The True Benefits of Designing Design Methods

Jung-Joo Lee,

School of Arts, Design and Architecture, Aalto University

ABSTRACT

This paper calls for a new way of understanding and using methods in human-centred design. Design researchers have recently been active in developing new types of methods aimed at greatly improving their empathic understanding of people's holistic experience, and their design imagination. The strong motivation for a new methodology stems from critical reflection on scientific rationalisation of human-centred design, which attempts to pin down the design process and develop abstract user models. Despite this motivation, the design community has shown a tendency to use a conventional, scientific rationalisation when applying a stream of new design methods. In this paper, I analyse misinterpretations of the new design methods, which I call 'empathic design methods', and seek a more constructive way of understanding and describing how they actually work, going beyond 'method-recipe' convention. By analysing design students' learning diaries, I investigate what learning is going on in method-making processes and demonstrate how those processes help design students to gather contextual knowledge of a design project and to develop their empathic understanding of users.

Keywords: design methods, empathic design, human-centred design, probes, co-design workshops

1. INTRODUCTION

Design methods have always been a lively topic in design practice and research. Design methods have played a key role in describing how a design team works, systematising the process, and educating designers (Matthews 2009). As Keinonen (2009) puts it, design methods can be seen "as an attempt to bridge the emerging conceptions of new design and the actual design practice." He continues, "new design challenges and new conceptions of design require new ways to find, describe, frame, and solve

design challenges, and there seems to be a tendency to formalize those to something we call design methods" (Keinonen 2009).

In human-centred design, designers have borrowed and adopted various kinds of methods from more established human research disciplines, such as marketing, psychology, or anthropology, in order to collect information about users in a valid and reliable manner (Hanington 2003). Over the past decade, with the emerging challenges of Design for Experiences and Co-design, the conventional methods based on 'scientism' were found incapable of embracing people's felt-experiences and design imagination. The human qualities, as such, are challenging to capture or pin down, and are strongly bound with contexts that are unique and dynamically changing. The cognitive, rational approach to users provided little support for the human qualities. Rather, a more holistic, interpretive, and designerly approach is required.

The design research community introduced the notion of empathic design, which prioritises the human empathic ability to understand another person's feelings and experiences as central for design (Koskinen, Battarbee & Mattelmäki 2003; Leonard & Rayport 1997). In contrast to the cognitive and scientifically-objective approaches in traditional user-centred design, empathic design builds on an interpretive approach for making sense of how other human beings experience the world, each with their body (not just their mind) situated in their own socio-cultural context (Koskinen & Battarbee 2003).

While observation has been one of the key methods for understanding users in context, the array of methods is wide, and collaborative approaches with an empathic twist are gaining ground (Mattelmäki, Vaajakallio & Koskinen 2014). Having a shared ground with ethnography, empathic design methods carry future-oriented and design-led approaches

within them. Empathic design methods aim to envision what is possible in the future, based on the understanding of what it is now. Empathic design holds a core belief that human experiences and emotions are not something that can be 'mined' or represented as user specification, but rather reflected through behaviours and visual, narrative and tangible creations (Fulton Suri 2003; Gaver, Dunne & Pacenti 1999; Sanders & Dandavate 1999; Hanington 2003). Thus empathic design methods incorporate visual, tactile and creative components to help users project their experiences and envision their desired futures. The empathic design process engages designers and users in an iterative dialogue through which they, together, make sense of users' behaviours and creations. Through this dialogue, designers are able to access how users experience the world. This process encourages designers to accept their subjective position when interacting with users, rather than lock themselves into an objective researcher position. This perspective helps to reduce the scientific gap between users and designers and to avoid the risk of user abstraction (Gaver, Dunne & Pacenti 1999; Gaver et al. 2003).

Design probes, for example, unfold a continuous dialogic process between designers and users: designers create tangible probe kits and deliver them to users, and users respond to them in a self-documenting manner (Mattelmäki & Battarbee 2002). This process often continues with designers and users meeting again and interpreting the probe returns together. In fact, for all parties, the process can be seen as a collaborative exploration for making sense, re-thinking and imagining (Mattelmäki 2008). In this process, users are seen as experts of their experiences and partners in building a creative understanding of their experiences, as well as envisioning future design opportunities (Postma, Lauche & Stappers 2009; Sanders & Dandavate 1999; Sleeswijk Visser et al. 2005). Empathic design has also evolved towards co-design, providing tools and mindsets for diverse experts, in addition to users, to come together and collaborate creatively (Mattelmäki, Vaajakallio & Koskinen 2014). In this way, co-design processes support people with no design training to have an empathic understanding of current situations and create ideas for the future.

Empathic design methods include cultural probes (Gaver et al. 1999) and their variants, a range of co-design workshop practices incorporating various visual, storytelling, and generative tools (e.g., Sanders 2000; Sleeswijk Visser et al. 2005), and design games (e.g., Brandt & Messeter 2004; Vaajakallio & Mattelmäki 2014), to name a few. The

development of empathic design methods is typically conducted through real world projects in which universities, companies, and other organisations collaborate. Newly developed or tuned methods are introduced as stimulating success stories, and when critical, they address certain challenges with the methods in a convincing manner, grounded in real world experience (Keinonen 2009). Because these new design methods are very context-specific and thus heterogeneous, generalising them into a single method-formula is against their nature and, therefore, very challenging.

