

Toward an Afro-Centric Indigenous HCI Paradigm

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Abstract

Current HCI paradigms are deeply rooted in a western epistemology which attests its partiality and bias of its embedded assumptions, values, definitions, techniques and derived frameworks and models. Thus tensions created between local cultures and HCI principles require us to pursue a more critical research agenda within an indigenous epistemology. In this paper we present an Afro-centric paradigm, as promoted by African scholars, as an alternative perspective to guide interaction design in a situated context in Africa and promote the reframing of HCI. We illustrate a practical realization of this paradigm shift within our own community driven design in Southern Africa.

Keywords

Cross-cultural design, Afrocentric paradigm, Indigenous epistemology, Community consensus

Introduction

Dominant HCI paradigms are deeply rooted in a ‘western’ epistemology which inherit a certain partiality and bias through embedded assumptions, values, definitions, techniques, frameworks and models. Over the years researchers have invested much effort in attempting to localize software for ‘different cultural settings’ by elaborating differences between cultures and modifying existing design patterns, user interfaces, and methods to suit “Other cultures”. Marcus and Gould (2000), amongst others, derived design guidelines at national levels mostly based on culture models, such as Hofstede’s,

Trompenaar's or Hall's. However, increasingly critiques in HCI, especially from scholars of postcolonial science and technology studies, draw attention to flaws in conceptualizing 'culture' as an analytic category which ascribes the object of 'culture' with particular attributes (Irani et al. 2010). An objectifying view of culture gives no traction when deciding where to focus design. For instance, is a group bounded by the culture of their nation-states, or religious convictions, and what happens when people move, or when boundaries shift? Considering culture as enacted in everyday practice and active in producing everyday experience (Irani et al., 2010), illuminates critical tensions between local cultures and the assumptions, priorities and values embedded in the everyday practices of HCI and interaction designers.

Shifting focus to local or indigenous practices and meanings in design pushes the envelope in a very exciting way. For instance, by considering differences in local practices through which 'usability' or 'participatory design' is constructed engages us in re-thinking established practices of design and evaluation. Interrogating assumptions re-produced by dominant HCI paradigms, paves the way for establishing new methods and, indeed, new theories on human computer interaction in general. While the global HCI community has well-defined conceptual and methodological frameworks, there is little research about how local users and HCI professionals experience, adapt and implement this knowledge, nor how to locate HCI so that it is locally accountable (Suchman, 2002).

Translating local knowledge into valid and useful HCI tools is not a simple problem, but one that requires re-defining and re-negotiating disciplinary boundaries (and connections) and the subject and object of interaction design. To progress this research we must start by better understanding relationships between HCI concepts and methods and their meanings within local and indigenous frameworks, in opposition to the application of national culture models, such as Hofstede's (Hofstede et al., 2010), which has promoted and perpetuated a cross-cultural view from a western standpoint. Merritt and Bardzell (2011) have proposed that African philosopher Thiong'o's language and culture theory provides a tool for us to face assumptions, cultural communication, and the potential repercussions in cross-cultural design. The theoretical problem of looking 'out there' from 'in here' has been further explored by Taylor (2011), who argues for a shift to an 'in side' from 'right there', appealing for a fundamental understanding of the "the mutual, unfolding enactments of ordering, classifying, producing and ultimately designing technology." (Taylor, 2011, p. 693).

In this paper we translate these theoretical deliberations into a located interaction design in a Southern African context. We present an Afro-centric paradigm, as framed by African scholars, which we can use

as a tool to challenge established research frameworks and impact on HCI design and evaluations in African contexts. We intend to provoke thought by specifically addressing particular criticism encountered in discussions at the frontier of epistemologies from a scientific research standpoint. Thus we encourage the reader to reflect upon their own practices as they engage with an African perspective onto HCI and argue for a major shift to develop an indigenous HCI paradigm. HCI methods and concepts must be shaped by local practices and conceptualizations which goes far beyond a cultural adaptation of principles from a common cross-cultural standpoint. We exemplify this paradigm shift with our lived experiences in an interaction design project situated within relationships between Southern Africa-based researchers and residents of a rural community in Namibia. Our project strives to co-create a digital representation of indigenous knowledge and practices, and in doing so has prompted us to reflect upon assumptions at every step. We intend our reflections to inspire readers to engage with the exciting challenge of creating locally applicable approaches. As importantly we demonstrate how an interaction design that aims at a locally appropriate HCI must be led by the underlying epistemology of the usage context and practices of meaning making that emerge in the relationship between HCI designers and local people. Thus this paper contributes to the field of HCI by illuminating the need to reconsider the position and relation of the designer, the users and the artifacts to each other and establish the prominence of these relations within indigenous HCI paradigms.

Perspectives in HCI

In HCI we tend to categorize those people whose practices yield meanings that significantly differ from those embedded in our established frameworks, methodologies and practices as cultural 'Others', with little consideration of who such people are in fact other to. In this section we take a reflexive turn to show the significance of meanings about 'our selves' in design. '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). In recent years such 'reflexive turns' have led to more collaborative approaches that respect and integrate local values and goals into academic methods to gather and represent data.

'The Other' in Design

Despite the increased influence of post-colonial critique a colonial approach thrives in HCI and we continue to encounter a particular framing of cultural Others and what design needs to do to address

'them'. For instance, in attempting to design interfaces and technologies for contexts that differ from those in which a technology originated, we encounter statements such as: "why don't you rather train 'those people', to use technology which is so intuitive to us?" and "throughout Africa even illiterate peasants are often able to use cell phones, despite the fact that the phone interfaces and usability were not designed for their specific cultures."

