The cultural probe revisited - the prototype probe

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Abstract

The cultural probe (CP) has since it was introduced by Gaver et al in 1999 [6] been influential in many design projects, namely as a research and inspirational tool. A CP also became a big part of the interaction design research project "Transgenerational Transmission Machine" - so much that it seemed to have become a prototyping tool. In this article the tentative term "*prototype probe*" is proposed as a further development of the notion of the CP.

Categories and Subject Descriptors

D.2.10 Design methodologies H.5.2 User interfaces, user centered design, prototyping

General Terms

Documentation, Design, Experimentation,Theory,

Keywords:

Cultural probe, Research, Co-design, Prototyping, Interaction design,.

1. Introduction: "Transgenerational Transmission Machine" (Ttm)

"Embodiment is the common way in which we encounter physical and social reality in the everyday world. Embodied phenomena are ones we encounter directly rather than abstractly." P. Dourish [4]

TTM is a playful interactive framework for a collaborative creation of a piece of art. It seeks to engage participants across generations to express themselves in a variety of ways and embrace the generational differences in the participants understanding of technology.

Situated in the domain of research into embodied interactions [4] in the field of interaction design, the project builds on the notion of transgenerational transmission and an archiving of the intangible. It works with how behavior and stories are being passed or can be passed on across generations. It is, in it's use, embodying the *archiving* of stories and the intangible present moment and deals with the problems of digital archiving. As Petrelli et al say: *"digital belongings are perceived as problematic: being unstable and ephemeral compared with physical ones, and too impersonal to fully express the richness of memories."* [10]

A long loop of paper rolling around inside the machine is constantly being overwritten and redrawn by participants as the paper orbits in the rather complicated construct (figure 1). This continuously creates new layers on top of each other and a dynamic user generated archive - a metaphor for our mind, memory and identity – the stories we tell and retell about ourselves and identify with, which continuously gets distorted over time.

The design used a part of the transgenerational theory of Lieberman [8], as a design principle, in which he explains the 4 learning stages of a child's communicative skills: 1) body language 2) behavioral language 3) spoken language and 4) written/abstract language.

Each of these means of communication are translated/embodied into each their stations within the machine. 1) Bodily gestures (body language) translates into a beamer projected painting on the back of the paper roll. 2) The behavioral language is translated into that of making the machine it self run, by turning a handle. 3) the voice (spoken language) translates into the dripping of paint by talking into a microphone. 4) Abstract language (writing and drawing) is directly printed onto the loop of paper by a child with the pens attached to the machine.

The machine is designed so that certain functions has certain affordance suggesting the use by either a child or a grown up, by making the work height different.

Figure 1. The machine work in an assembly line manner so all the "stations" has to be operated at a time: Turning the handle enables the microphone -> talking into the microphone enables the lamp over the drawing station -> drawing on the paper enables a kinect and the beamer and finally interaction with with kinect will enable drawing with the beamer.

2.1 The cultural probe:

The backbone of this project derives conceptually from a CP we did early as part of our research.

The CP is a term coined Bill Gaver et al with the article "Cultural probes" from 1999 [6]. The CP is made to get to know a group of people subject to a design.

"*Probes are collections of evocative tasks meant to elicit inspirational responses from people—not comprehensive information about them, but fragmentary clues about their lives and thoughts. We suggested the approach was valuable in inspiring design ideas for technologies that could enrich people's lives in new and pleasurable ways*." [7]

According to Gaver it is part of a research phase and not necessarily directly a part of the final design or even sketching or prototyping phase. The concept of the CP has been challenged and expanded upon a great number of times since the article first came out in 1999. As Mattelmäki states: "*It is not a specific method, but rather a family of approaches that are inspired by and named after the Cultural Probes*" [9]

Gaver et al addresses a certain part of the ways it has been used, in a later article where they explicitly object to the rationalization of the probe results [7] . This is due to the fact that they saw many

designers, especially when designing in a commercial context, sought to get concrete rational data as output, as with more traditional user/market research.

2.2 Our take on the cultural prototype

"The probes kit as a tangible item can act as a door opener and a facilitator, being nicely designed and personalized to someone who is respected." [9]

In an effort to narrow down the teams pool of ideas in the early stages of the design process, we handed out a CP in a carefully designed box to 8 selected participants. The kit consisted of a small warm up exercise on how people express themselves and 2 evocative tasks to be filled out in 2 rounds.

The probe builds on the principle of the "exquisite corpse" and is made in pairs of 2 persons from differing generations.

1) person A and person B individually fills out a warm up exercise and then writes a short story from their childhood.

2) Person A and person B then switches boxes and makes a collages for each others stories.