The open-ended, designerly nature of empathic design methods allows designers to re-create a variety of methods for different projects. The process of making and contextualising empathic design methods is essential to their functionality. Despite this importance, the design research community has not paid proper attention to the method-making process. Although a single empathic design method cannot be applied across different projects in the exactly same way, many method papers gloss over how methods are designed and how they actually work, mentioning not much more than the method names.

A few recent writings have diagnosed that this tendency to undervalue the method-making process is due to the field's conventional conception of how methods are supposed to work in design, that is, methods should be easily reproducible and portable, and guarantee satisfying results under correct operation (Boehner et al. 2007; Woolrych et al. 2011; Akama & Prendiville 2013). While acknowledging such a conception of methods, and also the long-standing efforts to standardise methods for legitimisation and professionalisation of the design practice, I fear that these tendencies may overlook the tangible values and benefits of the designer's situated work (Suchman 1987) for making methods. From several years of experience with empathic design methods, I have observed that designers' work for method-making is not simply constituted by inevitable extra efforts, but is a knowledge construction process that is important for design. Additionally, a few recent publications highlight the designer's reflective sense-making process that is grounded in actions, as crucial factors for the successful use of empathic design methods (e.g. Mattelmäki 2006; Westerlund 2009; Akama & Prendiville 2013). This work for method-making, however, might seem too practical or situation-dependent in terms of the traditional academic knowledge-generation.

The aim of this paper is to investigate what is happening when designers make their methods and what they are learning in that process. I believe that revealing such phenomena can clarify the actual roles and benefits of empathic design methods, which may work in a different way from the traditional user-centred design methods. In this paper, I illustrate this difference by analysing design students' learning diaries, written while they were learning to use empathic design methods. But first, I diagnose current methodological misinterpretations in design and discuss what has hindered designers and design researchers from recognising how empathic design methods actually work.

2. METHODOLOGICAL MISINTERPRETATIONS

Empathic design methods allow for designers and researchers' creative exploration and contextual sense-making while they design and re-design methods by considering local circumstances. The open-ended nature of these methods allows designers to treat the method intervention as an interaction with local circumstances and participants, rather than as a generalised, prescriptive procedure (Lee 2012).

The human-centred design community, however, shows a tendency of using empathic design methods just as they are a readily portable set of tools. Sympathetic to Boehner et al.'s (2007) diagnosis on uses of probes in the field of Human-Computer Interaction, I argue that this tendency is caused by designers approaching empathic design methods in the same mode as conventional ones, without a proper understanding of how the methods actually work for design. In the following, I diagnose such misinterpretations according to four aspects: reproducibility, validity, objectivity, and legitimacy. Further, I map these four aspects with primary source writings about the methods. Among the variety of the empathic design methods, my observation focuses primarily on the probes and co-design workshops.

2.1. Turning Empathic Design Methods Into Reproducible Techniques?

Often we can observe misinterpretation surrounding how designers feel about a situated, context-specific approach using empathic design methods. Taking probes as an example, the original authors of the probes emphasise that the real strength of their method was that they had "designed and produced the materials specifically for [that] project, for those people, and for their environments" (Gaver, Dunne & Pacenti 1999: 29). Despite this, to those who are

preoccupied with the view that methods offer generalised instructions and a structured process, the probe descriptions would appear as another off-the-shelf method for design-based research. Boehner et al. (2007) review almost 90 papers on various approaches to probes, and find that many of the studies take a 'probes-as-recipe' approach. They argue that "the outward forms of the original cultural probes, namely the technique of providing a probe packet with a camera, postcards, a diary, maps, and sets of instructions or questions as a base set are often enough for a researcher to cite cultural probes as the method of research" (Boehner et al. 2007: 1083).

In many method papers, we often see a concluding remark suggesting future work, such as: "the next step would be to validate the cross-cultural applicability of this form of cultural probes" (Chavan & Munshi 2004). Chavan and Munshi (2004) introduce a modified design for cultural probes in the form of 'emotion tickets' for Indian participants. They conclude their paper by suggesting further work for validating the method's cross-cultural applicability. This way of concluding a study stems from the desire that, when a method is suggested as new knowledge gained from an experiment, it should be generalised and reproducible for other settings, as with scientific experiment results striving for generalisability.

This view, claiming generalisability and hence reproducibility, focuses on the method as an indivisible whole (Woolrych et al. 2011) that is capable of finishing work in itself, but neglects the designer's situated work and relevant contextual knowledge that actually makes the method work *in the setting*. Because this view glosses over crucial contextuality and designer's competence for design, the probes method falls victim here to precisely what it aims to escape – the method-recipe view.

