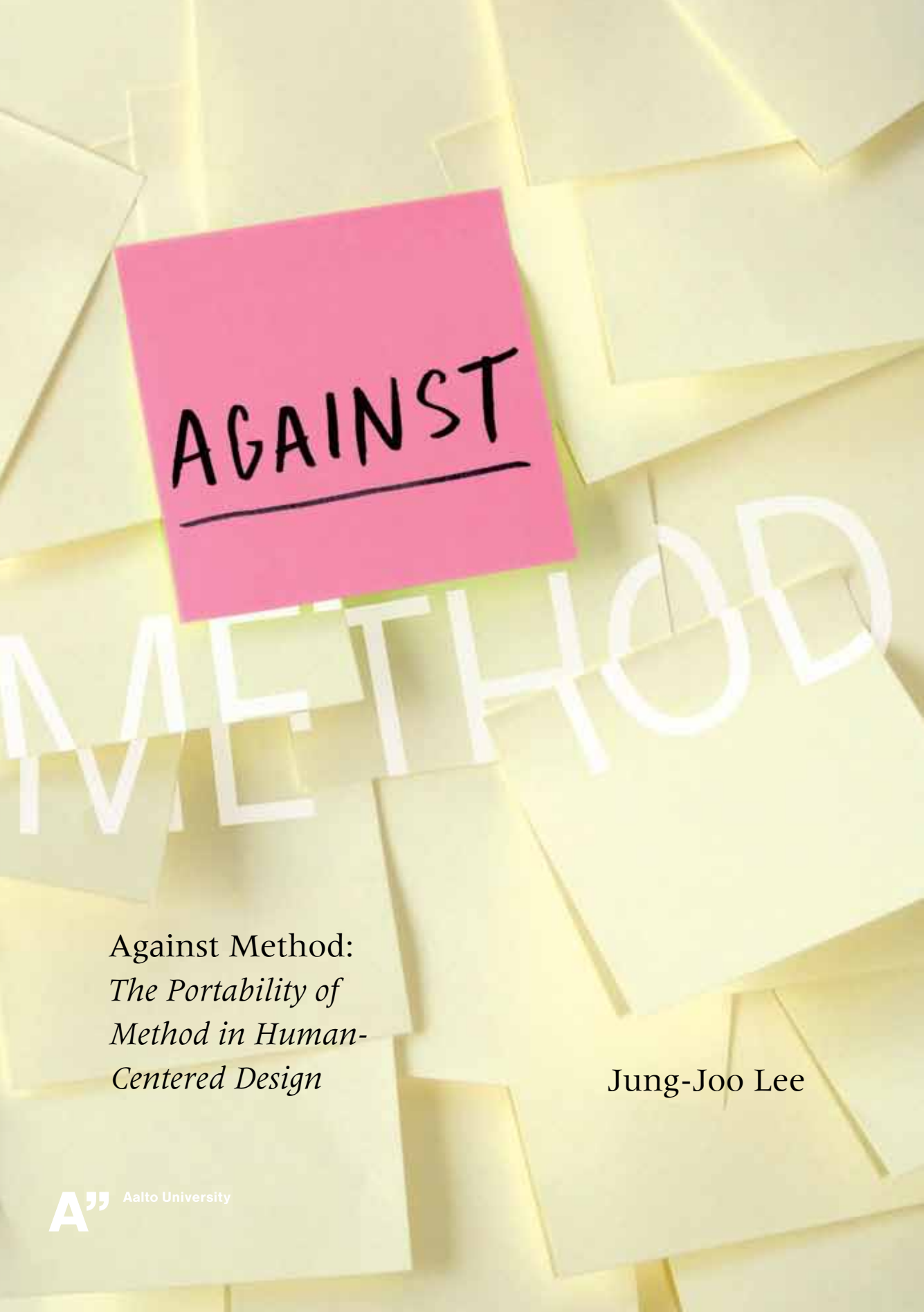

Against Method: *The Portability of Method in Human-Centered Design*

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Summary

The belief in a universal, standard method has been challenged in human-centered design (HCD) by the idea that any method is culturally bounded, and thus should incorporate the local circumstance where it is applied. In attempts at *localization of methods*, two different approaches are evident: (1) shaping a portable method underpinned by localization guidelines and (2) designing a context-specific method underpinned by the designer's situated work. These approaches mirror different evaluation criteria for methods that originate from different intellectual frameworks within the interdisciplinary field of human-centered design. While the different approaches and methodologies address different design challenges, the HCD field currently exhibits misinterpretations that occur when methods are adapted from one disciplinary tradition to another. In particular, this *methodological misinterpretation* takes place when evaluation criteria within a positivist framework are applied to new design methods employed in creative co-design—they are often called *innovative methods*—without careful consideration of their different premises, values, and mindsets. Due to such neglect, designers and researchers tend to adapt the methods in just those ways that the innovative methods in fact sought to overcome.

In this dissertation, I aim to clarify this methodological misinterpretation. First, I reassessed one of my previous projects that followed

a method localization approach to reveal its underlying assumptions: In that project, which was plainly conducted within a positivist frame, method was conceived as a set of reproducible techniques, the researcher as an objective observer, and culture as a pre-existing entity where members of the cultural group are characterized by traits and averages. Having made these assumptions explicit, I diagnosed the reasons for misinterpretations of innovative methods. Second, this diagnosis led me to conclude that design researchers, practitioners, and educators in human-centered design are not equipped yet with a constructive account to understand and promote how innovative methods actually work in designers' practice. Driven by this conclusion, I suggest that the design research community should pay more attention to *what actually happens with innovative methods* instead of *what it ought to be—method stories* rather than *method instructions*. I formulated this suggestion based on ethnomethodological (EM) thinking and EM's respecification of methodology. Having used this EM sensibility as a research guide, I presented *what work actually gets done in practice to make the innovative methods work* by taking the case of students' diary analysis. As a result, their stories brought to light the benefits of the practical work of method-design, which informs the larger work of the design activity far beyond the immediate benefit for making the method somehow work in that setting.

The mindset of valuing method portability or, in contrast, the context-specific design of method is tightly linked to how each mindset views the user's cultural context. The belief in method portability is strongly underpinned by a taxonomic view of culture in which cultural characteristics and cultural differences are constructed according to notions of ethnicity or nationhood. However, this *taxonomic view of culture* prevents designers from recognizing and putting aside their preassumptions in order to envision future practices, especially when they aim to find new design opportunities in the early phase of concept design. For this reason, I suggest a *generative view of culture* as an alternative that can underpin designer's work with innovative methods. From this alternative view, culture is most certainly not a stable and external context that explains individuals' characteristics or behaviors: Rather,

culture is collectively interpreted, enacted, and produced by people in and through their everyday encounters. By clarifying these different conceptions on methods and culture, I hope this book can enable human-centered designers and researchers to be more reflective with regard to their selection and use of different methods and to have the appropriate corresponding mindset. The title, *Against method*, was chosen to provoke such reflectivity among designers.

1 Introduction

1 Introduction

1.1 How Do You Think of Your Design Methods?

As a design researcher from South Korea, I have long been interested in the *cultural bias* of human-centered design (HCD[1]) methods. Most HCD methods that are currently in use were developed in so-called Western culture. For example, a variety of methods for usability evaluation were developed in the field of human factors in post-war America (e.g., Dreyfuss, 2003, 1960), and later in cognitive science (e.g., Norman, 1988). In Europe, Scandinavian participatory design (PD), driven by political ideology (Ehn, 1988), gave inspiration to many HCD methods that involve users in the early phase of the design process.

While the major part of design practices and design methods were originally developed in western parts of the world, they more and more travel to different corners of the world as the audience for technological objects and design education expand beyond the West. This situation has led me to wonder about the *cultural fitness* of HCD methods when

1 In this text, I use the original term, human-centered design, instead of its acronym, HCD. HCD is still used, however, in cases where it modifies related nouns, such as HCD methods and HCD practitioners, for the sake of simplicity.

they are applied in non-Western cultures. In the early stage of my doctoral dissertation project, I started to examine the cultural fitness of HCD methods in non-Western culture, especially in my home region of East Asia. My work at that stage aimed to suggest how HCD methods could be localized to better fit into an East Asian context.

While working with the aim of *different culture, different method,* I tutored master's students in a user-inspired design course from 2007 to 2009, one of the master's program courses in Industrial and Strategic Design at Aalto University School of Arts, Design and Architecture in Helsinki. In the course, the students learn about recent notions of human-centered design, such as design for experience, empathic design, and co-design, through a series of lectures, literature studies, and concept design projects. In their design projects, the students often apply recently-developed methods such as cultural probes (Gaver, Dunne, & Pacenti, 1999), empathy probes (Mattelmäki & Battarbee, 2002), co-design workshops with generative tools (Sanders, 2000), design games (Brandt & Messeter, 2004), video observation (Ylirisku & Buur, 2007), and personas (Cooper, 1999). My role in the course was to help the students apply such methods for user research and concept design. It was also a good opportunity for me to observe various cases in which the recent HCD methods were applied.

It was one Friday morning in autumn 2007 when I felt conflicted by what it means to apply methods for user research in HCD work. I had a tutoring session with the student groups that day, and one of the groups was presenting the preliminary results from their probes study. The group aimed to design for young immigrants in Helsinki so that they could adjust to their new lives in Finland. Since Helsinki immigrants from countries such as China, Germany, and Italy participated in their probes study, I could not help but pose this question to the students:

> *"Have you found any cultural differences in the participants' attitudes and performances in relation to the probes?"*

After several seconds of silence, one student answered,

"Well, I don't know. Actually not. I felt that the participants were enthusiastic about doing our probes and telling their stories to us. I would say, it was because we became, like, friends."

Figure 1.1.
Probe returns from the Helsinki immigrants (the probes designed by the student group from the UID course in 2007; photo courtesy of Jing Jiang)

His answer reflected confidence in the fact that his group was able to build a relationship with the participants through interactions with the probes that they had designed.

There might have been some cultural differences in the ways that the participants had interacted with the students or responded to the probes, if the students had wanted to examine those issues. The student's answer lingered in my mind, however, not because they had not found any cultural differences, but because they had had a mindset towards users and methods that seemed different from mine. To them, the users who participated in the probes appeared as individual persons, not within the framework of cultural backgrounds. The students were able to build relationships with the participants through continuous dialogues, which the probes had enabled.

To pinpoint the problem, the way the probes worked for the student group was different from how I had conceived of and dealt with methods in human-centered design work. Above all, there is no such thing as a standard recipe for probes that I can use to design a comparative experiment! Designing the probes for a particular design project at hand is an essential part of what makes the probes *the probes*, which was in fact central to the original concept of probes (Gaver, Dunne, & Pacenti, 1999).

I realized that in my past design projects, I had considered a user research method as an objective process that prescribed a way for me to obtain user information. I hid myself as an objective researcher behind the method—at least, I thought I did—and wanted my method to be correct and precise enough to produce the correct data. With this view, I was hoping to have methods that had already proven their validity when applied to certain cultural settings. In this way, I believed that we could attain the most efficient and correct way of using the methods. And I imposed this perspective on the probes. The students' use of the probes, however, plainly rejected this *a priori* notion of methodology: They spent a great amount of time and effort for designing probes in order to be specific to the context of the probes participants.

I am not arguing that the students' use of the probes is a better, or *the correct,* way of using a method in design. I was surprised to experience the differences between my conception of methods and the students' use of the probes. What is more surprising was that I had been imposing my own conventional conception onto the probes without much reflection on how they are actually different.

I then felt some annoyance. I did not want to make that realization official, insofar as I might need—or, more precisely, want—to reconsider the assumptions upon which I had built my whole research plan. However, I soon learned this experience of a *clash* between my conception of methods and the students' thinking about the matter is actually a relevant issue in contemporary human-centered design. During the previous decade, "new design methods" were actively developed and introduced going beyond the usability movement. They were not just another set of methods, but stemmed from different traditions, with different mindsets. Because of this, researchers have reported and critiqued the ways in which the new design methods have been misinterpreted (e.g., Gaver et al., 2004a; Boehner et al., 2007).

Given these circumstances, I decided to share my experiences of methodological misinterpretation and of self-reflection, which later encouraged me to suggest a lens for solving the misinterpretations. I believe sharing this kind of story will help design researchers and HCD practitioners, who might then, just like me, reflect upon their practices and build a more constructive perspective on the use of methods in their own work. This dissertation is not another *methods book*, which introduces new methods or seeks to improve existing ones; rather, it aims to help better understand and account for how methods are actually used in our human-centered design work.

1.2 Problem Areas and Aims

1.2.1 Delimiting the Focus of This Dissertation

First of all, it is worth defining what I mean by human-centered design in this dissertation, because the two terms human-centered design (HCD) and user-centered design (UCD) are used in an overlapping manner in many design writings and projects, sometimes referring to the same thing and other times not. The term human-centered design is used here to refer to a range of approaches that share several principles, which are summed up in the ISO 9241-210 standard (International Organization for Standardization [ISO], 2010): The design is based upon an explicit understanding of users, tasks, and environments; users are involved throughout the design and development phases; the design is driven and refined by user-centered evaluation; the process is iterative; the design addresses the whole user experience; the design team includes multidisciplinary skills and perspectives.

In this dissertation, I use *human*-centered design as a more inclusive term than *user*-centered design. Whereas the former suggests a concern for *people*, the latter suggests a narrower focus on people's roles as *users*, based on a rather traditional usability approach. My approach supports the argument made by Patrick Jordan: "The problem with usability based approaches is that they encourage a limited view of the person using the product" (Jordan, 2002, p. 12). In this sense, the term *user*-centered design, as it is used in this dissertation, refers to the traditional usability approach, such as usability engineering, human factors, and ergonomics, that existed before the increase in popularity of design for user experience and co-design. On the other hand, the term *human*-centered design includes new approaches, in addition to the traditional user-centered design, such as design for user experience (e.g., Jordan, 2002), empathic design (Koskinen, Battarbee, & Mattelmäki, 2003), value-, or worth-centered design (Cockton, 2004, 2006), and co-design (Sanders & Stappers, 2008; Binder & Brandt, 2008). To denote these relatively recent approaches of human-centered design, I often refer to

them as contemporary human-centered design in this book.

In this dissertation, my concern with HCD methods focuses on methods that are used to *involve users* in various phases of the design work (Kujala, 2003). And I also use the term HCD practitioners. By this, I refer to both designers and researchers who work on the user involvement phase of human-centered design projects. My focus in this dissertation is mostly on the design of ICT (Information and Communication Technologies) products and services. Thus, my argument is also concerned with the field of human-computer interaction (HCI), which has similar concerns to those of human-centered design.

1.2.2 Human-Centered Design in Transition

Methods for design have been a central topic in the historical development of design research. In the 1960s and 1970s, there was a prevailing movement in which researchers attempted to base design on a rationalistic model (e.g., Simon, 1981). According to this way of thinking, the development and dissemination of methods were important as a way of formalizing design practice (e.g., Jones, 1992). This was seen as the key to understanding how designers work (a way of describing designers' activity), to automating design, and to educating design practitioners (Matthews, 2009).

Although design rationalism and the design method movement have shown their limitations for handling complex problems in the real world—"wicked problems" (Rittel & Webber, 1973)—rationalistic and positivist traditions still remained in place when defining a design practice. Early human-centered design was defined as a linear and logical process, as well as an iterative process, which consists of distinct phases of work: a phase for understanding the context of use, a phase for specifying user requirements, a phase for producing design solutions, and a phase for evaluating designs against their requirements (ISO 13407) (International Organization for Standardization [ISO], 1999). During these steps, humans are reduced to *users* that interact with technical systems, and the design goal is to make this interaction efficient, effec-

tive, and seamless (e.g., Nielsen, 1993; Norman, 1988). For this, the field produced a variety of usability evaluation methods, mostly for laboratory experiment settings, and established rigid usability criteria and an evaluation process. The methods should prescribe a way to approach a design problem and produce legitimate data for analysis.

In 1980s and 1990s, as the complexity of the use context and the situated actions of users (Suchman, 1987) were recognized, the technology design industry started to hire ethnographers, and user research went out into the field. Human-centered design started to understand users by locating them within their social, cultural, and physical contexts—"human factors to human actors" (Bannon, 1991, p. 26). This led to the adoption of ethnography in design and the development of variant "ethnographic" methods (e.g., Contextual Design by Beyer & Holtzblatt, 1998). When ethnographic methods are used in the design process, researchers go out and do field observations, and deliver their field notes and observation materials to the design team. The main aim of the ethnographic methods is to provide a comprehensive picture of users and the use context, upon which the design team can then start to design. Because of the challenges of transferring fieldwork materials to design, approaches that facilitate such communication have also been introduced. Personas and scenarios (Cooper, 1999; Grudin & Pruitt, 2002; Carroll, 1995) are good examples.

Meanwhile, there have been worrying voices about the technical tuning of ethnography into a set of fieldwork techniques in design and the abstraction of fieldwork descriptions into "implications for design" (Dourish, 2006). For example, Dourish and Button (1998) argue that the tendency of ethnography serving design has been detrimental to developing and communicating a rich, profound, and insightful understanding of user practices. In participatory design, there have been efforts to overcome this challenge, and design researchers have explored ways to synthesize ethnography and design through participatory workshops and props (e.g., Johansson, 2006; Halse, 2008). Their approaches do not aim to analyze ethnographic materials as forms of user representation; rather, they are concerned with bringing diverse teams

of the project together and encouraging them to enact and perform with given props and settings, so that they can construct discourses together for interpreting existing practices as well as envisioning future practices.

At the same time, as technologies become more and more immersed in people's everyday lives outside the office, the context of use, as well as non-use, becomes extremely complex and dynamic (Bødker, 2006). Emotional qualities, aesthetic and lived experiences, and human and social values come to have driving roles in design (e.g., Blythe et al., 2003; McCarthy & Wright, 2004; Cockton, 2006). Existing methods that were mainly for understanding past and present practices need to be combined with new approaches that can envision *what could be*. In addition, the methods that were grounded in scientific objectivism and a positivist tradition were incapable of incorporating the subjective qualities of human emotions and lived experiences as well as of provoking design inspirations and imaginations.

Those who recognized the limitation of the scientific methods for design imagination started to seek alternatives. For example, researchers at the Royal College of Art in London developed cultural probes because of their reluctance to use the existing scientific methods for design, since the objectivity and generalizability of such methods do not lead to design imagination (Gaver, Dunne, & Pacenti, 1999; Gaver et al., 2004a). In Helsinki, a group of design researchers built an interpretive approach to empathic design that was driven by their dissatisfaction with the prevailing cognitive models that were coming to the fore in design via interactive technology (Koskinen, Battarbee, & Mattelmäki, 2003). Since then, empathic design has been developed as a program (ibid.; Mattelmäki, Vaajakallio, & Koskinen, 2012) by promoting a mindset as well as introducing a set of methods, such as empathy probes (Mattelmäki & Battarbee, 2002) and situated Make Tools (Ylirisku & Vaajakallio, 2007).

At a similar time, in North America, Liz Sanders introduced make tools and suggested the perspective change of design practice—she called this post-design (Sanders, 2002). Make tools, or generative

tools, provide a means for designers to have access to users' wishes and dreams, as well as to foster users' creativity as a way for designers to gain inspiration (Sanders, 2000). Her perspective assumes that everyone is creative and can become a design partner in the design process if provided with the appropriate tools (ibid.). In line with this, the design activity increasingly involves users directly in the early phase of the design process, especially for concept design (for concept design, see Keinonen & Takala, 2006). Researchers developed and experimented with various kinds of tools and methods—often in the format of a creative workshop setting with visual, tangible props—for the co-design approach (e.g., Binder & Brandt, 2008; Vaajakallio, 2012).

1.2.3 Methodological Misinterpretations in Transition

I summarize this transition in human-centered design in terms of topics, aims, and approaches in figure 1.2. Figure 1.2 should not be taken to mean that the boundaries between the different approaches are clear-cut. These topics and approaches co-exist and cope with different challenges while sharing the fundamental principle of human-centered design. While they serve different purposes in various human-centered design projects, designers and researchers are also encouraged to adopt and combine different methods when approaching new challenges.

In terms of crossovers and adapting different approaches, however, I have experienced and observed that some cases involve *methodological misinterpretations*. In fact, the anecdote described in the opening part of this chapter epitomizes just such a misinterpretation. In addition to my own experience, several recent writings also report on the methodological misinterpretations and tensions that occur because of different intellectual traditions within the field of human-centered design (e.g., Gaver et al., 2004a; Dourish, 2004, 2006; Boehner et al., 2007). According to these writings, the misinterpretations are especially strong when "new design methods" are picked up and adapted by a group of designers and researchers who are more familiar with a conventional conception of methods.

