

2010

Co-Operation with Users: Challenges from (I)Literacy and Cultures

Mads Bødker

Copenhagen Business School, mb.caict@cbs.dk

Janni Nielsen

Copenhagen Business School, jn.caict@cbs.dk

Follow this and additional works at: <http://aisel.aisnet.org/ecis2010>

Recommended Citation

Bødker, Mads and Nielsen, Janni, "Co-Operation with Users: Challenges from (I)Literacy and Cultures" (2010). *ECIS 2010 Proceedings*. 63.

<http://aisel.aisnet.org/ecis2010/63>

This material is brought to you by the European Conference on Information Systems (ECIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in ECIS 2010 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.



**CO-OPERATION WITH USERS - CHALLENGES FROM
(I)LITERACY AND CULTURES**

Journal:	<i>18th European Conference on Information Systems</i>
Manuscript ID:	ECIS2010-0349.R1
Submission Type:	Research-in-Progress Paper
Keyword:	Computing in developing countries, E-collaboration, Interpretive methods, Participative design



CO-OPERATION WITH USERS: - CHALLENGES FROM (I)LITERACY AND CULTURES

Bødker, Mads, Copenhagen Business School, Center for Applied ICT, Howitzvej 60, 2. 2000
Copenhagen, DK, mb.caict@cbs.dk

Nielsen, Janni, Copenhagen Business School, Center for Applied ICT, Howitzvej 60, 2. 2000
Copenhagen, DK, jn.caict@cbs.dk

Abstract

With the developments in the global market, designs focusing on the users of Information Technologies becomes a competitive factor since successful diffusion and up-take of IT lie with the users. But users have different IT competences and are culturally different. These are challenges that HCI-design methodologies need to address. User-Centred Design offers a possible approach but there are limitations that must be dealt with to strengthen user oriented and interdisciplinary approaches, and the development of techniques and tools that are suitable for handling the complexity of designing for a global world. This research-in-progress paper outlines preliminary reflections on – and contributions to – the development and qualification of techniques and tools that address user-centred design in a global context. We discuss User-Centred Design and qualify this approach by aligning with the Scandinavian IS tradition of co-operating directly with users. We suggest an approach inspired by the Scandinavian approach to IS design as a possible point of departure for targeting global users. We introduce the conceptual and experimental work in our Vision Lab, an approach based on co-operation with users and on the fundamental understanding of design methods as a relational practice that takes place between objects, contexts, users, and designers. We describe different techniques we have explored, characterized by giving the users voice throughout the design effort. In a final chapter we re-address the global perspective, and point out that virtual co-operation with the users is the next challenge. We suggest two digital techniques which may be explored for virtual cooperative design, discuss potential challenges to these methods, and conclude with propositions for further research to be carried out in the Vision Lab.

Keywords: Design, HCI, global issues, culture, methods, participatory design

1 INTRODUCTION

The process of globalization leads to structural changes and is opening new windows for IT initiatives. Castells (2000) has described the transition from the industrial to the network society and the associated new societal structures through three dimensions, one of which is *Informational*: The capacity to *generate knowledge* and *process information* determine productivity and competitiveness.

The general understanding is that a society meets the challenge when the citizens and employees possess the competencies of the self-programmable labour “*Sustainable development and social cohesion depend critically on the competencies of all of our population – with competencies understood to cover knowledge, skills, attitudes and values.*” (OECD 2001). In this development, IT plays a constitutive role, since the development of a world wide IT-infrastructure and a networked new form of organization have as a pre-requisite technical literacy among the world citizens. Two challenges stand out; Users come with different IT-competencies, user also come from different cultures. The question we ask is; how may we conceptualize HCI design methods so they address these challenges?

Drawing on design examples and an exploration of two collaboration methods, this paper will argue that developing IT products for a pluricultural world entails a thorough examination of the processes as well as the tools we employ in design. Examining User-Centered Design (UCD) as well as the Scandinavian IS approach, we argue for the importance of direct user involvement in design. However, we also argue that methods need to be able to preserve a relational perspective on collaboration with users, in order to not merely become sterile information gathering techniques. Drawing on work done in a design lab, we exemplify relational aspects of design. In a final chapter we argue that IT design methods increasingly need to adjust to a situation of cross-cultural design in distant locations, mediated by digital tools. For the concluding parts of the paper, we give an outline of two methods that we see as promising starting points for virtual collaboration with users, we discuss their implications, and provide propositions for further research in the Vision Lab.

1.1 Literacies

In the IT world, scant attention is paid to the illiterates, technical illiterates as well as illiterates in the traditional sense that they cannot read and write. More than 50% of the populations in Pakistan, Nepal and Bangladesh are illiterates (in the traditional sense), in Burkina Faso, Sierra Leone, and Gambia it amounts to more than 60%, and in India it is around 42% of the population with the highest rate in the rural areas.