2.2. Seeking Scientific Validity?

In terms of some attempts to codify empathic design methods as a generic process, the situated, designed approach of empathic design methods might sometimes appear scientifically immature. Thus, some of the design research community recognizes that improving the scientific validity and generalisability of empathic design methods is an imperative task. For example, the open-ended and inspiration-oriented approach of cultural probes might make designers feel insecure about whether the probes' returns are legitimate enough to inform their design. This insecurity makes designers 'back-up' the probes' returns with interviews or focus groups so

as to either validate the materials that have been gathered or supplement fragmentary pictures (e.g., Moser, Fuchsberger & Tscheligi 2011; van Leeuwen, Karnik & Keane 2011; Kuiper-Hoying & Beusmans 2004). This insecure tendency is observed more prominently when the materials collected from the probes are interpreted and analysed. Some studies that seek to find users' true meanings and a comprehensive picture of the users' world behind their probe returns introduce analytical rigor into their interpretative methods by employing statistical methods, such as graphing or numerical analysis (e.g., Murphy et al. 2005), or a cross-validation of the results (e.g., Howard et al. 2005; Volda & Mynatt 2005).

This manner of gathering user information for design is exactly what the original cultural probes attempt to disrupt. For enlivening design inspiration in dialogic interaction with users, the cultural probes were the alternative proposition to statistical analysis of user information (Gaver, Dunne & Pacenti 1999; Gaver et al. 2003). While most of the above-mentioned studies on the probes acknowledge and value the probes' provocative, exploratory, and participatory approach, the very awareness that the probes are provocative and ambiguous is unfamiliar to designers with a more conventional view of methods. Such misguided conceptions, then, attempt to impose scientific validity on the work of the probes implementation as well as interpretation of the probes returns.

It should not necessarily be understood that I intend to say that the above-mentioned studies are erroneous. Our concern, instead, is that the adoptions and different tunings of probes should be underpinned by proper recognition of the nature and meanings of probes, not by misinterpreting their flexibility and purposefully ambiguous approach. For example, when using probes to explain the current state of affairs, the probes approach itself should not be downgraded due to the fragmentary user information that they collect or the challenges for scientific analysis that they pose. Instead, designers should explain what aspects of probes they find useful and effective for achieving a comprehensive understanding of users' current practices, and how they modified their approaches to the probes in order to serve that particular purpose.

2.3. Designer's Stance: Objective or Creative?

When using empathic design methods, it is often a question whether to take a designer's stance as an objective observer or as an intervener with his or her own design intentions. For example, in situations

of co-design workshops, should a designer who facilitates the session be objective without influencing the participants' activity, or could s/he reflectively intervene and direct what is occurring? For methods that are considered to be generic and formal approaches to conducting a workshop, like focus groups and structured interviews, a facilitator usually introduces carefully-chosen topics and follows a thoughtfully-written discussion guide (Kuniavsky 2003). For co-design workshops, while it is often said that positioning a designer as a facilitator, an observer, or a co-creator should depend on different goals of projects, in practice, this often creates tensions.

Some recent writings on conducting co-design workshops, including design games (Vaajakallio 2012; Kankainen et al. 2012) and video prototyping workshops (Westerlund 2009), argue for the importance of the designer's role in making sense of what is occurring in the workshops, capturing what is relevant for the design aim, and orienting the co-design activity towards that direction. In their study of the Storytelling Group method for service design, Kankainen et al. (2012) emphasise the designer's role as a "creative secretary," who observes the hidden possibilities in the story world, and intervenes in how the group organises the story events, guiding the group towards design opportunities. The authors report that, without a creative secretary, the layer of knowledge in the storytelling group remains at a rather superficial level. Similarly, in his doctoral dissertation, "Design Space Exploration" on a video prototyping workshop and design space, Westerlund (2009) highlights the importance of the designer-conductor's responsibility for framing the design space as a prototype in the co-design session with users.

These studies stress two aspects as the main reasons for supporting the interactive, creative role of the designer in co-design workshops. First, the designer's competence as a creative professional: designers can identify what could be designed from the situation as a reflective practitioner (Schön 1983). Secondly, the designer's contextual knowledge gathered from the workshop planning can capture what is relevant in the situation and envision what can be designed because they have been already sensitised to the project context and design possibilities while designing the co-design workshops. Notably, the contextual knowledge developed before the co-design workshops nurtures a designer's sensitivity and confidence.

2.4. Where is Data Legitimate for Analysis?

We have tried the make tools ... but the prototypes created by users were something that we had already thought of or did not seem relevant.

(Anonymous professor in Human-Computer Interaction, Personal communication with the author, March 2011)

In the traditional view on methods, data are usually artefacts produced as end results from methods, be they interview transcriptions, survey numbers, observation notes, or pictures taken in the field. Designers then use a structured analytic method to *mine* meanings from the data artefacts.

In the quote above, the design team expected to gather innovative ideas and design inspirations from the artefacts, mostly physical 3D models, constructed by the participants in the make tools session (for more on make tools, see Sanders 2000). When a design team only considers what is produced after they conduct the method as final outcomes, such outcomes from the make tools sessions might look illegitimate and incomplete.

Although there are slightly different views on how to approach outcomes produced by empathic design methods, many recent writings agree that the important knowledge can be constructed not only through an analysis of artefacts, for example, visual collages or 3D models, but already from the process, putting the method into action. For example, Sleeswijk Visser (2009) emphasises that researchers' annotations made during a generative workshop session constitute important data, besides the artefacts made by participants.