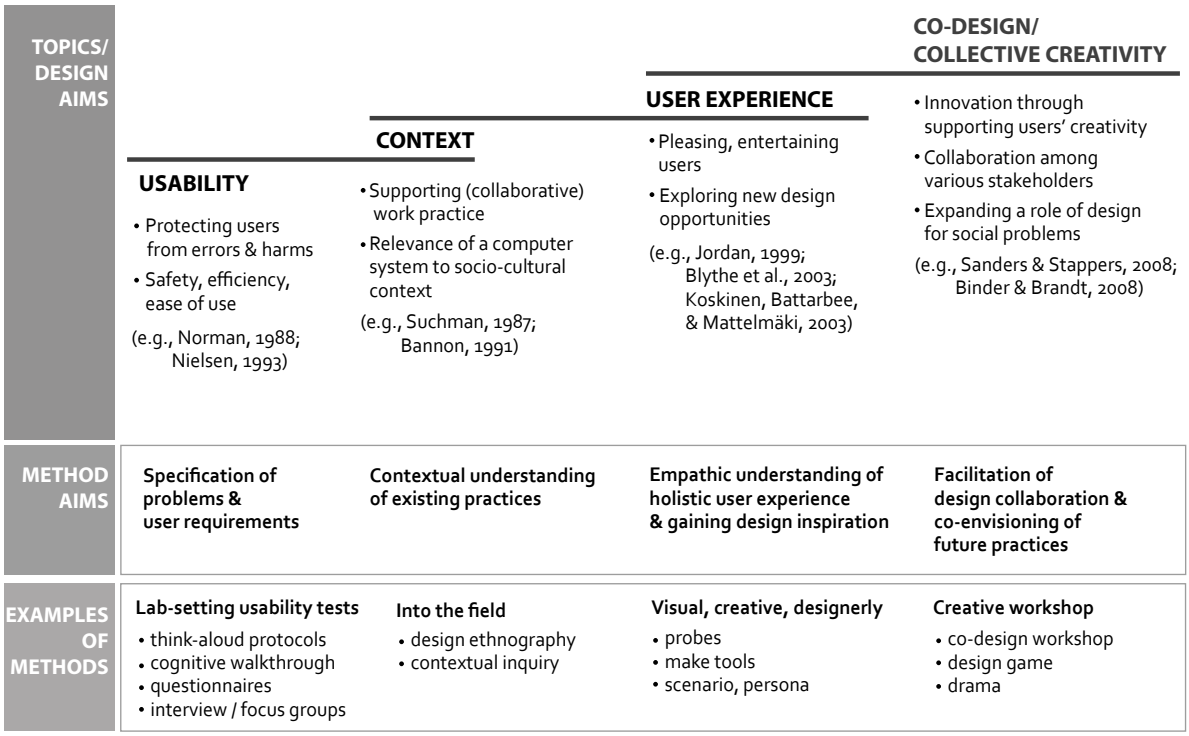

Figure 1.2. An overview of the prevailing topics, aims, and approaches in human-centered design in transition

When observing the methodological misinterpretations in this shifting field of human-centered design, I am motivated to find a more constructive perspective for understanding and talking about "new design methods" that goes beyond a positivistic science agenda. Therefore, the first aim of this dissertation can be presented as follows:

> This dissertation aims to clarify the methodological misinterpretations that are currently exhibited in human-centered design, especially between a positivist conception of methods and new design methods that are created to overcome the positivist framework. As a solution to preempt such a misinterpretation, this dissertation seeks a more constructive way to understand the new design methods.

1.2.4 Approaching the Cultural Other and the Localization of HCD Methods

Designers' and researchers' conceptions of HCD methods cannot be separated from their conception of *others*, that is, those who we very often call *users*. In human-centered design, how we understand *others* has been a crucial issue when creating design outcomes that are relevant to them (Steen, 2011). The challenge of understanding *others* becomes more difficult when the differences between the cultural assumptions of designers and users are potentially greater. Especially in one of the sub-fields of human-centered design, that of *cross-cultural design*, how to approach *the cultural other* has been the central challenge. In this dissertation, I take my point of departure from the field of *cross-cultural design* because the issue of how to approach the cultural other can illustrate saliently tensions between different viewpoints regarding methods and culture.

As a sub-field of human-centered design, cross-cultural design usually refers to situations that involve cultural differences at a national level (Kamppuri, 2011). From a *cross-cultural design* point of view, the challenge is "how to design in a variety of cultural contexts for users who come from different corners of the world and have a wide variety of values, skills, and preferences" (ibid., p. 3).

The interest in national culture among practitioners of human-centered design arose in the middle of the 1990s as information and communication technologies spread outside the Western countries and the new global software market became an important part of software developers' business (e.g., del Galdo & Nielsen, 1996; Russo & Boor, 1993). Since then, the topics, goals, and approaches of cross-cultural design have shifted and become more diversified in tandem with the shift in human-centered design, which I discussed above. Its early motivation was to design for *international usability* (Nielsen, 1990; del Galdo & Nielsen, 1996), that is, to design a system interface that is applicable across different countries by modifying interface elements, such as language, symbols, or graphical user interfaces (e.g., the date format). Beyond the interface-level differences, researchers also made use of cross-

cultural psychology to examine cultural influences on users' cognitive styles when they are interacting with a system (Nisbett, 2003; Dong & Lee, 2008). Recently, a growing number of studies step outside the laboratory and try to understand users *in situ* (e.g., Honold, 2000; De Angeli et al., 2004; Blom, Chipchase, & Lehikoinen, 2005; Bell, Blythe, & Sengers, 2005). While current studies approach culture with a more holistic view, the prevailing interest of cross-cultural design has been on identifying "cultural difference" and "cultural influences" that inform a sense of *localization*. Here, localization refers to adjusting the features or interfaces of an existing product platform by incorporating local traits. Cultural models, such as the ones introduced by Hofstede (1991, 2001) or Hall (1977), have been the most common sources of localization in this respect. According to a review of cross-cultural design literature from 1990 to 2006 done by Kamppuri et al. (2006), most studies consider culture to be a relatively fixed characteristic or property of a user (as if they have internalized the external and constraining cultural norms), which then decisively shapes the users' cognitive style, their attitudes towards technology, and the meanings they give to representation.

While the most typical interest is in localizing a product or a system to better fit the local culture, there has also been an effort to localize existing HCD methods by addressing methods as cultural products, especially as products of Western culture (e.g., Chavan & Munshi, 2004; Oyugi, Dunckley, & Smith, 2008). In the last decade, many studies reveal cultural differences in users' responses to HCD methods, such as think-aloud protocols, interviews, or focus groups, and introduce ideas about how to make those methods better fit a target culture, in most cases non-Western countries. These studies call into question the belief that HCD methods are universally objective, and emphasize introducing cultural sensitivity to the HCD methods.

In the meantime, as introduction to "new design methods" become a major trend in contemporary human-centered design, a few studies also pose the question of introducing cultural sensitivity to the new design methods and seek to localize them according to cultural settings

(e.g., Braun, 2009; van Rijn et al., 2006). It is true that, until now, many new design methods have been developed in Western countries by focusing on the people and practices in those places (for example, the cultural probes were originally developed in the U.K., Make Tools is from the U.S.A., and the various co-design workshops are from the northern European countries). As a practicing design researcher the in fields of human-centered design and cross-cultural design, I have realized, however, that tensions exist between thinking in terms of the localization of methods and the matters pertaining to new design methods. This is mostly because new design methods are *in principle* expected to be designed and re-designed according to individual designers' interpretations of each setting. In this sense, the process of applying new design methods intrinsically promotes local sensitivity.

Meanwhile, I also learned that the existing approach to *the cultural other* in localization projects is currently struggling with several problems. Categorizing cultural boundaries and localizing design features according to those pre-set boundaries inevitably involve making certain generalizations about culture (Irani et al., 2010). This *taxonomic view of culture* often conflicts with current approaches in design, which take a rather singularized perspective to users as individual human beings whose experiences and values are dynamic and subjective.

In addition to the first aim stated above, this dissertation formulates a second aim as follows:

> By reflecting on conventional conceptions of method and culture, as well as by building an alternative account for new design methods, this dissertation aims to illuminate how new design methods can approach the notion of a cultural other in a different way than that taken by a conventional approach.

1.3 Structure and Title

The two above-mentioned aims were not *a priori* research questions for this dissertation; rather, they were framed and reframed through reflecting upon my experiences with methodological misinterpretation, through realizing the limitations of the existing view on culture, and through developing an understanding of new design methods in contemporary human-centered design.

For this reason, the structure of this dissertation follows a process of self-reflection and my suggestion to adopt a new perspective; I do this by revisiting my previous projects with a critical lens that has been built through the personal development journey of completing a doctoral study. This dissertation consists of an introductory essay and five articles: The articles presented below are used as cases, and the introductory essay presents the main argument that was constructed by reflecting upon those cases.

1.3.1 The Role of the Introductory Essay in This Dissertation

The flow of the introductory essay reflects the change in my perspective on method and culture: It moves from a reassessment of one of my early projects on method localization (chapter 2), to an introduction to new design methods and a diagnosis of current methodological interpretations (chapter 3), and finally to a suggestion to adopt an alternative perspective (chapter 4). In chapter 5, I illustrate the kind of research that can be done by applying an ethnomethodological sensibility as the alternative perspective to new design methods. I demonstrate it by presenting the analysis of students' learning diaries. I then discuss what I have learned about innovative methods when using an alternative perspective, especially focusing on how they helped designers' necessary learning for the design project already through the phase of designing a method. Through this discussion, I argue that innovative methods should be understood with different criteria and communicated in a different way than that of a positivist framework.

1.3.2 The Role of the Articles in This Dissertation

The five articles present five different research projects that introduced cultural sensitivity to design methods and technology design. The order of presenting these articles reflects the transition of my perspective, from the studies conducted using conventional thinking about generalizations of culture and the formalization of method to the ones conducted using an ethnomethodological sensibility to methods and a new notion about culture.

Article 1 **Lee, J.J.** & Lee, K.P. (2007). Cultural differences and design methods for user experience research: Dutch and Korean participants compared. In I. Koskinen and T. Keinonen (Eds.), *Proceedings of the 2007 conference on Designing pleasurable products and interfaces*, (pp. 21-34). New York, NY: ACM Press.

I wrote this article in the very early phase of my doctoral project, driven by the attempts at revealing differences in how HCD methods work for users in different cultures. To show the cultural differences, I conducted a comparative experiment on three different HCD methods, cultural probes, a usability test, and focus groups, in South Korea and the Netherlands. I compared the participants' activeness, attitudes, and communication styles during their participation in the methods between the two countries both quantitatively and qualitatively. In this cross-cultural experiment, a method was regarded as an objective tool with recipe-like instructions and cultural characteristics were used as a stable framework for explaining cultural members' behaviors. In the early period of my doctoral project, I expected that the findings from this cross-cultural comparative experiment would support my argument for necessity of localization of methods in human-centered design.

Article 2 **Lee, J.J.** & Lee, K.P. (2009). Facilitating dynamics of focus group interviews in East Asia: Evidence and tools by cross-cultural study. *International Journal of Design*, *3*(1), 17-28.

After the cross-cultural experiment that was presented in article 1, I chose the focus groups method to continue with the method localization project. For localizing the focus groups method for East Asians, I especially focused on ways of supporting face-work of East Asians by providing indirect means so that they could express their opinions more freely without a threat of losing their face. I designed the tools and scripts such as Mini-me dolls and a TV home-shopping script, and conducted another experiment with South Koreans to test those tools. This *method localization* project ultimately aimed at making these newly introduced tools as *method guidelines* through cross-case validation. In the introductory essay chapter 2, I reassessed this project to reveal the *method portability* approach, which makes contrasting assumptions to those of new design methods in contemporary human-centered design.

Article 3 **Lee, J.J.**, Koskinen, I. & Mikkonen, J. (2009). Co-Experience in a cross-cultural notion: Unpacking the effect of culture on users' social interaction. In *Proceedings of IASDR 2009, the 3rd World Conference on Design Research.*

I wrote this article driven by the motivation to show cultural influences on people's social actions when using an interactive technology together. I took a constructive design research approach (Koskinen et al., 2012) for that aim: I designed an interactive table, which I called a *visual-talk table*, to explore how people from different cultures organized their social actions and engaged with one another around the table. The *visual-talk table* was tested with groups of South Koreans and Finns, and the find-

ings indicated that role-hierarchy influenced the actions of the South Korean participants. From this cross-cultural experiment, I suggested the implications of tailoring interactive systems design to fit a South Korean context without intruding upon such role-hierarchies. In this project of *localization of interactive technology,* culture was viewed as a pre-existing and external context that explains individuals' characteristics or behaviors as if the cultural characteristics are acquired and internal to the individuals. In addition, the project aimed at locating the *gaps* between the cultural characteristics and the technology and at bridging the gaps by localizing the technology. This view is contrasting to what I suggest as an alternative view—*a generative view of culture*—, which can encourage designers and researchers to acknowledge people's situated actions in their dynamic and particular context, and a dynamic process of creation of culture through everyday interaction.

Article 4 Vaajakallio, K., **Lee, J.J.** & Mattelmäki, T. (2009). "It has to be a group work!" - Co-design with children. In P. Paolini and F. Garzotto (Eds.), *Proceedings of the 8th International Conference on Interaction Design and Children,* (pp. 246-249). New York, NY: ACM Press.

This article presents the co-design experiment with children by employing make tools and design games in one Finnish elementary school. Learning and working with new design methods in the context of co-design projects and empathic design projects in the middle of my doctoral study had my perspective on methods— *what it means to use methods*—and cultural others—*how to approach users*—changed. In this co-design experiment, the co-design workshop was designed only for that particular project setting, for those particular children, instead of adopting a generic approach. We *did* compare this case of co-designing

with children with our experiences with adults; however, we discussed lessons learned by presenting what actually happened in the setting, instead of aiming at validating our method and turning it into a set of method instructions. Although I am the second author of this paper, the project was conducted at an equal level of collaboration with the first author both for the empirical study and for the writing process

Article 5 **Lee, J.J.**, Vaajakallio, K., & Mattelmäki, T. (2011). Tracing situated effects of innovative design methods: Inexperienced designers' practices. In C. J. Hoopers, J.-B. Martens, P. Markopoulos, *Proceedings of the 2nd Conference on Creativity and Innovation in Design,* (pp. 103-113). New York, NY: ACM Press.

Drawing upon the new perspective on methods and culture that I gained through the various experiments and self-reflection upon them, I wrote this article based on a motivation to explore a better way of understanding and promoting the situated, context-nature at the heart of *innovative methods* (Hanington, 2003). I analyzed the students' learning diaries that described their practical work, improvisations, and the contextual challenges underpinning their practices when engaging with the methods, such as probes or co-design workshops. In this analysis, I aimed to reveal *what actually happens in embodiment and application of the methods in the user's context,* instead of *what it ought to be*. In the introductory essay chapter 5, I explain this case study further to discuss what benefits this practical work that is involved in method-design actually bring to designers and the larger design activity.

1.3.3 The Title, *Against Method*

In the title of this dissertation, *Against Method*, the word *method* connotes two things rather than its literal meaning: Firstly, it connotes the conventional (positivist) belief in human-centered design that a method is a normative, universal tool, and secondly, it connotes the corresponding tendency to reduce a method to a set of reproducible techniques by separating it from its original methodology. My concluding argument in this dissertation does not go against method as such, but, rather, challenges human-centered designers and researchers to reflect upon those two issues.

The title, *Against Method,* suggests a need to pay attention to *real work* with methods, providing more of a practical foundation, which has hitherto been "uninteresting" for the formalization of methods. While this call for reflection mainly focuses on new design methods in this dissertation, it is not necessarily limited to them; rather, it also applies to any types of methods used in human-centered design. With this somewhat thought-provoking title, I hope to emphasize the importance and the need for HCD practitioners to reflect upon their mundane practices of selecting and applying various design methods.

Despite the shared name, the work presented in this dissertation is not directly related to, and does not intend to invoke comparisons with, Paul Feyerabend's book, *Against Method* (Feyerabend, 1993, originally published in 1975), which is famous for his anarchistic view of science. In part, however, the work in this dissertation might be viewed as resonating somewhat with aspects of Feyerabend's work in a very broad sense, that is, in his challenges to reassess scientific claims and his argument that rationalism should not be used in the theory of knowledge. However, again, this thesis is not related to Feyerabend's work and should not be viewed in relation to his study.

2 Portability of the Design Methods

2 Portability of the Design Methods

The early phase of my doctoral study was concerned with locating *cultural mismatches* between HCD methods and users' (national) culture, and fixing the mismatches to improve the applicability and productivity of the methods. I conducted a series of *method localization* experiments between 2006 and 2008.

During the journey of completing my doctoral study, I began to reflect on the mindsets that I had had regarding my approach to methods and culture in those experiments. This self-reflection became more and more salient as I was exposed to "new design methods." In this chapter, I will discuss this period of self-reflection in relation to my past project for method localization, while explicating the underlying assumptions about methods as well as culture. Explaining these underlying assumptions provides me with a point of departure for juxtaposing them with the matter of new design methods and spotting methodological misinterpretations, which will be discussed in following chapters. This chapter revisits the case presented in article 2. I will briefly introduce the case first, and then reassess it using a reflective lens.

2.1 Method Localization as an Agenda in Human-Centered Design

Method localization emerged from *cross-cultural design*, which assumes that cultural divides exist based on geographical proximity, nationality, and ethnic traits. HCD's interest in national culture arose in the mid-1990s as ICT products spread outside the Western countries, and the new global software market became an important part of software developers' business (e.g., Russo & Boor, 1993; del Galdo & Nielsen, 1996). The global ICT companies, mostly from North America and Western Europe, paid attention to understanding people and contexts in different corners of the world. For this reason, HCD practitioners began travelling across cultural borders, and so did design methods.

The HCD practitioners dispatched to new markets began to realize that the methods they brought with them did not work in the same way that they usually did in their home culture. This realization led them to address the *mismatches between HCD methods and the local culture*. Methods, just like technology design, can be considered as cultural products; they originate in a particular place, that is, mainly in the Western world, where the notion and practices of human-centered design were first developed. The values, concepts, scripts, symbols, and materials embedded in the various methods are in fact cultural products, and thus some methods can be "foreign" to certain cultures (Oyugi, Dunckley, & Smith, 2008).

Many studies have provided theoretical reflection and empirical findings on how various methods can be applied in different cultures due to the differing value systems, interaction styles, or structural circumstances of the culture in question (e.g., Lee & Lee, 2007; Chavan & Munshi, 2004; van Rijn et al., 2006; Oyugi, Dunckley, & Smith, 2008; Yammiyavar, Clemmensen, & Kumar, 2008; Braun, 2009). For instance, in his doctoral dissertation, Braun (2009) analyzed the applicability of six distinct HCD methods–interview, puzzle interview, cultural probes, focus groups, anecdote circle–in three different countries in order to suggest a framework for method localization.

In the case of participatory design (PD), the approach and principles were developed based upon the Scandinavian countries' traditions of strong union involvement in workplace decision-making (Ehn, 1988). Researchers have long grappled with how to generalize and adapt PD so that non-organized workforces can participate and they have noted the particular challenges of reproducing PD engagements in different national and political cultures (Muller, 2003). Chetty et al. (2004) described difficulties in eliciting feedback during PD exercises when it became clear that the interactional norms of PD were unfamiliar in South Africa.

Usability evaluation methods were developed based on the Western premise that people can point out what works for them and what does not (Kim, 2002; Hall, de Jong, & Steehouder, 2004; Chavan & Munshi, 2004; Vatrapu & Perez-Quinones, 2006; Oyugi, Dunckley, & Smith, 2008; Hertzum, 2010). For example, Hall et al. (2004) conducted a cross-cultural comparative experiment on a plus-minus test and found that the plus-minus test is less effective with Asians and Africans than with Americans and Western Europeans because it requires that Asians and Africans evaluate the system directly while Asians and Africans employ a more indirect communication strategy. In another comparative experiment on think-aloud protocols, Kim (2002) reported that think-aloud protocols significantly impaired East Asians' performance on reasoning tasks, whereas it did not influence Americans' performance.

Beyond comparing the applicability of *method A* versus *method B* for *culture X*, some studies have introduced local modifications to existing methods that incorporate local characteristics. Chavan and Munshi (2004) introduced *emotion tickets* for a usability evaluation of Indian users in order to facilitate their ability to express various emotions using *Rasas* (emotion types traditionally used in Indian performing arts). Similarly, van Rijn et al. (2006) introduced a localized version of the *context-mapping* method (Sleeswijk Visser et al., 2005) for East Asians.

2.2 Introduction to the Case: Localizing Focus Groups for South Koreans

When I was working for several human-centered design projects in South Korea, I sometimes had questions addressed to me that were similar to those posed in the above-mentioned studies. For instance, with a group method such as a focus group session, I often felt that it was difficult to facilitate power dynamics. Especially when there were hierarchies in age or social status among the participants, it was often challenging to get the participants to participate equally and express diverse opinions.

This question led me to explore the relationship between the communication styles of Koreans and the communication styles that a focus group requires from participants (see Lee & Lee, 2007; Lee & Lee, 2009). Led by this question, I conducted the first comparative experiment, in which focus group sessions were carried out in the Netherlands and South Korea. Based on the findings from the first experiment, I continued to explore how to better facilitate group dynamics within focus groups that involved Korean participants. In the following section, I revisit the research design of this method localization case.

2.2.1 Focus Groups and Cultural Mismatches?

In this experiment, I formulated a hypothesis about the *cultural mismatches* between communication styles required for effective focus groups and the communication styles of Koreans. The focus groups used in human-centered design typically seek diverse perspectives on a defined area of interest through supporting interactivity among the participants (Krueger & Casey, 2000; Kuniavsky, 2003). Instead of building a consensus, such focus groups encourage individual participants to express their opinions so that diverse viewpoints and ideas can be gathered.

The premise of focus groups is that group discussion supports interactivity, with the participants ideally striking a balance with one another. It assumes that participants can encourage each other to speak up, either in

support of or in opposition to earlier statements. This highly dynamic situation can stimulate participants to raise issues that they might not have identified in one-to-one interviews (Lazar, Feng, & Hochheiser, 2010).

In this instance, I argued that the premise of dynamic and divergent discussions occurring in focus groups might not in fact be amenable to some cultural settings. In communication studies, Ting-Toomey and Kurogi (1998) explain the different communication styles of people in different cultures by mapping Brown and Levinsons' *politeness theory (*1990) onto the *cultural dimensions* presented by Hall (1977) and Hofstede (1991, 2001). Ting-Toomey and Kurogi (1998) explain the cultural differences in communication styles according to people's *facework*. In the *facework framework,* people from a *collectivistic and high-context culture* tend to "face-give," that is, they tend to support others' needs for appreciation, while people from an *individualistic and low-context culture* '"face-store," that is, they protect their own freedom and space. Therefore, people from an *individualistic and low-context* culture exhibit communication styles that are controlling, confrontational, and solution-oriented, while people from a *collectivistic and high-context* culture exhibit obliging, avoiding, and affective-oriented styles.

South Korea is typically considered a *collectivistic and high-context culture,* based on the cultural dimensions provided by Hall (1977) and Hofstede (1991, 2001), whereas the premise of focus groups is more closely aligned with an *individualistic and low-context* culture. The literature studies led me to hypothesize that cultural mismatches exist between Korean participants and the general premise of focus groups. For example, Korean participants may feel reluctant to voice individual opinions or make negative comments about other participants' opinions. And this tendency may result in a passive group discussion in such focus groups.