UNESCO works with a definition of literacy that includes IT as well as written, visual, and digital forms of collaboration, expression, and communication. As such, it is defined as “the ability to identify, understand, interpret, create, communicate and compute, using printed and written materials associated with varying contexts. Literacy involves a continuum of learning in enabling individuals to achieve their goals, to develop their knowledge and potential, and to participate fully in their community and wider society.” (UNESCO 2004). UNESCO’s concept of literacy includes cultural identity and stresses that literacy can be understood only within a wider social context (Allen 2001).

IT-literacy is the ability to use digital technology, communication tools and networks to solve information problems and to think critically about information. IT literacy is not just skills and knowledge in relation to the hardware and software, e.g. using the keyboard, clicking a mouse, understanding how a browser works and so on. It also refers to more applied abilities such as to use technology as a tool for searching, identifying, understanding, analysing, creating, evaluating, organizing and communicating information. While certainly a rather one-dimensional mapping (between the literate and illiterate), the concept of technical illiteracy should be seen as including not only inability to operate a device, but also the ways in which interfaces are most often based in a

typically Western mindset which excludes users who do not have the same conceptual frame of reference.

In the following sections we will discuss User-Centred Design and its background in Human-Computer Interaction. We qualify this approach further by introducing the Scandinavian IS tradition of co-operating with users and suggest this as a possible solution when designing for global use. Following this we give examples of work addressing the capture of the “other” which we find is a central premise for UCD. To offer practical insight on possible approaches we then introduce our conceptual and experimental work: the Vision Lab. We describe different techniques that we are currently exploring, all characterized by giving the users a more pronounced voice in the design process. We then extend the work of the Vision Lab to considerations on developing cost-effective techniques to capture “the other” in design efforts using digital tools, and lastly we reflect on the framework provided by Castells’ formulation of the network society.

2 USER CENTRED DESIGN

Historically, the IT industry, has largely disregarded the problems associated with illiteracy and cultural differences on a global scale. A User-Centred design approach offers a possible way into addressing culture and illiteracies. In their paper on the evolution of User-Centred Design, Karat & Karat (2003) characterizes it as a process with focus on early and continuous user involvement, direct user involvement in the design process, early and continuous evaluation, iterative design process and development, and integrated (whole system) design. However, UCD has been criticised for overemphasizing the importance and benefits of the direct participation of users in the design process. Direct user involvement and “asking users what they want” some critics have argued, leads to conservative un-exiting, and often useless designs because users, unlike designers, have no expertise in understanding their “real” needs or real-life requirements (Constantine 2004, Norman, 2005, Tétard et al. 2005). Besides, so it is argued, users tend to have a limited imagination in terms of coming up with truly unique, innovative technical solutions. Instead design should be left in the hands of creative and innovative designers and be driven by abstract exploratory modelling. However, claiming that users are not designers is the result of a specific construction of the user and constitutes a particular view on UCD that is very narrow. In order to develop a practice of User-Centred Design that is suitable for engagement in a global context, we believe that a constructive critique of the methodological foundations and assumptions, rather than an outright dismissal, is needed.

2.1 User Centred Design targeting the globe

HCI (Human-Computer Interaction) is positioned between software engineering and hardware development and has focus on usage and the user in a given context. A core application of HCI is usability, the design of interfaces to computer systems that the users find are easy to use. In a western context, design for technical illiteracy and cultural diversity is tied to the idea of *universal* usability (Zajicek & Edwards 2004) and universal access (Shneiderman & Plaisant 1998). However, the universal usability/access approaches may turn out to be only as good as our understanding of cultural differences and the methods we apply in an attempt to integrate heterogeneous groups of users into design efforts. Arguably, most common HCI methods are not capable of handling such things as the before mentioned illiteracy problems or radical cultural differences between designers and proposed users. Marcus (1997) has introduced cultural differences as a factor in the design of software and interfaces. However the propositions put forth rely strongly on Hofstede’s cultural dimensions and while such heuristic (yet largely unproven, see McSweeney 2002) guidelines may indeed facilitate some sensitivity to the subjects that we design for, we argue that truly designing for the other requires a fundamental understanding of the “cultural other”. We can only understand the other by standing outside looking in, and this understanding will always suffer because it is framed by our culture, our own cognitive horizon. We can never really walk in another human’s shoes. But by giving voice to the

other we invite an inside out perspective and open for an richer design approach because it is embedded in direct involvement of and interaction between users and designers in the process.

