Situated probing

Lone Malmborg
Arts and Communication
Malmö University
20506 Malmö, Sweden
lone.malmborg@k3.mah.se

Bodil Jönsson
Design Sciences
Lund University
P.O. Box 118, 22100 Lund,
Sweden
agneta@certec.lth.se

Arne Svensk
Design Sciences
Lund University
P.O. Box 118, 22100 Lund,
Sweden
arne.svensk@certec.lth.se

Abstract

In this position paper we present methodological considerations from a project in which we have collaborated with people with cognitive difficulties and university students. For people with considerable difficulties in communicating, a new means of expressing their dreams was required. Cultural probes were used to inspire, inform and surprise in the design process: situated probing.

Keywords

Cultural probes, inspiration, cognitive abilities, engaging users

ACM Classification Keywords

K.4.2 Social Issues. Assistive technologies for persons with disabilities.

Introduction

In recent years we have seen a change in attitude from considering people with disabilities and older people as special cases requiring special design solutions, to involving them in their everyday life routines through a more inclusive approach to design [1]. Important for this approach is understanding the needs and wishes of people adversely affected by decisions made throughout the specification and design process.

The project presented here looks at inclusive design for mobile learning and communication in two different

groups of people: one with very limited verbal language abilities with a need to convey their experiences and language non-verbally, and another, students, with a need for access to different media in an open, flexible environment. Our challenge has been to establish a situated design process that allows us to reveal and understand the needs and wishes of both groups.

Project background

The Mobility and Learning Environments Project focuses on methodological problems of how to engage users in design. One specific question was how to combine ethnographic approaches with cultural probes to support engagement in design processes. Studies have documented that people with autism, unable to learn in a conventional educational environment, are able to learn in ones adapted to their specific needs [9]. This requires that we engage people in designing flexible learning situations that fit their needs. Participants from two learning environments have been involved. A university environment characterized by the need for access to a wide range learning sources, and a day activity centre for people with reduced cognitive abilities. The potential of this polarization is implied in the description of the project [5]. A number of cultural probe processes (see following sections) have revealed surprising observations and important ideas for future design by giving us access to our own and our co-designers' thoughts.

Participatory and engaging methods

Since the idea of using cultural probes was proposed [2] it has received substantial attention from the research community of interaction designers oriented towards conceptual design of interactive digital devices. To transcend well-established practices and habits

based on many years of experience, it is necessary to establish and use methods and means that allow the viewing of well-known situations in a new way. Metaphorical design [8] and future workshops [7] are early attempts in this approach. Cultural probes can be considered as another method based on the idea of transcending practice, which has its roots in an artistic, design-oriented approach.

Talking about cultural probes as a means for provoking users in order to gain inspiration for design usually is referring to the designers' inspiration. But we believe that the "friction" contained in the probe's design can also work as a way of inspiring users to create new use situations and to look at their environment in a new way. In an interactive process of inclusive design involving people with very limited verbal language abilities, questionnaires and interviews are extremely blunt instruments for capturing people's dreams or aversions. Different kinds of cultural probes in this context are many times preferable because they do not require specific prerequisite knowledge or language skills. In the Mobility and Learning Environments Project, we introduced a number of hi-, lo- and no-tech probes at the two sites described. In what follows, we describe how the use of these probes has inspired and surprised those of us who have participated in the process. We focus primarily on design processes involving people from the day activity centre in this paper.

Cultural probes in design for cognitive difficulties

We saw our primary task as project managers to create, as far as possible, the required conditions that would enable people with significant cognitive and communicative difficulties to direct the design process

and thus become co-designers from the very beginning to the end. Experiences from previous similar projects indicated that the reason the co-designers were not given the opportunity to control the process was primarily due to the great difficulties they had in verbalizing their wishes and needs. By making use of cultural probes, that obstacle no longer existed. Instead, through their actions they could inspire others to take part in the design process. Action goes for both the designer and the participants. By situating ourselves [6] and acting, we capture many of the practical problems and conditions that would otherwise have been missed [11]. The technology can serve as a catalyst and can provoke reflection, answer existing questions while at the same time raising new ones [4]. Maria Hellström [3] talks about probing as situated action. We have to radicalize probing by way of its Latin roots as a virtual *probare*, a creative trying out, in the full and *situated* sense. The consequence of this is a situating of probing as critical, localized and partial. It also means taking part in and generating of situations [3, 185].

Since this was the first trial, we had no assumptions about how the cultural probes would be appreciated or applied after the introduction. There was a hope among us as designers that at least some of the probes would be so tempting and fun to use, that they would initiate processes that directly or indirectly would give us clues about issues that had a distinctive importance for our co-designers with cognitive limitations.

