Loi, D., Voderberg, M., Liney, B., Marwah, S., Manrique, P. and G. Piu, 2004, "Live like I do" – a PD case study using Cultural Probes', paper for the *PDC 2004 the eighth biennial Participatory Design Conference*, July 27-31, Toronto, Canada.

"Live like I do" – a field experience using Cultural Probes

[Short Paper]

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ABSTRACT

This paper describes a teaching and learning journey the authors shared as part of an undergraduate course the aim of which was to look at Participatory Design (PD) methods [19, 20], including Cultural Probes [8, 9, 10, 11, 12], and to apply these methods in a real context. The authors are the educator who designed the brief and oversaw the process and the five students whose work is used as a case study in this paper.

The case study unfolded a series of reflections on the teaching and learning of Participatory Design methods and tools: the necessity of adopting participative teaching and learning methodologies that are consistent with PD; the value of enabling learning processes within everyday contexts; the importance of engaging learners in designing processes where they need to deal with real people rather then personae or pre-determined scenarios; the necessity to embed in the teaching and learning process reflective mechanisms; and the learning potential offered to both teacher and learner.

The paper is divided into five sections. The first section introduces the topic, providing some of the pedagogical theory underpinning the PD experience. The second section overviews both the context and the brief for the case study, while the third describes the case study in depth. In the fourth section an analysis of the experience is provided, including key reflections from the perspectives of both educator and learners. The final section concludes the paper offering ideas for the future development of PD and CPs in teaching and learning contexts.

General Terms

Documentation, Design, Experimentation, Theory.

Keywords

Participatory Design, Cultural Probes, Teaching and Learning, design methodology, reflective practice, case study.

1. INTRODUCTION AND BACKGROUND

This paper looks at experiences emerging from the Industrial Design Program at RMIT University (Melbourne, Australia) where second year undergraduate students were given a brief to explore Participatory Design methods over a period of 13 weeks as part of both Design Studies classes and a Design Studio. Students were divided into groups of five - the case study discussed in this paper is the work of one of these groups. To facilitate a comprehensive understanding of the case study, an overview of the teaching and learning methodology used and an indication of the brief behind the case study are provided in the following sections.

1.1 Pedagogical Consideration

From a pedagogical perspective the educator involved in this experience is oriented towards constructivist principles which complement participative teaching and learning methods. Constructivism, an evolution of the developmental work of Piaget [17], Dewey [6, 7], and Kelly [13], looks at cognition as a mental construction. In the teaching and learning field in particular [1, 2, 3, 4, 14, 15, 16, 21], the learner learns through experience and by reflecting on experiences, in a situation where the context is regarded as highly influential on the learning process. The educator co-authoring this paper is strongly influenced by the

work and methodologies of Reggio Emilia schools [5] where learners create their own knowledge through questioning, exploring and reflecting – they become expert in learning and learn how to learn – while teachers act as facilitators of learning and reflective processes.

1.2 Brief to case study

The project here discussed was undertaken over one semester and involved the application of PD and the use of Cultural Probes (CP) in a real context. The activity was divided into a series of phases with a specific emphasis on the use of new technologies within domestic environments. The aim was to identify how technology could aid people in their home environment.

Each student was required to conduct desktop research to unfold issues around new technologies and domestic environments. Then groups of five students were asked to choose real users sharing the same house; to use ethnographic methods including CP; to generate a series of scenarios; then develop one a scenario into a series of concepts and prototypes. Students were asked to have an iterative approach during the entire exercise. After developing a final concept and building a prototype, students were to show their designs to users and eventually re-assess their concept.

Students were also asked to document their design process via a 'Group Diary'. The diary acted as a reflective journal where decisions, reflections, meetings, impressions, ideas and anything valuable to them during the process could be 'archived' to facilitate reflective engagement during and beyond the experience.

2. CASE STUDY

2.1 Approaching the users

The selected approach was to involve people without a previous relationship to the group members. It was decided to recruit a household using a letter drop. Two hundred letters were dropped and two responses were received in total. The couple who chose to participate were both visually impaired.

2.2 Interviews

The couple was initially interviewed separately for 45 minutes. One of the findings was that their main domestic technologies were the computer and the Internet. After this first encounter the couple was interviewed together as they responded better to this approach.

2.3 Probes

The brief required a probe-kit containing a disposable camera, a diary capturing daily activities in the home and another ad-hoc probe to be designed by students and used by their users/co-designers.

2.3.1 Camera Probe

Initially unsure of how to approach the requirement given the couple's visual impairment, the group decided to take the risk of asking them to take pictures. Disposable cameras are auto focus as long as they are held 1m away from the object/subject. To help the couple to take images regardless of their disability, a 1m telescopic antenna was located directly under the lens of each camera to act as an indicator of the minimum distance and locate the subject in the photographic frame. The couple had an opportunity to compose a photo *by touch* – to feel the photo.