2.2 UCD and partnering with users

UCD has evolved over time, from a narrow perspective based in e.g. software engineering, “to a more cooperative effort to understand what it means to build systems that people value” (Karat 2002: 17). UCD focuses on users, it has a user perspective in the design process, evaluation is a continuous part of the process as is iterative design and development. In general... (UCD is) understanding the needs of the user as a way to inform design” (Karat 2002: 19). This understanding, however, constitutes a widespread conception of users as “containers of specific forms of competences” and crucially also lacks of specific forms of knowledge and ability (Bødker & Nielsen 2008). The user, in this sense, is a typically figure that has a set of competences, activities, preferences, or specific idiosyncrasies, mapped and made explicit in different ways.

It seems that it is the (many) different techniques and the degree and depth with which users are involved in design projects which differentiates UCD approaches from another. E.g. in Participatory Design and in co-operative Design (as part of the Scandinavian approach, outlined below) the users are directly involved in the design process, whereas in systems development efforts, the user may be only indirectly involved, represented primarily as abstractions (for quite different approaches, see Karat et al. 2002, Jacobson et al. 1999).

2.3 The Scandinavian approach

The Scandinavian approach, which has evolved over more than 30 years, has always had direct collaboration with the user in its core. The aim of this approach has been to give users a voice, and at the same time enhance the quality of the resulting system (Bødker et al. 2000). The Scandinavian approach is deeply founded in Scandinavian (welfare) culture, and draws on the tradition for dialogue and negotiation on the labour market. With the emancipative political projects put forward during the late sixties and early seventies as a general background, the Scandinavian approach was formulated as a co-operation between researchers, developers, users and union representatives – unskilled labour and blue collar. Originally the aim was to empower workers through education of union representatives. Behind this approach of professional resource building was the understanding that workers could become qualified players in the technological power games. During this period of political awareness, cooperation between unions, researchers, computer scientists, and students increased significantly. Unions funded research and supported a wide range of academic projects. During the 80’s a new strategy of development of alternative technologies gradually evolved. The aim of this strategy was to develop tools for and together with workers. The underlying agenda was technology that would enhance the workers’ professional qualifications and even enhance living conditions (Cooley 1987; Ehn 1988). In this process prototyping, a new approach became a strategic tool for the close cooperation users. During the 1990s, participatory design went through several transformations. The development of the technology itself e.g. multimedia, and internet-based communication, new groups such as knowledge workers to take up the technologies etc. challenged research and development and led to new approaches to user participation, to new tools and to new theoretical foundations. Dialogue together with mutual learning became the conceptual foundations of the process. Dialogue was seen as the fundamental tool and at the same time as the process through which mutual understanding and design decisions could be reached. In the present decade especially one focus is of interest. On a global scale, the need for innovation has been emphasized, innovations which leads to both industry and user/consumer value. User-driven innovation (e.g. Tuomi 2002) and actor-innovation another (e.g. Biggs 2007) are approaches that share a number of fundamental concerns and goals with the participatory design approach – to give the human being, conceptualized as a user, a consumer, industrialist, government employee or NGO – a voice to be unfolded in a dialogue-based collaboration.

3 DESIGNING FOR THE “OTHER”

In this section we will discuss an example of “designing for the other” – that is, a design effort where huge conceptual and cognitive distance between designer and user, as well as issues of cultural difference and literacy, are crucial for the way the product can become integrated into a users practice.

3.1 Designing for the Illiterate Rural Planner

In India, the government has explored different technical solutions to the problems with traditional illiteracy by designing electronic kiosks for remote areas. One solution was letting the electronic information process be handled through a kiosk operator - a local governmental administrator. However, “In India, language, context, culture change in every few kilometres” (Parmaar et al. 2004). The administrator may not know anything of the subject in question, and may be miles away, not only geographically but also mentally, from the individual user in a remote village. The villagers may be technical illiterates, having no ready concepts for the understanding of computers, keyboards, input devices, and networks and the activities embedded in these artefacts – hence the technology made no sense to them. Other solutions have been personalized e-government services and experiments with “touch screen kiosks” for illiterate villagers (Dinesh Katre, personal communication). Identifying and logging-in users proved to be a challenge for the designers. In one experiment, illiterate users were asked to choose a combination of 7 images for user name and another 7 images for user identity. It was easy for the users to choose among the many different visual images. However, a few days later, the users did not remember all the visual images they had chosen, neither did they remember the sequence in which they were chosen. The question here is whether such arbitrary action as punching in a sequence of images was readily available as a meaningful concept for the users.

