being torn. The elder was extremely worried to be presented in this manner to the world. He requested all the group photos to be deleted, to go home and change and new photos to be taken (see Figure 3) to which we all agreed. Thus the representation of the community participants in pictures and words are equally important.

## **7. The gains of the community from participatory projects**

This investigation into the benefits the community participants gained during our research and development project has brought to light a number of themes relevant to community-based ICTD and participatory design. Our findings show that the primary aims of participatory action research, such as mutual learning, absorption of the researchers into the context, as well as co-creation of new knowledge were achieved. Participants derived intrinsic rewards from the participatory project and expressed their pride in having an opportunity to share their indigenous knowledge. A very valuable insight has been that reciprocity can be achieved by a mutual exchange of knowledge, rather than relying only on the common, and frequently decried, strategy of materially rewarding informants for their time and insights.

This paper contributes a perspective of the rural community on what they gained as participants in a co-design project. HCI4D and ICTD researchers working with African communities in particular can draw directly from our findings to conceptualize their interactions. More generally, we argue for a shift in perspective that acknowledges local epistemologies in HCI, participatory design and research. We suggest that harmony and humanness should be the primary values guiding community-based interactions. We acknowledge several challenges in the collaboration and co-creation of new knowledge at the frontier of multiple cultural, linguist, research and design paradigms. In the absence of generalized guidelines we suggest pursuing local transformative impact while producing trans-contextual credibility through action research (Hayes, 2011).

### **7.1. Shifting perspectives in HCI research and design**

Suchman (1987) prompts us to interpret people's action, interaction, and knowledge in the contexts in which they think, reason and act. This appeal entails more than conducting a contextual inquiry or ethnographic study of users prior to the development initiative. It implies that interactions within the process and with technology must equally be understood within the local framework. We argue that, especially in a cross-cultural setting, shifting the point of reference from the scholarly designers' to the community is only possible through continuous dialogue and re-interpretations of actions by the community itself.

Mulemi (2011) reminds us of the many accounts of African realities that have been misinterpreted and misrepresented by non-African scholars due to the obvious cognitive and linguistic gaps between the researcher and the research subjects. Thus it is of outmost importance that a platform is created as part of an ICTD project where community voices can be expressed and heard in an authentic way. Native or local researchers can build a bridge between the community and the external researchers to overcome such cultural, linguistic or political hurdles. Acknowledging participants as co-researchers and co-designers implies recognizing their contributions and no longer considering them as research subjects whose identity needs to be protected through anonymity. On the contrary, as much as we wish to ensure that the academic world is aware of us and acknowledges our contributions, so equally community members express the desire to be

heard and named as the contributors who they are. While the subtleties of academic authorship are not important to this community, being named as participants and contributors of knowledge is regarded as important. This idea has been taken further and institutionalized at the e-barrio conferences in Malaysia where academics and community members directly engage in dialogue ([www.ebarrio.com](http://www.ebarrio.com)). It is only once we fully engage with indigenous people and their epistemologies within research and design that we can co-create new knowledge and design encompassing both worlds. It is without doubt a challenging journey to re-assess Eurocentric research criteria of objectivity, reliability, and validity (Mkabela, 2005) and to adopt “cannons of Afrocentrism, such as relational co-production of knowledge, quest for justice, truth and harmony.” (Mulemi, 2011). However recognizing basic principles of participation implies embracing local values and aspirations as expressed by the community.

## **7.2. Nurturing harmony in community-based endeavours**

An Afrocentric paradigm is based on reciprocity between the researchers and participants (Mulemi, 2011). Similar values have been raised by participatory design movements and western scholars, as expressed by Ehn & Badham (2002): “In general we think of the collective designer as someone who recognize the collective and political character of the design process and take a humanistic stance in design issues.” (page 2)