Statements that generalize "throughout Africa" continue a long tradition of representing the "Other" in Africa. Such a tradition, as Johannes Fabian (1983, p.111-112) writes about modern anthropology's "ostensible vocation", was primarily "to construct ordered Space and Time - a cosmos - for Western society to inhabit, rather than 'understanding other cultures'". Representing the generalized Other in Africa is a modernist tool of dualism, bound up in the origins of European romantic nationalism, that manages complexity and simultaneously ensures distance between occupiers and inhabitants; or, as Mudimbe (1988) explains about the process of Othering: "It establishes a second representation that unites through similitude and eventually articulates distinctions and separations, thus classifying types of identities [...] on the one hand, signs of an epistemological order which, silently but imperatively, indicate the processes of integrating and differentiating figures within the normative sameness; on the other hand, the excellence of an exotic picture that creates a cultural distance, thanks to an accumulation of accidental differences."

We are concerned by homogenizing differences amongst African users of technology and the validity of statements about technology use "throughout" Africa. Certainly, we know that statements that cellphones are ubiquitous in South Africa are flawed as they assume certain relationships amongst statistics about people, service subscriptions and phone purchases (e.g. ITU). For instance, we find in number of places in Southern Africa, that rural dwellers do not consistently use cell-phone interfaces in the way that phone interaction models suggest; we often observe that people use urban proxies to make calls and impoverished people with little western education note how this impedes their use of phone services (Bidwell et al., 2011b). Indeed, Knoche and Huang (2012) appeal to designers to gather better data to understand phone use by oral users.

Our concern here, about generalizing 'the Africans', is not simply about specific interaction issues that such generalizations obscure or marginalization that they perpetuate. Rather we claim that acknowledging politically informed ideas about Otherness and how these are leveraged by national and neo-colonial interests in design, provokes admitting that design culture itself contributes to

creating 'cultures'. Green (2012, p. 4) clearly articulates the circular argument that: "cultural difference is because of culture". Thus, our own identity as non-African, designers is shaped by defining an African Other just as our constructs of what it means fundamentally to be a human in a human-computer-interaction is shaped by the technologies we use.

Situating the Self in Design

Before situating our design goals, methods and evaluations within the values and concepts of the specific socio-cultural context we seek to serve, we need to co-generate a perspective on what a human 'self' in a project means. To respond to different practices and interpretations of participation, and power relations between these, we must tackle the way social groups construct the meaning of self as humans within the design process. Such a position is not driven purely in response to epistemological violence (e.g. Teo, 2008) but also because a better engagement with local knowledge systems can advance HCI's perspectives on the human in the interaction. Or, in other words, indigenous perspectives can inspire reflecting upon the self. It "is to recognize our inextricable participation in these enactments, to see that we too are part and parcel of just those human-computer interactions we are studying and designing for." (Taylor, 2011, p. 693).

Dourish and Bell (2011, p. 205) observe "the creation of cultural artifacts and their exploration of them as cultural artifacts are not independent programs". That is, not only do digital tools re-produce and reflect implicit and explicit assumptions and priorities but so too do the lenses we apply to understand design contexts. Our sensitivity in this regard is framed by a Critical Design perspective (Dunne and Raby, 2001), which heightens our awareness of the power relations that exist between the assumptions and priorities of different people and communities and those embedded in designing and using the whole range methods and tools. Critical design is a methodology that sits within the situated-paradigm and reminds us that any interrogation of the validity of a decision or judgment is inseparable from the decision-making context. The 'situated-paradigm' applies to perspectives that respond to the social situation of interactions and the varied non-technological factors that affect design and use (Harrison, 2007). A range of studies illustrate how pairing evaluators with users from different cultural backgrounds influences outcomes (e.g.; Vatrapu & Perez-Quiñones 2008, Clemmensen & Plocher, 2007; Oyugi et al., 2008). In Eastern societies, for example, users' socio-emotional orientations are acutely influenced by the presence of foreign evaluators. This led Shi and Clemmensen (2008) to remark that, "the appropriateness of a given cultural theory/knowledge depends on who the individual

is together with. Sharing knowledge of usability problems and coordinating descriptions of usability problems depend on the mutual perception of group belongingness.” At the heart of situated-approaches (Harrison, 2007) lies the philosophy of phenomenology, which understands all action, interaction and knowledge as embodied in human actors and meaning to be irreducibly local around the site of the specific interaction itself.

Plurality of Perspectives

To consider the production and use/non-use of technologies we must interpret people’s action, interaction, and knowledge in the contexts in which they think reason and act (Suchman, 1987). This motivates asking about the ways that practices and tools fit into the contextual particulars of situations. Phenomenological approaches have long appealed to philosophers in and of Africa (Hallen, 2009). Their hermeneutic epistemological stance recognizes the plurality of perspectives and that meaning is connected to the viewpoints, interactions, histories, and local resources available to those constructing meaning, be they local knowledge holders, researchers or technologists. However, at the same time our work in Africa has alerted 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 singleobjective description, phenomenology often neglects the potential for connectedness. Unequivocally, as Western designers we need a critical sentience of the historical processes and intellectual or theoretical traditions that construct the situations that we analyze and effect the assumptions, motivations and methods we use to study and depict practices. However, part of our sentience involves recognizing the individualist and ‘thingified’ biases in interpreting the situated paradigm. For instance, our studies strongly suggested that rural Herero tether knowledge to relationships between people, link spatiality to social bonds and orient in a social-relational space (Bidwell et al, 2011a). However, leveraging dominant social theoriescompels us to link any interpretation to a person in a particular situation and the analytic accounts we render in situations (Clifford and Marcus, 1986), rather than the multiple relations in these situations. The post-modern preoccupation of translating complex relationalities into ‘things’ that can be discussed in isolation, is seductive. Green (2012) shows how dominant knowledgecreation practicesfavorrealitiesthat are easily rendered inthe language of objects and subjects and provides examples of the way this contrast with the meanings produced in practices beyond academe:” ‘Sangomas’ (traditional healers’) insights into the

consequences of social relationships for health and disease extend beyond the notion of health as the property of an individual person and their biochemistry. Similarly, different understandings of what it is to be an ethical person generate markedly innovative approaches to conflict resolution where jurisprudence is understood in relation to Ubuntu“, or African narratives on personhood. Green (2012) argues for grounding understandings in the relational ontology that exists in everyday practices. Nielsen et al. (2003, p.30) point out that “the ability to reflect on one’s own scientific understandings and Weltanschauung—triple loop learning—is a must in multicultural projects”. Similarly, we argue for better attention to analyzing human-human interactions and inter-relations, both within and beyond the design process.