2.5. Why Misinterpretations?

Traditional user-centred design originated from scientific disciplines for technical systems design. A huge part of assumptions, theories, and practices stems from such disciplinary traditions. The misinterpretations occur when knowledge and methods are adopted across boundaries without reflexive understanding, i.e., understanding *others* based on recognition of one's own assumptions and standpoints (Denzin & Lincoln 2000). The misinterpretations towards empathic design methods occur when designers and researchers do not question different assumptions between conventional methods and empathic design methods. Suchman (2002) explains that this misinterpretation is closely tied to a culture in design that constructs technical systems as commodities so they can be "cut loose from the sites of their production and exported en masse

to the site of their use." In a similar light, Dourish (2006) diagnoses the symptom, found in many academic writings in user-centred design and human-computer interaction, of "implications for design", which attempt to abstract findings of ethnographic research as bullet-point specifications for design resources. He argues that this tendency is due to the field's unfamiliarity with, and thus neglect of, contextual knowledge constructed, grounded, and embodied in actors' situated actions, which are in fact crucial for design (Dourish 2006). Sympathetic to Dourish (2006), I argue that the current field of design research needs an alternative analytic focus that can reveal actual benefits of designers' situated work in the method implementation, as well as an alternative way of communicating them beyond method instructions.

3. Investigating the Method-Making: Design Students' Learning Diaries

As one attempt to explore alternative accounts of empathic design methods, we pay our analytic attention to how those methods are made to work in reality instead of how they ought to work in theory. In other words, I reveal 'behind-the-scene' stories of the methods, rather than aiming to develop method instructions or templates. I call them behind-the-scene stories in the sense that, to-date, these stories have not been told enough in method papers or method descriptions. In this section, I reveal the behind-the-scene stories from cases where design students have learned and used empathic design methods. I illustrate these through analyses of their learning diaries.

In User-Inspired Design (UID) course, one of the main courses at MA program of Industrial and Strategic Design in Aalto University, students learn designerly, novel, and empathic approaches for exploring future design opportunities by involving users in the design process. As reflected in the course title, 'user-inspired' instead of 'user-centred,' the course focuses on Design for Experience, encouraging the students to explore creative and empathic approaches for concept design beyond the scope of traditional user-centred design. During the nine-week course, students proceed with a comprehensive concept design process from framing design opportunities, working with users, and interpreting qualitative user study materials, to generating and evaluating design concepts. The students' backgrounds vary, including industrial design, design management, textile design, spatial design, and also computer science and psychology. Each year, the course accepts approximately 25 students and the students are formed into five groups at the beginning of the course. The instructors group the

students by considering their disciplinary backgrounds, nationalities, and gender. More than half of the students are in their first year of master's study.

In the UID course, individual students are expected to write personal learning diaries and submit them to the course instructors every week. The purpose of the learning diary is to help the students reflect on their own learning process. The learning diary includes student's:

- Accomplishments and activities in process during a project, including challenges and reflections
- Reflections on the literature and other sources about the topic, including expectations, questions, and interpretations
- Problems in understanding the course objectives or in the group work
- Solutions to encountered problems (with which the student had to deal)

The diaries thus contain lively stories about the situations that the students encounter during the design project, how they organise their actions to the local contingencies, and how they use design methods. Each week the students write a diary entry, about a one-page long, including drawings, diagrams, and photos in addition to text (see Figure 1).

For this reason, the students' learning diaries provide original materials for researchers to look into what the student designers actually do, feel and experience while designing their own design methods. I was the UID course tutor from 2007 to 2009, and analysed the diaries for the years 2008 and 2009 in order to investigate what the situated work of method-making entails and what learning is going on that might be crucial for the design project. Each year for the nine-week course, 25 students submitted weekly diaries. As the tutor for two years, I followed the students' design projects, and thus, had a contextual understanding of the written text. My loci of analysis were as follows:

- What expectations and preconceptions do the students have regarding empathic design methods?
- How do students choose and make methods in their project context?
- What challenges do they face when making methods and how do they deal with the challenges?
- How do they evaluate the methods during and after using the methods?

When going through the students' diaries, these questions were the initial foci of interest, but did not constrain the analysis. So, when new, interesting findings arose, new themes were allowed to

Figure 1. Students' learning diaries from the User-Inspired Design course

emerge. Several analysis sessions were iterated in collaboration with two other tutors from the course. Further, the analysis results were verified by interviewing some of the students who took part in the course.

Because these stories are reported by the students, professional designers still in training, the stories analysed in this paper are about students' work and experiences while they learn to use empathic design methods rather than competent designers' established practices with methods. Thus, I do not intend to generalise students' work, experiences, and learning while applying empathic design methods because such work and learning might not go on in experienced design practice. Regardless of this limitation, the students' diaries still provide rich and original material for researchers with an interest in understanding the actual benefits of empathic design methods in the following ways.

First, because the students are not yet experienced, they present very practical work, situated actions, contextual challenges, and emotional concerns in a salient and detail manner. Such practical work and contextual challenges might be taken for granted by experienced designers, thus, are hard to foreground. Secondly, students' experiences with contextual challenges, emotional concerns, and ad hoc actions when making their methods work are, in fact, what empathic design methods enable them to learn, as part of the knowledge-construction process for the design work (which I will explain later in this paper). Finally, because of the open and situated nature of empathic design methods, those who are unfamiliar with the use of empathic design methods may face uncertainty, or even disappointment when using them. In this sense, unveiling challenging spots, as reported in the students' diaries, are exactly what we need to construct as knowledge on how designers actually make their methods work.