2.2.2 Design of the Comparative Experiment

To test the hypothesis, I conducted an experiment that compared the participants' behaviors in focus group sessions in South Korea and the Netherlands. Compared to South Korea, the Netherlands is consid-

ered to be an *individualistic and low-context* culture (Hofstede, 1991; Hall, 1977), in which people's communication styles can be considered more closely aligned with the overall objective of focus groups. In this sense, the Dutch participants took on the role of a measurement baseline that revealed cultural mismatches between the focus groups and the South Korean participants more saliently.

In the experiment, two focus group sessions were conducted in two countries.[2] I played the role of facilitator in both sessions. In each country, five college students were recruited for the session. In addition to their nationalities, that is, the independent variables in the experiment design, I tried to control the other profiles of the participants so that they were as equivalent as possible for students from the two countries; for example, I screened them based on their ages, their educational backgrounds, their gender, their prior relationship with the facilitator and with other participants, and so on.

2.2.3 Localization of the Focus groups

After the comparative experiment involving students from the Netherlands and South Korea, the findings suggested that the Korean participants tend to make compromises in the group discussion, rather than to express diverse opinions. They also showed less member-to-member interaction and a greater dependence on the facilitator than the Dutch participants. Detailed analysis of this comparative experiment can be found in article 1 and article 2.

I framed the Korean participants' tendency to seek a compromise and their poor member-to-member interaction as problematic factors

2 I designed the focus groups for the experiment after being inspired by a project that I had been involved in 2006 dealing with cross-cultural user experience research on digital media in four different countries (South Korea, the Netherlands, China, and India) (for more information about the project, see Kim & Lee, 2011). Because of this, I was familiar with the topics and was able to frame problem areas and questions for the focus groups. The experiment was conducted after the project period. Thus, the results from the focus groups were not included in the project itself.

Figure 2.1.
(Left) A Mini-me doll for the focus group session in South Korea, (right) virtual characters on CyWorld in South Korea

that would negatively influence the productivity of the focus groups. Continuing from the comparative experiment, I designed tools and scripts that could help overcome the problems. One of the tactics for designing the tools and scripts was to provide a means for supporting the "indirectness" of Korean communication. For example, I designed the Mini-me doll, inspired by a virtual character on the popular Social Network Service in South Korea, CyWorld (www.cyworld.com) (see figure 2.1). The Mini-me doll aimed to help Korean participants express their emotions better as well as to voluntarily take turns doing so. I also hoped that the Mini-me doll would help Koreans create a sense of membership within the group session by having the same visual representations in the setting.

The tools that I designed for the focus groups in South Korea were tested with another group of Korean participants. Figure 2.2 provides an overview of the method localization project.

2.3 Reassessing the Method Localization Project

I published a report on this research project in an international journal in the field and was invited to several cross-cultural design seminars.

RESEARCH QUESTION

HOW TO MODIFY A FOCUS GROUP METHOD FOR SOUTH KOREANS?

Review on Cross-Cultural Studies & Hypothesis Set-up

Focus groups

- Purpose of the method: to obtain diverse perspectives on a defined area of interest
- Principles & rules of focus groups:
  - encourage diverse opinions from individual participants, instead of consensus
  - support member-to-member interaction

Cultural differences in communication styles

"Facework framework" in different cultures (Ting-Toomey & Kurogi, 1998)

Individualistic/ low-context culture	Collectivistic/ high-context culture
"face-store"	"face-give"

HYPOTHESIS

South koreans will show less member-to-member discussion than Westerners, and this will result in less activeness in a focus group session.

Cross-Cultural Comparative Experiment

Designing a Focus Group Session for the Comparative Experiment

Comparative experiment in two countries

The Netherlands

South Korea

Identification of "mismatches" between the method & South Koreans

Short answers rather than stories
Facilitator-oriented interaction
Activeness increases after the intermission

DESIGN IMPLICATION

HOW TO FIX THE "CULTURAL MISMATCHES"?

Localization of Method & Validation

Design of tools & scripts for focus groups in South Korea

e.g., Mini-me dolls, TV home shopping show

Figure 2.2. Overview of the research project on the localization of focus groups for Korean participants (based on article 2)

Clearly, the research community on cross-cultural design looked favorably upon the study and its findings. This project was acknowledged for bringing an awareness of the Western-centrism of the HCD methods and the need to have greater cultural sensitivity when using the methods.

After this project, I started to work with "new design methods," joining the shift that was taking place within the field of human-centered design. My interest in method localization also expanded to the new design methods. It seemed, however, that the underlying assumptions of the method localization study did not make much sense in the matters pertaining to the new design methods. This, in turn, led me to realize the hidden assumptions embedded within the method localization study. While the study aimed to improve the "cultural sensitivity" of methods for different locales, in practice, this approach still depended on using generalized guidelines to the cultural characteristics of a particular country.

In the following sections, I will explicate what assumptions and values were at play in my past experiment on method localization. Figure 2.3 shows how the reassessment was framed.

2.3.1 Method as Normative Instruction

The motivation of method localization study is from the realization that HCD methods are not culturally neutral, and their applicability should differ in different cultures. What method localization ultimately aims to do, then, is to provide a better set of methods, improving the applicability and efficacy of a particular method for the target cultures. In other words, it aims to provide *localization guidelines for this type of culture and for that type of culture.* To be more precise, the method localization project aims to lessen the extent to which researchers grapple with the unfamiliar circumstances by providing a method that is already localized. The method localization project attempts to minimize method variance and to increase method efficiency by providing a *formal set of localized specifications* that has been proven to work in the corresponding culture.

RESEARCH QUESTION

HOW TO MODIFY A FOCUS GROUP METHOD FOR SOUTH KOREANS?

Review on Cross-Cultural Studies & Hypothesis Set-up

METHOD AS NORMATIVE INSTRUCTION & THE OBJECTIVE RESEARCHER

individual participants, instead of consensus
- support member-to-member interaction

A TAXONOMIC VIEW OF CULTURE

low-context culture
"face-store"

high-context culture
"face-give"

HYPOTHESIS

South koreans will show less member-to-member discussion than Westerners, and this will result in less activeness in a focus group session.

Cross-Cultural Comparative Experiment

Designing a Focus Group Session for the Comparative Experiment

Comparative experiment in two countries

The Netherlands

South Korea

CONSTRUCTING & FIXING "CULTURAL MISMATCHES"

DESIGN IMPLICATION

HOW TO FIX THE "CULTURAL MISMATCHES"?

Localization of Method & Validation

Design of tools & scripts for focus groups in South Korea

e.g., Mini-me dolls, TV home shopping show

Figure 2.3.
Unveiling the perspectives on method, culture, and cultural gaps that underlie the method localization project

In my method localization project, the comparative experiments in South Korea and the Netherlands are built upon this view, in which a method is a generic procedure with a set of rigid rules that a researcher is supposed to follow.

> *According to Krueger and Casey's Focus groups: A practical guide for applied research (2000), if the questions [in a focus group interview] are meant to provide an understanding of people's experiences and the researcher wants more in-depth insights, these aims are usually best accomplished with a small group. We therefore invited five participants to each session--three males and two females--in the Netherlands and two males and three females in South Korea.*
> *The same focus group interview format was followed in each country: the first experiment was in the Netherlands and the second one in South Korea a month later. The topic of the interview was "the use of digital multimedia devices." The same researcher took the role of facilitator in both countries.*
> (an excerpt from article 2, Lee & Lee, 2009, p. 20)

As illustrated in the excerpt from my writing on the method localization project, the focus group sessions in both countries were controlled in the same way, while trying to follow the manuals and guidelines for the method. This kind of cross-cultural comparative experiment is often found in other writings on localization (or internationalization) for a range of various methods, from conventional usability evaluation methods to more recent ones, including think-aloud protocols (e.g., Hall, de Jong, & Steehouder, 2004; Oyugi, Dunckley, & Smith, 2008; Yammiyavar, Clemmensen, & Kumar, 2008), interviews (e.g., Vatrapu & Perez-Quinones, 2006; Oyugi, Dunckley, & Smith, 2008), a remote online sentence completion method (Walsh, Nurkka, & Kujala, 2010), a storyboard survey (Walsh et al., 2011), cultural probes (Lee & Lee, 2007; Braun, 2009), or a card workshop (Braun, 2009; You, 2009). In the comparative experiments conducted in the studies mentioned in the sentence above, participants' nationalities were set as independent variables and the applicability of the method as dependent variables.

And the process of method operation was controlled in the same way in the experiment setup. Thus, the researchers who tested the methods in different locales were provided with normative instructions on how to conduct the chosen methods–*method as recipe*. The following passage from one method localization project well illustrates this view:

> *[In the general setup of the cross-cultural comparative experiment], each researcher received an introduction into the method s/he would apply, into the product to be developed and into the procedure of method application. Hence, each researcher received a guideline for method application that covered procedural, methodological as well as content related issues.* (Braun, 2009, p. 105)

In the view of method localization, method is considered as an *objective artifact* or *reproducible recipe*, which allows little space for a researcher's situated intervention in the way the experiment is being conducted. In this view, efficiency and validity were important value criteria for how the method was used and for the data analysis. Driven by such value criteria, the method localization study seeks to locate culturally mismatching areas, then modifies the method scripts and artifacts to ameliorate the mismatches, and validates the localized method recipe. Many writings on method localization studies provide rules and step-by-step guidelines for implementing method A in culture X.

2.3.2 The Objective Researcher

The view of method as a *reproducible recipe* gives rise to another implication: the stance of a researcher. In the method localization project, the researcher is viewed as an objective observer, one who organizes his or her actions according to what the method recipe dictates. The role of the researcher is to *apply the right method in the right way* by following the prescribed procedure and rules.

In my method localization study on focus groups, controlling the same procedure of the focus group sessions was an important precondi-

tion for conducting the comparative experiment. As the excerpt from article 2 above suggests, the researcher was assumed to operate in "the same focus group session" without much personal intervention, even though she did play a role in moderating the orientation of the session and in dealing with the actual actions of the participants. In the study, her role was reduced to that of a mere substantiator of the method, one who follows the pre-designed format for focus groups. The presence and actions of the researcher became a controlled variable in the experiment conducted in two sessions in the Netherlands and Korea. The cultural background of the researcher was neglected to maintain the objective position: she seems to be from *nowhere*.

This tendency of codifying the method as a set of reproducible techniques–technique set *A* for culture *X* and technique set *B* for culture *Y*–and seeing the researcher as an objective observer from nowhere in particular have been in fact familiar to "traditional accounts of knowledge production in human-centered design" (Boehner et al., 2007, p. 1081). This tendency is a result of the positivist tradition of technology design, which "seeks to reduce social phenomena to essences or simplified models that capture underlying patterns and posit accounts of social life that are independent of the observer" (Dourish, 2004, p. 20).

2.3.3 The Taxonomic View of Culture

The positivist way of reasoning is also exhibited in the way culture is viewed in the method localization project. The method localization project is built upon assumptions about cultural differences across cultural borders. This view categorizes culture according to a set of parameters and characteristics, for example geographic location (e.g., Easterners or Westerners), or nationalities (e.g., Koreans or Dutch), and describes cultural characteristics based on particular categories (e.g., the cultural dimensions of an *individualistic versus collectivistic* culture or a *high-context versus low-context* culture).

This view treats culture as a pre-existing entity, which is available for cultural members. When culture is treated as a pre-existing entity

possessing general characteristics, it becomes possible to distinguish one culture from another. In this view, cultural members share and substantiate the general characteristics as individuals, and thus, a concept like *cultural influence* makes sense when using this type of reasoning. In other words, culture is viewed as something that is deeply internalized by the individuals, as *software of the mind,* to use the term from Hofstede's (1991) famous book.

The excerpt from article 2 instantiates this view:

> *We recruited two groups of people from the Netherlands and South Korea. According to Hofstede's (1991) cultural dimensions, the Netherlands scores 80 out of 100 in the dimension of individualism, while South Korea scores 18, which is remarkably distinctive. The Netherlands well represents the individualistic/low-context culture and South Korea the collectivistic/high-context culture.* (from article 2, Lee & Lee, 2009, p. 20)

As the excerpt above shows, the participants recruited for the comparative experiment were considered to be representative members of their respective cultures who exhibited pre-defined cultural characteristics. Korea is considered to *be* a collectivistic culture, and we assumed that Koreans would exhibit collectivistic behaviors.

My review of the extant literature earlier demonstrated that this taxonomic view has been quite standard in cross-cultural design research. Because of the tradition of *user segmentation* in human-centered design, it has been natural to deal with culture as a conceptual instrument for classifying user groups, characterizing them, and distinguishing the target group from other groups. Consequently, when we talk about culture it inevitably involves the notion of *cultural divides*, *cultural differences*, or *cultural categories*, which in fact makes it natural for us to talk about Asian culture or cultural backgrounds in our everyday conversation.

While the taxonomic view of culture is widely accepted in human-centered design, this view also has the following crucial limitations.

First of all, in reality an individual participates in many cultures: cul-

tures of ethnicity, nationhood, profession, class, gender, kinship, history, and so forth. It is thus inaccurate from a conceptual and practical standpoint to explain individuals in terms of one or two cultural traits.

Secondly, explaining individuals' behaviors and experiences by attributing them to a cultural framework involves the risk of creating an inaccurate generalized picture. It is true that making generalizations according to a cultural framework can help show general tendencies or patterns of a particular group. However, the cultural framework should not be understood as prescribing that each individual in that particular group *contains* within him- or herself the same tendencies. For example, my method localization project treated the participants as conceptual cultural averages of Korean and Dutch people, and I designed the comparative experiment with those conceptual cultural averages in mind. This view is in line with what Harold Garfinkel (1967, pp. 68-75) problematized as "cultural dopes": An automatic, almost reflexive, substantiator and re-enactor of cultural norms with little recognition of the individual experiences, awareness, and reflection that a given person brings to the table.

Thirdly, the taxonomic view of culture cannot adequately explain cultural changes (Irani et al., 2010). The theories or frameworks used to support such a view, for example the cultural dimensions used by Hofstede (1991) or Hall (1977), provide "only a snapshot of traits at a single point in time" (ibid., p. 1313). This can be quite problematic because it is precisely the changing cultural practices that designers often aspire to support and in which they wish to intervene when they introduce a system into a particular setting (Irani et al., 2010).

2.3.4 Who Constructs Cultural Mismatches?

In the method localization project, I constructed the *cultural mismatches* based on the assumptions that the method in question constitutes an objective, formal procedure and that culture is a pre-existing entity. The areas of cultural mismatches were uncovered by matching the premise and attributes of the focus groups and Koreans' communication styles–

in other words, method norms *versus* cultural norms. The comparative experiment was, then, conducted to empirically reveal cultural mismatches, and the study attempted to fix the mismatches by modifying the interfaces that took place within the focus groups, such as scripts, tools, or a particular atmosphere. By testing this modification for validation, the localization of focus groups was introduced in the form of a list of reproducible techniques.

When reflecting upon the views on method and culture, which are examined above, I argue that the cultural gaps were constructed *for researchers* to pursue the original function of the existing focus group in a new context. The gaps are treated as problems that can be solved by adjusting the interface between the method and the local users. This view gives little attention to how the facilitator and the participants actually experience the mismatches and deal with them in the particular situation in which they encounter them. Instead of paying attention to how the facilitator and the participants themselves organize situated actions so as to still make the focus group work in the setting in question, the method localization study postulates that the gaps are problems and attempts to get the Korean participants to speak more, in a manner equivalent to how participants from Western culture would respond to the method, that is, Dutch participants in this case, by fixing the gaps.

2.4 Reflection on Method Portability

The reassessment presented above revealed me the evaluation criteria that underlie the method localization project. Although the method localization project advocates using a particular method in a locally sensitive manner within a certain cultural setting, it still aims to find idealized models for methods according to particular culture taxonomies.

In software engineering, portability is usually defined as "the ease with which the system can be transferred from one environment to another at a lower cost than the cost of redevelopment" (Mooney, 1990,

p. 59). Just as a software application is designed to be portable across different system environments, the method localization project also strives for the *portability of method,* which can be efficiently transferred from one researcher to another, and from one cultural environment to another.

This belief about method portability involves the evaluation criteria of reproducibility and efficiency through having idealizing models of methods. To achieve such evaluation criteria for method portability, I modified the interfacing elements of the method according to cultural models and the comparative experiment, and I presented the modifications as a set of localized techniques. Although I aimed to improve the local fitness of methods, what I delivered as a final outcome was that one method recipe exists for culture A and another for culture B. This view inherently involves a generalized, taxonomic model of culture.

While the belief in method portability is still useful within some contexts of decision-making regarding design, especially within an industry context for creating a product localization strategy, there have been concerns about this way of thinking both inside and outside the design discipline (for reflective writings on scientific methods and the objective researcher in the social sciences, see Denzin & Lincoln, 2005; Seale, 2004; Becker, 1998). In design, concern regarding the belief in method portability has been around since ethnography was first adopted in technology design. Currently, such discussion has emerged once again because of the fact that new design methods have been introduced from different disciplines (e.g., Boehner et al., 2007; Keinonen, 2009; Koskinen et al., 2011). The belief in method portability does not seem to make sense for the new design methods because they were in fact developed to overcome the scientific agenda that underlies method portability thinking. Despite this, the inertia of method portability is great enough that researchers misinterpret the new design methods and thus introduce methodological tensions.

My motivation behind explicating the method portability perspective should not be taken to mean that I criticize this perspective utterly and endorse the thinking behind new design methods. I acknowl-

edge that different approaches from different disciplines—including the method portability approach within a positivist frame and the thinking behind new design methods from other intellectual frames—play their own roles and serve different purposes. Instead, I problematize the misinterpretations that result when researchers from different disciplines pick up a particular method, adopt it, and make judgment about it without properly understanding and reflecting upon the *original methodology* that supports the method in question.

In her writing about methodological tensions in contemporary human-centered interaction, Kirsten Boehner says the following:

> *Acknowledging the assumptions and values at play provides a powerful lens on design at both a broad conceptual level and at the personal practical level … One fruitful way to draw out underlying values and assumptions is to experience the clash of epistemologies.* (Boehner, 2009, pp. 31-32)

I am more than sympathetic to her because this is exactly what I experienced. In my case, I engaged in self-reflection not because of the literature that I had read, but because of my experiences with the shift in the field of human-centered design and working with new design methods. When one is inside a particular frame, it is not easy to be sensitive to the underlying assumptions and values in her or his work. The assumptions and values become noticeable when he or she experiences *the clash*. I was able to recognize my perspective on method portability, and by recognizing it, the different nature and principles of new design methods became clearer to me. The experience of clash and reflection helped me create a lens to spot the phenomena of misinterpretations caused mainly by applying the method portability perspective to new design methods.

3 Misinterpretations of New Design Methods

3 Misinterpretations of New Design Methods

During the past decade, the human-centered design community has introduced new types of methods, mostly driven by dissatisfaction with the scientific agenda of existing methods. In contrast to method portability, the new design methods advocate a *situated approach* for the target context: They are, in principle, designed and re-designed by individual designers and specific to the context of the project. In this chapter, I will illustrate how the *new design methods* have promoted a creative and situated approach, and discuss how such an approach has been mistakenly interpreted in the interdisciplinary community of human-centered design.

3.1 The Growth of New Design Methods

While design methods have always been a lively topic both in design research and practice, the design research community has witnessed especially substantial work on introducing new types of methods during the past decade (Keinonen, 2009). The growth of new design methods was driven by the following circumstances.

First of all, since design aims to understand subjective emotions and the lived experiences of users, existing scientific methods that produce

quantitative data and general patterns of user representation are incapable of uncovering such subjective and ephemeral qualities.

Secondly, human-centered design is more and more paying attention to exploring future design opportunities than to solving existing problems. Conventional methods were more meant to explain users' current practices, but limited in terms of envisioning *what could be* and invoking design inspiration.

Thirdly, the conventional methods used in human-centered design had mostly been borrowed from more established disciplines in terms of human research, such as psychology, anthropology, or sociology. Since the ways of doing research and the mindsets that are a part of these disciplines are not familiar to designers, there have been worrying voices that such conventional methods may hinder designers' imagination and creativity. In addition, inevitable gaps in transferring the materials gathered using conventional methods to the field of design have been reported (e.g., Sleeswijk Visser, van der Lugt, & Stappers, 2007; Johansson, 2006).

Driven by such motivations, the new design methods include a creative component that advocates speculating on future designs in addition to, and often rather than, explicating the existing state of affairs in a reliable and valid manner (Keinonen, 2009). They are suited to the early design process, especially to concept design (Keinonen & Takala, 2006), when designers and researchers are searching for what should be designed.

Examples include cultural probes (Gaver, Dunne, & Pacenti, 1999) and their variants–for example, domestic probes (Gaver et al., 2004b), empathy probes (Mattelmäki & Battarbee, 2002), and technology probes (Hutchinson et al., 2003)–, a range of workshop practices with various visual, creative tools such as collage composition or Velcro modeling (e.g., Sanders, 2000; Sleeswijk Visser et al., 2005) and design games (e.g., Brandt & Messeter, 2004), design-oriented scenarios and storytelling techniques (e.g., Carroll, 1995; Nielsen & Madsen, 2006), and personas (e.g., Grudin & Pruitt, 2002), to name a few. As Koskinen et al. (2011) put it, there is no shortage of such methods, and today we see a number of variants of those methods.

3.2 Earlier Work for Clarification

The current status of human-centered design is in transition, with Liz Sanders (2008, p. 13) describing it as "a jumble of different approaches that, while competing as well as being complementary, nonetheless share a common goal: to drive, inspire, and inform the design development process." The design research community, herself included, has felt the need to clarify the current status of the field because different approaches co-exist, overlap with one another, and are constantly evolving. Several researchers have sought to clarify the current status of the field by providing maps, nomenclatures, or conceptualizations. In the following section, I will discuss what dimensions and criteria have been used for clarifying the different approaches.