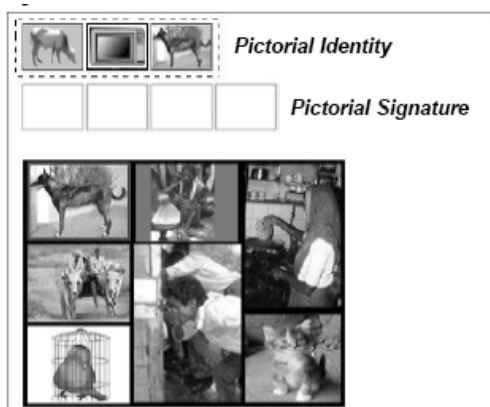


Figure 1. Visual identification tool for the e-government kiosk

The Rural Planner was a prototype developed to target the rural masses, giving them access to information on agriculture, governance, health issue etc. The initiative was started by the Government of Oriya, India. Altogether around 80 kiosks were put up (www.aamagaon.com). To help illiterate farmers the design of the Oriya interface below was image based.



Figure 2. The Oriya interface. Interface for the rural planner software, from the Orissa government website

However, if a user ran the cursor over the small hut to the left or the right of the tree a bubble with text in the Oriya language would appear. If the user clicked on the wall of the house in the right corner where it says ENTER –a black bubble with an Oriya text, a large red arrow, and a menu bar in English would pop up on the right side, requesting the user to type in identity, password and information about district, village and - in this case - the time period for which he wants to see precipitation tables.

This is designed for small-scale rural farmers who are not only technical illiterates but also illiterates in the traditional sense. Having a local administrator to help did not solve the practical problems inherent in the differences of culture and conceptual models. The test of the prototype revealed cognitive contradictions that seemed to be culturally based. In this case, the inherently Western culture of Information and Communication Technologies was radically different from the culture of everyday life. The villagers had no problems reflecting on rain, clouds, and sunlight when drawing on their concrete experiences of everyday life. However, when these objects were transformed and represented in the images on the computer screen, they did not recognize the objects and were not able to talk about them as related to their everyday life when interviewed.¹ The objects were visualised, but abstract - not concrete experiences. Indeed, as one paper argues “[we] do not exactly know the information need and information seeking behaviour of the rural populace” (Singh & Agrawal 2004), but further than that, their perception of everyday life, their reasoning with or their perception of the IT applications remains unknown factors that could have had a strong impact on the design efforts.

The design team for the project, consisting of computer scientists, interface designers, and programmers, started out with an aim of designing for the rural Indian population. The best intentions in the design of this application un-intentionally turned out as a design which required the illiterate user to “read” both images and text, master a foreign language, and to be technical literate, that is to know the concepts that allow them to interact with mouse, keyboard, the conceptual model of the software. This includes reading the images on the screen, understanding rollover functions, and understanding the nature of asynchronous communication and the Internet. Interaction with computers has a strong mental component, and the proposed design required that the user had a correct conceptual understanding of the computer, of the Internet, of the interface and of the image of the interface as a visual representation of the world.

As developers and researchers we are ourselves deeply embedded in our own culture that is deeply embedded in us (Bruner 1990). Our culture plays a constitutive role in our cognitive horizon to an extent we may only begin to become aware of if confronted with the cultural “other”. The developers of the Rural Planner did not know their users, but rightly assumed that they were illiterate. However, not knowing the “other”, understanding how he lives, how he perceives his world, not giving the other a voice, resulted in the development of a system that was deeply embedded in the developers cognitive horizon and the application completely failed the target user group..

4 THE VISION LAB

In what we have called the Vision Lab, we take a design research agenda in order to explore a variety of methods for participatory and collaborative IS design. Thus, the approach is not only to test and evaluate the appropriateness of different methods, but also to interrogate the epistemologies of the methods. A central foundation for our work is the Scandinavian tradition, as described briefly above. Whether designing for the local or the global world designing for users means getting to know the users, their way of thinking, their perception of their world, the problems they encounter in their everyday lives with technology, the visions they have, the designs they dream of.

So far we have been exploring and testing a wide range of different techniques for user involvement, particularly with a focus on how relations between objects, users, and designers are staged and interact

¹ Personal communication, Dinesh Katre, CDAC

in the production of knowledge. These includes ImageTag to explore the design space using publicly available photos on the web, GUI-probes addressing prototyping and the actual physical design phase, as well as Future Workshops (Kensing et al. 1991) and techniques that address the test and evaluation phase such as MindTape (Kumar, Nielsen and Yammijavar, 2007). In the following we will give a brief description two methods that we have worked with, and further, we discuss the “relational” challenges that collaborative and User-Centred design methods imply.

