



# Teaching Design Theory and Practice: a Participatory Journey

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

## 1. Background

This paper argues that the teaching of Participatory Design opens up opportunities for the learner as well as the teacher to engage in participatory teaching and learning activities.

Using as a case study an educational journey I undertook in 2003, I stress that the core value of these teaching and learning activities revolves around the process (of learning, teaching and designing) rather than the specific outcome.

To facilitate a deep understanding of the case study, I will provide in the next section an overview of my teaching and learning methodology and some necessary definitions to locate the experience from a design and pedagogical point of view.

### 1.1 Teaching and Learning philosophy

From a pedagogical perspective I have an orientation and commitment towards constructivist principles. I therefore comfortably sit within participative learning methods.

Constructivism, based on the developmental work of Piaget [1978] and Kelly [1955], looks at cognition as a mental construction. In the teaching and learning field in particular, 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.

Within this paradigm learners create their own knowledge through questioning, exploring and reflecting – they become expert in learning and indeed they *learn how to learn* - while teachers facilitate both the learning and reflection processes.

### 1.2 Participatory Design

Participatory Design [Schuler and Namioka 1993, Sanoff 1990] has its roots in Scandinavian countries, where collaborative work on the theme of participation between researchers and trade unions has always been based “on a strong commitment to the idea of industrial democracy” [Ehn 1992].

Participatory Design looks at the involvement of users in the design process, where the degree of involvement can vary according to the situation. Normally, the rationale for users’ participation is based on three main reasons [Bjerknes and Bratteteig 1995]:

- improving the knowledge upon which systems are built,
- enabling people to develop realistic expectations, and reducing resistance to change, and
- increasing workplace democracy by giving the members of an organisation the right to participate in decisions that are likely to affect their work.

Bjerknes and Bratteteig [1995] report that “the first two reasons are rather practical, and they can be found in several system development approaches. The belief is that users’ knowledge will improve the fit between the computer system and the work. The third reason is culturally and politically biased, and found in, eg, legislation and political literature”.

In terms of impact, I believe the first reason has a strong influence on both the design process and its outcomes, the second impacts more directly on the actors of the process, and finally the third has a substantial political and organisational relevance.

### **1.3 Cultural Probes**

Cultural Probes are “objects or artefacts that are purposefully designed to provoke, reveal and capture the motivational forces that shape individual and his or her home life” [Hemmings, Crabtree, Rodden, Clarke and Rouncefield 2002] and are generally used within Participatory Design with the aim of gaining inspirational information and insights from users - insights into their perspectives and ways of relating to objects and spaces.

Probes are “collections of tasks designed to elicit inspirational information from people about their individual lives. They provide an alternative to more traditional methods of user research from the social sciences, such as questionnaire studies, focus groups, or ethnographies” [Gaver, Walker, Boucher and Pennington 2002].

The idea behind these tools is to engage users in an inspirational exercise where users can elaborate their ways of negotiating their home environment and consequently articulate areas and applications for design [Hemmings, Crabtree and Rodden 2002]. Cultural Probes try to create a forum where normal ways of doing, seeing and articulating things are challenged and the taken for granted is unfolded with the aim of generating possibilities for new ideas to emerge.

The most typical probes are normally disposable cameras with specific everyday instructions, maps, postcards and diaries, although there are other examples of less conventional probes which have been derived from the specific context. These include simple devices to document dreams via voice recording, listening devices, tags and stickers and so on.

## **2. Case Study: an overview**

In 2003 I taught Participatory Design Methods and Practice to undergraduate Industrial Design students at a second year level within a Design Studies subject mainly focussed on the active learning of design methods and practices (in RMIT University, Melbourne Australia).

This activity was matched with a Design Studio activity where students could develop concepts using the learning they accumulated in the more theoretical/reflective Studies component. This way theory and practice were totally interlinked with the notion that one nourished the other and vice versa.

The learning occurred during two semesters. In the first semester students were introduced via theory classes to notions of qualitative and quantitative data, user-centred design, role of users in design practice, roles of designers in today’s context, Participatory Design, methods and examples, Cultural Probes and their use within a participatory practice (phase 1 in Figure 1).

Students were then given a group exercise where they had to design a family of Cultural Probes for a context which was analysed in theory and chosen among a series of abstract options (phase 2).

The main aim of this exercise was to have students experiencing directly the difficulty of designing probes but also the importance of real users within that process. The latter was understood due to an absence of real users within the assignment - normally half way through the exercise.

After this activity students started a more complex work between Studies and Studio that involved the application of Participatory Design and Cultural Probes in a real context. A specific emphasis on the use of new technologies and a specific context (domestic environment) were given.