Each user was given a camera kit, differentiated outside and inside by a tactile indicator. Each camera kit included: a modified disposable camera, a series of questions to be scanned to an audio format (such as *Tell us about the area of your home you feel most comfortable in…* and accompany with a photograph), and a Dictaphone to enable users to describe their answers if it was needed.

2.3.2 Diary Probe

It was decided the diary had to be open-ended, to facilitate a variety of inputs, and time-efficient, while enabling the expression of creative documentation and qualitative data. A Tactile Diary was designed to document one evening during the week. Users were: asked to divide their evening into the time increments they spent doing independent and/or shared activities; given a can of play dough each to represent activities or tasks with the understanding that the amount of time required for the task was commensurate with the amount of play dough used; asked to place the activity-sculptures into boxes with tactile markings mounted on MDF boards so that boxes could be placed on their lap when sitting on their lounge room reclining chairs (as the interviews revealed it was their favorite place in the house); asked to place sculptures in three different boxes: one each for individual activities and one for shared activities.

2.3.3 CD Probe

During the initial interview users mentioned the audio recording software and microphone they use on their computer for work and entertainment. It was decided this was a suitable environment where to locate a new probe. Two blank CDs with Braille instructions were given to the users. These probes asked *Please tell us the story of your life through music and words* with the understanding that what 'the story of your life' meant was open to interpretation.

2.4 Scenarios

As required by the brief, three scenarios were developed by the group. In the first scenario a device would translate a digital image into a 3D relief form with the ability to zoom in or zoom out of a picture so users could *feel* the images. In the second scenario a system would makes it easier for visually impaired people to access and organize their music collections. The system would allow the creation of listening programs by combining personal collections with music from the Internet, enabling navigation via a bar code system. In the third scenario a portable device would translate a flat LCD display into a tactile format.

2.5 Concept Development and Prototyping

The group however discovered that many of ideas included in the three scenarios already existed as prototypes. A new scenario was developed to address a previous comment by the couple expressing their frustration with their inability to access visual information on the products they consume.

2.5.1 www.whatthehellisthis.com

A system (named www.whatthehellisthis.com) that can provide visually impaired people access to visual information on products

(ingredients, cooking instructions, expiry dates, medical dosages and clothing washing instructions, etc) within the home. It was decided to utilize existing technologies that users were familiar with and to create a related infrastructure so information could be accessible to others with similar impairments. The general idea was that: users scan an object via their computer, they send the scanned image to be read and identified by the service provider; the service provider pulls up the image on their screen, reads the request, and then emails back a response. The system would have a software package that could be downloaded from the Internet and a homepage interface with some available options: medical identification, ingredients, packaging. The system could be based in a call-center funded by the government or national associations for the blind and would provide support from 9am–5pm. The group entertained the opportunity to include other countries in the service (initially New Zealand, UK, Canada and the United States) to cover all time zones and consequently provide 24hour access to the service.

2.5.2 The Interface

Working alongside the two users, the group has developed a home page interface that is easy to navigate and capable of addressing the issues visually impaired people normally have with web pages. The team has developed an interface with black text on a white background and with the type laid out in a way so users can scroll line by line.

2.5.3 The Product: Can/Scan

The group concentrated on the possibilities to scan cans. As cans are sealed there is no way to feel or smell content and as the label is printed onto a round surface it makes scanning difficult. On a scanner it is possible to create a flattened image of a can if one turns it at the same speed as the scanner light but this is not possible for visually impaired people.

A 'frame' that sits on the scanner bed and that rolls the can at the same speed as the light via two bars was developed. Using a phototropic electric eye the hand-rolling-technique can be simulated. Located under the first arm, the electric eye follows the scanner light and propels the arms forward across the frame carriage, guiding the can across the scanner at the same speed as the light. This produces a flat image that is ready to be emailed and read by a sighted person at a call-center which is part of the network.

3. ANALYSIS AND REFLECTIONS

This project has provided students with an invaluable experience in the design and use of PD methods and engaging with real users in a context previously alien to them: a visually impaired world. This context unfolded via a direct relationship with the two users that enabled student to 'know more' about their world. The design process was led by the information users gave to the group and by coming to know the two people in ways not possible using more traditional means.

From the teacher's perspective, teaching notions such as PD and CP represent a challenging and complex undertaking. For instance, although easy to describe in their physicality, probes are often hard to understand and appreciate as something real, useful or serious by students. Indeed students often appear keen to accumulate information, data and 'real answers' to specific problems and can consequently perceive probes to be a 'waste of time' or simply something 'airy-fairy'. The concept of Participatory Design has often prompted strong reactions from some students – they identify a 'threat' from this methodology that to them appears to limit designers' control over the process.

An important insight that has emerged from these experiences for the author/educator is that an introduction to the value of qualitative data and of users within the context of use provides a foundation for future learning – students need to be exposed personally and physically to these notions to really appreciate their role and importance. A lot of patience is often needed as these topics can encounter strong opposition.

