

I am an HCI researcher based in the Computer Science Department at the University of Cape Town in South Africa. Having been based there for seven years, I have seen some exciting ICT successes but many more depressing failures. I believe that HCI has a great deal to offer the developing world by ensuring more ICT successes but we need to understand which aspects of HCI are 'different' in the developing world. From my experience, here are the aspects that I have struggled with and would hope that others at the workshop would find benefit in discussing.

### Cultural Dimensions

In the HCI literature, cultural dimensions are often referred to as a way to understand a target culture and tailor ICT development for that culture. In my experience, however, I cannot seem to make the dimensions fit the problem at hand. I would love the opportunity to discuss reductionist cultural models and whether they provide a viable alternative to ethnographically based field work.

### Literacy

Again, HCI literature advocates the use of native language in an interface. For developed countries, this is self-evidently a good thing. However, for the developing world, it is less clear. For example, many people I work with want the interface to be in English (usually their second language) as they know they are more likely to get a job if they are trained in the English version of the software.

For those who do want to use an interface in their native language, then I would say that there are problems in simply doing a word-for-word translation of the interface. Some cultures we have worked with in South Africa, for example, have no intrinsic notion of hierarchical classification. So, whether a hierarchical menu is presented in English or in a mother tongue becomes irrelevant. So, I think that we need to have a deeper understanding of other forms of literacy (e.g. visual literacy) so that we can more effectively create interfaces for our target users.

### Rapid Prototyping / Participatory Design

For anyone who has used computers over a period of time, it is abundantly obvious that software is highly mutable. Even if the user is not familiar with software development, as they install patches and updates, it becomes clear that software is changeable. Therefore, even none experts can take part in ICT participatory design sessions, as they have some idea of how software can be altered. In our experience, this is not true in the developing world.

The users that we work with have often had no exposure to any form of computing technology. To them, technology is from a foreign place and cannot be altered. This makes running participatory design sessions (in classic PICTIVE form at least) next to impossible. Even using the medium of paper is problematic as not all users can make the connection between the paper and the design of the software. Another problem we have encountered is with testing high-fidelity prototypes. We often have to conduct extensive training with the users (say six months) before they can use the software effectively. Once the training is complete and the usability problems identified, the users are not keen to have the software altered – they do not want to lose the six months invested in training.

Participatory design and rapid prototyping are two highly effective tools in interface design. My suspicion is that if we were to alter the way in which these methods were used, then it would be possible to improve their effectiveness in developing world contexts. In our case we use a 'human access point'; usually an aid worker or missionary who is from the developed world (and understands computer technology) but has been sufficiently immersed in the local culture that they can give insights into the design problems we face. Other possibilities might be in using live action role playing, or presenting designs as theatre as Alan Newell's group at Dundee do in their 3<sup>rd</sup> age research.

#### Ethical Research

Realistically, most research I conduct is based around grant funding cycles and the duration of research student degrees. We have to be very careful when working with any community, therefore, in providing realistic expectations about what we can achieve and how that interaction will impact the community. In our case, we have teamed up with an NGO called bridges.org who assess our proposals and projects to see if they meet ethical standards and are sustainable in the long-term. Bridges also have a lot of experience in ICT projects in the developing world and provided us with checklists to measure the likely success of a project. It would be fascinating to discuss how others measure the wider impact of their projects and how they manage sustainability.

The corollary to this is the impact on the research student. Their goal is, not unreasonably, to gain their degree. However, by asking them to conduct their work in rural locations whilst being sensitive to a local culture with which they may not be familiar, obviously creates more work than a student based in a research lab. It would be helpful to discuss with others how they manage these constraints on their students.

#### Platform / Perception of Technology

Linked to the earlier point about participatory design and training, we have learnt that very minor, seemingly trivial changes in technology, can have a profound effect. Foremost amongst these is the users' relationship with the hardware. Users in sub-Saharan Africa are unfamiliar with personal computers and laptops (estimated one computer to every 175 people). However, cellular handsets are near ubiquitous, even in the poorest countries. In our experience, users are very willing to 'explore' and application that is loaded onto their cellular handset (or on a provided handset) but will not touch software loaded onto a PC.

I would therefore like to see more of an emphasis put on the mobile methods in HCI, as I believe that the cellular handset is the computing platform for the developing world.

#### HCI curriculum

Finally, I think it would be fantastic if some of the output from this workshop were in the form of curriculum guidelines for the teaching of HCI in the developing world. The only way to solve the problems of ICT is to ensure that the correct people are being trained in the correct way.