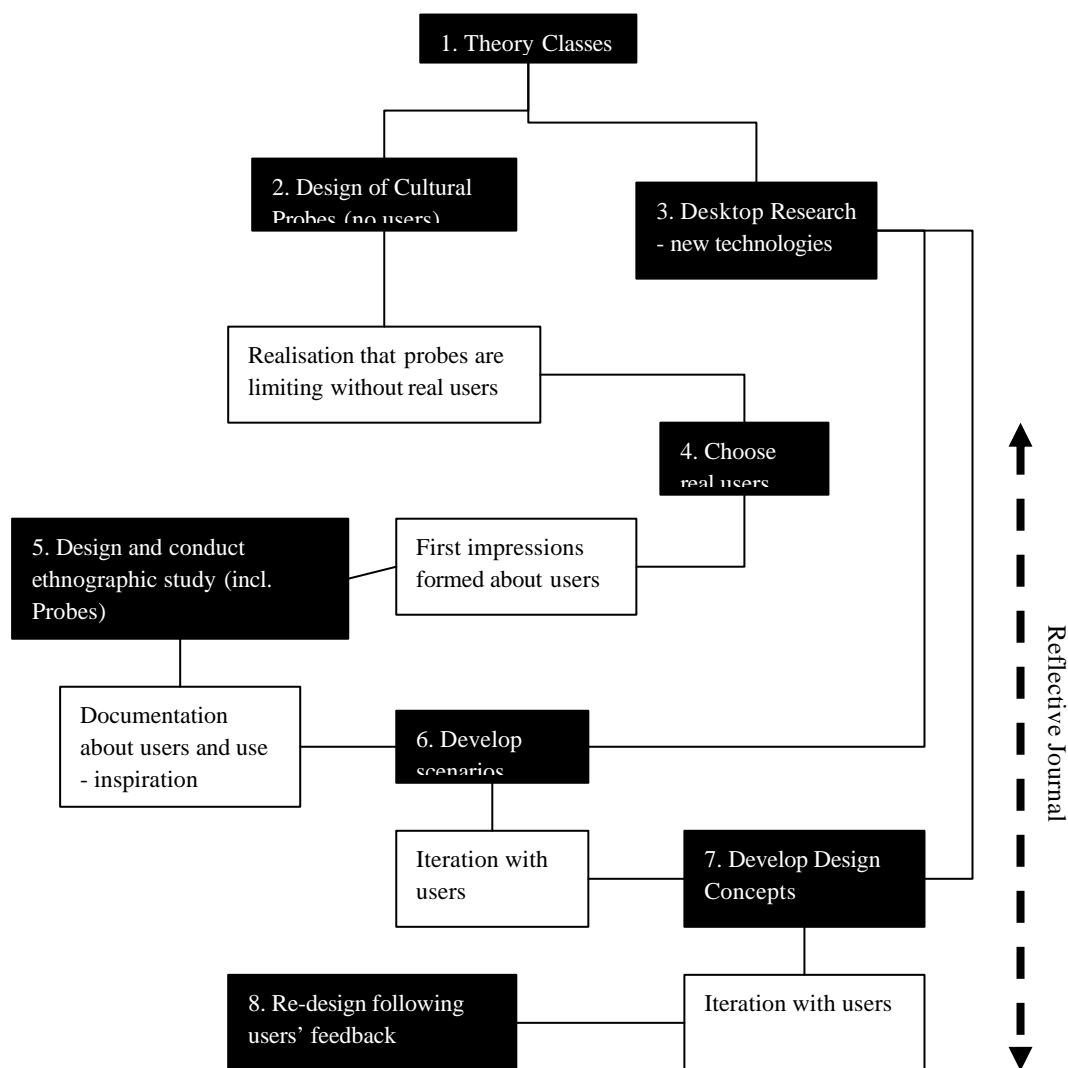
Within Design Studio each student had to conduct a desktop research to unfold issues around new technologies with a specific emphasis on technologies for domestic environments - the outcomes of this research being necessary for scenario and concept development phases (phase 3).

At the same time, within Design Studies, groups of students were asked to choose a number of real users (phase 4) and to design and use Participatory Design tools and methods including Cultural Probes (phase 5) to develop a series of scenarios (phase 6). The scenarios were then developed into a series of concepts and prototypes within Studio (phase 7).

Students were asked to keep a loop of iteration with their users until the end of the exercise and to document their reactions and opinions to all phases, involving them in the design process as much as possible.

After having developed a final concept and having built a prototype, students had to iterate again with their users and re-assess their concept by including any further feedback (phase 8).

Between phase 4 and 8 students were asked to document the entire 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 practice during and beyond the experience.