Figure 2. The cultural probe kit consists of a set of carefully selected images for making a collage, cardboard with a white space for writing a story and black space for collage, a small warm up exercise, 1 Crayon and a glue stick.

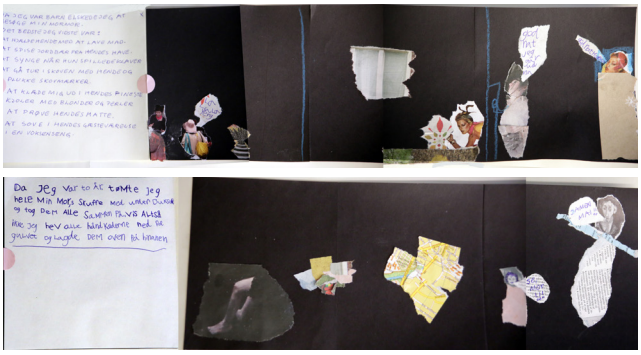

Figure 3. The collages turned out quite pleasing aesthetically. Above are seen the returned probes from Lis Vibeke, 72, and Mai, 8, who were illustrating each others stories.

Person A and B in one case knew each other and made the probes while in the same room. In all other cases the probes where made independently. The pairing of the participants and the logistics of switching the boxes was done by the design team.

When handing in the box to the participants we gave them a very brief introduction to the probe and saw in many cases by merely opening the box, the material was very evocative. This created in some cases an open dialog about generational gaps and the loss of sensuousness related to new technology (and archiving):

"I have a family cookbook which has been passed on for a couple of generations. All recipes are handwritten and when I open it, I can feel my grandmothers hands and smell her kitchen" Lisvibeke, 72.

- an important lesson and something we would later carry with us in the final design.

In another case a mother had been doing the probe, switching with her 8 year old son and we had a chance to talk to her in an informal interview afterwards. She told us that it was a nice social activity evoking stories and that her child was paying a lot of attention to the stories told.

The probe in that way served as an evocative mediator when done in the same room - which later on became important to us. Also we saw that some sort of dialog with us as designers both before or after gave us important insights and maybe should have been an approach adopted more.

Mattelmäki describes in her article "Probing for co-exploring" how the interview can be a valuable follow up:

"Through interviews, however, we were able to explore the probing topics, and made again an observation that the probes kits, although not all completed, had a facilitating impact on the interviews." [9]

2.3 The outcome of our cultural probe

The returned probes proved to be so conceptually strong that we felt we needed to pursue the direction it gave us: the idea of having stories being told, build upon and interpreted across generations in our design. We not only learned a lot of things about the participants but also about the strength of a possible concept.

In the final design in this project we ended using the concept from the CP in very direct fashion - almost as direct translation into another context. This was seen in numerous ways:

1) The CP was designed in such a way that the stories that participants wrote would be illustrated on a long piece of black cardboard, suggesting that you illustrate the story on a time line from left to right (figure 3). This was translated into the long loop of paper running around in our machine (figure 1).

2) The idea of having participants to tell/illustrate a story across generations was also carried forward very directly.

3) The idea of making a collaborative storytelling/illustration experience was also carried forward. Especially exemplified by the probe made by a mother and her son while physically in same room .

4) Finally we tried getting the sensuousness of the "grandmother's cook book" (embodiment) into the design as well.

3. Cultural probe? Prototyping? Co-design?

"*Whereas most research techniques seek to minimize or disguise the subjectivity of this process through controlled procedures or the appearance of impersonality, the Probes purposely seek to embrace it*"[7]. Gaver et al recognizes that sometimes the probes may have a concrete and clear connection with the final design but states that "*Most of the time the relationships between Probes and proposals are more complex and difficult to trace*."[7]

Our process does not compare directly to the examples shown by Gaver. In this project we carried forward the very core of the concept of our CP.

The probe served in that sense more as a late sketch or early prototype who's conceptual idea was up for testing by the participants

via the CP in an early stage of the design itself. It lands somewhere in between the sketch and the prototype as defined by Buxton (figure 4) [1]. E.g. our probe was on one hand evocative but on the other hand was testing a conceptual idea. It was quite refined but still some what noncommittal etc.

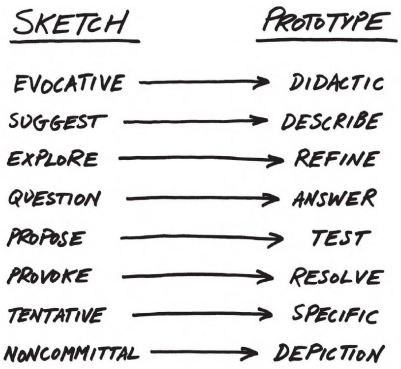

Figure 4. Buxton's Sketch to Prototype Continuum [1]

Mattelmäki describes how the probes can become a valuable part of a co-design process through what she calls empathy probes - a part of a family of approaches all derived from the CP of Gaver. Empathy probes are initially helping to formulate a design space for the designers and later deepening the understanding through interviews and similar activities with the participants. This is also what we ended up doing in some cases with our probe.