4.1 MindTape

MindTape is a technique for test and evaluation developed to get around the problems with the classic Think-Aloud-Protocol and the problem with the objectification of the user subject (Nielsen and Yssing, 2003). The method is design so as not to interfere needlessly with the users, it simply lets the user concentrate and work undisturbed for a given amount of time. A software suite captures the users interaction with the technological artefact and concurrently captures a video image of the user. The essence of MindTape takes place after the test when replaying the recorded log for the user. MindTape is the users recall of what she was thinking. The recall is prompted by replaying the recording and concurrently interviewing the user. The method is called MindTape because it is as if there is a reel of tape playing inside the users mind. User recalls in detail what s/he did, why and what s/he was thinking also voicing emotional and sensuous experiences and tacit inferences. Users recall of their experience with the software is organized by the actual sequence of events, as they took place, and the interview is recorded in a “voice over” on the original recording.

4.2 The VL Future Workshop

In the process of investigating different interactions with users we have conducted several design workshops with users, much akin to the Future Workshops described by Kensing et al. These have entailed close observation of the interactions between users and the materials that are provided for them as well as interactions between users and experts/designers in terms of the ways in which users are prompted, motivated, informed, and what kinds of language is used in the workshop settings. For initial observation purposes, we have set up two different workshops on mobile services that ran on very strict, pre-formatted scripts by the organizers. The primary intention with these workshops was to get an understanding of possible factors that should be identified as themes in further research. What we have found is that it is possible to identify constitutive factors in the workshops – we noticed, for instance, how instructions, prompts, and inspirational material “follows” the participants throughout the workshops. Thus, to give but one example, care needs to be taken when choosing what to expose the users to once they are put into the context of a design effort – what inspirational material is supplied for them, what mindset the user is put in, and so on. A wider, preliminary conclusion we can draw is that the material-semiotic context of user integration is a very important factor in collaborative efforts.

4.3 Discussion of relational aspects of design methods

Users are not just users, but the ways in which we *enable* them to work in the workshops and the test sessions make a huge difference in the quality of the output. What materials do we supply them with, what tools do we require they use, what possibilities are they given for their reporting of their “findings” or visions? Artefacts – material as well as verbal, institutional, and cultural – have a profound impact on collaborative efforts (see also Bødker 2009, Bødker & Nielsen 2008). When doing collaborative work, relations need to be at the forefront of attention in order to understand what is happening (and not happening) during activities. Problematizing relational aspects of collaborative activities in the context of cultural differences and difference in literacy is, in our point of view, a way to avoid reifying cultural stereotypes when designing “for the other”. Being sensitive to the ways in which participants are prompted, the tools they get to work with, the institutions that define the context

of participation, and so on, is a way also to defocus from reified, stable assumptions of how users' culture might interact in a design effort.

In Vision Lab activities, the user and the designer are not in a simple informant/researcher relation, but rather the designers are understood as “staging” or facilitating different kinds of activities, where prompts, tasks, tools, materials (e.g. paper, clay, or other things), inspiration etc. work as the relational glue for the activities. Thus, the overarching argument is that if collaboration with users on design fails – or if we believe that no quality can come from having lay-people or users as collaborators on design, we need to interrogate the situation (i.e. the relations between the materials, the context, the users, and the designers) we have set up for the activity, rather than assume that the users are not creative or otherwise impaired. For example, a central argument in the criticism of User-Centered design reiterates a widespread conception of users as “containers” of specific forms of competence or culture. Mental models, for instance, which traditionally have a central position in user-centered design (Norman 1983), rely on a conception of the users' mind as relatively stable reservoir of concepts that are applied in understanding the world. The information-processing legacy extends to the understanding of the user as a kind of transparent informant that, given the right questions or the right method of inquiry will explicate or verbalize information needed to procure a good requirements analysis or facilitate good design decisions. The legacy is also clearly visible in the widespread think-aloud-test in usability engineering approaches that draws on the theory proposed by Ericsson and Simon (1984) that concurrent verbalization and activity is a reliable method for representing data (i.e. thought processes) during use.

Both of the design activities described above implies an attention to the relations between objects, user, and designers that are staged in the design activities. MindTape implies a new way of allowing users to reflect on their own activities. Thus, the user gets to see herself from the outside, lending her a look into something that is typically invisible to herself. In this way, the designer sets up a relation that is taken out of the ordinary experience, trying to reveal things that might not have been obvious or relevant when seen from the “inside” of a concurrent think aloud protocol. In the VL Future Workshop, our agenda was driven by a wish to understand how the activities carried out during a workshop shapes the outcome of that workshop. Collaborating with users across wide cultural and literacy barriers requires that we pay close attention to the how collaboration is practically carried out – in our cases, how users interact with the materials at workshop and with recordings of themselves in MindTape.