Such considerations have encouraged us to adopt a dialogical approach where, for the purpose of design, users and their activities, interactions and opinions live in sets of relationships between us, others and the context (McCarthy and Wright, 2006). Dialogue, as defined by Bohm (2007), does not aim to convince other participants in the conversation of the rightness of our opinion as it involves respecting all participants and suspending judgment. Thus, we consider any account about users’ suggestions and experience, including those that are analytical and those realized by prototypes, to be part of an evolving design product. We do not restrict dialogue to the exchange of words or gestures only, but instead apply it to the communicative structure of experience. This allows us to encompass a phenomenological approach in our research.

Putting Critical Design and dialogical phenomenology together our approach assumes that as designers we ‘converse’ with multiple perspectives and diverse aspects of settings. These ‘conversations’ sensitize us to our own relationships with the objects and things that we are enquiring about and how these relationships arbitrate the alignment of our and user’s. By applying these perspectives we have produced insights about ourselves as much as about others. This led us to realize how insights about ourselves as humans interacting with computers and interacting with others in design have been critically overlooked in the HCI and also in the post-colonial discourse.

An Afro-centric paradigm

In order to gain an insight from within we first deliberate on the theoretical perspective driven by various African scholars. We further clarify the implications of this paradigm shift for interactions and design decisions with selected examples.

A theoretical perspective from within

Asante (1990) defines Afrocentricity as a major philosophical and theoretical paradigm shift in research, by repositioning ‘the African’ as a subject, not an object, and prioritizing Africa’s own intellectual perspective (Mkabela, 2005). A move towards Afrocentricity is a vital aspect for indigenous HCI in an African context, following Taylor’s (2011) appeal to step inside out there rather than describing out there from in here. As long as we continue to frame design foci, evaluation, data collection and interpretations, from a Western perspective we represent African indigenous knowledge practices. By privileging a Western science paradigm common HCI methodologies, including their abstractions and models, perpetuate a locally inappropriate approach. “The scientisation of indigenous knowledge strips away the detailed, contextual, applied aspects of knowledge that might be crucial in the positive effects claimed for a particular piece of indigenous knowledge” (Van der Velden, 2010, p. 8) and its digital representation. To comprehend phenomena within African contexts Mkabela (2005, p.179) suggest “cultural and social immersion as opposed to scientific distance[]. This means that the researcher must have some familiarity with history, language, philosophy, and myths of the people under study. This point takes on normative and cultural dimensions researchers cannot be reduced to merely the collection and production of value-free scientific knowledge. The concept becomes a way of linking the purpose of research to the very discourse that emerges and is legitimized from within the African framework”.

Sensitivity to epistemologies located in Southern Africa involves appreciating that worldviews and practices in rural communities associate with the paradigm that ‘a person is a person through other people. This is encompassed in the concept of ‘Ubuntu’, which variously means ‘humanity’, ‘humanness’, or ‘humaneness’. ‘Ubuntu’ is characterized by generosity, love, maturity, hospitality, politeness, understanding, and humility (Mkabela & Luthuli, 1997). Hallen (2009) points to concordant themes about African communalism, agreed upon by key philosophers from South Africa to Ghana, and empirical evidence suggests that over 75% of cultures across the continent construct actions within a collective context. Yet, research has largely neglected or misunderstood the importance of this ‘collective ethic’ to African communities which as Mkabela, (2005, p.185) explains “recognizes that survival derives from group harmony and all actions are within a collective context, which seeks to maintain the harmony and balance of an interrelated and essentially egalitarian system”. We propose that some omissions and misunderstandings arise because Western discourse itself is not usually framed within a collective and interconnected paradigm; for instance, we do not tend to construct our

accountability in ways that recognize links between our own life and those of our ancestors and descendants. As Mbiti (1990, p.141) explains: “In traditional life, the individual does not and cannot exist alone except corporately. He owes his existence to other people, including those of past generations and his contemporaries. He is simply part of the whole. The community must therefore make, create or produce the individual; for the individual depends on the corporate group”.

Mkabela’s thesis resonates with us in terms of positioning HCI through an Afrocentric paradigm in a situated interaction as well as design decisions. For instance, by contextualizing relationships in design processes in ‘Ubuntu’, we notice that mutuality, tolerance, hospitality and respect between all participants is compatible with a dialogical approach. Mkabela (2005, p. 186) writes “There is no I thou relationship. Instead a human mode of consciousness is fundamental. This approach then suggests the need to move from an alienated mode of consciousness, which perceives the knower as separate from the known to a collective mode of consciousness. Such a mode of consciousness addresses a fundamental reordering of our understanding of the relationship between self and other and indeed between self and the world, in a manner where such an ordering not only includes connectedness, but necessitates letting go of the focus on self (Heshusius, 1994). Thus the African-centered research requires a re-definition of the nature of the relationship between the traditional researcher and the researched.” This requires constantly renegotiating and adapting relations between external designers, the collaborating communities and other stakeholders continuously within an interaction: Designers cannot be considered as independent, or even objective, detached persons. After all to follow the Ubuntu principle we need to identify ourselves, as technologists/researchers/designers, as part of a wider community encompassing users and technologists/researchers/designers who together derive a communal existence and we need to acknowledge that it is within this communal existence that ‘I am’ a technologist/researcher/designer (Winschiers-Theophilus et. al., 2010). We find that there is actually no other way then to fully engage in the research and development process, and by fully we do not mean reduced to “the intellectual“ or “the professional” but the entire me, including body, feelings, and intellect as well as the entire baggage of our own background and our consciousness of being connected within the community.

