

## **Learning to Design Technology Enhanced Learning for Rural Livelihoods and Development**

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### **ABSTRACT**

This session will interest all those who wish to learn about, share and explore contextually and culturally appropriate methods for designing effective technology enhanced learning. While there is considerable interest in the potential of new technologies to support learning for development there is a growing recognition that technological interventions fail when they do not fit the intended contexts of use or adequately address the needs and concerns of user communities. In designing culturally and contextually appropriate learning we need to consider the complex inter relationships between, technology, context, culture and educational objectives. Learner centered and participatory approaches attempt to address these issues by involving users in the design process. However, these approaches are primarily grounded in Western cultures and aim to deliver to Western values and may not be globally appropriate.

This workshop will explore methods for designing technology-enhanced learning appropriate to developing contexts. Principal objectives are:

- To increase understanding of the key challenges for user-centered and participatory approaches when working with rural communities in developing contexts.
- To build a community interested in sharing and developing appropriate culturally and contextually sensitive approaches to involving learners and other stakeholders in the design process.

We will provide an overview of user-centered and participatory methods for designing technology-enhanced learning. These will be illustrated through case study presentations drawing from our own and others' current work with rural communities in Kenya and India. The second half of the session will be a hands-on opportunity to discuss, apply and explore the relevance of such methods to the specific situations of interest to workshop participants. Time will also be allocated for networking and to initiate the formation of an online community interested in learner centered design of technology for development.

### **INTRODUCTION**

There is considerable international interest in the potential of new technologies to support international development and more specifically learning for development (e.g. One Laptop Per Child - <http://laptop.org>, The UK Engineering and Physical Sciences Research Council Bridging the Global Digital Divide (BGDD) projects - <http://www.bgdd.org>, Computer Assisted Learning 07 conference track on ICT for development and education - <http://www.cal-conference.elsevier.com>). However, there is also a growing recognition that technological interventions are likely to fail when they do not fit the intended contexts of use or address the needs and concerns of user communities. Amongst others, contextual factors include the operating environment (e.g. heat, dust, water, strong sunlight), the technological infrastructure (e.g. intermittent, unreliable or no - Internet connection, mobile phone signal, electricity), cultural and organisational norms and constraints, power relationships, language, literacy, beliefs and familiarity with technology. Designers of technology for learning need to understand well the intended learners and their contexts of use and design for these.

In designing culturally and contextually appropriate learning we need to address the complex inter-relationships between, technology, educational objectives, context and culture. Within the field of Human Computer Interaction (HCI) (Preece, Rogers, Sharp, Benyon, Holland & Carey 1994) one solution to understanding users has been to closely involve the target user communities throughout the design process. A wide variety of approaches to managing this user involvement have been developed and evaluated over the history of HCI. However, many learner-centred and participatory design (Schuler & Namioka 1993) methodologies are primarily grounded in Western cultures and aim to deliver to Western values (Kolko & Rose 2007), which may differ in significant ways from those in developing contexts. Such methods may not be globally appropriate. For example, exploratory approaches, such as low-fi prototyping (see Preece, Rogers, Sharp, Benyon, Holland & Carey 1994) and future workshops (see [http://en.wikipedia.org/wiki/Futures\\_workshops](http://en.wikipedia.org/wiki/Futures_workshops)) may be productive in cultures with low uncertainty avoidance indexes but can lead to tensions and misunderstandings elsewhere (Hofstede, Geert, 2001) particularly when designers and users belong to different cultures and operate in different contexts. Even within cultures huge differences between urban and rural contexts and lifestyles suggest that the most appropriate methods for involving learners in design will likely differ.

That this dilemma is being recognised by the Human Computer Interaction and technology design communities is reflected by several workshops being held during 2007 and 2008 at international conferences (Computer Human Interaction 2007 - <http://mikeb.inta.gatech.edu/UCDandIDWorkshop>, Human Computer Interaction 2007 - <http://hct4d.blogspot.com>, Designing Interactive Systems 2008 - [http://sigchi.org/dis2008/Program\\_Workshops\\_and\\_Tutorials#building](http://sigchi.org/dis2008/Program_Workshops_and_Tutorials#building), Computer Human Interaction 2008 - <http://mikeb.inta.gatech.edu/HCI4CID>). In this workshop we intend to build on the outcomes of these previous workshops and extend the discussion in to the specific domain of designing technologies for learning.

## **WORKSHOP CONTENT**

### **Outcomes**

The workshop will:

- Promote the formation of a research community in the area of culturally and contextually appropriate methods for involving learners in design
- Introduce participants to work in the related field of Human Computer Interaction drawing on outputs from recent workshops and sessions at international conferences
- Provide practical examples from case studies drawing from our own, others and participants experiences
- Generate and share new approaches to designing technology-enhanced learning for improved livelihoods

### **Organisation**

In a 3 hour session we will:

- Provide an overview of related research drawing on recent workshops held within the technology design community (see introduction) in which we have been involved. We will provide related resources online and on CDs for participants to take away.
- Present case studies illustrating issues in involving users in design in rural and developing world contexts. We will draw from our own experiences in the VeSeL project working with farmer self-help groups and rural communities in Kenya to design and develop technology to support their learning needs (see <http://www.veselproject.net>). Invited participants from other BGDD projects will present experiences from different rural contexts (e.g. in India and Chile – see <http://www.bgdd.org>). All participants will be invited to share relevant experiences of involving learners in the design process.
- We will then form small teams to explore and build from the methods described by applying them to designing learning for specific rural and development contexts. These will be drawn from the experience and specific interests of participants. The organisers will facilitate this activity.
- Finally, ideas from the small groups will be presented back to the whole group and the workshop will discuss ways of maintaining and building research relationships in

this area. This will lead to the formation of an online community interested in developing and applying learner centred and participatory methods to the design of technology enhanced learning for development.

### **Materials**

Prior to the workshop we will link to resources from this workshop's wikieducator page, see - <http://www.wikieducator.org/PCF5: Learning To Design Technology Enhanced Learning For Rural Livelihoods %26 Development>. Resources will include introductory information on Human Computer Interaction and Participatory Design methods as well as links to papers, websites, and presentation slides and videos from relevant workshops at recent design conferences (e.g. <http://hct4d.blogspot.com>). We will also make these resources available on media for participants to take away from the workshop.

After the workshop, slides and recordings of presentations and discussion will be made available online along with a summary of outcomes. Again, these resources will be linked to from the workshop's wikieducator page. We will also create a mailing list for participants to continue discussion and build collaborations beyond the PCF5 conference.

### **REFERENCES**

Hofstede, G. (2001), *Culture's Consequences, Comparing Values, Behaviors, Institutions, and Organizations Across Nations*. Thousand Oaks CA: Sage Publications, 2001

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