5 TOWARDS VIRTUAL DESIGN COLLABORATION WITH USERS

In the following we will suggest how the perspectives provided in Vision Lab can help us develop new User-Centred, collaborative design methods that can be applied in virtual environments so as to qualify designs for “the other”. From an applied technological perspective, we will argue that the development of new, mobile devices will provide us with useful platforms for collaborating with users over distance. The mobile phone is a technology that has spread with a remarkable success across the globe. Mobile penetration rates are forecast to rise from 46% in 2008 to 95% by 2013 according to a new survey of 34 emerging market countries published by Tariff Consultancy. Although China and India will remain the two single largest markets throughout the period due to their large populations, the fastest growth in new mobile subscribers over the next 5 years is set to come from Afghanistan, Iraq, Cambodia and Indonesia (Cellular-news, 19.11.08). Apart from the penetration aspect, mobile devices are also predicted to increasingly substitute the portable computer as the primary device for computer mediated communication and collaboration (Economist, 25. Jan. 2007).

Two candidate techniques stand out in our work with digital tools. One is Digital Cultural Probes and the other is Digital Storytelling.

5.1 Digital cultural probes

Cultural Probes were originally developed to probe among the elderly, as a way of getting to know them and their world. Cultural probes are packages of e.g. postcards, cameras, pen and notepad, hearing glass etc. Along with the probes there will be instructions, e.g. take a photo Monday morning of the first person you see. On the postcards there will be questions like: “Tell us about what you dislike about vegetables”. The probes were originally to be used by the elderly hence placing the actual data collection in their hands. It was the elderly who collected the data, instead of data being collected by experts who were unfamiliar with the local culture and the life of the elderly (Gaver et al. 1999). Cultural probes has also been used as another way of getting ethnographic data as opposed to time and costly field studies (Hemmings et al. 2002). Cultural probes are unique because they let the users him/herself collected data from own life – and this is what initially qualifies it for the Vision Lab. It is the research team that sets the frame for the data collection – but the content is inherently user driven. Our experimental work with the digital cultural probe has the mobile phone as the tool for collecting data. Our postcards may be digital images and recorded questions or instructions. The mobile phone is also the tool that users apply to capture data. They take photos; they record short answers, the noise from the street where they live, or their favourite piece of music. The mobile phone allows us to share the digital data, to talk about it, discuss interpretations etc., and it allows for virtual meetings.

5.2 Digital Story telling using mobile phones

Another example is Digital Storytelling, a method that lets the user tell the story from a personal point of view. In images and sound, the users vision, or dream is told. It builds on the idea that every voice has a right to be heard, and: “digital storytelling is rooted fundamentally in the notion of democratized culture that was the hallmark of folk music, reclaimed folk culture and cultural activist traditions of the 1960s” (Lambert 2002). The essential characteristic of method is that the story must be told from a personal point of view, and this is what we bring with us into our Vision Lab work. The method gives a voice to the user, and allows the user to tell her story through photos, sounds.

5.3 Discussion of relational challenges to virtual design with “the other”

One central challenge in working with design at a distance (both geographically, culturally, and in terms of literacy) is to avoid the tools being mere “information gathering” tools. It would be plausible to treat the data collected with digital tools as mere information to be used by designers for basic requirements gathering. However, the perspectives offered in the Vision Lab process offers a corrective to the idea of virtual collaboration as mere data collection. First of all, as we have argued above, it is necessary that we approach virtual design collaboration as a staging of a particular form of relation. Given the potential distance in culture between user and designer, materials, instructions, prompts, as well as institutions and larger cultural frameworks (Bødker 2009) needs to be considered as a central part of the process of self-reporting and storytelling. This entails understanding the platforms on which the tool is delivered, in particular things such as:

- The fit with daily activities – e.g. does daily work allow for the activities the designers require (taking pictures, recording sounds, writing etc.)?
- The usability of the tool, as well as accessibility issues (language, use of symbols etc.) – e.g. is the tool readily usable for the intended user?
- Are the activities inside or outside normal forms of practice – e.g. does taking pictures or record sounds present a significant change in the regular use-pattern, is it part of the daily life?

Furthermore, more complex relational aspects should be considered. These could be:

- How are activities presented and how are prompts to the users communicated – e.g. how much of the activity is self-administered and how much is prompted from the outside? What style of language is used in the prompting?
- The institutional embedding of the user – what directly apparent or more tacit institutions form the way the user is reporting – e.g. if users are part of a corporation, how is this implied in the way the tool is used? How does the institutional embedding tacitly interact with the collaborative process?

As Bødker (2009) argues, it is important to consider how the attributes of the design material, the artifacts in collaborative design processes, interoperate and create the conditions for the users' delivering results and innovation. The designer actively stages or orchestrates co-design activities, and need to be aware of the ways in which a variety of factors influence the outcome. Thus, the physical device for collecting design data, its interface, and the contextual factors surrounding the use of the device should not be viewed as three distinct relational aspects, but as a combination of properties that together give rise to "being a user" or "being a participant".