Implications for Interactions in Design

Despite the misuse and overuse of powerful and loaded concepts of ‘ubuntu’ more often than not we do indeed find the people we meet and work with in rural African communities explicate their need to act

together “as one person”. Time and again, we observe local expectations about ‘participation’ in daily life and in relation to ICT projects. To respond effectively we must re-focus methods formalized in interaction design to emphasize facilitating groups which already exist as a network to create a design output, rather than bringing individuals together in a joint design activity. This, of course, reignites questioning the appropriate role of technologists, practitioners or researchers in relation to established communities during joint design activities. We have used the term of “being participated” to depict our mundane experience in research in rural Africa and elaborated on how the control of interactions oscillates between us, the designers, and the individuals and groups within the communities (Winschiers-Theophilus et. al. 2010). We have learnt to appreciate community driven interaction styles, which are mostly conversational and embodied, such as walking in nature, sitting/cooking at the fire (Bidwell et. al. 2011). We have learnt to gather and interpret information over time and accumulate and suspend analysis of “unusual” and “incompatible” information until we genuinely feel we might have sufficient access to contexts to make sense out of it (Bidwell et. al. 2010). At any time we are faced with as many ambiguities as consistencies and as many unsolved as resolved challenges. As Taylor (2011, p.692) encourages the HCI community to reconcile with instabilities, as “the networks of difference and complexity are not immutable “out theres” to be tidied up or solved; they are just the scrappy, messy and unfinished enactments of ordering that are going on.”

Design considerations

Evers and Hinds (2010) suggest that fundamental cultural differences such as ‘construction of self’ and emotional experiences should direct design guidelines and decisions. For example, “if people see themselves as inherently connected with others, design of networking sites such as LinkedIn would need to cater to this. It is, for instance, possible that the concept of simply linking to someone is enough to suggest a meaningful connection, is foreign to people with interdependent construals of the self.”(Evers & Hinds, 2010, p. 38) We have raised similar concerns based on our ethnography of local practices and observations of local use of social networking applications in rural Africa. We proposed that values about communalism and cohesion, as described by the ‘Ubuntu ‘ philosophy, shape local constructs about personhood and the practices through which people perform their identity (Bidwell, 2010).With this in mind, we now share several project experiences to illustrate the perplexities and complexities that exist at the frontier of two paradigms in action.

A situated afro-centric infusion

We have chosen three themes, which we illuminate with specific data from our longitudinal research project, to demonstrate an application of afro-centricity in interaction design. The local meaning making of digital representations reminds us of the multiplicity of perspectives which need to be embedded in a local framework to guide interaction design. Recognizing the interconnectedness of all of us within the design process with an often unspoken desire for harmony and melting of opposing views, dissolves the ‘us-them’ structure to a web of relations and roles being renegotiated continuously. And, lastly, we consider the method of “consensus building” as a contextually appropriate alternative to a scientific aggregation of distinct data informing design decisions. In the following we first describe the context and communication challenges before exploring the three themes.

Interaction Design Context

Over the last four years we have been exploring design methodologies and systems that digitally extend local rural knowledge practices of members of the Herero tribe, a group constituting 9% of Namibia’s population. Mostly elderly and pre-school children live in rural areas, while the other generations temporarily migrated to urban areas commuting regularly to maintain rural activities. Over decades people in rural communities in Namibia, as elsewhere in Africa, have used indigenous resources and developed practical systems to sustain the wellness of themselves, their environments and living and non living beings therein. The Namibian government supports rural development and documenting documentation and preserving indigenous knowledges for multiple reasons; one to investigate commodification and economical viability, two for cultural heritage and thirdly to investigate alternative and sustainable technologies. However many initiatives to record, archive and use indigenous knowledge are affected by the values and attitudes of global systems of knowledge production (Green, 2012) that disregard interconnections between the body, social, environmental and metaphysical settings (Bidwell et. al, 2010). Thus in our research project we are striving to embrace indigenous knowledge deeply into a new technology paradigm to promote communities’ sovereignty.

At the one research site our endeavors focused on designing systems to support knowledge about herbal medicine practiced by professional healers and Elders, whose wisdom residents hold in high regard. So we also undertook healing with professional healers, participated in spiritual services, studied the language, and built long-term relationships beyond the projects. At the other research site

our main focus has been on the co-creation of a community based indigenous knowledge management system, where rural elders digitally curate their knowledge and transfer to urban youth. Current prototypes under evaluation are tools for the Elders to depict their environment in a 3D visualization in which to embed further media of indigenous knowledge practices in form of video recorded narrations and demonstrations (Rodil et al. 2011). Major emphasis was on locally meaningful representations and recognition by the rural community.

We apply different methods to elicit perspectives and views, amongst residents of the two remote rural villages, to inform the design process as well as the product. In our research visits of three to four days length with intervals of three to four months we have collaborated with four male Elders, who have been part of every activity, as well as a number of up to twenty at a time convenience based selected participants. Activities varied between community driven and researcher facilitated, such as bush walks, community discussions as well as participatory design sessions and prototype evaluations, respectively. If grouping was required the allocation was guided by the male Elders. For example in one session Elders and Youth were separated and the allocation was not based on real age, which is not always known, but based on the regard for their knowledge and standing by people in the village. Thus we observed an overlap in terms of real ages around the age of 35 years. In terms of development time line we focused on video capturing and organization in the first years and more recently negotiated detailed knowledge representation possibilities. Thus, to begin with participants recorded others and themselves, describing scenarios, telling stories and demonstrating herbal lore and practices, within their homesteads and in the arid land beyond. We also recorded participants gathering and organizing media, using video and prototypes on laptops, and interpreting and translating previously recorded media. Lately we have run a number of very focused studies investigating interactions with tablets and visualizations, as well as drawing sessions to inform design methods (Jensen et al., 2012, Rodil et al., 2012)