Many students seem to be fascinated by and attracted to an idea of design that is associated with notions of creative power, styling, designing for oneself, fashion, fame and egocentrism. Moreover, while an experienced practitioner has many years to reach a specific point in their methodological beliefs, the learner is asked to jump 'straight up there' in a few years or often months. The learning curve can be extremely abrupt. Notions of qualitative vs. quantitative data, participatory practice and user-centred design are complex issues to absorb. Within this climate the introduction of Cultural Probes can be a very delicate topic that has the potential of being completely misinterpreted, overlooked or misappropriated.

The author/educator isolated a series of issues associated with the teaching and learning of PD and Cultural Probes in particular. In the following sections these issues have been grouped into two areas: Learner Difficulties and Educator Difficulties.

3.1 Learner difficulties

These issues were gathered through observation and via de-briefing with students that appeared to have difficulties with:

- the capacity to let go of the idea of the designer-on-the-podium: some groups struggled, demonstrating internal 'battles' between an ethical concern for users and fascination for the designer-as-superstar stereotype;
- the capacity to understand that the process comes before the outcome: some students placed the *build a product* before and above the *what and why to design*;
- the idea that probes are mainly used to inspire [8] and provide emphatic data [18] rather than providing specific ready-to-use numerical data;
- the ethical side of probes: some students interpreted probes as excellent tools to gather personal data with the aim of catering for better advertising solutions;
- the differences between openness and 3D questionnaires: some students used probes as if they were questionnaires with a nicer graphic layout;
- the importance of catering for ad hoc probes to specific users in specific contexts: a sort of disconnection emerged;
- difficulty in liberating themselves from the designer-as-serious-practitioner stereotype, resulting in the design of probes which were sterile and not necessarily engaging and/or interactive;
- creating a real sense of what Cultural Probes are and can be used for proved to be difficult for some due to a continuous quest for 'real answers' and the difficulty to deal with nuances instead of data.

The above points unfold a series of further reflections. Firstly, the chance of actively experiencing notions beyond theory by using everyday contexts and people is essential in a learning

environment. Secondly, reflective mechanisms to allow the learner to 'look back at the process' and 'learn how to learn' are required. Thirdly, a teaching and learning process that allows learners to develop their own understandings and ways of dealing with the complexity of their investigations has to be developed. Finally, within PD teaching contexts educators have to continuously re-assess their teaching practices to accommodate and nurture unpredictable and various outcomes and interpretations (i.e. to be a participative educator).

3.2 Educator difficulties

At the same time the teacher experiences problems during the teaching and learning practice. The main difficulties are:

- teaching students about CP without loosing the freshness of students' responses with too many directions, examples or prescriptions (to keep open the opportunity for students' creativity to emerge);
- communicating the real potential of these tools without overloading/confusing students with too much information;
- helping students aware-in-practice of the nuances that can be discovered by using such tools;
- predicting the 'alternative' use of probes for un-ethical purposes and then properly explaining the reasons why such a use of probes is not necessarily what the teacher intended;
- liberating students from stereotypes about the role of design;
- helping students appreciate that notions such as irony, ambiguity, and mystery can play major roles in design, especially in the design of cultural probes;
- helping students become comfortable with the notion that in PD it is important to learn how to 'wait for the user' and that a PD process can be pre-designed only to a certain extent (as when interaction with people begins one might need to reassess the process).

The above emphasizes some previous reflections and highlights the complexity of the educators' role as well as proposing that in the teaching of a topic such as PD one has to use PD principles to design the curriculum.

4. CONCLUSIONS

The teaching and learning of Participatory Design and Cultural Probes within an undergraduate environment can be challenging but rich with learning opportunities for both teacher and learners.

The case study unfolded a series of reflections on the teaching and learning of Participatory Design methods and tools:

- the necessity of adopting participative teaching and learning methodologies that are consistent with PD;
- the value of enabling learning processes within everyday contexts;
- the importance of engaging learners in designing processes where they need to deal with real people rather then personae or pre-determined scenarios;
- the necessity to embed in the teaching and learning process reflective mechanisms; and
- the learning potential offered to both teacher and learner.

Although the discussed exercise produced some conceptual as well as potential commercial outcomes, the authors believe that the core value of these teaching and learning activities revolve around the process of learning, teaching and designing rather than such outcomes.

The differences (learning) in the people - learners, educator and users – were the real outcomes.

In a certain sense every experience should do something to prepare a person for later experiences of a deeper and more expansive quality. [7]

5. ACKNOWLEDGMENTS

Our thanks to all RMIT/ID students and staff involved in this project and to Dr. Peter Burrows for his help/enthusiasm. Special acknowledgement to the couple involved in the project we discussed in the case study - Thank You for letting us see.

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