In the following text, I will present the analysis, especially focusing first on what the students actually do, feel and experience while making their methods work in the design situation, and second, how such process helps construct contextual knowledge and engagement that, in turn, plays an important role in the larger design activity.

4. DESIGN LEARNING IN THE PROCESS OF METHOD-MAKING

4.1. Stepping into the Users' World

In dealing with empathic methods for their design project, one of the biggest challenges for the students was how to design the method. While the students liked to use their design skills for the research part, they were not sure how to design the method that would be efficacious, while still being engaging enough for the participating users. In particular, it was all the more challenging because their target users were often of different ages (for example, elderly people, teenagers or children), from different countries than the students (for example, expats or tourists), or had different habitual practices (for example, smokers).

For instance, one student group aimed to design a service that could support safer and more meaningful peer-group hangout activities in public places for teenagers. After the preliminary field observation in shopping malls where groups of teenagers often gather, the students wanted to apply the probes to tackle issues of teenagers' emotional attachment to (or detachment from) public places. It was, however, difficult for the design students to predict how the teenagers would respond to their probes. Hence, before designing the probes, the students set the mood by recalling their own teenage memories.

I have tried to set the mood. I have tried to remember what [sic] it was like when I was in my teenage [years] more than ten years ago. Today, I listened to Nirvana. It is not the music that teenagers nowadays listen to, but I think it is classical teenage music anyway: it is wild, angry, and arises [sic] feelings. For me, it worked as some sort of mirror of my feelings and energy, a way to escape, although I did not have that hard of a time as a teenage [sic]. I felt strong and confident, and I thought I knew almost everything that is essential in life.

They also reviewed recent newspapers and magazines about teenagers and compared them with their own teenage experiences.

In today's newspaper, there was an article of a 23-year-old woman who has [been] slit[ting] her wrists [sic] since she was 12 years [old]. In another article this week, teenaged [sic] girls explain that the important places in their lives are home, school, the shopping mall and McDonald's. What can I say about the mall and McDonald's? At this point, so-called 'empathic design' demands a lot from me.

Aside from designing the relevant tasks for probing, which was their major concern, the students also put huge efforts into how the probes should look. The look of the probes was considered important as a 'marketing point' to motivate teenager participation and, more practically, help the teenagers more easily read, understand, and respond to the probes.

We really have to consider how to do this. At the moment, it seems that it is not easy to make teenagers enthusiastic about the research. I guess we have to make really exciting probes and show them to those who we want to study and co-design with, in order to make even [a] few of them interested in our topic.

We designed buttons that they can attach to the bag [a project bag given to each of the participants], which is not related to the research directly, but we made it for motivating teenagers [with a] jolly-looking kit. We also put candies in the bag for the same reason ... We discussed colour, too. The teenage boys didn't like pink and girls liked vivid colour and so on. It was interesting to hold such heated debates, imagining the teenagers' feelings and preferences.

The students' diary stories revealed that the method-making actions, including discussing within a team what colours the teenagers would like and making bags and badges as the probes components, kept the team discussion oriented towards topics of what the teenagers would prefer and what they would be like. The students also discussed what time of the day the teenagers would keep the probe diary, how they would carry the probe kits with them, and so on. This kind of practical work gradually enabled the students to engage in the user situation by talking about the users, simulating user experiences with the probes in their shoes, for example, what it would be like for them answering the probes questions, touching the probes materials, and so on.

First of all, I realised how important it is to concern our target users over the whole process of user research. Of course it sounds so self-evident, but it also means that we should carefully consider them when we make the materials, such as diary or social map, for design probes. For example, which colour would our users prefer? Or, which font size is enough for our users to read? So, we should really consider characteristics of our users to get the right results. (One female student whose target group was elderly people.)

Considering font sizes or colours that would be suitable for users might be considered a peripheral issue. Yet, by orienting their actions towards such peripheral, physical details, the students became more and more sensitive to the users and their contexts, and learned to build emotional engagement with them.

4.2. Knowing the Designers' Own Backgrounds and Assumptions

The method-making process seemed to enable the students' realisations of their own backgrounds and preoccupations, which helped them to gain a greater degree of sensitivity to the users. In another example from the students' diaries, one student team aimed to design a service in the outskirts of Helsinki that could support elderly people to be more active and visible in the local society. The students wanted to apply the probes in order to understand elderly people's past memories, emotional experiences, daily activities, and wishes. Initially, this student team had the idea of a daily probe task, which would be delivered to the elderly people on a daily basis. A different probing task delivered each day aimed to keep the whole process exciting and fun for the elderly participants.

The student team visited one community facility, where the elderly gathered and spent time together, in order to introduce their probes and recruit participants. The students then realised that their daily probes plan would not work out. By meeting and talking with the elderly people, the students realised that the participants' daily schedules were too busy.