3.2.1 Map of the Different Approaches in Human-Centered Design

Sanders's Design Research Map (2008)

Sanders (2008) introduced a design research map with the purpose of layering complexity and revealing the changes in the types of research, in research methods and in research tools and their relationships with one another. Her design research map has two intersecting dimensions to it:

- **Research-led or design-led approach***:* According to her, the research-led perspective has the longest history and has been driven by applied psychologists, anthropologists, sociologists, and engineers. The design-led perspective, on the other hand, has come into view more recently.
- **Expert – or participatory mindset:** Sanders (2008) explains that design researchers with an expert mindset consider themselves to be the experts, and they see and refer to people as "subjects," "users," "consumers," and so forth, whereas design re-

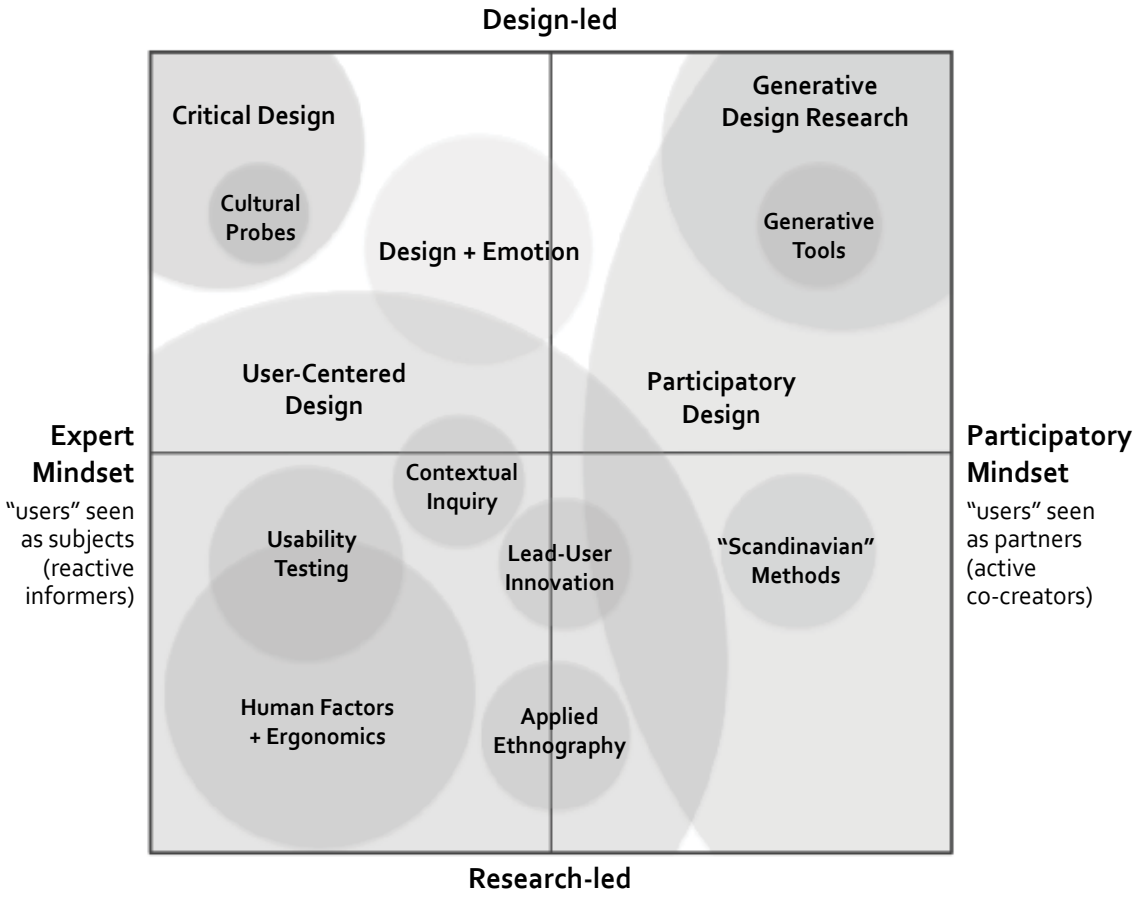

Figure 3.1.
Sanders' design research map (2008)

searchers with a participatory mindset see people as co-creators in the design process (Sanders, 2008). She notes that it is difficult for many people to move from an expert mindset to a participatory mindset (or vice versa), as this shift entails a significant change in culture.

According to her, the conventional scientific methods in the fields of usability and human factors are placed in the research-led and expert mindset area, which views researchers as objective experts and users as subjects. This viewpoint is similar to the method portability perspective discussed in chapter 2. New approaches (e.g., generative design re-

search, critical design) and the corresponding methods (e.g., generative tools, cultural probes) are, however, mapped in the design-led area.

Regarding the probes, Sanders (2008) places the original cultural probes (Gaver, Dunne, & Pacenti, 1999) closer to the expert mindset because they were inspired by Situationist art. This view is different from how Boehner et al. (2007) views the cultural probes, whereby they place them within an interpretive frame–they argue that the cultural probes promote a *hermeneutic circle* in terms of the researcher's subjective position in the interpretation process. In the case of empathy probes (Mattelmäki & Battarbee, 2002), I would map them closer to the participatory mindset because they emphasize designers' empathic mindset towards users. Although there are slightly different views on whether some methods stem from a tradition of critical theory and art or from an interpretive frame, what they still have in common is the fact that the new methods are closer to designers' genuine ways of thinking and doing rather than to scientific research.

Steen's map and the underlying tensions of human-centered design (2011)

Marc Steen (2011) argues that there are two tensions inherent in the field, which HCD practitioners need to cope with in order to develop new products or services.

- **Tension between designer's knowledge and user's knowledge:** Firstly, HCD practitioners need to combine and balance their own knowledge and ideas with users' knowledge and ideas–a tension exists between researchers and designers' attempts to move towards users and engage them in the designers and researchers' side of the equation. This tension is in line with Sanders' (2008) dimension of an expert mindset or a participatory mindset.
- **Tensions between what is and what could be:** Secondly, HCD practitioners need to combine and balance a concern for understanding current or past practices with a concern for envisioning alternative or future practices–a tension exists between

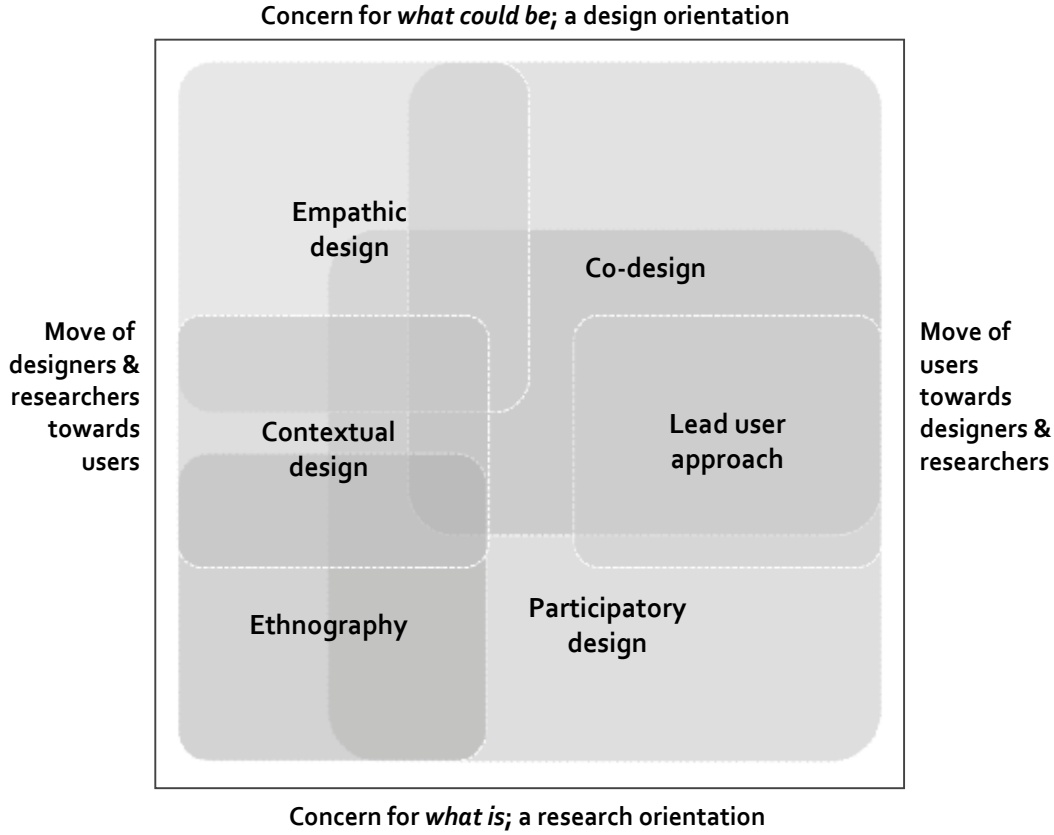

Figure 3.2. Steen's map of the different human-centered design approaches, with different starting points and points of emphasis (2011)

adopting a research orientation towards what is and a design orientation towards what could be. This tension is in line with Sanders' dimension of a research-led approach or a design-led approach.

Similar to Sanders (2008), Steen (2011) presented a map that places the existing tensions on two different axes to show how the different approaches cope with these tensions based on their different starting points and different points of emphasis.

In this map, he presented six HCD approaches, including participatory design, ethnography, the lead-user approach, contextual design, co-design, and empathic design.

What we see as common in both Steen's (2011) and Sanders' (2008) maps is that the new design approaches, such as co-design, or generative design research, and empathic design promote a participatory mindset among researchers and designers as they try to move towards users and as they become more concerned with what could be (design inspiration) than what it is (understanding current affairs).

Due to the way they chose to delimit the approaches or notions, however, we still see that Steen and Sanders map the different approaches somewhat differently. The implication that we should learn from these maps is that the different approaches should be viewed as a flexible boundary rather than a rigid wall; in this way, the approaches can allow for new interpretations and new methods, and they can dynamically evolve rather than remain closed.

Nonetheless, these earlier maps bring me to a better understanding of the different aims and mindsets of the various approaches, as well as how they overlap with or can be distinguished from one another. In fact, these maps have been cited in many subsequent design writings because they help other designers and researchers make sense of where their approaches might lie and give them something concrete to reflect upon when they create new approaches (e.g., Barrett, 2009; Braun, 2009). Through this, these maps can also be adjusted and developed further–in fact, Steen (2011) stated that his map was inspired by Sanders's map (2008).

3.2.2 Taxonomy of Design Methods

Hanington's nomenclature on research methods in human-centered design

In realizing how the shift and crossover in human-centered design impacted his own background in human factors and industrial design, Bruce Hanington (2003) attempted to clarify the different purposes of research and the associated methods. By clarifying generative research and evaluative research in design, he laid out a nomenclature of re-

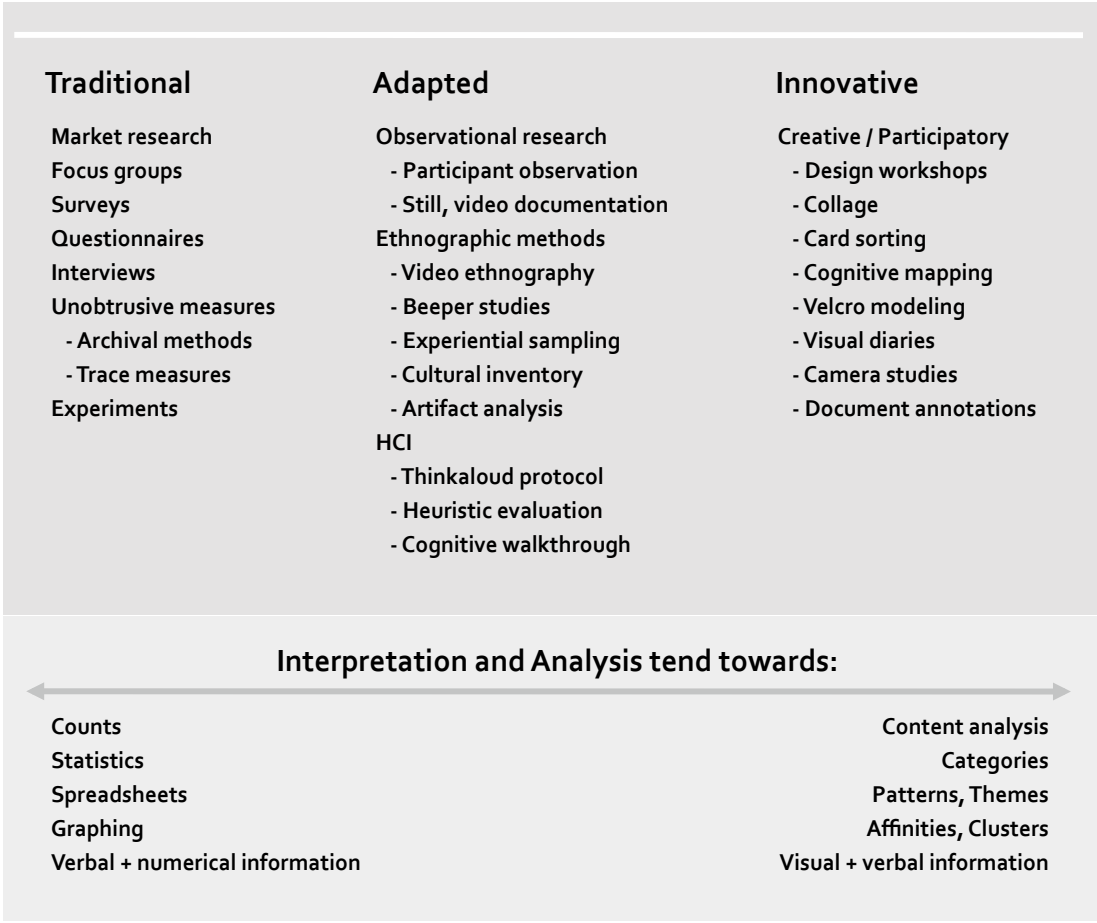

Figure 3.3. Hanington's (2003) framing of different approaches to human-centered design: Traditional-, Adapted-, and Innovative methods

search methods for human-centered design to help researchers and designers make an appropriate, purposive connection with their goals when selecting the particular methods used at any given time in the design and research process (Hanington, 2003).

His nomenclature consists of three arrays: *traditional-, adapted-,* and *innovative* methods.

Based on Hanington's explanation, I will discuss the three different approaches based upon three criteria that I found crucial for his classification.

- **Rigidity of method formula:** First of all, *traditional* survey methods are shared broadly across various human research fields. Researchers feel that there is little need to reinvent those methods for each intended use. On the other hand, *adapted* methods must be adapted to better suit the needs of design. Lastly, *innovative* methods are built upon genuine design practices. They make it possible for researchers to be creative when designing and redesigning methods in each particular design context, rather than assuming that researchers must follow rigid rules for each particular method. Innovative methods do not have a clear-cut formula. For this reason, the list of innovative methods will never be complete.
- **Stance of the researcher:** Whereas traditional methods reduce a researcher's role to that of an objective observer who ensures control and scientific rigor, adapted methods acknowledge a researcher's sensitivity to the study of humans. However, in terms of ethnographic methods (which are different than those used in traditional ethnography), researchers are also encouraged to be aware of the danger of subjectivity, researcher bias, and personal influence. In contrast to these two methods, for innovative design methods, researchers can project their sense-making of the situation and design interests onto method-design. A researcher's situated actions within a particular setting are an important part of innovative methods. Innovative methods are inseparable from researchers and the context within which they are applied.
- **Dealing with Outcomes:** The outcomes, or data, collected using traditional methods are organized within a structured and rigid format, thus they are rather easy to compile, analyze, and visualize. However, the outcomes produced using innovative methods are often fragmentary rather than comprehensive representations. For this reason, validity is in question when trying to extract generalized patterns from the outcomes gathered by innovative methods. In addition, since the outcomes of innovative methods are often produced in the forms of visual images,

tangible creations, or stories, a researcher's interpretation and a designer's creativity are essential in dealing with the outcomes.

Keinonen's Three Concepts for Design Methods (2009)

While Bruce Hanington provides a taxonomy that is based on the characteristics and uses of methods, Keinonen's taxonomy is concerned with the different views or conceptualizations of methods (Keinonen, 2009). He diagnosed that researchers are often confused about the new design methods, especially in terms of method validation. Traditionally, scientific validity has been central to evaluating the methods that are newly developed and the variations on those methods. However, for new design methods in the field of creative co-design, such criteria may not be applicable. He hypothesizes that the problem of validating new design methods is linked to the vagueness of the *concept* of a design method itself. Using various adaptations of probes as an example, he presents three conceptualizations of a design method.

- **Method as an instrument:** In the instrument view, the method should be formalized using a generic procedure and well-defined steps and rules to ensure objectivity and scientific validity in data production. The method is an independent and objective entity that can be transferred to different contexts and circumstances with relatively little variation. The method can be evaluated using the rather traditional scientific criteria of objectivity, scientific validity, and efficiency. For example, see Hulkko et al.'s (2004) study of *mobile* probes for how this is done in practice.
- **Method as a competence:** In this view, a method can be redesigned by a design researcher for each particular design setting. The method is seen as part of the situated action of a researcher, on which he or she utilizes his or her skills and intentions depending on the context. This view accepts subjectivity and coincidence as an essential part of the methods. Evaluating the scientific validity and rigor of data is difficult to do, if relevant at

all. For example, see Mattelmäki and Battarbee's (2002) study of *empathy* probes for how this is done in practice.

- **Method as an agenda:** This view emphasizes the role of method as constituting overt manifestations of the extent to which a particular researcher subscribes to an ideological agenda. The criteria for evaluating methods come from the value system of the ideology, and from the method's capabilities of promoting such values, rather than from immediate operational results; for instance, they stem from salience and the followers of a particular design and research community. For example, see the study by Gaver, Dunne, and Pacenti (1999) on *cultural* probes for how this works in practice.

3.2.3 Borrowing the Term Innovative Methods

To frame the emerging research practices to which the new methods are applied, in contrast to the area of *method portability*, I will call them *innovative methods* as a working terminology, which I borrow from Hanington (2003). Hanington (2003) contrasted innovative methods with those methods conventionally used in human-centered design by focusing on the fact that they emerged from the design discipline rather than being borrowed from others; thus, they involve design-intrinsic qualities rather than traditional scientific qualities.

What makes the innovative method *innovative* is its open, unstructured nature, which allows researchers to treat the intervention as an interaction between local circumstances and participants, rather than as a generalized, prescriptive procedure. In the situated approach of innovative methods, researchers and designers can project their interests and interpretations of the situation through method applications, and users can also contribute their ideas and subjective interpretation of the design space to the room in which the innovative methods allow. For this reason, innovative methods serve well the process of searching for what should be designed in the early phase of the design process (Hanington, 2003; Keinonen, 2009).

3.3 Misinterpretations of Innovative Methods

Recently, in the human-centered design community we see more and more various cases wherein innovative methods are used and adapted for various challenges. In some cases, they are combined with traditional methods; in other cases, they are used in a more provocative way, or adapted to fit a more structured form.

I agree with the way in which the researchers positioned themselves in the reviews in the previous section wherein they see the overlaps and modifications of the different approaches as constructive phenomena in the field. While acknowledging this, I want to lay out a somewhat different discussion of this phenomenon. As several writings have already reported, especially within the HCI community, when methods are picked up and adapted, the essence and mindset of the methods, which are *the* crucial factors that make the method serve its function, are sometimes left behind; instead, only the forms and names of the method are taken (e.g., Boehner et al., 2007; Gaver et al., 2003). This is due precisely to the multi- and inter-disciplinary nature of the human-centered design field. HCD practitioners who are more familiar with a positivist conception of methods might apply their conventional views to innovative methods without reflecting on the different mindsets and nature of the innovative methods. They try to structure the method or to supplement it with scientific validity. As Boehner et al. (2007) argue, this is especially true because the innovative methods do not have clear-cut formula like the conventional ones do. It is like a Rorschach test in the sense that how HCD practitioners view innovative methods reveals their own perspectives and preoccupations (ibid.).

In this section, I will present my observation on the tensions surrounding the different "conceptions" of methods. It should be noted that tensions that I frame as problem areas are not about the differences between innovative methods and more conventional ones, but about "misconceptions" regarding innovative methods. Among a variety of innovative methods, my observation mostly focuses on the probes and

co-design workshops wherein the generative tools or design games are applied.

3.3.1 Turning Innovative Methods into Reproducible Techniques

The first observation has to do with how HCD practitioners feel about a situated, context-specific approach of innovative methods. Again, taking probes as an example, for those who are preoccupied with the view that methods offer generalized instructions and a structured process, the description and the existing practices of the probes appear to them as a set of reproducible techniques and structures. This is far from the intention by the original authors on the probes, although they foreshadowed and cautioned against the likely draw of cultural probes as an *off-the-shelf* method for design-based research:

> *We believe the cultural probes could be adapted to a wide variety of similar design projects. Just as machine-addressed letters seem more pushy than friendly, however, so might a generic approach to the probes produce materials that seem insincere, like official forms with a veneer of marketing. The real strength of the method was that we had designed and produced the materials specifically for this project, for those people, and for their environments.* (Gaver, Dunne, & Pacenti, 1999, p. 29)

Motivated by a similar question, Boehner et al. (2007) reviewed almost 90 papers on various approaches to probes, and found that many of the studies take a *probes-as-recipe approach.* They argue that "the outward form of the original cultural probes, namely the technique of providing a probe packet with a camera, postcards, 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, p. 1083).

In reviewing my own research field, this way of conceiving of methods appears more prominently in the cross-cultural method experiment.

In his doctoral dissertation, "Methodological advancements of cross-cultural user-centered product development", Braun (2009) conducted a series of comparative experiments on the probe by pinning it down, while keeping the name "cultural probes", as "open, self-reporting, single-user techniques which combine paper and pen with technology based documentation … data-collection is done by the user by documenting everyday situations by camera, which later are presented to the researcher … users are also asked to take notes of relevant events in a diary" (Braun, 2009, pp. 85-89). This way of conceiving of the probes led him to quantitatively measure the probes' characteristics, such as their degree of interaction with a researcher and the space they offered for flexibility of thoughts and creativity, by comparing them with other human-centered design methods.