Communication challenges: translation and interpretation

Understanding relationships between knowledge and locations in communities that emphasize orality means paying attention to verbal nuances. Merritt and Bardzell's (2011) contribution to the post-colonial discourse is interesting in this regard, especially, in the case of sub-Saharan Africa, as they draw on the writings of Kenyan writer Ngugiwa Thiong'o's (1986) who makes the bold and controversial suggestion that, in postcoloniality, the indigenous languages of Africa should be

developed as interactive literary languages. Merritt and Bardzell (2011) apply their theory to considering the consequence of the inadvertent meanings, effects, and syntax of language embedded in HCI design. While we heartily agree that vigilance around language is necessary for culturally sensitive, successful HCI4D design we would also like to ground some of this theorizing to the reality of Africa. With the highest linguistic diversity in the world, language has been vital policy issue in the post-colonial era and African countries have become increasingly aware of the value of their linguistic inheritance. Further, we do not think it a generalization to state that Africans are more likely to be multi-lingual than anyone outside Africa. It really is not rare for many Africans to speak three or four African and colonial languages, but have written literacy in none. Indeed Finnegan (2007) provides evidence for multi-linguency in Africa and asserts that this makes Africans a great deal more sensitive to the ways language works.

Besides major impacts of linguistic narratives on appropriate interface design we see a more primary challenge in communication, translation and interpretation in framing the dialogic we seek within the design process. Within interactions we need to ensure that we maintain a dialogue that embraces local etiquette and does not undermine this by translation. The researchers and designers on our team are all fluent in English, though it is not the mother tongue for most, and excluding the host-researcher, none of us has a conversational level of the local language Otjiherero. On the other hand all conversations take place in Otjiherero among the villagers, although some of the villagers can communicate at a basic level in English. Thus, sessions are inter-lingua, with researchers communicating in English (see transcript below) but the translation protocol emerges depending on the participants, the content and purpose of the discussion. Prior to our first visit, researchers had written down their specific questions and the facilitator had translated them into Otjiherero. Once at the village residents were interviewed in a structured manner in their language. We recorded the entire session and translated it afterwards for the fellow researchers. This approach had a number of difficulties. Firstly, the researchers had to formulate their questions ahead of the encounter while during the encounter they had no chance to correct, reformulate and or add new relevant questions. Secondly, it placed our collaborators in a position of dependency on the facilitator to ensure completeness of interview questions and answers. Further it restricted an open dialogue where unexpected topics could unfold. We can only have a dialogue if we “understand” each other and are part of the conversation.

Thus the main question is, at what point we should get an insight on what is discussed and thereby given a chance to also “talk” and attempt to influence the discourse. We adopted another approach in

group discussions, where external researchers adopted the role of aids or advisors, present to assist the local facilitator, but not direct the conversation. Table 1 shows how the facilitator in line 7 takes the opportunity to inform the fellow researchers what the discussion is about. Researcher A throws in a concern, for which he is looking for an answer, however the facilitator does not find it appropriate to ask this question and therefore resumes the conversation with the villagers at the point where it was interrupted. The conversations are clearly not aligned with each other. The foreign researchers do not understand the local language but would like to obtain specific feedback and build on the answers. On three occasions we went with two researchers speaking Otjiherero and while the one facilitated the other one translated in the background. This raises various issues around exact translations, since language, perspectives and context, intertwine. Translations appear imprecise because the facilitator must not only to translate in the pure sense but also contextualize explanations and questions so that the villagers would grasp the meaning. Thus in many instances a clear and abstract question is translated through a number of specific examples, which corresponds with observed local communication practices. Equally the facilitator needs to interpret answers in examples and with specific actors mentioned, in conjunction with a local person for correct sense making. Given we do not always understand, and thus do not focus on concepts in utterances, we usually take the opportunity to allow our other senses to engage in and feel the situation; taking care to avoid interpreting body movements and gestures, since they are very culture specific (see Evers & Hinds, 2010). Thus we continuously discuss and validate interpretations with our local researchers and include them in further design decisions

Local Meaning making versus localization

Translating visual and verbal metaphors might be adequate to localize standard applications for users but also encounters a much more fundamental problem in appropriating software as illustrated in the following example.

“Delete”: an alien human-computer interaction

In the latest prototype, a digital “3D village creator” prototype, we modeled the dumping well (a hole in the ground covered with corrugated iron sheets) as a user interface metaphor for “delete” in place of the common dustbin symbol. Residents in one of the villages, in which we are piloting our methods and designs, can select objects such as houses, trees, cows, pots and place them on the plane and, if they like, remove any of the objects by dragging them into the dumping well. The village elders reacted with

some repulsion to the idea of “throwing away a house, or a chair” or anything, for that matter, which could be “reused” (see picture 1). They said they would rather rebuild the object or disassemble and repurpose its pieces to construct something else, but they would never ever want to delete it. And, indeed, when we observed community practices we noticed that they did not throw away “broken” or unusable objects but keep them somewhere to use later for a different purpose. Thus, a more adequate implementation might be a site for storing for removed objects that villagers could pick through later for whatever alternative use.



Picture 1: Elder commenting on “dumping well” metaphor

The issue of the alien concept of disposing unusable objects adds evidence to the questionable position of universally mandatory features for applications, such as ‘delete’ and the writing metaphor with which it associates. But, more importantly, it reveals a weakness in our, the designers’, assumptions about how residents interpret the interface (Merritt and Bardzell, 2011). Rather than interpreting delete as a feature to manage the visualization they seemed to perceive it as a value associated with the knowledge represented by the simulation. It provokes questioning firstly, the belief that we can localize applications to a cultural context by merely transforming interface icons presuming the underlying functionality is meaningful to all users; and, secondly that we can rely on a local domestication of representation. Technology research and practice has long realized that technologies cannot be “value-free or inherently liberatory.” Fernández (1999) and other HCI practitioners have considered values, or what a person or group of people consider important in life, for some time. Commonly, as part of the development process, we model solutions based on abstractions that reflect how we perceive reality (Floyd, 1997), and both the abstractions we use and the perceptions to which we apply these abstractions are culturally defined. Our ‘cultural logics’ and ‘cultural epistemologies’ (Irani et al., 2010) or the collective ways we encounter, organize, learn and know about the world, run deep. They