In our own study, we had already thought a lot about the probes tasks before we met our users for the first time. From the observations in the first meeting, it became obvious that we needed to adjust the tasks we had planned for the probe kit to better suit their [the participants'] preferences. In particular, the elderly ladies were afraid of having to use [too] much of their time for the probes. Contradicting our stereotypical thinking, they [the elderly participants] were extremely busy!

As a result of interacting with the participants, the student team realised the need to modify their plan. In the end, they designed a probe package that contained the daily tasks in different sealed envelopes so that the elderly people could open one each day. I found that the students' realization that they were "busy elderly people" (see Figure 2) not only led them to redesign their probe package, but also to reframe the direction of the design opportunities. After noticing the elderly people's busy schedules,

Figure 2. Student's sketch on their new understanding of an elderly person

the students started to focus on the elderly people's collaborative productivity. Later, the student team reframed their design objective from "how to activate the elderly people's life" to "how to foster this active group of elderly people to spread their spirit to the society".

Further, rather than being restricted by their pre-conceptions, the students began to see a truer picture of the users by getting to know more about *themselves* – their prior assumptions and their own backgrounds. So the sequence of actions for method-making enabled the students' own assumptions and intentions to become more tangible so that they, themselves, recognised them. Like ethnographers conduct autoethnography (Ellis 2004) in order to make their own assumptions for writing about others explicit, designers may use the visual and tangible creation of design methods in order to make their assumptions explicit. Students' learning about themselves and learning about the users is intertwined.

4.3. Building Motivational Engagement through Unofficial Interactions

In the diaries, the students often wrote about many unofficial, practical activities they organised with the users during the project, such as making appointments over the phone, visiting them to deliver the methods, and having tea with them to introduce the methods. These activities were neither officially defined as methods, nor included in the method descriptions, but they were essential for implementing

the method at the user sites. The students' diaries demonstrate that these unstructured, informal meetings with users helped the students to learn local relevance, and enriched the commitment from both the student side and the user side. Because such activities were informal, some students had a chance for more personal access to the users, for example, getting invited to dinner at a user's home.

I was really happy with [the] elderly people who live in Loppukiri [the name of the local elderly home]. First of all, they were much kinder than we had expected and we got four volunteers who were willing to participate in our project. Also, we were able to understand their situation while having dinner together and had an opportunity to look around the elderly person's apartment. (One male student whose target group was elderly people.)

In this way, these informal interactions and dialogic relations with users made the students more emotionally engaged with the users. Many students expressed their commitment to the users:

This week, I am writing only about the contacts with teenagers and youth workers because they fill my mind right now! To meet them is generally one of the most exciting phases in design work, I think... Once you get their time to have a chat it is a pleasure to hear their points of view. I have always been surprised in some way.

After the final meeting with the users, it felt like we took so much away with us [from them, the participants]; then it was an anti-climax to end the project with no form of real implementation or improvement for them. It was clear we had built relationships with the users, as we felt rather sad to see them for the last time. Even though Sam and I were usually passive at the sessions due to the language barrier, just observing them and striving to come up with something for them, or from them, really made the process very empathic and committed. (One female student whose target group was elderly people.)

5. DISCUSSION

5.1. Method-making as an Enabler of Designers' Empathic Knowing

In the stories presented above, the students needed to gain contextual knowledge in order to make the methods relevant and engaging to the users' local context. The students' learning diaries revealed that the method-making action sequence, including, contacting users, considering users' preferences and capabilities, and having informal meetings with users, improved not only the relevance and efficacy of the method, but also students' understanding of what actually matters for users. The local sensitivity and contextual knowledge that the students developed by situating the method led them to identify meaningful design opportunities; I illustrated this process above with the case of the students who changed their design aim from activating passive elderly people to facilitating active elderly people to influence their community.

Thus, based on these observations, we can consider the method-making process as the externalization of a designer's initial interpretation of users and the realisation of future design opportunities. Heikkinen (2011) presented similar findings on how designers externalise their inner design hypotheses by designing their own design tools. In this sense, method-making can be understood as a form of articulated introspection into what the designer already knows, through iterative externalizations of what the designer wants to know in relationship to an instrumental goal. In itself, method-making carries values and benefits for design, enabling the designer to understand users and speculate possible design solutions.

Indeed, it is still in question whether, in practice, designers pay careful attention and have sensitivity to method-making so that the process of method-making can help with the constructive learning about users. This is precisely why this paper aims to

turn designers' attentions to the phase of method-making by showing evidence of what designers can gain from activities prior to method-in-action. Once designers understand how method-making actually benefits their knowing of users and framing of relevant design solutions, they can pay more attention to the method-making phase.

5.2. Nurturing Sensitivity through Method Stories

Traditionally, the field of design research, especially traditional user-centred design and interaction design, has aimed to improve the applicability of methods through comparative experiments and pinning down common structures and rules (Woolrych et al. 2011). In this paper, I suggest that the field could reflect and re-specify its research direction for design methods, especially for empathic design methods, that is, not by developing new tools or pinning-down practices into recipes, but rather towards empowering designers to be more sensitive and comfortable with the design-led, local approaches that are essential to empathic design methods. As one attempts to achieve this, I suggest presenting rich descriptions of *as it is* – what designers (design students in the case of this paper) actually did with methods in particular circumstances. I believe that the *method stories* will help designers reflect on their selection and use of methods more effectively because such stories do not strip away the rich contextuality of actual use, including method application in and adaption to a specific context.