We shall therefore reiterate the significance of nurturing ‘harmony’ within a community-based ICTD project as a basic value for successful collaboration. Considering the responses of the community members we realize that learning about technology and other skills has been seen as one of the biggest benefits to the community members, at times motivated by ‘not being left behind’. An initial ‘digital divide’ between us and the community members, between the youth and the elders has created a disturbance of equilibrium in the community of practice. We have observed that over time as the community members became more versatile with the technology as well as familiar with us they gladly and enthusiastically provided feedback and suggested designs. Equally the realization of the elders being ‘knowledge experts’ rather than sole providers of content has shifted the group dynamics and perceptions. While in 2009 the elders provided recordings for the outside world to acknowledge their deficits and needs (Bidwell et al. 2011b) they later on became conscious of their richness in knowledge and what they could provide to the world. With such a realization the relationships between the outside researchers and the community members shifted towards an amity and communal reciprocity as demonstrated in the mutual exchange of gifts and frequent inquiry of further visits. While this could be attributed simply to a long term growth of the relationship or perhaps the native researcher’s affiliations, we have experienced similar bonding in our short term interactions at other sites in Namibia.

Naturally we are all subject to initial stereotypical judgements. Community members might initially have the impressions such as “all white people are rich” or “university researchers have very short term interests”. Equally we may find ourselves questioning intentions and purposes of community members’ in their participation, such as “do they only contribute to obtain technology and payments?” We therefore argue that researchers and community agendas and gains are to be exposed and incorporated into the design process. In other words original boundaries between external designers and community members within a design project should be actively addressed within the design conversation through choices of methods, negotiated protocols as well as recognition of all participants’ agendas and aspirations.

Moreover, within a community-based project it is the community benefit rather than individual gains which need to be identified. Comparing the individual gains identified by Bosse et al. (2010,2012) and the community gains identified by ourselves show the differing value systems of the participants. Individual gains identified by Bosse et al. (2010,2012), namely networking and increased career opportunities is anchored in the fact that individuals draw from a participatory



project and consequently are on their own again. On the other hand community gains such as learning to ensure group cohesion, inherent pleasure of participation and human interactions per se as well as expanding and sharing of knowledge with a wider audience hint at communal values and an intended continuation of a newly established harmony.

Problematizing a conceptualization of intrinsic versus extrinsic values across value systems reveals different judgements about the purpose of human interactions. Is the purpose to achieve something or does the interaction in itself carry value? For example an elder constructing a 3D story on the tablet (see picture 3) to expand his oral story, could be seen as a means to an end but it could also be seen as a part of the story telling with its own pleasure. Similarly considering the act of learning and handling technology, while at times it serves the purpose of 'not being left behind' or preserve indigenous knowledge, at times it is undertaken for the intrinsic reward. We therefore argue that because African philosophy places intrinsic value into humanness, participation and inter-human activities are considered rewarding of themselves.

This leads us to the next challenge within ICTD projects where the goal is a sustainable implementation of technology rather than a sustainable relation. An often expressed worry by the community has been the 'end' of the project and the discontinuity of our visits which they as much as ourselves have deeply appreciated. Hayes (2011) advocating action research in HCI projects, which encompasses researchers' immersion into the context, has therefore advised to conceptualize an exit strategy. However in practice suspending long grown human relationships is a different matter. In general long-term collaborations should consider terminations or continuations beyond a specific research or design activity. We therefore encourage the involvement of local entities, such as Universities or locally based NGO which will be able to maintain relations.

### **7.3. Toward local workability**

#### **7.3.1. Linguistic challenges**

A primary challenge in engaging in cross-linguistic activities within ICTD projects are issues around communication flow, translator dependencies, translations, interpretations and meaning making of statements (Winschiers-Theophilus & Bidwell, 2013). A contentious issue has been the contextually 'accurate' translation as well as the adequate interpretation of the translated statements. All our conversations with the community members are held in Otjiherero. However preparatory discussion of topics amongst researchers are in English, with the result that at times there is no corresponding term in Otjiherero. Some words such as "project" were rendered into Otjiherero as "oprojekta" (plural ozoprojekta), laptop "olaptopa", computer "okomputera", video camera was described by function "otjikamera tjitji kambura ozovideo", much the same as Otjiherero computing students would use it within their own conversations. The concept of research was not translated as such and was described in terms of what would be done with the material. The words "okuungura kumue" mean working together with a human being, while "omaunguriro ja kumue" means working together with a group of people. We have then taken "okuungura nokomputera" meaning working with a computer and we have often rendered that as "interaction". Many times the native researcher has used familiar analogies to get the underlying ideas across even though they might have seemed farfetched from an outsider perspective (Winschiers-Theophilus & Bidwell, 2013).