can obscure noticing very basic details of other cultural logics and epistemologies, and their relevancy to design decisions. For instance, when we tried to involve local people, during our earlier studies in Namibia, in evaluating usability we found that Namibian users groups do not assess “usable” against the same priorities and expectations that HCI commonly applies in determining efficacy, efficiency and user satisfaction (Winschiers-Theophilus & Fendler, 2007). This not only compromises the legitimacy of applying common usability evaluations and tests to systems but shows just how deeply Western values are embedded in the design process and how difficult it is to anticipate and recognize disconnects between HCI’s and local values. Thus, even when we recognize differences between users and developers and attempt to involve users we often tend to seed the design process from a particular point of view. Jensen (2012), a techno-centric European, designing with and for users in Southern Africa, has realized “how meaning must be continuously negotiated between us as external designers and the local co-designers in the villages –even over basic concepts such as perception and recognition” (p. 69).

As Borning and Muller (2012) recently point out we need to be able to contextualize values not only in the situation in which they are expressed but also relative to researchers’ values. Many studies focus on the users’ behavior and reactions and we observe a lack of literature that elaborates not only on users’ cultural backgrounds, but also the designers and their interrelations. Once we acknowledge that all participants influence the design process, as well as its outcome, we also realize the benefits of a full engagement of the designer with the community to co-create a locally meaningful representation as promoted in an Afro-centric paradigm. Other times our reflexivity leads us to withdraw from certain research foci that do not align with what we learn. For instance, one of us (Bidwell) after living for a month in one site and undertaking careful observations and analysis of interactions, decided that visual media obscured aspects of communication and might exert an imperialism that might undermine the very knowledge we sought to support (Bidwell & Winschiers-Theophilus, 2012). Thus, and reflecting the spirit of plurality, she retreated from aspects of the project while maintaining collaboration. .

Interconnectedness: local protocol versus “professional” interactions

Aware that mutual respect and trust are a prerequisite for joint design activities, we build on personal relationships in both villages in which we pilot our methods and designs. A fellow researcher, who originates from one of the villages, hosts us in his rural home. He introduced us, and all our collaborators, to selected community members. His kin relations enabled us to rapidly build rapport,

and trust with certain residents of the village. Most often, depending on the activities, we hold prototype design and evaluation sessions in this researcher's homestead, since here we can more easily access resources, such as electricity. We collect participants in activities from their homes elsewhere in the village or they join us at the request of the host-researcher or voluntarily. With the exception of four village Elders, mostly which residents participate in any of design activities depends upon their availability and presence at the time of the session. We fit our research activities around the everyday dynamics and rhythms of local domestic and work life, as determined by local residents (Winschiers-Theophilus et. al. 2010). Participation in this way provides a greater variety of design feedback than if we focused only on a particular stable group but at the same time respects the authority and interest of the Elders. However, as the project has unfolded we have encountered and better understood various constraints on information flow.

Since, our host-researcher facilitates most of our own interactions with local residents he might act as a gatekeeper. Residents in the village are highly related by family ties and, naturally, our host-researcher has his own personal relationships with local residents that directly influence his selection and their willingness to participate. Thus so far 40 of the approximate 200 village's inhabitants have participated in design and evaluation of the prototypes. Only once we, and our collaborators, had built-up our own separate relations with residents did our information access change. For example, one of us stayed in the village over a longer period of time, engaging in daily activities, and developed a deeper relationship with the host researcher's mother. The "woman-to-woman" conversations provided a useful perspective on issues under discussion, and opinions about interpersonal relationships locally. The local woman, out of her own personal interest, supported translations, interpretations and providing cultural background to support making sense of the collected information. Equally the other author has made repeated, quarterly year trips to the village for over four years now and while these trips are for only two to three days their consistency has enabled interacting with a great number of the community members also in the absence of the host-researcher. During one visit a resident, with sufficient English language skills to understand our evaluation intentions, facilitated an entire prototype evaluation without the presence of our host-researcher. The village facilitator led our research team to a number of houses that we would not have accessed through the host-researcher, due to his own lack of association (Rodil et al. 2012). Thus, we are very conscious of the way information access is directly shaped by whoever facilitates introductions and that it takes time for us to build our own networks of trust and communication relations. The richness but also complexity of information exchange increased with the

depth in variety of relations we established building an interconnected temporary sub-community of design participants. We now gained substantial insights necessary for contextually appropriate data interpretations as well as very detailed usability evaluation feedback and design contributions. This aligns with Mkabela's (2005) claim that the success of an African centric research project depends on a holistic relationship between researchers and community members. This goes beyond the mere design interactions but establishes multiple bonds, accountabilities and interdependencies. Within this relationship we often need to conform and exhibit generosity and consider community members' interests beyond our own research interests, such as assisting in highly personal matters. Mkabela (2005, p.187) explains that this relationship promotes feelings of local ownership that motivates community members "to invest time and energy, to help shape the nature and quality of the research process as opposed to being merely involved in research". However, in reality, we have also learnt that the more intense and multifaceted our relationships the more complex our interactions became. Local cultural and work-related protocols start to jostle with personal relationships and the full range of human emotions surface, such as jealousy, joy, fear, hope, greed, and expectations of loyalty. Within this human-human complexity we try to maintain, and record, a consciousness of our own and the others' feelings and stereotypical views, while endeavoring to suspend judgments and be open for re-interpretations of situations as we gain more contextual knowledge. For example, in one case a person affiliated with our project has developed more private expectations, such as monetary support well beyond that connected to our project money. In another cases we needed to navigate around someone who attempted to involve herself in translation and control, and to an extent falsify information, in order to satisfy her own agenda and manage her own fears. As Mkabala (2005, p.184) pointed out that "if the research process is to be truly collaborative, conflict is inherent and to be expected in the process, where the researcher and the researched are equal partners and come from different backgrounds. Accordingly, as conflict will arise, there is a need for dispute resolution mechanisms to resolve these conflicts in a fair and equitable way." Thus, we look for guidance in local protocols and include indigenous people in decisions to correct mis-information and dialogically developing solutions together. For example, there were tensions and various opinions regarding compensating community members for their participation which we resolved by a compromise. We negotiated a balance between a Western calculation of participant-payment, based on time taken and tasks involved, and a more locally situated protocol which accounts for local authority and a more holistic or general attachment to the entire project rather than a specific activity.