The method stories from the students' learning diaries in this paper revealed to us that the students gradually developed their sensitivity to the local context, and framed and re-framed possible design solutions by organising their practical actions for physically crafting the methods and socially making decisions. If designers were to become more aware of and comfortable with the fact that they could gain important knowledge about users and design directions even before analysing data produced from methods, their sensitivity to what they are doing and learning during the method-making process would be better nurtured.

In addition, we witnessed that the practice of writing method stories in itself can serve as a method for designers to become sensitised to and make better sense of what learning is going on in the method-making process. In their learning diaries, the students expressed their understandings of the externalisations they created. In this sense, we can say that diary writing works as a translatory process of persons reporting on their externalisation of how to approach and understand users.

6. CONCLUDING REMARKS

Only recently has the field observed that designers and design researchers are increasingly recognising context-specific intervention in order to explore what is possible. Researchers state that generic methods, with designers taking a neutral position, no longer provide constructive directions. For example, Binder et al. (2011) suggest the notion of 'laboratories after method', which focuses on a series of local interventions for collaborating with users, and continuously learning from the process, rather than accounting for the process through methods.

Indeed, design methods are still a useful means to communicate and teach design practice. Towards this utility, this paper aims to suggest that we may need to respecify our existing conception and practice regarding design methods: rethinking how design methods, especially empathic design methods that are the main focus of this paper, produce knowledge for designers. If method stories, as evidence of such alternative perspectives, are collected and spread more and more, designers can feel more comfortable with this alternative thinking, which is different from the conventional beliefs on scientific, neutral methods.

ACKNOWLEDGEMENT

I would like to thank the students and co-tutors from the User-Inspired Design course in the MA program of Industrial and Strategic Design, Aalto University. I also wish to acknowledge the School of Design and Environment in the National University of Singapore for providing excellent facilities during the final phase of editing the article.

REFERENCES

- Akama, Y. & Prendiville, A.** (2013). Embodying, enacting and entangling design: A phenomenology view to co-designing services, *Swedish Design Research Journal*, 1(13), 29-40.
- Binder, T., Brandt, E., Halse, J., Foverskov, M., Olander, S. & Yndigegn, S.** (2011). Living the (Codesign) Lab, In *Proceedings of the Nordic Design Research Conference 2011*, 21-30.
- Boehner, K. Vertesi, J., Sengers, P., & Dourish, P.** (2007). How HCI interprets the probes, In *Proceedings of the SIGCHI conference on Human Factors in Computing Systems* (pp. 1077-1086). New York, NY: ACM Press.
- Brandt, E., & Messeter, J.** (2004). Facilitating collaboration through design games. In *Proceedings Participatory Design Conference 2004* (pp.121-131). New York, NY: ACM Press.
- Chavan, A. L., & Munshi, S.** (2004). Emotion in a ticket. *Extended abstracts of the SIGCHI conference on Human Factors in Computing Systems* (pp. 1544-1544). New York, NY: ACM Press.
- Denzin, N.K. & Lincoln, Y.S.** (2000). Introduction: The discipline and practice of qualitative research, in: N. K. Denzin and Y. S. Lincoln (eds.), *Handbook of Qualitative Research* (2nd ed.), Thousand Oaks: Sage, 16-17.
- Dourish, P.** (2006). Implications for design. In *Proceedings of the SIGCHI conference on Human Factors in Computing Systems* (pp.541-550). New York, NY: ACM Press.
- Ellis, C.** (2004). *The Ethnographic I: A methodological novel about autoethnography*. Walnut Creek: AltaMira Press
- Fulton Suri, J.** (2003). Empathic design: Informed and inspired by other people's experience. In: Koskinen, I. et al. (eds.) *Empathic Design*. IT-press. Helsinki, 51-59.
- Gaver, B., Dunne, T., & Pacenti, E.** (1999). Cultural probes. *Interactions*, 6(1), 21-29.
- Gaver, B., Boucher, A., Pennington, S., & Walker, B.** (2003). Subjective approaches to design for everyday life. CHI Tutorial, London, England.
- Hanington, B.** (2003). Methods in the making: A perspective on the state of human research in design. *Design Issues*, 19(4), 9-18.
- Hekkinen, T.** (2011). Design of design tools: The creation of tools as a part of personal theory-building process. In *Proceedings of the Nordic Design Research Conference 2011*, 58-67.
- Howard, S. Kjeldskov, J., Skov, M.B., Garnæs, K., & Grünberger, O.** (2006). Negotiating presence-in-absence. In *Proceedings of the SIGCHI conference on Human Factors in Computing Systems* (pp. 909-921). New York, NY: ACM Press.
- Kankainen, A., Vaajakallio, K., Kantola, V., & Mattelmäki, T.** (2012). Storytelling Group: A co-design method for service design, *Behaviour & Information Technology*, 31(3), 221-230.
- Keinonen, T.** (2009). Design method: Instrument, competence or agenda. Paper presented at the *Swiss Design Research Network Symposium*, Lugano, Switzerland.
- Koskinen, I. & Battarbee, K.** (2003). Introduction to user experience and empathic design. In: Koskinen, I. et al. (Eds.) *Empathic Design* (pp. 37-50). IT-press. Helsinki.
- Koskinen, I., Battarbee, K., & Mattelmäki, T., Eds.** (2003). *Empathic Design. User Experience in Product Design*. Helsinki: IT Press.
- Kuniavsky, M.** (2003). *Observing the user experience: A practitioner's guide to user research*. San Francisco, CA: Morgan Kaufmann.
- Kuiper-Hoyn, L. L. & Beusmans, J. W.** (2004). Using home networks to create atmospheres in the home. In *Proceedings of Dutch Directions in HCI* (pp. 7-10). New York, NY: ACM Press.
- Lee, J.-J.** (2012). *Against method: The portability of method in human-centered design*. Doctoral dissertation, Aalto University, Helsinki.
- Leonard, D., & Rayport, J.F.** (1997). Spark innovation through emphatic design. *Harvard Business Review*, Nov-Dec, 102-113.
- Mattelmäki, T. & Battarbee, K.** (2002). Empathy probes. In *Proceedings of the 6th Conference on Participatory Design* (pp. 266-271). New York, NY: ACM Press.
- Mattelmäki, T.** (2006). *Design probes*. Doctoral dissertation. Aalto University, Helsinki.