It must be noted that the aim of this section is not to suggest that the studies reviewed above are necessarily erroneous. In fact, I appreciate Braun's (2009) quantitative analysis of the probes for its innovative and unique aspects. What I intend to critique is the extent to which the above-mentioned studies do not provide an adequate explanation for why researchers chose to take the probes as that particular approach in that particular research project. I assume that the above-mentioned studies took the probes based on their preoccupation with method as a codified approach, in which providing the name of the method is enough in terms of explicating its approach and instructions, without providing a thorough reflection on the mindset or methodology of the probes.

In some writings written with the same view, we often see a concluding remark similar to the one provided here:

> *The next step would be to validate the cross-cultural applicability of this form of "cultural probe."* (Chavan & Munshi, 2004, p. 1544)

Chavan and Munshi (2004) introduced a modified design for the cultural probes in the form of "emotion tickets" for Indian participants. The above quote shows that she concluded her writing by suggesting

further work for validating whether or not the method is portable in a cross-cultural sense. This way of concluding her study is in fact done quite often in many method papers in human-centered design. Validating the applicability of the method via cross-case analysis would scientifically legitimate the method as well as the paper dealing with the method.

Cross-case or cross-method comparison is, however, very challenging for innovative methods because each case in which the method is applied is idiosyncratic depending on the researchers' situated actions within a particular design context. The process of designing and carrying out innovative methods for each particular case cannot be separated from the designers and researchers, their skills, their insights, their interests, and so forth. The conventional criteria for method evaluation do not seem relevant for the innovative methods. The trickiness of formally evaluating innovative methods has been pointed out by several other researchers (e.g., Muller, 2003; Keinonen, 2009).

3.3.2 Seeking Scientific Validity

In terms of the attempts to codify innovative methods as a generic process, the situated approach of innovative methods sometimes appears to be "not yet scientifically mature." Improving the scientific validity and generalizability of the innovative methods is, thus, considered an imperative task for the design research community. For example, the open and inspiration-oriented approach of cultural probes might have made HCD practitioners insecure about whether or not the probes' returns are "legitimate enough to inform" their design. This leads HCD practitioners to "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 tendency appears more prominently in terms of how the materials collected from the probes are interpreted and analyzed. Some studies that seek to find participants' true meanings and a holis-

tic picture of the users' world behind their responses to the probes 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., 2006; Voida & Mynatt, 2005).

However, this way of gathering user information for design is exactly what the original cultural probes attempted to "disrupt." The designers of the original cultural probes explicitly stated that methods based on science have a tendency to separate the researcher from the people they are studying. The cultural probes were their alternative proposition for enlivening design inspiration in dialogic interaction with users. While most studies on the probes that I mentioned above acknowledged and valued the provocative, exploratory, and participatory approach of the probes, the very awareness that the probes are provocative and ambiguous was unfamiliar to the HCD practitioners with a more conventional view on methods. This is why they attempt to impose scientific validity on carrying out the probes as well as dealing with the materials gathered by the probes. However, the flexibility and purposefully ambiguous approach of the probes should not be misinterpreted; they do not "need to be enhanced" with scientific validity.

Using probes to examine *what it is now* or to validate user needs is different from the original intention for the cultural probes. When using probes to explain *what it is*, the probes approach should not be downgraded due to the fragmentary user information that it creates or challenges in relation to scientific analysis. Instead, when using probes to explain *what it is*, researchers should explain on 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 to serve that particular purpose. If this reflection and explanation is lacking, we again have a case in which researchers treat the probes as one of the "recipe approaches."

In the attempts to assure scientific validity in a positivist science sense, it is crucial that a researcher maintains his or her stance as an objective observer. This issue of a researcher's objective position in the

design process has been in question since the design encounters an interpretive frame when ethnography, or more accurately, ethnographers were employed (Dourish, 2006). Many writings, especially from the field of human-computer interaction, have discussed the underlying tensions between a traditional technological notion and an interpretive frame in terms of the stances of an *observer* versus the *observed*—that is, the configuration of users—and how those stances affect approaches to producing and interpreting data as well as explaining what the method does (e.g., Anderson, 1994; Ackerman, 2000; Button, 2000; Suchman, 2002; Dourish, 2006; Boehner et al., 2007; Sharrock & Randall, 2004). These writings argue that the ethnographic approaches adopted in design have been reduced to a toolbox of field techniques for extracting data from settings because of the legacy of a positivist tradition, thus obscuring ethnography's essential analytical components.

In addition to this continuing discussion on ethnography in design, the tendency to reduce methods to reproducible techniques and close off a room within which researchers can intervene has also been exhibited in how innovative methods are used as well. In the case of probes, this position is prominently reflected in how HCD practitioners deal with the probes' returns, as I pointed out above (e.g., Howard et al., 2006; Voida & Mynatt, 2005; Murphy et al., 2005; Moser, Fuchsberger, & Tscheligi, 2011).

This tension between maintaining the objective stance of a researcher versus allowing her to intervene is also exhibited in co-design workshops in terms of the researcher's position during the process of interacting with the participants in the co-design workshop. When participants of the co-design workshop, including users, HCD practitioners, and other stakeholders, create ideas together using given visual, tangible props, the issue of whether "to intervene or not to intervene" is often a question for the researchers or designers in the project (e.g., Kankainen et al., 2012; Westerlund, 2009; Vaajakallio, 2012). 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 allowing a researcher to intervene and position herself or himself as a facilitator, an observer, or a co-creator should depend on the different goals of each project, in practice tensions are often reported (e.g., Kankainen et al., 2012; Lee, Vaajakallio, & Mattelmäki, 2011).

In my review of the recent writings on conducting co-design workshops, including design games (Vaajakallio, 2012; Kankainen et al., 2012) and video prototyping workshops (Westerlund, 2009), I argue for the importance of the designer's or researcher's role in making sense of an ongoing discussion, and the need to project her or his interpretations onto it and to orient it towards the design direction that she or he finds relevant. In their study of the Storytelling Group method for service design, Kankainen et al. (2012) emphasize the researcher's role as a *creative secretary* who facilitates the workshop, but also observes the hidden possibilities in the "story world," intervenes in the way in which the group organizes the story events, and guides the group towards design opportunities that the researcher finds relevant. Based on their observations of various groups and cases using the Storytelling Group method, they reported that for groups without a *creative secretary,* the layer of knowledge in the storytelling group remains at a rather superficial level. In a similar vein, in his doctoral dissertation on a video prototyping workshop and design space, "Design Space Exploration", Westerlund (2009) emphasizes the *designer-conductor's* responsibility for framing the design space as a prototype in the co-design session with users.

This argument that a designer or a researcher can be reflective upon the ongoing activity of co-design workshop and intervene in the activity by capturing a relevant and novel direction does not, however, apply to every case. Such argument assumes that the designer or the researcher has been involved in the activities prior to the co-design workshop, such as doing preliminary research or designing the workshop and tools, which in fact enable him or her to already have contextual understanding of the design project.

3.3.3 Where is Data Legitimate for Analysis?

Yes … we have tried the make tools … but the prototypes created by the users did neither seem innovative . . . nor relevant. And it was hard to report the research results to the industry manager. (Personal communication with a professor in human-computer interaction)

In the traditional view on methods, data are the *artifacts* produced as a result of the particular method operation in a researcher's hands, be they interview transcriptions, survey numbers, or pictures and notes taken in the field. Researchers then use a structured analytic method to *mine* the true meanings that the data represents.

In the quote above, the research team expected to mine innovative ideas and inspirations for design from prototypes constructed by the participants in the make tools session (Sanders, 2000). They were disappointed with the prototypes and in turn with the method. I speculate that this was due to a lack of clarity about what to frame as legitimate data for analysis and about how to analyze or interpret the framed data. Often, innovative methods have neither a clear-cut formula for generating certain types of outcomes nor a clear-cut formula for analysis.

Although there are slightly different views on how to handle the outcomes from the innovative methods, what many recent writings still have in common is the idea that knowledge can be constructed not only through an analysis of *artifact data*, which is produced as end results, for example collage results or 3D models, but also from the process in which the method is carried out, especially when the conduct of the method unfolds interaction with the participants in the study. For example, Sleeswijk Visser (2009) emphasizes researchers' annotations made during the generative workshop session as important data, besides the artifacts made by participants. The above-mentioned discussion on the role of a *creative secretary* during the design game session (Kankainen et al., 2012) is also in line with this perspective. This view implies that innovative methods allow designers and researchers to adopt a sensitive framework and design intentions when dealing with the interpretation.

3.4 Seeking an Alternative Perspective for Innovative Methods

In the discussion on the misinterpretations of innovative methods above, I do not aim to say that the attempts to turn innovative methods into reproducible ones as such are by all means erroneous. It is not the fact that researchers might alter and adapt innovative methods that concerns me; rather, my concern is with the underlying misinterpretations that drive such alterations. As I attempted to illustrate above, some adaptation cases seem to be driven by misinterpretation of innovative methods because the innovative methods are grounded in an *unfamiliar mode* of how research should be done. Consequently, designers and researchers in such cases alter the essential meanings of the innovative methods without demonstrating their understanding of the essence and underlying agenda of the methods and describing why and how their adaptations make sense.

This concern leads me to formulate the following questions as a way to clarify the tensions diagnosed above: If the misinterpretations are caused by the researcher being unfamiliar with innovative methods and instead being grounded in more a conventional research frame in human-centered design, say, a positivist science, how can we better communicate what innovative methods actually do for designers and the design process, beyond merely treating such methods as an account of a generic, systematic process? What are the more relevant ways to talk about innovative methods so that such accounts can help HCD practitioners better reflect upon their uses and adaptations of methods?

What we may need is an alternative account to unveil *how innovative methods are actually made to work* by designers and researchers in a specific design setting, beyond our conventional way of "publishing" methods, say, in a normative template. In some respects, I also assume that although some writings treat innovative methods as a generic approach, the researchers' *ad hoc*, situated actions must have played a crucial role in making the method work within a particular setting. Certainly, even for a highly structured method, some studies already argue that having

the capacity to follow through with a line of conduct would require an understanding on the part of the person pursuing that particular line of conduct in numerous situations, which would necessarily exceed what could be specified in so many words (e.g., Button & Sharrock, 1994).

My question is then, *what if designers and researchers reveal their lived experiences with innovative methods, including their struggles or unexpected encounters, and provide rich explanations of how the methods are designed and why?* I believe that those kinds of *stories* about method, rather than *instructions* about method, can call attention to the highly local, situated approach of innovative methods within a particular design context, and support designers in reflecting upon their conception and use of methods.

In seeking an alternative account for innovative methods, I find one research program in the social sciences to be very relevant, one which was guided by a similar reflection and which has provided a certain respecification of method and formal account: *ethnomethodology.* In the next chapter, I will present the ways in which an *ethnomethodological sensibility* provides a constructive lens for understanding innovative methods.

4 Ethnomethodological Sensibility for Understanding Methods

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Although the idea of method itself always involves some degree of formalization, designers' situated work in particular design settings are what makes any innovative method *what it is*—what makes it actually work in practice. The writings on innovative methods emphasize that individual designers invent, adapt, and recreate the methods according to their aims and interests in a particular design project through interacting with local circumstances.

In this view, the conventional assumptions about method, which I characterized as *method portability* in chapter 2, do not seem to offer a constructive way to conceive of innovative methods. Stepping aside from the ongoing discussion on the formal evaluation and scientific validity of innovative methods, I suggest that we first need an alternate *lens* to better understand and convey the essential aspects of innovative methods. My hypothesis is that the essentials and truthfulness of the innovative methods may lie in the *lived experiences* and *situated practices* of the designers using a particular innovative method rather than a linear format of "plan-procedure-outcomes" or "successful stories." Most of published work on methods often focuses on prescribing *what they ought to be* rather than on investigating *how they are actually done*. Instead, innovative methods should communicate *how methods are actually made to work, the phenomena as it occurs*.

I stated before that I find ethnomethodological sensibility useful and productive for answering such a question. At the same time, the formulation of this question itself has actually been inspired by ethnomethodology's view of formal work and practice. Putting it another way, ethnomethodology made it possible for me to reflect upon and address the need for an alternative account for innovative methods: Being equipped with an ethnomethodological sensibility has enabled me to pose such a question.

4.1 Why an Ethnomethodological Sensibility?

4.1.1 Ethnomethodology's Concern for Orderliness and Method

In *ethnomethodology*, *ethno* means people and *methodology* means, literally, methodology, the study of methods. Ethnomethodology, thus, *is* about the study of people's method. People's method as a topic of study? What does this mean? And what does it tell us about seeking an alternate sensibility for understanding innovative methods?

The mission of conventional social sciences is to construct the objective reality of social facts (Durkheim, 1938), and their approaches take the position that people in a society act in response to this objectively determined social orderliness. Sociologists with this interest develop theories and methods to explain the objective, given social orderliness–structure, rules, norms, and so on. Ethnomethodology, however, takes a different point of departure; social orderliness is *not given, but achieved by members*[3] in a particular social setting. Ethnomethodology was devel-

3 In this dissertation, I use the term, members, taking it from Garfinkel's (1967) perspective on understanding the actions of people as necessarily situated in a social setting, or a community.

oped in the late 1960s based on the pioneering work of Harold Garfinkel (Garfinkel, 1967).

He contended that norms are best seen as "features of setting" and accomplishments of the very organization of conduct that are a part of those settings, not as "causes" of that organization in the first place (ibid.). In the ethnomethodology way of thinking, settings teach members what they need to know, and practices take place according to what needs to be done within those settings, and this takes place irrespective of what the prevailing norms might be: The ordering capacities embodied in actors' practices–not the rules themselves–are what is most important (Hilbert, 1981).

For me, what is significant when using ethnomethodology as a way of thinking is that the sophisticated sensibilities encompassed within a study of members' methods brings to light the actual, lived reality of people *as it is*. In conventional social science, the detailed, improvised, situation-specific conduct of everyday people's actions was not the main interest. Situation-specific *ad hoc* practices are sometimes considered *noise* or *et cetera* when scholars construct objective social facts, theories, or frameworks. However, what makes an activity relevant to the people involved with that activity are those detailed, improvised, situation-specific actions, not the scientific rationality of social theories.

The principle aim of ethnomethodology is to investigate the procedural accomplishments of these activities as actual, concerted behaviors. This involves a *respecification* of how investigators might approach sociology's most awesome phenomenon–the objective, immortal reality of social facts (Garfinkel, 1988). Sociologists can rigorously explicate that phenomenon as an accomplishment of actors' concerted efforts to make social facts observable and accountable to one another in their everyday lives.

With this view of social orderliness, ethnomethodology also investigates the work of professionals and scientists, for example in their laboratories. In conventional social science, "(formal) methods" at work are considered standard forms of account, that is, they provide a generic theoretical format; for sociologists, methods constitute the properties

with which they consult and formulate people's work, whereas for professionals schooled in a research setting, methods are generic instructions that they employ themselves to understand people's work.

For ethnomethodology, however, this view of methods inevitably involves rendering people's actual work in terms of *a priori*, situation-absent formulations (Baccus, 1986). This is why ethnomethodology wants to first and foremost get at how members themselves define their work, and *their methods* for doing and recognizing such formulations. Here, it is members' formulations that make the work of understanding a particular setting observable and reportable or *accountable*, and ethnomethodology's analytic attention should be directed at the practical actions and activities accomplished by members throughout the unfolding course of doing and recognizing such formulations (Crabtree, 2001).

4.1.2 Unveiling the Lived Work behind Formal Account

Ethnomethodology appreciates and unveils the notion of *lived work*, which is "what work consists of as it is lived as part of organizational life by those who do it" (Button & Harper, 1996, p. 272). Lived work, or *practice*, is glossed by the formal process specification of what work needs to be done. This is well illustrated by Garfinkel, Lynch, and Livingston's (1981) analysis of astronomers' night work for the optical discovery of the pulsar. Having examined the tape recordings of how two astronomers' observations were shaped, they focused on how the astronomers' work evolved from identifying a vague object-of-sorts (which had neither a demonstrable sense nor a concrete astronomical reference in the first instance), to identifying a transcendent–pulsar–available for the scrutiny of the wider scientific community.

As a result, their examination of the accountable features of the work revealed the lived work whereby the two astronomers came to know the pulsar. That work consisted of an unfolding series of observations complemented by a host of concerted practical activities. The work was socially organized in terms of configuring the equipment, doing verification work (including reproducing the subject emergent

contingencies of the observations), formalizing the object, and so forth. It was through this unfolding, socially organized, course of lived work that a vague object-of-sorts came into view and was transformed into a definite astronomical object having properties that exist independent of the people, the place, and the equipment that were a part of its discovery and which make it available to others.

Based on this result, what Garfinkel et al. (1981) argued was that *a relationship existed between the lived work and the formal account.* They discovered that the lived work of the discovery is completely absent from their account, as it is absent from scientific accounts in general. Although it is through the lived work that the discovery is actually made, the lived work is entirely absent and replaced by a formal account of what happened. To fill in this "gap in the literature" (Garfinkel, 2002), ethnomethodology suspends the use of formal methods to account for everyday activities in work-practice studies. Instead, it is oriented towards, it focuses on, and it treats everyday activities as a topic in their own right, the *vital practices* organizing the lived work of a setting that are made available via members' accounts of what happened.

The way in which ethnomethodology views lived work and formal methods respecifies the use and meaning of methods in the work of professionals. For example, for engineers or scientists a method is essentially an *instruction* for how to carry out certain steps in a certain order. With ethnomethodology, however, a method is a *resource* that is deployed and enacted in a local situation, where a number or participants produce, or attempt to produce, social order. In the former view of method as instruction, which resonates with the idea of *method portability* that I discussed in chapter 2, the method comes first, and actions will be analyzed using the method's outline, either by following the outline or by diverting from it. In the latter view of method as resource, however, analytical attention is paid to how people continuously make sense of the contingent circumstances of the project, how they organize their actions to make the setting operate, how a method is used to organize those particular actions, and how it is accounted for in the project.

What does this mean? This implies respecifying the relationship be-

tween methods and actions in three respects. First of all, it is not that methods are merely carried out according to the path and system of actions that they outline–or a method manual. Even the most carefully thought through method needs to be carried out via local interaction within a social situation. Secondly, this then implies that methods do not promise for actors to take coherent approach to a problem: Good results are not merely consequences of applying the right method in the right way, although they are often attributed to methods (Jensen & Andreasen, 2010). There is the lived work, in which people organize practical actions and make decisions according to emergent and dynamic local circumstances. In this sense, unveiling this lived work might better account for how the work gets done in a local situation, rather than using a particular method to provide a formal description of how the work gets done.

Finally, the notion of the systematic nature of a formal method also of course connotes that there is a non-systematic side of the method. In the view of method as instruction, this non-systematic aspect is considered to be either critical of method, because it is not always optimized to the search for solutions, or a matter of "intuition," when solutions happen to come from different sources other than a systematic one (for example, see Pahl & Beitz, 1988). In the latter case, researchers argue that a balance must be found between an intuitive approach and a systematic one. However, since they feel that intuition relies upon chance, or "luck," and seldom happens on its own, these non-systematic actions–or *raw experiences* (e.g., Parsons, 1937)–are considered to be improvements over the notion of "intuition," that is, they are pinned down to a more systematic method, or they do away with the more rational aspects of a systematic method. When using ethnomethodology to examine the lived work, however, the intelligibility of intuition might be revealed as a type of intelligibility that is achieved through participants' ongoing, reflexive, accountable, and interactional work.[4]

4 In design research, this thinking supports the increasing acknowledgement of design as a social process,; for example, see Bucciarelli (1988, 1994).

Such aspects of unveiling the intelligibility of lived work lend insights for how to handle innovative methods, which I will discuss in the last section of this chapter. Before that, let us review how an ethnomethodological sensibility has respecified design methods.

4.2 Earlier Work on Respecification of Design Methods

In design research, the predominant focus has been on formalizing the discipline's intellectual apparatus. As a result, design researchers and professional designers have been equipped with various frameworks, models, theories, and methods, at the same time that there has been criticism that design is becoming too methodological. By engaging in this debate from a slightly different angle, some researchers are able to draw upon the thinking in ethnomethodology and have begun to consider a designer's situated and practical employment of formal schemes and methods.

4.2.1 Occasioned Practices of Method

Button and Sharrock (1994) examined how a group of software designers use and implement a highly structured and formal method for requirement analysis, that is, the Yourdon development methodology, to the circumstances pertaining to a design project. By drawing upon ethnomethodology's interest in what is involved in following a formal prescription, as part of accomplishing the work of those concerned (Garfinkel, 1967), their analysis examined locally organized practices that make use of the method. The analysis revealed that the software engineers sensed the practical priority in the contingent circumstances of the project (for example, coordination among different teams in the project, or the project deadline), decided what needed to be done in the actual situation, and organized the *ad hoc* practices around the method, rather than strictly following the method in a step-by-step manner.

In other words, the software engineers were engaged in determin-

ing how to relate *what they were supposed to do* to *what they could actually do* (Button & Sharrock, 1994). However, this does not mean that they were dissatisfied with the software development methodology, even though they could not faithfully follow its prescriptions: For them, it was just a matter of the development contingencies with which they had to grapple. While intending to follow the methodology for a number of good reasons that had to do with good software design, the engineers were also aware that the actual process of applying the method required a phasing of activities in ways that they could not necessarily control and that adhering to the method's step-by-step organization would hinder practical priorities. The observation by Button and Sharrock (1994) suggests that what gets the software design project up and running actually depends upon the *ad hoc* practices that engineers resort to in the face of real circumstances, and their own good sense, or practical judgment, of what is needed and what can be done rather than a strict step-by-step adherence to a formal, generic method.