6 CONCLUSION

Otherness, being different and experiencing difference, is everywhere and as we have shown, it takes on new forms and new significance in a global culture where technical and traditional literacies are tied increasingly to the ability to operate information technologies. In a brief case, we illustrate some of the complexities of addressing the other in design, and we have begun to outline the nature of approaches inspired by Scandinavian IS that we find would be suitable to apply when "otherness" is a factor in design. This, as it were, is also a reply to some of the criticisms of UCD in general and direct user participation in particular that has surfaced in the last couple of years. In the current societal context where goods such as IT and software and their ensuing interfaces are distributed widely across cultures, much care is needed in order to make such tools useful and indeed usable in the context in which they are sought implemented. By drawing on work done in the Vision Lab context, we show how an attention to *relations* constitute a potential way forward in work across geographical, cultural, and literacy gaps. In the paper, we have illustrated what it could mean to address relational aspects of design, with reference to MindTape and future workshops. Further, we have argued how a sensibility to relations between objects, users, and designers can contribute with an approach for designing for the other that is non-foundational, i.e. not based on reified cultural stereotypes. This, we believe, is crucial when we design with and for "the other".

Further work in the Vision Lab will be directed at closer and more detailed observations of workshop activities. Smaller comparative studies are planned, where design teams are given the same task, but different tools to aid them in their work.

Testing and evaluating mobile platforms for collaborative design efforts will be done. A central challenge is how actual participation is possible in mediated and/a-synchronous interaction with users.

Also, smaller cross-cultural studies where design activities are compared across different cultures are planned as part of the ongoing work with the Vision Lab.

Getting to know the user is a way of getting around the complexity of Castells' network society. It is certainly an endeavour that must be undertaken with each new application being developed. The IT-industry has an interest in knowing their users across the globe. They also have an interest in keeping expenses down and return of investment high. This is where the development of cost effective techniques for virtual cooperative design work with users comes into play. However, to get there we need to open for experiments, and this is where the Scandinavian approach, with the basis in dialogue, mutual learning among equal partners, and the tradition for inventing and exploring new techniques becomes relevant.

REFERENCES

- Allen, L. (2001). Toward a definition of technical literacy, Professional Communication Conference,, Proceedings, IEE International (p. 251-54)
- Adult Literacy in America, U.S. Department of Education, Office of Educational Research and Improvement, 2002, 3rd edition
- Biggs, S. (2007). Building on the positive: an actor innovation systems approach to finding and promoting pro poor natural resources institutional and technical innovations, in International Journal of Agricultural Resources, Governance and Ecology. 01/02/2007; 6(2).
- Bundy, A (2004). One essential direction: Information literacy, Journal of eLiteracy, vol. 1, p.7-22
- Bruner, Jerome (1990) Act of Meaning, Harvard University Prss, Cambridge, Mass.
- Burdick E. and Lederer, W (1958). The Ugly American, paperback version, 1965, Norton, N.Y.
- Bødker S, Ehn P, Sjøgren D and Sundblad, Y (2000). Co-operative Design – perspectives on 20 years with “the Scandinavian IT Design Model”, report CID-104 (Centre for User Oriented IT Design) KTH, Royal Institute of Technology, Stochholm, Sweden, Keynote presentation at NordiCHI 2000, Proceedings
- Bødker, M (2009). Artifacts Relations in UCD, in Nordic Design Research Conference. Retrieved 2009-09-14, from <http://ocs.sfu.ca/nordes/index.php/nordes/2009/paper/view/268>
- Bødker M. and Nielsen, J. (2008). Vision Labs: Seeing UCD as a Relational Practice, proceedings of OzCHI 2008, Cairns, Australia
- Castells, Manuel (2000). The Rise of the Network Society – Danish translation: Netværkssamfundet og dets opståen, Hans Reitzels Forlag A/S, Copenhagen 2003
- Cato, John (2001). User-Centered Web Design, Addison-Wesley, Pearson Education Limited
- Constantine, Larry (2004). Beyond User-Centered Design and User Experience: Designing for User Performance, Cutter IT Journal 17 (2), preprint of article
- Cooley, M. (1987). Architect or Bee? The Human Price of Technology. Rev. ed. Hogarth Press, London (1987)
- Dix, Alan; Finlay, Janet; Abowd, Gregory and Beale, Russel (2004). HumanComputer Interaction, 3rd edition, Pearson/Prentice Hall
- Economist (2007). The spread of mobiles in Africa, published in the print version of The Economist, Jan. 25, 2007
- Ehn, Pelle (1988). Work-Oriented Design of Computer Artifacts. Arbetslivscentrum, Stockholm
- Gaver B, Dunne T. and Pacenti, E. (1999). Cultural Probes, *Interactions*, January, p. 21-29
- Hemmings T, Crabtree A, Rodden T, Clarke K and Rouncefield, M (2002). Probing the Probes, at http://www.mrl.nott.ac.uk/~xc/documents/PDC_2000.pdf
- Greenbaum, Joan and Kyng, Morten (1991). Design at Work: Cooperative Design of Computer Systems, Lawrence Erlbaum Associztes, Publishers, New Jersey
- Harrison, S. Tatar, D and Sengers, P (2005). The Three paradigms of HCI, people.cs.vt.edu/~srh/Downloads/HCI%20Journal%20TheThreeParadigmsofHCI.pdf
- Hewett, B, Card, Carey, Gasen, Mantei, Perlman, Strong and Verplank: ACM SIGCHI Curricula for Human-Computer Interaction, at <http://sigchi.org/cdg/cdg2.html> (acc. 1.12.08)
- Jacobson, Booch & Rumbaugh (1999). The Unified Software Development Process Addison-Wesley Object Technology Series 1999
- Karat, J (2002). The Evolution of the Human-Computer Interaction Field in Industry in Guozhong Dai (ed): Proceedings of the APCHI 2002, Science Press, vol.1,p. 16-23
- Kensing, F & Madsen, K.H (1991). Generating Visions: Future Workshops and Metaphorical Design, in Greenbaum, J. and Kyng, M [eds.], Design at Work: Cooperative design of computer systems. Hillsdale, N.J.: Lawrence Erlbaum Associates.
- Kumar J, Nielsen J and Yammiyavar, P (2007). Tracing cognitive processes for usability evaluation: A cross cultural Mind Tape Study, in Proceedings of HCI International, Beijing
- Lambert, J, (2002). Digital Storytelling: Capturing Lives, Creating Community, a detailed history of CDS and the digital storytelling movement, Digital Diner Press.
- Marcus, A (1997). Globalization and user-interface design for the Web. IWIPS 1999: 165-172