In the co-design research project Superdots [5] Foverskov et al make use of participatory prototyping workshops in the development of their concept. This is mostly done in a laboratory setting with props, inviting the target group to a dialog around the design teams' ideas. In the co-design approach the development of the design is a continuous dialog between designers, participants and the design material (props) creating what Brandt calls "A third Space" [2] - a space which is not the designer's nor the user's space.

The third space is a fruitful ground for exploring ideas with the participants and a space where designer and participants are seen as equally important regardless of their backgrounds and competences. The third space was established in glimpses when talking to the participants before and after doing the probe. It would have been very interesting to have focused more on this in our process.

Joining the findings, a triangulation emerges with traces from the CP, Buxton's definitions of the sketching and prototyping process and the co-design approach. In order to capture what we have done methodologically, this leads us to propose a new branch of the CP family – what we tentatively call the *prototype probe* (PP).

4. Discussion - the relevance?

The idea of the PP can potentially be useful when doing experimental (co-)design research.

It is relevant when designing *frameworks for user generated content*, as in the work presented.

It serves as an interesting way of trying out the strength of a conceptual idea in an early stage of a prototyping and sketching process before settling on any concrete physical properties of the design. Potentially aesthetic ideas can be tried out as well - as in our case. As with the CP it should still be seen as an abstraction or something which does not necessarily translate directly into a final design.

The outset is different from the traditional CP, since trying out conceptual ideas are equally important as getting to know the participants as opposed to the CP where the primary focus is on the latter.

One danger to be foreseen, could be that of prematurely handing out a to finished PP. In the Placebo project by Dunne and Raby, experimental prototypes are installed in peoples homes, as a sort of probes, to investigate people's experiences and attitudes towards a certain topic (electro magnetic fields) [3]. This is not desirable in this context since it would be A) handing out a to finished prototype probe on which the user has no say and B) not testing out a *framework for user generated content*. This would lean more towards traditional user testing/research and as shown we are here more interested in an open ended PP, to get the participants engaged in an inspirational dialog for the further development of the design.

The PP should be seen as an early prototype almost on a sketch level (figure 4): something you don't feel to attached to and that you could easily discard as opposed to those of e.g. the Placebo project.

5. Conclusion

In this article we have tentatively proposed the term "prototype probe" as a new branch of the CP family tree. To get a firm hold on the term more testing and trying is required, though. As in the CP it is still meant to be inspirational not only for us as designers but also for the participants getting a higher level of engagement in return. The PP is suggested as a tool for co-sketching/prototyping designs with *user generated content*. A tool, which, similar to the CP, would be problematic to rationalize. It is merely one step in a prototyping and sketching process. After all the final design of "The Transgenerational Transmission Machine" could have gone in many other directions from the early stage of the PP.

References

[1] Buxton, B. 2007
Sketching user experience : getting the design right and the right design. (P. 140, 143)
Morgan Kaufmann Publishers

[2] Brandt, E; Binder, T & Sanders, E. B. N. (2012)
Tools and Techniques - ways to engage telling, making and enacting (p.145-181). I: Simonsen, J & Robertson, T. (red.)
Routledge International Handbook of Participatory Design.
USA & Canada: Routledge

[3] Dunne, A., & Raby, F. (2001). Design noir: The secret life of electronic objects. Springer.

[4] Dourish, P. 2001
Where the Action is
The foundations of Embodied Interactions.
MIT Press. P. 101

[5] Foverskov, M, Binder, T. 2011
Superdots Proceeding DPPI '11 Proceedings of the 2011 Conference on Designing Pleasurable Products and Interfaces
Article No. 65

[6] Gaver, B, Dunne, T, Pacenti, E. 1999
Cultural Probes
Interactions vi(1), 21–29

[7] Gaver, B, Boucher, A, Pennington, S, Walker, B. (2004)
Cultural Probes and the Value of Uncertainty
Interactions - Funology, 11(5), pp. 53-56. ISSN 1072-5520
[Article]

[8] Lieberman, S. 1979
A transgenerational theory
Journal of Family Therapy (1979) 1: 347-360

[9] Mattelmäki, T (2008)
Probing for co-exploring, CoDesign: International Journal of CoCreation in Design and the Arts, 4:1, 65-7

[10] Petrelli, D., & Whittaker, S. (2010). Family memories in the home: contrasting physical and digital mementos. Personal and Ubiquitous Computing, 14(2), 153-169.