It should be emphasized that the aim of Button and Sharrock's (1994) study was neither to criticize the method for its failure to meet the demands placed upon it by the engineers nor to criticize the engineers for failing to strictly follow the method. Instead, their aim was to support a more relevant understanding of *what it is* to follow a method in actual circumstances. According to them, appreciating the *ad hoc* practices and how the engineers made sense of the method on a practice level in actual circumstances is as important as formulating a set of rules and methods for engineers to follow. They make the following concluding remark:

> *If we think that methods are procedural recipes to follow we might think that all we have to do is to develop or alight upon the best method for our purposes and our problems will be solved by cranking the methodological handle. If we do this, however, we miss the point that methods are worked at phenomena, that they are made to work in the circumstances of their deployment and that the details of that work are part and parcel of the development process.* (Button & Sharrock, 1994, p. 237)

4.2.2 Breach of Method Rules in Ordinary Interaction

Similarly, the current work by Matthews (2009) is concerned with reassessing the nature and use of methods in design through a close analysis of engineers' interactions when using brainstorming as a method. Matthews (2009) found that engineers rarely explicitly orient themselves to the rules of brainstorming, and many sequences of interaction appear at first glance to be a breach of the brainstorming rules, but they are not censured within the meeting as such. He mentions that the *rules* of a session or a method (or the stages in a model of the design process) do not easily account for the activities of a designer, yet they can be part of the *participants' own accounting devices* within the activity itself.

In that study, his interest was not in evaluating the method, but in seeing its situated use: He wanted to *reveal what considerations are in force* when designers use and/or ignore the tenets of the method, in other words, to find the *essential relevance* of designers' actions within a particular design setting. He asserts that the rules are a resource for the participants, "rather than for the analyst, to help them account for what designers do (for example, are they breaking the rules?)" (Matthews, 2009, p. 74), and many of the participants' actions cannot simply be seen as actions that are in accordance with or in breach of brainstorming rules. Drawing upon the ideas found in ethnomethodology (cf., Garfinkel, 1967; Zimmerman & Pollner, 1971; Wieder, 1974), he suggests respecification of the methodic rules in designer's work:

> *Rather than becoming an analyst's resource to account for what designers do (e.g. are they breaking the rules?) … they - the rules of a method - are a participant's resource … That is, the method's rules are an occasioned resource on hand for the participants to assign sense, meaning and order to the proceedings in their course. It is largely in this way that methods come to be of use to designers, to the extent they are deemed by participants to have local relevance for actions to be sanctioned and sanctionable with reference to them.* (Matthews, 2009, pp. 74-75)

4.2.3 Acknowledging the Practical Actions behind Formalization

Both of the ethnomethodology-sensitive studies mentioned above examine the phenomena of designers' practical, situated actions using methods as a study topic, and continue their discussion of the essential aspects and local relevance of designer's work with methods. These studies approach the *gap* between the formal schemes (i.e., method rules) and actual practices surrounding the formal schemes as essential features in which participants recognize and produce what is needed within a particular setting, instead of a problem that should be obviated by improving the method or adding more rules. Through the process of recognizing the contingent circumstances that affect the context and produce actions, the setting runs and methods are accounted for in the setting.

We might improve the methods by incorporating the practical features identified in the above-mentioned type of studies, and this might occasionally support designer's work better. However, it could be argued that such an improvement is just *another formalization of particular phenomena* that have been identified. Every design setting is particular, and it is almost impossible to predict and define the particularities of the setting beforehand. The situated actions within a particular setting only make sense within that particular setting. Instead of trying to formalize and make empirical generalizations about the described phenomena, what should be done is to acknowledge, appreciate, and unveil those situated, practical actions to *the members*. In this way, members of the community acknowledge their actual work and reflect upon it as a way of coming up with a better practice.

4.3 Ethnomethodological Sensibility as a Research Angle

Although the above-mentioned studies are mainly concerned with how highly formal methods are implemented, the ethnomethodological sensibility to methods that they present teaches us about how to approach innovative methods and what to place at the center of the study. For innovative methods, *contextualizing* the methods according to the particularity of the design project, that is, re-inventing and implementing the methods only for *the* design setting at hand, is inherently an essential part of the methods. However, as diagnosed in chapter 3, the lived work for contextualizing methods do not receive enough attention either because they seem to be too practical to be described or too idiosyncratic (in the sense that they truly depend on each case) to be generalized according to conventional conceptions of method–the *method portability* perspective.

My suggestion is to appreciate and explicate the locally organized work of innovative methods based on the particular phenomena as it occurs. This is where having an ethnomethodological sensibility comes into play: An ethnomethodological sensibility can support a lens for acknowledging participants' lived work as meaningful, accountable, and intelligible features of a particular setting. With this sensibility, we can unveil the phenomena of what is happening when designers craft and deploy methods as a study topic.

In the conventional view, a method stands on its own separate from designers and local circumstances, and there is a dichotomy between method and action: At one end, there is a method that instructs and, at another end, there is an action that is organized to follow a particular set of instructions. An ethnomethodological sensibility to methods, however, causes this dichotomy to disappear because it explicates the practical actions through which methods act as resources, and, at the same time, it results in the methods being treated in a reflexive, ongoing manner. An ethnomethodological sensibility involves, focuses on, and unveils practical actions, or lived work, as legitimate ways of

handling the method. With this sensibility, the lived work of making a method work in a local situation is not something extra that is left behind for formalization of a method, but is embedded in the method itself; *a method is embodied through this lived work*. Explicating the lived work can also reveal to us *what work innovative methods actually do* in terms of accomplishing the design. Drawing upon ethnomethodology's concern, the lived work and practical actions for the method are what makes the design setting organized and go on.

5 Practical Actions for Innovative Methods as a Topic

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Based on my suggestion of adopting an ethnomethodological sensibility as a research angle for understanding innovative methods, or an alternative account for communicating them, I will illustrate what it can actually reveal to us in this chapter. To do so, I take the case of analyzing students' learning diaries, which was presented in article 5, "Tracing situated effects of innovative design methods: Inexperienced designers' practices" (Lee, Vaajakallio, & Mattelmäki, 2011).

5.1 Method Stories in Students' Learning Diaries

As one way of revealing the topic of the practical actions underpinning innovative methods, I take students' practices of learning and applying methods in their design projects in the user-inspired design (UID) course that I tutored from 2007 to 2009 (I presented an anecdote from this course at the very opening of this dissertation). In that course, individual students needed to provide self-reports for their ongoing work, which included discussing the methods that they used, the challenges they encountered, their reflections, and any questions in a weekly di-

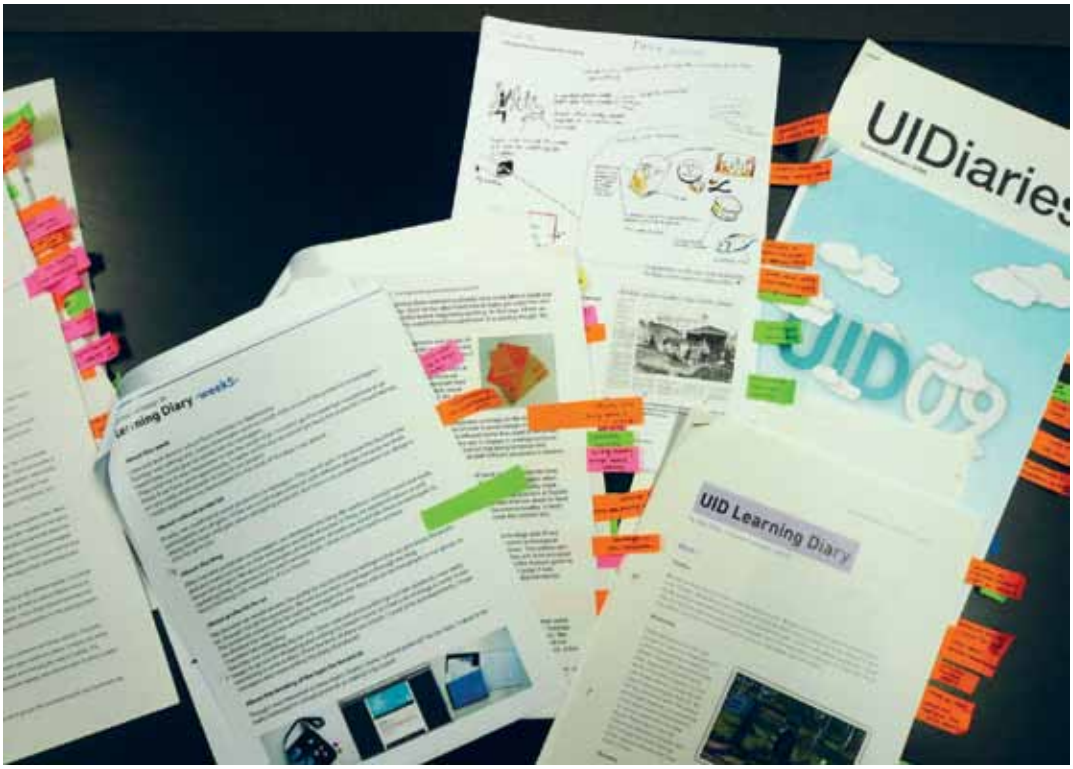

Figure 5.1. Students' weekly learning diaries from the user-inspired design course

ary as a means of reflecting upon the design project and communicating with the teachers.

Each week the students wrote, on average, one page in their diaries, and the diaries included sketches, diagrams, or pictures in addition to text. I read the learning diaries while tutoring the course to better understand how the students followed the instructions of the course and went about their projects, what kinds of problems they were struggling with, and what matters they would need guidance in.

For this reason, these diaries contain lively stories about the situations that students encountered during the design project, how they organized their actions to meet the contingent circumstances, the way in which they used design methods, and how they made sense of the methods and accounted for them as their design project and learning proceeded. In this sense, their diaries became good materials for analysts to look into

the *lived work* that were organized around the use of innovative methods behind the *formal work* that is usually reported in public presentations.

In spring 2011, I analyzed the diaries for the years 2008 and 2009 again. My analytic attention was especially directed to their lived work and how they made the methods work in their design projects: How they organized their actions when choosing, designing, and implementing the methods, and what coincidences and challenges they faced. I read word-by-word the individual diaries, on a group-by-group basis, in chronological order. Five individual students in each group submitted the diaries each week, and five groups submitted them throughout a nine-week project each year. Since I had followed the students' design projects as the course tutor for those two years, I had a contextual understanding of the written text to a significant degree.

The first analysis was mainly conducted by me, and I presented the results of the analysis to other teachers and some of the students who took part in the course during those years. I did this to verify my interpretation of the text and to get more detailed information about what had happened at that time. I published the results of the analysis in article 5, which I co-authored with two other course teachers, Tuuli Mattelmäki and Kirsikka Vaajakallio, and this process of co-writing an article also helped me validate my analysis.

I found that the students' stories actually make for good case studies because they present the lived work more saliently. For the students who are *inexperienced* with innovative methods, the local challenges that they encountered and the way they organized *ad hoc* practices to meet the challenges were reported more often; thus, it was easier to observe these issues than with experienced practitioners. In some sense, I take students' practices as a kind of *breaching experiment* in ethnomethodological terms. According to Garfinkel (1967), a breaching experiment is construed of as a research procedure that necessarily disrupts the gloss that is placed over normal encounters in order to bring to light the act of achieving a social order, one which exists solely in the situational work of its members. It aims to make the taken-for-granted way in which the structures of everyday life are ordinarily and routinely produced visible and available for

analysts to detect. Practical actions for going about the methods are not commonsense practices for design students. Thus I, as an analyst, can detect the practical actions more saliently because they come out of the background and into the foreground.

In addition, there is another reason for examining the students' practices: Because of the open nature of innovative methods, those who are unfamiliar with and inexperienced in the use of innovative methods may face uncertainty, confusion, or even disappointment when using them. In this sense, unveiling the spots of such challenges are exactly what we need to address as a study topic to better support an understanding of *how innovative methods are made to work.* My intention in this breaching experiment was to transform the uncertainty of innovative methods into *constructive* problems for HCD practitioners.

In this introductory essay, I will discuss further how an analytic account that draws upon and makes use of an ethnomethodological sensibility enables us to develop new knowledge about innovative methods and to better understand their nature and effect. I will take the stories from the diary analysis presented in article 5 to develop this discussion, but this discussion is also based on my experiences with and reflections on the design cases that I experimented with and applied innovative methods to. Article 4, "'It has to be a group work!'–Co-design with children" *(*Vaajakallio, Lee, & Mattelmäki, 2009), presents one of the cases.

The central discussion in this chapter is about how the practical actions that are involved in *designing a method* supports designers' reflexive knowing about the users' world, as well as their own world, through materializing the method, informal dialogues with the users, and so forth. This finding illustrates that the practical work itself is an *intelligible activity* that helps the designers can already learn about the users and the relevance of their initial *design space*[5] before the method starts to collect data.

5 Design space in this dissertation refers to Westerlund's (2009) conceptualization of the initial design opportunities where designers see potentials, especially for concept design.

5.2 Practical Actions for Innovative Methods

5.2.1 Coping with an Open-Structure Method

Even though one of their main motivations for taking the user-inspired design course was to learn new ways of doing, that is, working with innovative methods using an empathic and co-design approach that went beyond traditional methods like surveys, the open nature of innovative methods still came to the students as a challenge. One of the biggest challenges was *how to design the method*. While the students liked the fact that they could utilize their design skills for the research part, they were not sure how to design the method so that it would make sense for their initial design topics and be engaging enough for the participants. In particular, it was all the more challenging because their target users were often of different ages (for example, elderly people, teenagers, or children) or from different countries (for example, expats or tourists in Finland) than the students, or had different practices (for example, smokers).

In addition, the students expressed the feeling of insecurity and uncertainty about whether they actually gained new findings or knowledge about the users, or creative ideas for defining design spaces. The students' diaries often exhibited such insecure feelings, as well as disappointment, regarding what they had collected using the innovative methods.

> *We were excited like little kids with their Christmas presents seeing what we got, and to be honest were at first a little disappointed with the results, mainly because some of the users hadn't done all the probes, and some had written very little in their diaries, etc.*
> *I started to interpret the probes and the first feeling was a bit like … is this it …*

The students' insecurity and disappointment with the outcomes were in line with the discussion in chapter 3 in terms of the issue of what

to frame as the area of outcomes when using innovative methods. In some cases, the students' design of the probes or the way they conducted the co-design workshops did not make it possible for the participants to contribute because the students just did not design or conduct the method capably enough so that it would deliver satisfying outcomes. However, another reason for the disappointment was also that they sought "knowledge for design"—whether information from the users or design inspiration–from the *artifacts* produced from the innovative methods, be they diary responses and photos from the probes or visual collages and rough 3D prototypes from the co-design workshops.

Nevertheless, I have observed from the students' diaries that they had been in fact building "knowledge" about what the user groups are like, what is relevant to them and what is not, and what their local environments are like, already when designing the method. This type of knowing in fact *is* precisely input for design. When I refer to "designing the method," not only does it include content-related activities, such as planning the method, designing the task and a set of questions, and so on, but also more practical actions at the practical ground level, such as actions organized for the "materialization" of the methods or for "unofficial" meet-ups with users to make the method work in practice.

5.2.2 Material Design of Innovative Methods

One of the student groups who took the course in 2009 aimed to design a service for teenagers in the city of Helsinki, which would support a more meaningful and safer peer-group hangout. After doing field observations in shopping malls where groups of teenagers often gather, the students wanted to apply the probes to tackle the issues of the teenagers' emotional attachment to or detachment from public places.

> *How to create the probes was quite a big issue for us. Teenagers are part of society which changes really quickly and in different periods of [their] teenage [years] they have different interests …*

It was, however, difficult for the students to predict how the teenagers would respond to their probes. Hence, before designing the probes, this group set the mood by recalling their own teenage memories.

> *I have tried to set the mood. I have tried to remember how 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. To me it worked as some sort of mirror of my feelings and energy, a way to escape, although I did not have that hard time at teenage [sic]. I felt strong and confident and I thought I knew almost everything that is essential in life.*

Then the group read recent newspapers and magazines about teenagers, and compared them with their memories.

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

Of course, designing the relevant tasks for the probes study was a major concern for the students, but besides this, the students put huge efforts into how the probes should *look*. The *look* of the probes was considered important as a *marketing point* to attract the teenagers and, more practically, to make them 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 few of them interested in our topic.*

We designed buttons that they can attach to the bag, which is not related to the research directly but we made it for motivating teenagers by jolly-looking kit. We also put candies in the bag for the same reason … We discussed color too. The teenage boys don't like pink and girls like vivid color and so on. It was interesting to hold such heated debates imagining the teenagers' feelings and preferences . . .

As the students exhibited in their diary writing, the actions of designing their method materials, such as having group discussions about what colors the teenagers would like, or crafting bags and badges as part of the probes, kept the discussion within the group oriented towards the topics of what the teenagers would prefer and what they would be like. The students also discussed what time of a day the teenagers would keep the probe diary, how they would carry the probe kits with them, and so on. I argue that these kinds of practical actions that the students organized for designing the method enabled them to move towards the users' world by talking about the users, searching for relevant information about them, acting with the method materials by imagining how the teenagers would react to them.

First of all, I realized 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 color would our users prefer? Or which font size is enough for our user to read? So, we should really consider characteristics of our users to get right results (by one female student whose target group was elderly people).

The course of actions for method-design was organized mainly to improve the local relevance of the methods so that they would be more productive–local relevance in terms of the relevance to a design topic and the user's context. However, it had a broader impact than that: This course of actions also *made it possible for the students to gradually engage with their users.*

Figure 5.2. The probe design delivered to smokers (by one student group in 2008): Making probes look like a cigarette box and cigarettes can enable the students who do not have any experience with smoking sensitive to their user group's smoking behaviors (photo courtesy of Mi-Young Kim)

Considering which font size or color would be suitable for participants might be a very peripheral, ordinary issue. What is crucial here, however, is that by orienting their actions towards such peripheral details, the students were able to be sensitive to the users and the local circumstances. By thinking about font size, the students were able to consider and be sensitive to elderly people's physical abilities and were trying to look at the world through their eyes. I will discuss further how getting immersed in the users' context through designing the method can inform design at the end of this chapter.

5.2.3 Unofficial Interaction with Users

In the diaries, I found many "unofficial" practical activities that the students had organized with the participants during the project, such as making appointments over the phone, visiting them to deliver the methods or having tea with them to introduce the methods. These activities are "not officially" included in the design process or the method description but were organized nonetheless when implementing the method at the users' site.

For example, one of the groups in 2009 aimed to design a service for elderly people in the outskirts of Helsinki, which could support them in being more active and visible within the community. The students wanted to apply probes to elicit past memories, emotional experiences, daily activities, and wishes from the elderly people, inspired by empathy probes (Mattelmäki & Battarbee, 2002). This student group had the initial idea to deliver a daily probe task to the elderly each day for five days. This was the tactic they had developed to keep the whole process interesting and fun for the elderly people.

To recruit participants for their probes, the students visited one community facility where elderly people gather and spend time together. There, the students realized that their plan to deliver task on a daily basis would not work out. By meeting and talking with the elderly people, the students realized that the elderly people there actually had a very busy schedule.

> *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 preferences. First of all, the elderly ladies were afraid of having to use much of their time for the probes. Contradicting to our stereotypic thinking, they were extremely busy! Our initial plan was actually to meet them everyday [sic] for the five days and exchange one probe for another new one. It was our way of keeping the whole process interesting and fun for them. But from Tuesday [when they firstly met the elderly] we realized that is not suitable for their busy schedule,*

so we modified the package and sealed each daily task in different envelopes, which all retains the suspense element.

This group had needed 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 every day.

However, the students' realization that the elderly people were busy, which broke their stereotypical understanding of elderly people as lonely and bored without many things to do, had an effect not only on the modifications they made to the probe design, but also on the *framing of the design space*. After noticing the elderly people's "busy schedules," the students turned their design space to the elderly people's "collaborative productivity." Later, this student group reframed their design space, from "how to encourage the elderly people to be more active in the community" to "how to support active elderly people in spreading their skills and engage less active ones to take part in the community".

5.3 The Situated Approach at the Heart of Innovative Methods

5.3.1 Knowing Your Own Stance as a Designer

Several earlier writings concerning innovative methods have discussed the aspect that designers can make sense of the situation while intervening it through the designing and use of innovative methods. When he defined the nomenclature for innovative methods, Hanington (2003) explained that the designing of innovative methods by individual designers reflects upon what is appropriate to a particular situation. Keinonen (2009) also argued that innovative methods are in line with a designer's creative reflection in a Schönian sense (Schön, 1983).

While agreeing with them, I argue that when the students were designing and modifying innovative methods, they were doing more than just reflecting upon the situation. In their design projects, not only did

the students engage in *the conversations with the situation* (Schön, 1983) through their interventions, for example, by creating probe artifacts and implementing them in the user's context, but they also reflected upon their own stance when engaging in those conversations. Steen (2009) explains that the *reflexive practice* of HCD practitioners is different from reflection. Drawing upon his definition on reflexive practice in human-centered design, the process of materialization and embodiment of innovative methods involves reflexivity in the sense that practitioners realize their own positions, stances, and preoccupations when involved in multiple conversations with other stakeholders in the HCD project.

I have argued above that the students gradually make themselves sensitive to user's context by designing the method. The students' method stories revealed that they gained such sensitivity and contextual knowing through *realizing their own background and preoccupation.* For example, during the process of designing the probe tasks and materials, the student group was able to re-enact their past teenage experiences. By doing that, they realized and explicated differences between their own teenage experiences and those of teenagers today. This is different from making assumptions about teenagers today by drawing upon their own experiences (in other words, posing their assumptions without adequate reflection) because the process of designing the method *made the students' own assumptions recognizable*. This is also different from the students trying to become objective observers when interacting with the teenagers. The process of designing the probes kept making the students aware of their backgrounds and assumptions, and it caused them to reflect upon such an awareness.

Similarly, in the example of the student group who designed for elderly people, the students' preoccupations with "the image of passive elderly people" became explicit by visiting the elderly house when recruiting participants for the probe activities. Not only did this realization make the students change their plan for the probe design, but it also prompted them to change their design space, from "how to encourage elderly people to become more active in the community" to "how to

support active elderly people in spreading their skills and engage less active ones to take part in the community".