Equally translations from Otjiherero to English were no less problematic. Colloquial Otjiherero is spoken in a circular, almost poetic fashion. That is, a topic is returned to many times and each time a slightly different aspect is mentioned. It is hard to capture this in English and we have not tried to. Equally a number of statements made by the elders literally translated are

incomprehensible to the outside reader without either providing additional explanations or adjusting the language, thereby taking the risk of modifying the original.

The problem of translation and meaning making is well known. “According to Owusu(1978), the problem [of misinterpretation by alien ethnographers], over time could be attributed to lack of familiarity with local worldview, languages and dialects. This accounts for errors in the translation and interpretation of local cultures”(Mulemi, 2011). While the native researcher can interpret local language statement adequately within the situation, the translation and expressed interpretation in English often lacks sufficient contextual information for a non-native reader to grasp. Thus we suggest researchers engage with local narratives in theory and practice, attempt to learn language constructs and seek multiple translation and interpretations by local people to ensure a deeper understanding.

### 7.3.2. **Altering interactions to provide community benefit**

We observe a general lack of thorough and systematic investigations into what it is that participants gain from participatory processes. Although participatory design has established itself with a sincere commitment to participation *per se*, insufficient attention has been given to the users’ gains within the process and the consequences for community-based projects. We suggest that interaction decisions be supported by identified gains for participant communities and this will enhance the motivation for involvement. The results of our investigation have shown that participatory action research has contributed to mutual learning, blurring boundaries between researchers and participants, as well as empowering community members through self-realization.

Furthermore we suggest that there be a continual exploration of community gains to guide adjustments of interactions. A retrospective evaluation can serve as a general project process documentation of lessons learnt. Our findings show that perceived gains vary over time and depend on the activities. For example the desire to possess and learn technology has only occurred well into the project which implies that now is the time for technology to be deployed in the community. Therefore we are now engaged in sourcing funds to purchase equipment. The frequency of visits should be adapted to foster relational and reflective activities even in the absence of technical progress. A lack of regular visits has been a concern of the community members. From a technical perspective we advocate that community gains be aligned with the development process. This enhances user involvement which in turn improves user participation and the quality and acceptance of the final product.

### 7.3.3. **The variable position of the mediator**

In principle native researchers seem to be optimal candidates for mediators between researchers and communities since they are familiar with both worlds. However in this case the native researcher is a young man and young researcher, and is thus subject to the corresponding hierarchical structures of both sides. Even in his role as mediator he cannot easily step outside of those structures.

Over time he has succeeded in carefully working out communication mechanisms with the community and the research team. However every new participant can potentially create frictions and a need for re-harmonization since they have not been part of this. On a few different occasions new collaborators have created tensions. On one occasion a youthful urbanized woman who was originally from the village, who had come back as part of the research team to the village, violated the established respectful communication and cultural protocols. On another occasion, outside researchers variously attempted to assume ownership of the data collected, or claimed superior knowledge of indigenous practices and interpretations through their reading about the local culture.

It has sometimes been challenging for the mediator to re-establish and maintain harmony in the project with the changing team membership, while at the same time keeping to his own position. Equally, because the mediator plays such a central role in the project he needs to reflect continually on his actions to avoid adopting the position of a restrictive gate-keeper.

## 8. Conclusion

With this study we contribute to an insider perspective on participatory design endeavours. A native researcher together with rural community participants exposed perceived community gains and issues around participation. Underlying this contribution is, of necessity, an Afrocentric perspective on communal participation.

Writing and re-writing this text has reminded us of the challenge of translating our local experience of an African reality to the Western world.

As we consider community participation an essential element of HCI4D projects, our work has set out to interrogate the much vaunted virtues of participation from an underrepresented perspective. We have provided the subjective view of a co-design project from the perspective of community participants. We have contextualised that with the reflective view of our colleague who forms the vital bridge into this community and acts as champion both for the project (within his village) and the community (amongst the researchers).