- McSweeney, B (2002). Hofstede's model of national cultural differences and their consequences: A triumph of faith - a failure of analysis, *Human Relations*, Vol. 55, No. 1, 89-118 (2002)
- Nielsen Jakob (1994). Heuristic Evaluation in Nielsen J. and Robert L. Mack in (eds.) *Usability Inspection Methods* Wiley and Son, N.Y., p25-63
- Nielsen J. and Yssing, C (2003). Getting beyond the disruptive effect of Think Aloud, in Hertzum Morten and Heilesen, S (eds) *Proceedings of the Third Danish Human-Computer Interaction Research Symposium*, RUC, p 67-70
- Nielsen J, Ørngreen, R, Levinsen K. T., Yssing, C, Clemmensen, T, and Nielsen, L (2004). The Human Being in the 21.st Century, - Design perspectives on the representation of users in IS development, Working Papers series, Dept. of Informatics, Copenhagen Business School, <http://ep.lib.cbs.dk/paper/ISB>
- Nielsen, J, Dirckinck-Holmfeld Lone and Danielsen, O (2003). Dialogue Design - with mutual learning as guiding principle, in *International Journal of Human - Computer Interaction*, volume 15(1), pp. 21-40, Lawrence Erlbaum Associates, Inc.
- Nielsen, L. (2003). A model for personas and scenarios creation, in Hertzum M and Heilesen, S (eds) *Proceedings of the Third Danish Human-Computer Interaction Research Symposium*, RUC, p.71-75
- Norman, D. A. (2005). Human-centred design considered harmful, *Interactions*, 12,4 (jul. 2005)
- Preece J., Rogers Y. and H. Sharp (2002). *Interaction Design: Beyond Human-Computer Interaction*, John Wiley & Sons
- Pruitt, J and Grudin, J (2003). *Personas: Practice and Theory*, 2003 ACM 1-58113-728-1 03/0006
- Sanders E.B.N. (2006). Design research in 2006, *Design Research Quarterly*, vol.1, no.1
- Schuler Douglas and Aki Namioka (1993). *Participatory Design: Principles and Practices* Lawrence Erlbaum Associates Publishers, New Jersey
- Tuomi, I. (2002). *Networks of Innovation: Change and Meaning in the Age of the Internet*, Oxford University Press, 2002
- Tétard F., Patokorpi E. and Kadyté V. (2005). *User-Centred Design of Mobile Services for Tourists*, *Mobile Information Systems*, volume 158/2005
- UNESCO: The plurality of literacy and its implications for policies and programmes, UNESCO 2004. <Http://www.aamagaon.com>, retrieved 18.11.08