In these cases, the students began to engage with the context of the users, not only by getting to know more about the users, but also by *getting to know more about themselves*–their prior assumptions and their own backgrounds. Learning more about the users and about themselves is part of an intertwined process in which the students' prior assumptions and backgrounds become recognizable through the embodiment of innovative methods.

Knowing about oneself has been considered important when trying to know *others* in human-centered design, especially concerning the importance of reflexivity in current ethnography (e.g., Kamppuri, 2011). Traditionally, ethnographers go into the field to study only other people's practices and cultures. In practical terms, they did that by writing about those other peoples (which is the meaning of "ethno-graphy"). This traditional approach changed after the "crisis of representation" (Denzin & Lincoln, 2005, pp. 18-20), that is, after the realization that writing about others is problematic because one always brings one's own preoccupations to the exercise, which profoundly influences one's perception, interpretation and writing. Therefore, ethnographers currently also write reflexively about their own thoughts and feelings during the research process and, for example, conduct autoethnography: This is an autobiographical genre of writing and research that displays multiple layers of consciousness, connecting the personal to the cultural (Ellis, 2004).

When ethnography becomes a part of human-centered design, this reflexivity, however, is downplayed because of the belief in the objective researcher and objective method, which was inherited from the positivist tradition of technology design. This issue of divorcing ethnography from its methodology in design, that is, treating ethnography as a set of field observation techniques in technology design and leaving out the essential mindset of the researcher's interpretation through reflexivity, has already been discussed in many recent writings (e.g., Ackerman, 2000; Anderson, 1994; Button, 2000; Dourish, 2006; Boehner et al., 2007).

I find from the students' diaries that the *designing of the innovative methods as a social and an embodied process* has the potential to support this reflexive practice for designers when approaching the cultural other: The designing process of innovative methods makes designers' assumptions and initial interests recognizable. It embodies the physical and visual dimensions of such assumptions. In addition, it also helps continuously organize social actions with other design team members as well as participants so that the social actions encourage them to explicate such assumptions even more recognizable.

This type of knowing through designing of the innovative methods is, however, only possible when designers really pay their attention to designing the method so that it is sensitive to local circumstances and conveys their areas of interest. Merely making probe diaries or design game materials without being sensitive to the local circumstances or social actions of the related stakeholders would not guarantee the reflexive practice, no matter how aesthetically sophisticated the method materials are created by the designers.

5.3.2 Method-Design as Design Input

What these *method stories* in the students' diaries revealed to us is that their practical work for designing a method and implementing it in user's context actually enabled the students to know what matters in a local setting. This knowing, then, constituted design inputs.

First of all, the students needed to know more about the local circumstances in order to design their methods so that they were relevant and engaging within the local context. In this sense, the actions that were a part of the method design, for example contacting users, considering users' preferences and abilities to handle the methods, or having informal meetings and chats with users so as to deliver the methods to them, not only helped to improve the relevance and efficacy of the method within the specific setting, but also helped the students know about the users and the user context. This local sensitivity that was gained through situating the method is precisely that which plays a role

in framing a design space, as I tried to illustrate by discussing the case in which the students changed their design direction from activating passive elderly people to facilitating active elderly people in influencing the community.

This learning leads me to suggest that looking at the practical actions of method-design can in fact reveal the ways in which the situated approach at the heart of innovative methods can benefit designers. In this way, we can deepen our understanding of innovative methods so that they can help us preempt the misinterpretations that I have discussed in chapter 3. For example, the students' stories presented in this text add one more kind of understanding of innovative methods in terms of *what we frame as outcomes of the methods* (in relation to the discussion in section 3.3.3): The stories showed that designers could gain understanding of users not just from the final outcomes that are produced after applying the innovative methods, but also already from the process of designing and implementing the methods.

Indeed, it is still in question in practice whether designers pay careful attention and sensitivity to method-design so that the process of method-design can help the constructive learning about users as I discussed above. This is, however, precisely why I aim to turn designers' attentions to the phase of method-design by showing evidences of what designers can gain from that activity prior to method-in-action. Once designers understand how designing the method actually benefits their knowing of user's context and framing of relevant design space by intervening it through the method, they could pay more attention to the method-designing phase.

6 Reflections and Suggestions

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6.1 Method Portability and Situated Approach

In this dissertation, I organized my argument around two interrelated concerns: methods in design research and the understanding of "culture" in human-centered design. First, I sought to diagnose methodological misinterpretations that occur around the boundaries between different approaches within contemporary human-centered design. I focused in particular on misinterpretations that occur when evaluation criteria within a positivist framework are applied to innovative methods without careful consideration of their different premises, values, and mindsets. Due to such *neglect,* designers and researchers tend to adapt the methods in just those ways that the innovative methods in fact sought to overcome: For example, they treat innovative methods as yet another recipe in the standard methodological tool box or, or equally problematic, turn them into scientific-analytic techniques. In response, I took the issue of localization of methods for different cultural settings as my point of departure because these different perspectives—namely, a positivist perspective and the "situated" perspective of

innovative methods[6]--have quite different attitudes toward the problem of localization of methods.

The conventional motivation behind the "localization of methods" approach makes certain assumptions about methods being a set of relatively strict instructions and, especially, reproducible techniques. In this way, although the notion of method localization called attention to the local applicability and sensitivity of HCD methods, it aims to satisfy rather conventional method values, such as scientific validity, reproducibility, and efficiency. I characterized this perspective as *method portability*. However, when it comes to innovative methods, such assumptions about method portability do not seem relevant because innovative methods are *in principle* expected to be designed and re-designed by designers *in and for* each design context.

Due to their context-specific nature, then, the situated approach at the heart of innovative methods intrinsically supports local sensitivity. However, for HCD practitioners with their usual assumptions about method portability, designers' efforts to tailor methods to each particular setting appear as "problematic areas" that need to be ameliorated, and they do this precisely by imposing criteria of efficiency and scientific objectivity.

Against this view of method, I aimed to bring to light how the situated approach at the heart of innovative methods actually benefits designers and the overarching process of a design activity, going beyond and above notions of efficiency and scientific validity. I suggested an *ethnomethodological sensibility* as an analytic lens to examine designers' *practical actions* in designing innovative methods in context. In this case, the actions involved with using innovative methods refer to design-

6 In this dissertation, I do not specify one intellectual framework that innovative methods can be explained upon, as opposition to a positivist framework. It is mostly because there are more than one intellectual frame and disciplinary tradition where innovative methods have been developed within. For example, the original cultural probes were developed by being inspired by Situational Art (Gaver, Dunne, & Pacenti, 1999), and empathy probes, one of the variants of the original probes, are better explained within a interpretive frame (Mattelmäki & Battarbee, 2002).

ers' *practical* work and unofficial interactions with users that are not typically explained in most descriptions of methodology. In design research, these practical actions have so far received little attention because much more attention has been paid to more formal description of methodology. Consequently, such actions were considered too practical to be worthy of explanation or too context-dependent to be formalized as scientific knowledge.

By taking the analysis of students' learning diaries as a case, I showed that the students developed a sensitivity towards users and the users' context insofar as they necessarily, in order to make things work in practice, needed to keep paying attention to how their methodology could somehow engage and be artfully fitted to the actual context of users. This contextual sensitivity that grows through the process of designing the methods and the unofficial interaction with users, in turn, benefits their larger design project. In other words, designers learn about users and their local circumstances, which can inform the design space, already drawing upon the process of their very practical use of innovative methods. This is in contrast to the conventional conception on methods, which commonly expects such knowledge to be mined from the final outcomes after the method is carried out in a correct, scientifically valid way.

To emphasize, regarding the local sensitivity of methods, traditional HCD methods and innovative methods should be understood from different criteria and communicated in different ways. A positivist frame aims to *improve* the applicability of methods through comparative experiments and extracting general rules for method modification--*what it ought to be*. But for innovative methods, I suggested *presenting the story as it is--how it actually gets done within a particular setting and why it gets done just in that way*. I believe that *method stories* will help HCD practitioners to more effectively reflect upon their selection and use of methods because such stories do not strip away the rich contextuality of their actual use, their application in and adaptation to specific contexts. These method stories can show how the innovative methods actually work—actually succeed in practice—through their interaction with local con-

tingencies and the benefits they consequently bring to the process of the broader design activity.

6.2 Approaching the Cultural Other in Human-Centered Design

Ever since human-centered design began placing users within a socio-cultural context, *knowing the cultural other* has been the main challenge for designers and design researchers. Although *culture* is a heavily contested term with myriad connotations from different fields, such as communication, semiotics, psychology, sociology, and anthropology, the challenge of knowing the cultural other in human-centered design is relevant to the methodological traditions of ethnography and ethnomethodology (Sun, 2012). These traditions regard culture as the meanings, behaviors, and practices that groups of people develop and share over time as well as the tangible manifestations of a way of life, such as artifacts, values, and states of consciousness, building on Geertz' conceptualization of culture (1973, p. 89). Given this concept, the cultural other in design can refer, in the broadest sense, to a provisional group of people who may share meanings, behaviors, practices, or tangible manifestations that are different from those of the designers: We often refer to as *users*. In this sense, designers' concern with knowing the cultural other has to do with knowing the particular meanings, behaviors, practices, and tangible manifestations of the users.

Because of the tradition of user segmentation in human-centered design, it has been natural to deal with culture as a conceptual instrument for classifying user groups, characterizing them, and distinguishing one target group from another. Consequently, when we talk about culture, it inevitably involves the connotation of "cultural divides," "cultural differences," or "cultural categories," which makes it so natural to talk about Asian culture, engineering school culture, or the culture of teenage girls. Especially with market globalization, cultural divides along with nationalities or geographic location have been one of the

general conceptualizations of culture in human-centered design. This has been the central thinking in cross-cultural design as well.

In this taxonomic view of culture, the cultural characteristics that are represented by environmental factors, regulations, traditions, or the value-oriented dimensions of locales (e.g., Hofstede, 1991, 2001; Hall, 1977; Trompenaars, 1997) have provided a typical framework with which to explain and make generalizations about the characteristics of various users (Sun, 2012). While the taxonomic view of culture is widely accepted in human-centered design, this view also introduces limitations in many respects.

First of all, explaining individuals in terms of a cultural taxonomy of one or two items is conceptually and practically inaccurate, because an individual participates many cultures, such as culture of nationhood, family history, profession, class, and so on. Since an individual participates in multiple levels of culture at the same time, how can we explain a person's behavior only in terms of his or her national culture, or in terms of his or her home culture?

Secondly, explaining individuals' behaviors and experiences by attributing them to a cultural framework involves a risk of creating a false picture from these very generalizations. It is true that making generalizations according to a cultural framework can show a general tendency or patterns of a particular group. However, this approach should not be taken to mean that each individual in that particular group *contains or embodies* that general tendency. The view of people as "cultural dopes" (Garfinkel, 1967, pp. 68-75) or as embodiments of cultural stereotypes is quite problematic for contemporary human-centered design, which hopes to concretely embrace individuals' subjective experiences, emotions, idiosyncrasies, and creativity.

Lastly, the taxonomic view of culture involves critical limitation for incorporating and envisioning cultural change, as it only provides explanation of the existing phenomena (Irani et al., 2010). In human-centered design, locating the existing phenomena in an overarching process of transition is important for designers to envision what the future could actually bring.

Because of the above-mentioned reasons, the taxonomic view of culture does not provide a constructive lens for human-centered design, especially when its aim is to search for future design concepts, bringing new experiences and values for people, rather than simply the incremental improvement of an existing system. Given these criticisms, what could be then an alternative perspective? One inspiring proposition is offered by Irani et al. (2010): They suggest using a *generative view of culture* that draws upon contemporary anthropology and postcolonial studies.

> *Here, culture is a lens through which people collectively encounter the world—a system of interpretive signification through which the world intersubjectively meaningful. From this view, an individual may participate in many cultures-—cultures of ethnicity, nationhood, profession, class, gender, kinship, and history-—each of which, with its logics and narratives, frames the experience of everyday life. Rather than classifying people on various cultural dimensions, a generative view of culture suggests we ask how the technological objects and knowledge practices of everyday life become meaningful contingently and dynamically as social activity unfolds. In this sense, culture shapes experience but is in turn reproduced and generated through everyday interaction.* (Irani et al., 2010, p.1313)

In this view, culture is most certainly not a stable setting that people act within, and which influences people's behaviors and experiences; rather, it is collectively interpreted, enacted, and produced by people in their everyday encounters. In contrast to this taxonomic approach, the generative view of culture encourages us to identify what actually matters for the ongoing activity of people in particular contexts and how design could intervene and be artfully integrated into that context.

Taking a taxonomic or generative view towards culture means taking a different mindset when approaching the same phenomena: It represents a choice between whether researchers want to define people's current practices in terms of general characteristics of culture--a taxonomic view of culture--or see people's current practices as responses to

the dynamic process of generating new interpretive significations within different social settings—a generative view of culture.

In terms of the interplay between method and culture, I see that the application of innovative methods should be underpinned by this alternative view of culture as being generated and enacted in order to have a sensitive lens to *what could be in the future,* based on making sense of *what it is now*. Put it another way, when designers work with innovative methods by acknowledging their situated approach, they can be equipped with this generative view of culture, which could then greatly help them avoid the problem of stereotyping and generalizing among user groups. In the students' cases presented in chapter 5, although they had pre-assumptions at the beginning when first approaching cultural others (e.g., elderly people, teenagers, or Helsinki immigrants), the process of designing innovative methods for those particular groups enabled them to realize their pre-assumptions, and by realizing them, the students were able to re-frame their design space.

6.3 Concluding Remarks and Future Work

In conclusion, I would like to provide three suggestions.

Firstly, since innovative methods are in principle designed and redesigned for an individual design setting, the evaluation criteria for innovative methods should be incommensurable with the conventional evaluation criteria of methods, such as reproducibility and efficiency. Through the process of designing innovative methods by incorporating local circumstances that are dynamic and particular, designers and researchers can more effectively train their attention to the nature of each different design setting. According to Keinonen (2009), nurturing designer's competence should stand as an essential evaluation criterion for innovative methods. In addition, instead of achieving efficiency during the process of data collection by selecting a standard technique from a tool box, innovative methods may achieve a very different kind

of design efficiency in the sense that designers can learn about the user context and reflect upon their initial design interest during the very process of designing the methods, instead of waiting until the data is collected and its meaning deduced.

Secondly, it should be noted that there is no single best way to conduct one kind of innovative method--for example, probes or design games. Its material forms, structures, rules, and interpretation strategies differ depending on the particular context of each design project. However, if we could still talk about a correct way of using innovative methods, it is when designers and researchers think thoroughly and reflect creatively upon why a particular method-design makes sense in a given design situation. This sensitive reflection is particularly essential when innovative methods are adapted to fit different epistemological frameworks and practices. For instance, when probes are used for a retrospective evaluation method, rich description should be provided about why the approach of probes for this case was selected to serve such a purpose, and in what ways these probes are designed for that particular purpose and context.

Lastly, for promoting better understanding of innovative methods, the practical work of designers that are specific to the context of their use should be carefully explicated and described within the design research community. What HCD practitioners may need is not *rules to follow* but *stories to reflect upon*.

In this dissertation, I presented method stories from the students' diaries for illustrating how presentation of such stories can better support our understanding of innovative methods. Because the students were inexperienced and had not used innovative methods before, the diaries introduced detailed descriptions of the challenges they faced, the practicalities of use, and their thoughts and actions around the situated application of methods. As a result, their stories brought to light the benefits of the practical work of method-design, which informs the larger work of the design activity, far beyond the immediate benefit for making the method somehow work in that setting.

Although the students' diaries provided detailed method stories, the

diary as study material has limitations because these documents were written after the practical work took place, and as such they unavoidably reflected upon the students' prior experience rather than revealing the phenomenon as it was *immediately* experienced, and thus prior to this reflective process. Many aspects of the practical actions might have been still unnoticed by the students because organizing such actions is not a cognitively conscious job. Moreover, the students might have filtered the practical actions out from their diaries because they found them "uninteresting" to report. The learning presented in this dissertation, thus, should be complemented by participatory observation in the situation where designers are organizing their social and embodied actions for designing and implementing the innovative methods with team members, users, and other stakeholders. This participatory observation with an ethnomethodological sensibility will provide rich supporting stories for the innovative methods and deepen our understanding of them.

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Presentation of Articles

Article 1 **Lee, J.J.** & Lee, K.P. (2007). Cultural differences and design methods for user experience research: Dutch and Korean participants compared. In I. Koskinen and T. Keinonen (Eds.), *Proceedings of the 2007 conference on Designing pleasurable products and interfaces*, (pp. 21-34). New York, NY: ACM Press.

Article 2 **Lee, J.J.** & Lee, K.P. (2009). Facilitating dynamics of focus group interviews in East Asia: Evidence and tools by cross-cultural study. *International Journal of Design*, *3*(1), 17-28.

Article 3 **Lee, J.J.**, Koskinen, I. & Mikkonen, J. (2009). Co-Experience in a cross-cultural notion: Unpacking the effect of culture on users' social interaction. In *Proceedings of IASDR 2009, the 3rd World Conference on Design Research.*

Article 4[7] Vaajakallio, K., **Lee, J.J.** & Mattelmäki, T. (2009). "It has to be a group work!" - Co-design with children. In P. Paolini and F. Garzotto (Eds.), *Proceedings of the 8th International Conference on Interaction Design and Children,* (pp. 246-249). New York, NY: ACM Press.

Article 5 **Lee, J.J.**, Vaajakallio, K., & Mattelmäki, T. (2011). Tracing situated effects of innovative design methods: Inexperienced designers' practices. In C. J. Hoopers, J.-B. Martens, P. Markopoulos, *Proceedings of the 2nd Conference on Creativity and Innovation in Design,* (pp. 103-113). New York, NY: ACM Press.

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7 Although I am the second author of article 4, the project was conducted at an equal level of collaboration with the first author, from the planning stage to conducting the study to performing the final analysis, as well as writing the article.

Article 1:
Cultural Differences and Design Methods for User Experience Research: Dutch and Korean Participants Compared

Cultural Differences and Design Methods for User Experience Research: Dutch and Korean Participants Compared

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Abstract. As business competition globalizes, understanding user experience from various cultures plays a crucial role in design process. However, because most user research methods were developed in Western area, one may question if the expected result can be obtained when applying them to totally dif-

ferent culture. The paper explores cultural effects on the feedback collected in the process and result of user experience research conducted in two countries, the Netherlands and Korea. We presumed four factors which influence user research process: spontaneity of participation, uncertainty avoidance, tendency of problem criticism, and attitude within a group. After the two sets of user research in two countries, actual differences of results were revealed. Consequently, guidelines of user experience research in Korea were suggested based on discovered differences.

Categories and Subject Descriptors A.0 [GENERAL]: Conference Proceedings H.5.2: User interfaces, User-centered design

1 Introduction

As market competition globalizes, understanding users of various cultures has become important in a design process. Since the emergence of the concept of 'user experience', many diverse methods have been developed for it. Especially, 'user participatory design' is under the spotlight recently, thus explaining the growing importance of the user's role during a design process.

Most user experience research methods currently in use, however, have been developed in the United States or Western Europe and subjected to people in the areas. It makes one wonder if those methods can achieve the expected results when applied to people living in other cultures.

Concerning this question, some studies have started to focus on cultural influence on user participatory design methods recently. Van Rijn assumed that contextmapping techniques - which are types of generative workshop used in the conceptual phase of design - would work less with participants from more 'reserved' Asian culture, because the techniques heavily rely on activities such as expressing feelings in public and discussing [17]. She tried to adapt the techniques for use with East Asian participants and pointed at trust, control and context communication as considerable factors. Moreover,

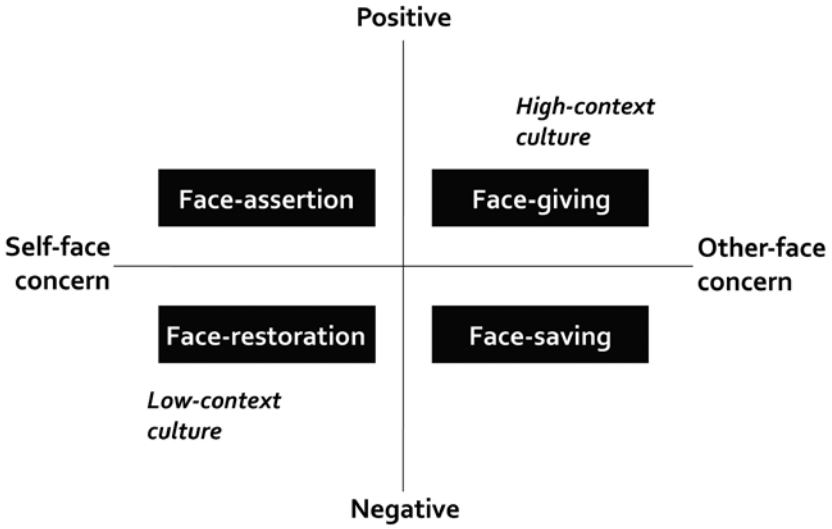

Fig. 1. Ting-Toomey's facework framework explains the difference in communication pattern in individualistic-low context culture in which one desires not to be disrupted, intruded, and forced by others., and collectivistic-high context culture in which one desires to be liked and approved by other people and concern about others' reaction [15].

in India, because Indian users would work around problems rather complain them, Chavan adapted usability evaluation methods considering cultural characteristics of India [2]. She came up with the idea that Indian people love movies and brought 'Bollywood' atmosphere to the methods, so that participants can be motivated to criticize products like they are film reviewers. These preceding studies emphasize that considering cultural context enables to have more successful results of the user experience research.

Nonetheless, there are few studies that actually revealed and compared differences caused by cultural characteristics when conducting the same user research in different cultures. If different factors are revealed, designers will be able to adapt or develop methods considering those practical factors. Consequently, this research aimed at two points. One is to reveal actual differences of user research feedback from various cultures and the other is to propose how to take those differences into account for user experience research in a certain culture. Experimental approach was selected to reveal differences and for experiment design, literature review was done to understand influential aspects of culture and attributes of user research methods.