The objective of the project described was to build a system to preserve traditional knowledge and map contextually dependent rural practices onto the system. The project involved researchers and the community over a long time period. Both parties have learnt from each other in how to design a local ICT solution which reflects the living style of the community. Facilitating early and continuous interactions between community members and researchers ensured mutual learning. On the one hand the developers got to understand conceptual challenges never encountered in technology dense zones. On the other hand community members gained sufficient knowledge about how technology can be adapted and what opportunities it opens up for them (Kapuire et. al, 2010). The literature on community participation in development has shown results that indicate that community participation facilitates decisions on project direction and acceptance but stand in the way of technical decisions such as project site selection (Khwaja, 2004). Khwaja points out that for a community “participation is also a means of exerting influence or bargaining power”. We saw this ourselves in the conflict of positioning solar panels for the wireless mesh network. On the other hand the four elders have been invaluable co-designers and decision makers in regard to software changes and input on appropriate technologies. We believe that only over a certain period of time with the right pace that allows community members to assimilate technological skills can community members move from technology users to confident co-designers. The elders in the village were ready to learn new technologies and to comment on their usefulness, having participated in joint design and evaluation sessions.

Equally important was the alignment of our project goal, the preservation of indigenous knowledge and the development of an appropriate tool through co-design, with the interests of the villagers. Elders expressed their fear that the youth would not know their traditions and appropriate skills, and they realised that a digital system could bridge the gap between generations. According to them the study has opened their eyes to the importance of having their stories recorded and the idea of capturing their stories had not occurred to them until it was introduced by the researchers.

The intrinsic benefits of participation have been widely expressed by the community members’ happiness about the researchers’ visits and the eagerness to participate. Apart from the explicitly stated pleasure, we have ourselves experienced the joy of the participation. Thus the experience in

itself has changed the interactions and the perceptions of community members. It has also confirmed that interactions as encouraged by participatory design establish harmony within a community of practice as anticipated within an Afrocentric research paradigm. On the other hand as not all community members can participate, the project has created frustration among the non-selected community members.

The community members' costs versus benefits during the participation process received our attention. The issue of participants' compensations remains contentious in many academic debates. Dearden (2013) briefly illuminates differing perspectives of payments and risks of coercion yet admits that only on-site experience will inform plausible procedures. We have previously discussed contradictory protocols in compensation strategies yet with no conclusive resolution (Peters et al., 2014). In the context of this paper we have raised the issue with the community elders who as part of this project consider themselves fortunate to learn technologies that they said they do not expect payments. They consider the monetary compensations received as tokens of appreciation.

The theoretical principles of 'fair selection' have been discussed by Dearden (2013) with an inconclusive procedure in practice. In our context participants' selection was driven by affinity, availability and willingness. The core team from the community argued that inclusion in their group had to be dominated by the desire for a consensus driven approach. They suggested that antagonistic individuals should be accommodated in individual sessions.

A most interesting result is the empowerment of, at least some of, the elders in the community to reflect on their own practices and ways of knowing. This was not anticipated as an outcome and it was never consciously sought. Such a growth of self-reflection makes it clear that the process of co-creation is truly a shared activity that has gone beyond co-design to cooperative knowledge creation. It is at this point that one can say that empowerment as increase in capabilities (in the sense of Amartya Sen) has taken hold.

We have written this paper in order to give a community view of participation within a long-term project. The reception and the effects of inclusive participation are overwhelmingly positive. Participation allows community members to voice their requirements and gain knowledge to guide their choices. At least as important is the subtext of valuing collaboration and being prepared to adapt outcomes and processes within HCI4D projects, considering that our assumptions about benefits might be wrong.

We were repeatedly made aware of the significance attached to the maintenance of community harmony; this is an essential driver for any development endeavour. In the pursuit of such equilibrium we encounter a number of challenges for which we have no universal solution. This includes conflicting interests within the community and issues of inclusion and exclusion which can be exacerbated by scarcity of some resources in this isolated rural setting. This should lead us to understand the process better and avoid the outcome of excessive enthusiasm blinding us to important issues.

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