Sometimes we find ourselves aligning with local protocols which significantly conflict with our own expectations and opinions. For example, our accessibility to women presented various challenges. Gender roles locally mean women are usually in their homesteads undertaking domestic tasks, caring for their own and their relatives' children and moving beyond only to collect firewood. As women, ourselves, we often have to assume these tasks in research trips; for instance, finding ourselves awaking before dawn in order to ensure the fire is alight for tea for breakfast, taking responsibility for cooking and occasionally childcare. These experiences mean we are aware of the constraints on women's participation in design activities but are not necessarily able to address them. For instance, we notice how the few women who joined sessions at the host-researcher's house were often distracted or cut short their participation in order to cook for us. Here we uncover an obvious conflict between the local gender roles and the researchers' desire to involve women on equal grounds to provide us with a more "representative" information set. Through our own cultural logics we understand the inclusion of women in design activities to be appropriate for "the community", any exclusion to compromise our claim to a 'representative sample' and, indeed, ethical research. However, we need to balance contradictory conventions, and access the benefits and the consequences from a collective ethical perspective. We are also profoundly conscious that we cannot predict the impact of our interactions and despite political emphasis on gender issues know that interventions can have undesirable consequences. So, when we endeavor to access women, we also attempt to ensure we do not infringe local custom.

Consensus building

Besides an obvious feminist orientation, or Western scientific views of representative sampling, we consider selecting individual participants to be a matter of power relations and control which contests with concepts of autonomy and collectivity. Western designers tend to construct the participant group by selecting pre-categorized individuals and mediating discussion towards a valid set of views based on certain understandings of egalitarianism and individualized self. Further, the western designer judges the correct aggregation of the distinct statements into a streamlined model. This implicitly undermines the manner in which communities achieve consensus and communicate "one" view to the outside.

This leads us to the next point of a methodological consideration, namely "community consensus building" as a valid method to provide design input and feedback rather than designers' aggregation of individual statements. Inclusive decision-making and participatory meetings are key traditions in rural African communities. Francophone Africans use the term *palaver* to describe how such traditions

efficiently institutionalize “communicative action”. For instance, the Congolese theologian Bénézet Bujo (2009, p.122) explains: “In seeking a solution for a problem, they share experiences, refer to the entire history of the clan community, and consider the interests of both the living and the dead. The procedure can be time consuming as it is carried on until consensus is achieved”. Table 1 presents an excerpt of a transcript of one of our meetings with a group of villagers to discuss knowledge transfer and access. Line 1 to 6 depicts different opinions, interrupted by a side conversation amongst the researchers; the topic is picked up again in line 14-15. When we presented this at a workshop at an international conference (Abdelnour-Nocera et al., 2011) fellow academics questioned the validity of the statements/method as they said: “the people obviously influenced each other and should have been interviewed one by one to get a true opinion”. This clearly demonstrated viewing the localized interaction from a Western design perspective. Mkabela (2005) reminds us of the absurdity of analyzing indigenous knowledge with external methodologies.

Thus we have co-developed various methods to respond to communalism. For instance, for many years we have successfully conducted group usability evaluation sessions, in both rural and urban areas and in the academic contexts in Namibia. Somewhat like focus groups these sessions trigger valuable feedback within a dialogue form. In the current project we have also found a process of iterative interpretation useful, here participants watch video recordings of conversations and material gathered by themselves or other participants, with their permission, which triggers debate and expansion of issues and concepts (Bidwell et.al. 2011). We find participants involved in this process adding new aspects into conversation to enrich our understanding of the community’s viewpoint.

“Thus the holistic network serves as an effective means of social control. The collective paradigm determines the pace and methods of research, the construction and validation/legitimization of knowledge and finally the processing and constructing of meaning. It should also be taken into account that such a practice is not an isolated phenomenon, but is deeply embedded in wider cultural aspirations, preferences, and practices of indigenous Africans. For instance, using the collective methodology in Eurocentric contexts can have negative results. Contradiction might arise as to how to transform the data collected through subjective circular community-based processes into individualistic linearity required by Western contexts. This may lead to subjective data being committed to a linear form that is, decontextualized from their wider and more holistic life narratives. The Afrocentric method therefore, emphasizes a shift from dominant research methodologies to ways that are responsive to an African world-view which is collective; one in which the community itself will

influence and shape the method” (Mkabela, 2005). This implies that within HCI design, the collaborating community guides the design process to ensure the incorporation of the local perspective. In this instance community consensus building is considered more fitting than an external aggregation of individual statements.

Toward an indigenous HCI perspective

We have used key principles, identified as embedded in African indigenous knowledges, to scaffold an African indigenous HCI paradigm; including, the interconnectedness of all, the holistic view including spirituality, and oral and performed communication. These principles should propagate into concepts, methodological approaches, design goals, as well as products themselves. We should strive to move from a HCI agenda of research with indigenous people to one driven by indigenous people and eventually institutionalize local HCI. But this can only unfold over time and over generations within a local HCI community. “The community being part of the research every step of the way and collectively validating the research helps guide the research toward enhancing community and cultural activity. This spiral (circular) approach to research will ultimately develop into a renewed collective value system for research that strengthens the centrality of African indigenous ideals and values as legitimate frames of reference for collecting and interpreting data”(Mkabela, 2005, p.185)