Probes resemblance

We deliberately used probes from the beginning of the project which in appearance and use strongly resembled artefacts our co-designers had been familiar with for several years. This could include videos, digital cameras, image management software, sound and image based e-mail, barcode readers and ordinary telephones. The advantage of starting with these probes, which fit into old patterns, was that it made it possible to interpret and relate the inspiration, the answers and the reactions to the new applications of well-known artifacts instead of discussing whether the effect in reality emanated from the novelty of the artefact as a physical device.

Trust and empathy

Since we as researchers wanted to let ourselves be exposed, inspired and, if possible, surprised, we chose to start with just a few probes. We were prepared to take all the time needed to let our co-designers' become acquainted with them before we introduced others. Our co-designers, however, very quickly found innovative ways of using the probes that forced us to come up with responses in the form of different kinds of tangible or intangible artefacts. Each step, each interaction, each response required a tremendous amount of sensitivity, understanding and empathy from the supervisor of the day activity centre who was our confident during the months when the first probes were introduced. The supervisor ensured essential trust among participants [10].

Concluding remarks

An exciting part of many design processes is the challenge of trying to transcend well-established practices and habits based on many years of experience. To do so, it is often necessary to establish and use methods and means that allow you to view very familiar situations and environments in a new way. In this project, we have attempted to take this a step further by consciously creating conditions for people

with considerable cognitive and communicative problems to force us as researchers and designers to question established concepts of whom is capable of initiating and contributing to a design process. The use of cultural probes helped to elucidate exactly whom it was who actually owned the questions, issues and problems. Through the years we have participated in many design processes that aimed to make everyday life easier for people with cognitive difficulties. It was always implicitly understood who was leading the process since many of our partners did not have the ability to verbalize their thoughts [12]. In this project, the roles have been considerably more ambiguous and, with the exception of the first few months, the initiative has passed back and forth. There is every reason to further develop this method in similar research efforts.

References

[1] Coleman, R. About: *Inclusive design*. Design Council (2005).

[2] Gaver, W, Dunne, A and Pacenti, E. Design: Cultural Probes. *Interactions*, 6, 1 (1999), 21-29, New York, ACM Press

[3] Hellström, M. Epilogue: With a Maximum of Effort for a Minimum of Result: Situated Probing with Different Degrees of Realization. In Binder and Hellström (eds.) *Design Spaces*. Edita Publishing, Finland, 2005.

[4] Jönsson, B . *Certec's Core*. Lund, Sweden, Certec, LTH, Lund University, 1997.

[5] Jönsson, B, Svensk, A, Cuartielles, D, Malmborg, L and Schlaucher, P. *Mobility and Learning Environments: Engaging people in design of their everyday environments*. Lund and Malmö, Sweden, Certec, LTH, Lund University and Creative Environments, Malmö University, 2002.

[6] Jönsson, B, Malmborg, L, Svensk, A, Anderberg, P, Brattberg, G, Breidegard, B, Eftring, H, Enquist, H, Flodin, E, Gustafsson, J, Magnusson, C, Mandre, E, Nordgren, C and Rassmus-Gröhn, K. *Situated Research and Design for Everyday Life*. Lund, Sweden Certec, LTH, Lund University, 2004.

[7] Kensing, F and Madsen, K H. Generating Visions: Future Workshops and Metaphorical Design. In Greenbaum J and Kyng M (eds) *Design at Work: Cooperative Design of Computer Systems*. Hillsdale, New Jersey, Lawrence Erlbaum Associates, 1991, 155-168

[8] Madsen, K H. A Guide to Metaphorical Design. *Communications of the ACM*, 37, 12 (1994), 57-62, New York, ACM Press

[9] Mandre, E. *Designing Remedial Education*. Lic thesis. Lund, Sweden,Certec, LTH, Lund University, 1999.

[10] Plato, G and Jönsson, B. *Art and Science – A different convergence*. Report no. 1. Lund, Sweden, Certec, LTH, Lund University, 2001.

[11] Suchman, L A. *Plans and Situated Actions: The problem of human-machine communication*. New York, Cambridge University Press, 1987.

[12] Svensk, A. *Design for Cognitive Assistance*. Lic thesis. Lund, Sweden, Certec, LTH, Lund University, 2001.

Lone Malmborg is Associate Professor in Arts & Communication at Malmö University, Sweden. Her interests include embodied interaction, augmented spaces and artefacts, interaction design and virtual reality environments as well as computer supported collaborative learning and working.

Bodil Jönsson is Professor of Rehabilitation Engineering in the Department of Design Sciences at Lund University, Sweden. A physicist and educator, she focuses on the benefits of new technological and educational concepts for people with disabilities.

Arne Svensk is doctoral candidate at the same Department in the area of design of cognitive assistance.