- Mattelmäki, T.** (2008). Probing for co-exploring, *CoDesign*, 4(1), 65-78.
- Mattelmäki, T., Vaajakallio, K., & Koskinen, I.** (2014). What happened to empathic design?, *Design issues*, 30(1), 67-77.
- Moser, C., Fuchsberger, V., & Tscheligi, M.** (2011). Using probes to create child personas for games. In *Proceedings of the 8th International Conference on Advances in Computer Entertainment Technology* (article no. 39). New York, NY: ACM Press.
- Murphy, J., Kjeldskov, J., Howard, S., Shanks, G., & Hartnell-Young, E.** (2005). The converged appliance: "I love it... but I hate it". In *Proceedings of the 17th Australia conference on Computer-Human Interaction* (pp. 1-10). Narrabundah, Australia: Computer-Human Interaction Special Interest Group (CHISIG) of Australia.
- Postma, CE, Lauche, K. & Stappers, P.J.** (2009). Trialogues: A framework for bridging the gap between people research and design. In *Proceedings of the 4th International Conference on Designing Pleasurable Products and Interfaces* (pp. 25-34). New York, NY: ACM Press.
- Sanders, E.B.-N. & Dandavate, U.** (1999). Design for experiencing: New tools. In *Proceedings of the First International Conference on Design and Emotion*, TU Delft.
- Sanders, Elizabeth B.-N.** (2000). Generative tools for co-designing. In Stephen A. R. Scrivener, Linden J. Ball & Andrée Woodcock (Eds.), *Collaborative design. Proceedings of Co-Designing 2000* (pp. 3-12). London: Springer.
- Schön, D.** (1983). *The reflective practitioner: How professionals think in action*. New York: Basic Books.
- Sleeswijk Visser, F., Stappers, P.J., Van Der Lugt, R., & Sanders, E. B. N.** (2005). Contextmapping: Experiences from Practice. *CoDesign*, 1(2), 119-149.
- Sleeswijk Visser, F.** (2009). *Bringing the everyday life of people into design*. Doctoral dissertation, TU Delft, Delft.
- Suchman, L.** (1987). *Plans and situated actions: The problem of human-machine communication*. New York, NY: Cambridge University Press.
- Suchman, L.** (2002). Located accountabilities in technology production. *Scandinavian Journal of Information Systems*, 12(2), 91-105.
- Vaajakallio, K. & Mattelmäki, T.** (2014). Design games in code-sign: As a tool, a mindset and a structure. *CoDesign*, 10(1), 63-77.
- van Leeuwen, J.P., Karnik, M., & Keane, K.** (2011). Discovering Madeira: A case study of cultural probes. In *Proceedings of the 2nd Conference on Creativity and Innovation in Design* (pp. 439-447). New York, NY: ACM Press.
- Voida, A. & Mynatt, E. D.** (2005). Conveying user values between families and designers. In *Extended abstracts of the SIGCHI conference on Human Factors in Computing Systems* (pp. 2013-2016). New York, NY: ACM Press.
- Westerlund, B.** (2009). *Design space exploration: Co-operative creation of proposals for desired interactions with future artefacts*. Doctoral dissertation. Kungliga Tekniska högskolan, Stockholm.
- Woolrych, A., Hornbæk, K., Frøkjær, E., & Cockton, G.** (2011). Ingredients and meals rather than recipes: A proposal for research that does not treat usability evaluation methods as indivisible wholes. *International Journal of Human-Computer Interaction*, 27(10), 940-970.

CORRESPONDENCE

Jung-Joo Lee, School of Design and Environment,
National University of Singapore, 4 Architecture
Drive, Singapore 117566
E-mail: jjlee@nus.edu.sg

Published online 31 December, 2014
ISSN 1749-3463 print/ISSN 1749-3471
DOI: 10.14434/artifact.v3i2.3951
© 2014 Artifact