**Figure 1. Teaching and Learning approach/phases**

### 3. Case study: analysis and reflections

Teaching notions such as Participatory Design and Cultural Probes is a hard task.

For instance, although easy to describe in their physicality, probes are often hard to be perceived as something real, useful or serious by students. Indeed they often appear keen on accumulating information, data and ‘real answers’ to specific problems and can perceive probes as a waste of time or simply something very ‘hairy-fairy’.

Moreover, Participatory Design receives very strong reactions from some students that feel the ‘threat’ of a methodology that seems to limit designers’ control over the process.

After few years teaching these issues I learned that the introduction to the importance of qualitative data and of users within the context play a very important role and that students need to be exposed personally and physically to these notions to really appreciate their role and importance.

A lot of patience is normally needed as these topics can encounter strong opposition.

Differently from a senior designer that had the chance to ‘be on the podium’ and then learn and accept the importance of users within a design process, many students are still in a phase where the idea of design is associated with notions of creative power, styling, designing for themselves, and sometimes egocentrism. While the experienced practitioner had years to reach a specific point, the learner is asked to jump ‘straight up there’ in 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.

Through the mentioned exercise of designing Cultural Probes without real users’ involvement and testing, I managed to isolate a series of issues associated with the teaching and learning of Participatory Design and Cultural Probes in particular. As included in the next two sections, I have grouped such issues in two main areas: Learner Difficulties and Teacher Difficulties.

#### 3.1 Learner difficulties

Through observation and de-briefing with some of my students, the main difficulties I observed my students had in dealing with and learning about Cultural Probes are:

- the idea that probes are mostly used for highlighting nuances rather than specific numerical ready-to-use data: the understanding in practice that probes are not quantitative tools proved to be a hard notion to conceptually digest;
- the ethical side of probes: some students interpreted probes as excellent tools to gather personal data with the aim of catering better advertising solutions;
- the differences between openness and 3D questionnaires: some students used probes as if they were questionnaires with a nicer graphic layout and could not understand the difference between probes and 3D questionnaires;
- the importance of catering ad hoc probes to specific users in specific contexts: a sort of disconnection emerged; for example a number of students decided to choose children as potential users but then designed probes which were not necessarily suitable for the chosen age range in terms of accessibility and safety;
- 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 interactive;
- creating a real sense of what Cultural Probes are and can be used for proved hard due to a continuous quest for ‘real answers’ and the difficulty to deal with nuances instead of data: the typical design-paradigm as something that is directed by an expert to a non-expert in need.

The above highlight four main issues. Firstly, the importance of actively experiencing notions beyond the theory by using everyday contexts and people. Secondly, the necessity to have in place reflective mechanism so the learner can look back at the process and ‘learn how to learn’. Thirdly, the

importance of a teaching process that allows learners to develop their own understanding and way of dealing with the complexity of the areas they investigate. Finally, the importance for teachers to continuously re-assess their teaching practices to accommodate and nurture unpredictable and various outcomes and interpretations (i.e. to be a participative teacher).

### **3.2 Teacher difficulties**

At the same time I have experienced a series of difficulties that I managed to observe also in previous years. Mainly I found hard the notions of:

- teaching what probes are without losing the freshness of students' responses with too many directions, examples or prescriptions;
- showing what probes can look like via examples without directing students too much (to keep open the opportunity for students' creativity to emerge);
- communicating the real potential of these tools without overloading and confusing students with rich but too many information;
- making 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 to deliver;
- liberating students from stereotypes on the role of design and from the notion that irony, ambiguity, and mystery can play major roles in design, especially in the design of cultural probes.

The above re-highlight some what I mentioned in section 3.2 stressing the complexity of educators' role besides proposing that in the teaching of a topic such as Participatory Design one has to use Participatory Design principles to design the curriculum.

## **4. Conclusions**

The teaching of Participatory Design and Cultural Probes within an undergraduate environment proved challenging and dense with learning opportunities for both teacher and learner.

The case study highlighted a series of main notions around the teaching of Participatory Design:

- the necessity of adopting participative teaching and learning methodologies;
- the necessity of enabling the learning process within everyday contexts;
- the importance of engaging learners in designing processes where they have to deal with real people rather than personae or pre-determined scenarios;
- the necessity to embed in the teaching and learning process reflective mechanisms, and
- the learning potential offered to the teacher beside the learner.

To conclude, I would like to stress that, although this exercise produced some conceptual as well as 'commercial' outcomes, I believe that the core value of these teaching and learning activities revolved around the process (of learning, teaching and designing) rather than such outcomes - people (learners and teacher) were the real outcome.

## **Acknowledgement**

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