Integrating a local HCI curricula into African higher education and research institutes is a critical step in progressing an African indigenous HCI paradigm. Ensuring students can be both globally competitive but locally effective raises several basic challenges. Significant paradoxes lie in establishing a local HCI paradigm based on teaching conventional HCI with textbooks from overseas. We find that African teachers, students and professionals rarely context the hegemony of IT systems and design, even when they recognize its incongruence with local values and practices. This reflects historical power relations but also local values, which discourage critiquing the authority of the knowledgeable. We find ourselves dealing with strange ironies in enabling students to deal with cultural gulfs and mismatches between standard HCI practices and local practices. For instance, in seeking to realize the potential of locally appropriate design we encourage African students to critique the relevancy of system design and development practices that are localized in norms from ‘elsewhere’ (Suchman, 2002). Yet, enabling students to critique demands them firstly, to change their own practice in response to perceived authority, and secondly to do so within the reality of economics and global power relationships. (Bidwell & Winschiers-Theophilus, 2010). At this point we still follow

mainstream HCI curricula, although situated in the local context, and our graduate students continue to be assessed by mainstream HCI criteria. We enrich this by creating awareness among local HCI experts through seminars to prepare external researchers and developers for the “field” and sensitize them to the partiality of the knowledge objects we bring into being with technology.

Conclusion

Current HCI paradigms are deeply rooted in a Western epistemology and intrinsically privilege certain assumptions, values, definitions, techniques, representations and models. At the same time, we cannot discern, unequivocally, which aspects of knowing we can consider valid across humans, or which analytic lenses would enable us to make claims about universality in HCI. We question approaches that administer a set of tools to design for a rigorously classified “other” that do not reflexively consider the culture that brings the “other” into existence. There simply is no quick fix that would allow for a new “African HCI” to emerge providing solutions for all interaction design in Africa.

Instead we encourage designers to immerse into the community. The afrocentric paradigm really teaches us as designers from elsewhere to become part and parcel of the “collective” rather than emphasizing a “critically distant” self that describes local collectivist practices. Designers assume roles that are continuously renegotiated in the process. Following the principle of harmony equilibrium, joint interaction design activities can then progress towards artifacts that are inscribed by all participants, the development and usage context.

We draw on dialogical and phenomenological standpoints to recognize that an indigenous perspective in HCI reveals particular characteristics about humans in design and in interactions that we might not have otherwise noticed. While striving to embrace indigenous knowledge into a new HCI paradigm, we find ourselves between multiple contradictions in terms of protocol, ethics, methodologies and validity of partial perspectives. Fundamental differences must be elaborated, framed and validated from an indigenous point of view. Thus key points of an Afrocentric framework, such as a collective mode of consciousness, incorporating a deeper understanding of the connectedness of all, merge to inform new local design paradigms. Humanness is at the core of these paradigms and requires methods such as consensus building and immersion by the designer in the community with multiple bonds. Furthermore, the strength of local linguistic narratives and differences in worldviews and meaning making should directly be taken into account in all design interactions. When designing with African communities we should always keep in mind that relevant design or research output is only “achieved when it could

satisfy not only the material needs of the people, but also their intellectual, spiritual, and cultural needs.” (Mkabela, 2005, p.184)

Having explored the theoretical and practical relevance of an Afrocentric paradigm as a local and indigenous perspective on HCI, we realize the complexity of its application at the frontier of the different epistemologies. The appropriateness of the interactions and design decisions will depend on the achieved harmony among the community including the external designers, and their negotiated own situated protocol.

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Table 1: Translated Transcript Excerpt of Meeting in the Village

1	<p>Facilitator: are there any restrictions regarding some medicines or some plants used in the village? Restrictions to the telling of this, should information that is only useful for ladies only be told to ladies, or to a certain age group, or a certain gender?</p>
2	<p>Striped Shirt Man. This certain plant is only applicable for ladies, as it cleans the womb after a lady has given birth. So it won't be appropriate to explain it to a guy or a boy. Of course, how would you explain to a man? Basically, it's the least of his worries</p>
3	<p>White Jacket Man: Generally it should be told to anyone; because its knowledge</p>
4	<p>Blue Shirt Man: in my opinion everyone should be told the use of plants as one never knows what situation you will find yourself in, where you have to help out. And if you know, or you don't know, some unnecessary death or serious situation might happen without the treatment. So you want to share your opinion.</p>
5	<p>Facilitator: this is an open discussion and everyone's opinion is welcome and at the end of the day I don't want to have a situation where I will summarize this guy feels how it should be done and having a conflict, a conflict of interest. So it's just an open discussion and everyone's opinion is valid.</p>
6	<p>Striped Shirt Man: in my opinion I feel people would rather try to get information from experts, or from people who normally knows or have experience, more experience in certain issues. Because if anyone, all people, bring in their opinion it could bring in some complications. Perhaps provide the wrong treatment for certain things. It would be best if information is collected from people that know it or have some expertise in these issues.</p>
7	<p>Facilitator [in English]: Ok yeah, we are just discussing who should be actually seeing this, I was asking a little bit about who should be actually seeing this. It's actually a discussion going on...</p>

	The story that is on here, the one that I showed you, basically they are saying it's nice, it's better if it is told to a lady, to a woman because it's more proper, but it's not bad if it's told to the men as well. So it's like for now it's ok. Maybe for later on they will think about it. For now they don't see a problem
8	Researcher A: they happy with you as the person who kind of controls the thing? Are they happy for you to keep stories ... for you to show it to us? What about translating it? The other thing I can suggest is making this young guy here ... who might want to do some of the video
9	Researcher B: And also , guy here, this person here, because he's younger and seems enthusiastic
10	Facilitator in English: OK
11	Researcher A: And translate that for them
12	Facilitator in English: OK
13	Researcher B: Facilitator, also that's a really good discussion you have just had. It's really important, so if more examples come up like that where they can have a similar discussion try to bring it up. And have the discussion again. So this issue that it is better for a lady, but not essentially secret only for ladies try to revisit this with other stories. Because you need that for your triangulation...
14	Facilitator: asks what do you think the treatment about the toothache? Do you think this should be told to anyone? Or to some specific groups?
15	Striped shirt man: The answer is anyone can have a toothache, or be a victim of a toothache so anyone should be told how to treat it.