2 Cultural Differences in Interpersonal Communication Pattern

Since user research method is based on the interpersonal communication process between users and researchers, the importance of different communication patterns of different cultures must be emphasized in this research. Ting-Toomey explained the difference of communication pattern in different cultures based on 'politeness theory [1]', through which the difference in communication pattern in individualistic-low context culture and collectivistic-high context culture can be revealed [15].

Individualism versus collectivism is an idea that contrasts ones who only care for oneself and one's direct family members(I-conscious) and ones who emphasize the importance of loyalty and unity for the group that cares for one(We-conscious) [8]. This idea is related to the communication pattern of the society's constituents and it can be explained in relation to Hall's [5] 'context' theories [9,15]. In Hall's culture theory, information during communication or in a message is a part of context. It is more or less defined by the degree to which the message or communication is internalized by an individual. In 'high context culture', most information is included in the context, thus it expresses less externally. However, communication is direct, clear, and expressed externally in 'low context culture'. Hofstede revealed that high context communication occurs in collectivistic culture and low context communication occurs in individualistic culture [9].

One of the important concepts of Ting-Toomey's theory is 'face', which begins with the idea that everyone is very aware of how other people think of them as they engage in a conversation. There are two aspects to face. 'Positive face' is the desire to be liked and approved by other people while negative face is the desire not to be disrupted, intruded, and forced by others. She developed 'facework framework' based on the distinction of positive face/negative face and self-face concern/other-face concern in the politeness theory to explain the cultural difference (Fig. 1).

With the framework, she also proposed the difference of face-related characteristics in collectivistic-high context culture and individualistic-low context culture (Table 1). The proposed characteristics explain people's interpersonal communication style in a more behavioral way. Thus, this proposition will have a profound implication on user experience research methods and aid in establishing direction for the study of culture and user experience research relationship.

Table 1. Individualistic/low context versus Collectivistic/high context facework [7].

Key elements of 'face'	Individualistic/low-context	Collectivistic/high-context
Identity	Emphasis on 'I' identity	Emphasis on 'we' identity
Concern	Self-face concern	Other-face concern
Need	Negative face need	Positive face need
Supra-strategy	Self-positive and self-negative facework	Other-positive and other-negative facework
Mode	Direct mode	Indirect mode
Style	Controlling, confrontational, solution-oriented style	Obliging, avoiding, affective oriented style
Speech acts	Direct speech acts	Indirect speech acts
Nonverbal acts	Individualistic nonverbal acts, direct emotional expressions	Contextualistic (role-oriented), nonverbal acts, indirect emotional expressions

If Ting-Toomey's facework framework is applied to user experience research, 'self' becomes the participant and 'other' becomes the researcher or other constituents of a group in the case of a group work. Consequently, when user research is done in collectivistic-high context culture and individualistic-low context culture, two tendencies can be expected as follows.

Firstly, a participant in collectivistic-high context culture will tend to be considerate of researcher and other participants' feelings and will attempt to maintain others' face.

Secondly, a participant in individualistic-low context culture will have a tendency to guard one's freedom and personal space.

The two tendencies above established the direction of this research and were explored by experiments.

3 Relationship between Cultural Differences and User Experience Research Methods

User experience research methods heavily rely on the process of communication between the researchers and users. Therefore, it is crucial to understand the attributes of user experience research methods regarding their communication patterns, as well as its connection to cultural differences.

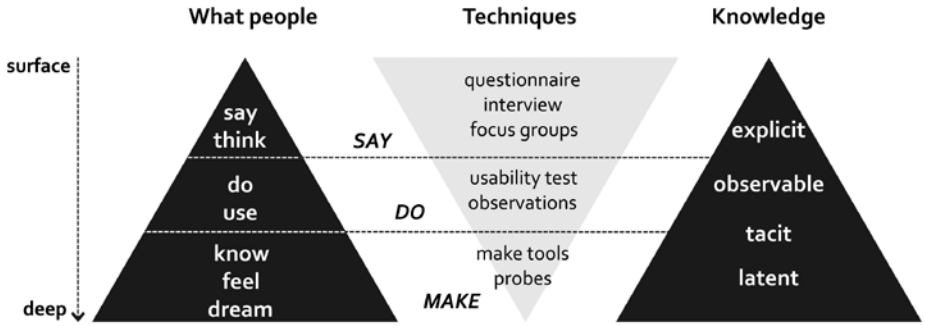

Fig. 2. Cognitive level of user experience and corresponding methods of user research with different communication patterns [13]

3.1 Classification of User Experience Research Methods Regarding Communication Patterns

Knowledge about user experience gained from a user research can be distinguished by possibility of observation and explicitness [13]. Knowledge that can be spoken or thought about is explicit, so it can be expressed in a language. However, if that knowledge is in the process of cognition or below that level, such as in a dream, it becomes tacit and latent. Sanders explains that in order to effectively observe knowledge at different levels, different methods must be applied according to the characteristics of that knowledge level (Fig.2).

'Say, do and make framework' reflects the way to communicate between the designer and the user. Different communication characteristics of varying cultural backgrounds will have an impact on user-researcher communication during a user experience research. Not only that, its effects will also differ according to the type of communication, whether it be 'saying', 'doing', or 'making'.

3.2 Extraction of Influential Factors

In order to find out what aspect of cultural difference has an influence on user research process and result, some influential factors were extracted. First, characteristics of cultural difference regarding communication pattern was integrated and mapped to communication pattern of user research. Group

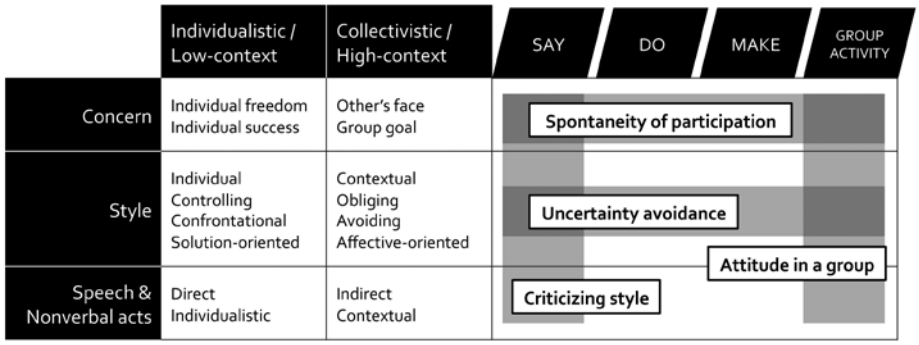

Fig. 3. The gray bars in the right side stand for the relation areas that characteristics of cultural difference can influence communication pattern of user research methods. By mapping them, four influential factors were extracted from the relation areas.

activity was also mapped together to take into account some cases where the group constituent was one of the targets of face-keeping. Thus, the following shows the extraction of four influential factors (Fig. 3).

Spontaneity of Participation. In individualistic-low context culture where individual freedom is valued and spontaneous participation is widely accepted [12], participants will think highly of their participation during user research. Nevertheless, in collectivistic-high context culture where others' face is important and spontaneous participation will not be as frequent, participants think of user research as a test or a task that is unwillingly done as a favor to the researcher. This is deeply related to motivating the participant of user experience research, thus will have a huge impact on self-observation that gives very little control from the researcher.

Uncertainty Avoidance. Uncertainty avoidance in user research methods is defined as the anxiety that the participant of the user research feels due to the ambiguity of the task given to the participant. Uncertainty avoidance also has to do with the participant's attitude towards the user experience research. If the participant is from collectivistic-high context culture thus sees his participation as a task or a test, he may be worried that his response or action during user research will disappoint the researcher. Generative tools, probe techniques and open-ended questions aimed to awaken user's latent experience and obtain unexpected answers are all examples of research methods that can be affected by uncertainty avoidance.

Tendency of Problem Criticism. Having tendency to criticize problems is closely related to one's attitude towards the environment and one's speech. Westerners are non-conformists and they tend to find problems and criticize when they believe that a product or a situation is not what they expected. On the other hand, oriental people are conformists and they believe that they have to adapt to a product or a situation even when they know that the puzzle doesn't quite fit [2]. This tendency can be discovered during a usability test method where the actual product or a system is evaluated and problems are derived.

Attitude within a Group. In an individualistic-low context culture, discussions and expressing one's own opinion within a group comes rather naturally [17]. On the contrary, in collectivistic-high context culture, people feel uncomfortable to draw attention to themselves within a group. Unlike westerners, oriental people are more inclined to agree with the majority and rely on others to speak up [2]. Attitude within a group can influence focus group interview, generative workshop, or generative group session.

4 Experiment and Result Analysis

Experiment was designed to discover how four factors – spontaneity of participation, uncertainty avoidance, tendency of problem criticism, and attitude within a group - affect user research process and result.

4.1 User Research Method Selection

As explained in "3.2 Extraction of influential factors", it is expected that spontaneity of participation will show difference in self-observation method, uncertainty avoidance will show difference in probe technique or generative tool, tendency of problem criticism will show difference in usability test method, and attitude within a group will show difference in focus group interview or generative group session. Therefore, in this research, probe, usability test, and focus group interview were selected to find out the effect of four factors mentioned above. The experiment was designed to explore following questions in each method.

PROBE

Q 1. Will the different tendencies of participants from individualistic-low context culture, who are more of spontaneous participants, and participants from collectivistic-high context culture, who see user research as a test or a task, influence the level of diligence and motivation during the probe process?

Q 2. Will the different tendencies of participants from individualistic-low context culture, who do not mind uncertainty much, and participants from collectivistic-high context culture, who are more likely to avoid uncertainty, influence the feedback of probe's ambiguous questions?

USABILITY TEST

Q 3. Will the different tendencies of participants from individualistic-low context culture, who do not like to conform to standards, and participants from collectivistic-high context culture, who are more likely to be conformists, influence the willingness to find a product's problems during the usability test?

FOCUS GROUP INTERVIEW

Q 4. Will the different tendencies of participants from individualistic-low context culture, who emphasize their freedom and self-centrism, and participants from collectivistic-high context culture, who emphasize others' face and collaboration, influence the participants' attitude to express opinions during focus group interview?

4.2 Participants

In this study, selecting people who can well represent individualistic-low context culture and collectivistic-high context culture was very important. In addition, all variables except the cultural difference must be kept under control.

First of all, we selected the Netherlands (individualism figure of 80) as an individualistic-low context culture and Korea (individualism figure of 18) as a collectivistic-high context culture according to the individualism figure from one of Hofstede's cultural dimensions [8]. Then, from each country, six university students who are in their 20s and are studying engineering were selected. In both countries, male to female ratio was one to one and none of the participants had previous experience with any of the tests.

Fig. 4. Probe toolkit provided in the experiment

4.3 Experiment Design

Three methods were selected to conduct the user experience research in two different cultures. Discoveries of the research process and result was qualitatively compared and analyzed. 'Design of next generation's portable media device' was selected as the topic of the experiment for the purpose of applying three methods and also due to the perception on technology trend at each country. In order to observe answers to four questions stated above, each user research was designed as follows.

PROBE

In this experiment, Gaver's cultural probe [3] that emphasizes ambiguity and freedom was selected and the format of sensitizing workbook, which is a part of contextmapping study, was borrowed. In order not to compromise diligence, the task consisted of 6 days of workbook [14] and 4 days of photography (Fig. 4).

To observe how participants of Korea and the Netherlands act to ambiguous and open-ended tasks during workbook writing and photographing, we provided very expandable and self-interpretable tasks that can highly reflect an individual's own experiences. The following are examples of the workbook tasks.

> **1st day.** "When and What": Matching game that connects the type of media and its context; must also add explanation
> **2nd day.** "Media Diary": Record each media-related activity on a timeline; stickers are provided
> **3rd day.** "My Favorite Box": Record a list of things one wishes to include in a "favorite box" and write reasons for it; stickers are provided

Moreover, concrete terms were avoided but more comprehensive terms that could be interpreted in several different ways were used in the workbook. We provided the workbook with a plenty of white spaces to escape from formality of writing to see how well participants can make use of the free-form.

USABILITY TEST

To observe participants' eagerness to find problems during the usability test, the participants were allowed to talk about the product's problems while and after using it for given tasks. To ensure that the product itself or the nature of the task was not affected by the difference in culture, we gave out seven different tasks, such as menu navigation, setup, media player control and others, on two kinds of products (Iriver U10 and Sony PSP).

FOCUS GROUP INTERVIEW

Focus group interview was selected to discover how comfortable a participant is about sharing his own experiences and thoughts in a group. In the experiment, the type of focus group interview for the product concept development stage was used.

4.4 Results

User experience research was done once in the Netherlands and once in Korea. The first experiment was performed in Delft, the Netherlands at Delft University of Technology and the second experiment was performed in Daejeon, Korea at Korea Advanced Institute of Science and Technology. After the experiment, the feedback and results were compared and analyzed, focusing on each user experience research method.

PROBE

Participant's feedback during probe period, which is the procedural aspect, and sufficiency of workbook writing and photography, which is the result aspect, were analyzed.

Participant's Feedback. Even though both Dutch participants and Korean participants felt the ambiguity of terms on the workbook, they attempted to interpret those ambiguous terms on their own to complete the task without any help. Dutch participants wrote in the workbook almost everyday but Korean participants revealed through the 'comments' page of the workbook that they had trouble writing in the workbook everyday, so sometimes they

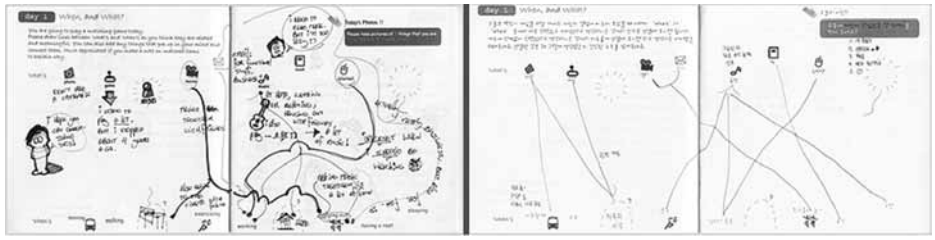

Fig. 5. Example of a Dutch Participant's workbook (left) and Korean participant's workbook (right) task on the first day: shows that Dutch participant wrote the workbook more freely (drawings and word balloons)

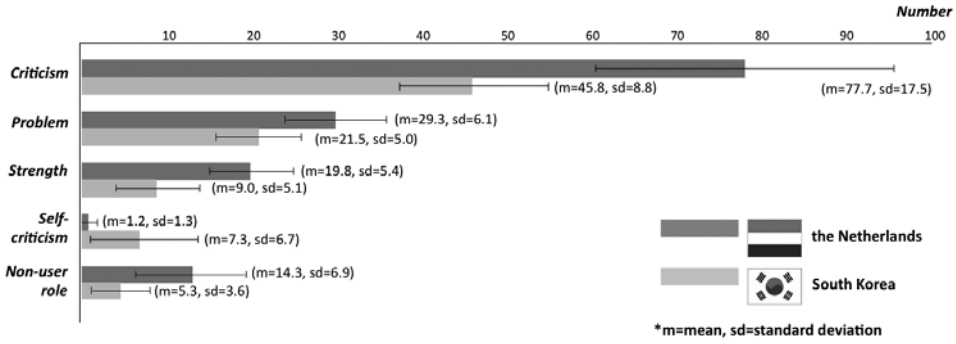

Fig. 6. Comparing performance during usability test between two groups: the frequency of criticism was higher with Dutch participants.

wrote several days of work all at once.

Sufficiency. We compared and analyzed Dutch and Korean participants' workbooks and photographs in order to discover how sufficient each group was in expressing their experiences in the workbook and how diligent they were in taking photographs.

Dutch participants' sufficiency was higher than that of Korean participants' in terms of workbook task and photography. Instead of giving detailed answers, Korean participants gave short answers to workbook questions. Not only that, they were also poorer in applying various forms such as drawing and applying provided stickers to the workbook tasks (Fig. 5).

USABILITY TEST

For the usability test, protocol analysis was used on verbal comments and behaviors of participants in order to compare tendency to criticize a problem and attitude towards participation. Frequency of product criticism, including

both discovering a problem with a product and strength of a product, tendency towards self-criticism, and non-user role behavior were set as the coding scheme and measured (Fig. 6).

Eagerness of Usability Test. 'Criticism' of Fig. 6 shows that Dutch participants criticized the products more actively. Dutch participants more frequently discovered a product's weakness and also its strength.

Tendency towards Self-criticism. Dutch participants believed that most problems that occurred during the test were due to the problem with the product. However, relatively speaking, Korean participants believed that problems that occurred during the test were due to their mistakes. However, it varied greatly from individual to individual (Mean 7.3, Standard deviation 6.7), discrediting the conclusion that Korean participants have more tendency towards self-criticism. Presumably, the participants were well-educated engineering students thus they were comfortable with the whole test situation and handling digital products.

Diligence of user role. Korean participants were better than Dutch participants at maintaining the user role. Dutch participants explored product functions that were not part of the task. On top of that, sometimes they criticized the task itself. Hall's research has shown that Dutch participants had a wider range of observation and also discovered a wider range of problems, not to mention their frequent escape from the user role [7]. This also supports the discovery that participants from individualistic-low context culture tend to be less diligent when it comes to focusing on the given task.

FOCUS GROUP INTERVIEW

For the focus group interview, protocol analysis was used according to the timeline to gather all participants' frequency of presenting an opinion and interaction style, and to observe the role required by the moderator.

Active participation and even distribution of voice. Fig. 8 shows a large area of 'opinion suggestion (user role)', implying that Dutch participants engaged more actively in the discussion. The Korean timeline shows that there are temporal spaces between opinions and it seems as though another opinion came up when the moderator asked a question or pointed out someone to speak. Dutch timeline, however, seems to show continuous expression of thoughts and ideas without much help from the moderator. Since Dutch participants were more active when suggesting opinions, they were also more likely to escape from their user role in comparison to Korean participants.

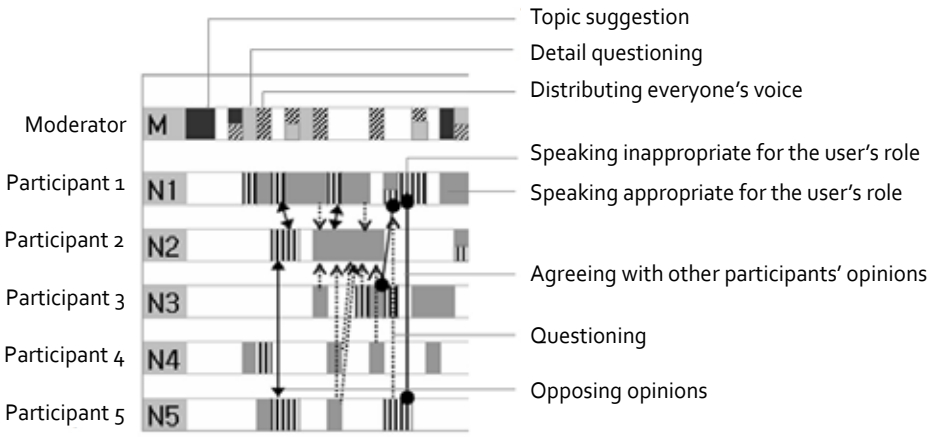

Fig. 7. Explanation of timeline analysis: Every time a participant spoke, it was marked on the timeline as either appropriate for the user's role (shared an opinion coherent with the interview topic) or inappropriate for the user's role (shared an opinion incoherent with the interview topic). A moderator's role can also be distinguished into three categories, which are topic suggestion, evenly distributing everyone's voice, and detailed questioning

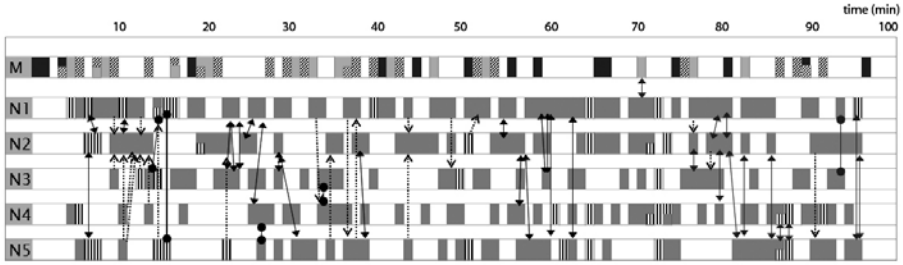

Fig. 8. Analysis of Dutch Participants' Focus Group Interview Timeline

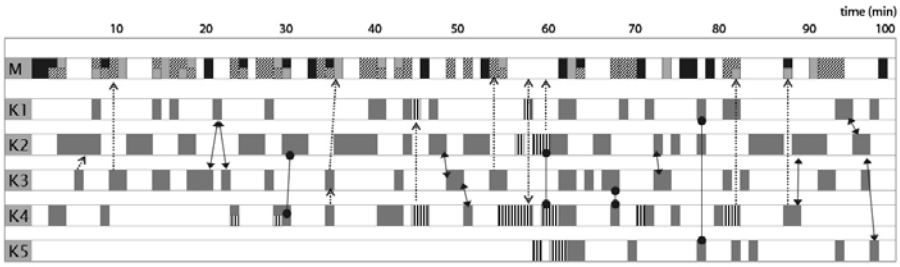

Fig. 9. Analysis of Korean Participants' Focus Group Interview Timeline

Dutch participant actively engaged in a discussion soon after the interview started, whereas Korean participants took a while to start speaking up. During the beginning stage of the interview, Korean participants only spoke when they were called on by the moderator. As time passed, participation increased little by little. Both Korean and Dutch group had a break after 50 minutes of discussion. As in Fig. 9, moderator's role of calling on participants to speak significantly decreased after 50 minutes. Not only that, group constituents started to speak evenly and more frequently after 50 minutes of interview. This proves that Korean participants spoke more frequently as time elapsed and that they need a break or a refreshing time to increase the rate of participation.

Role of the moderator. In Korean group, participants rarely spoke voluntarily before they were called upon by the moderator. Therefore, moderator needed to call on participants constantly and ask more detailed questions to carry on the discussion. On the other hand, Dutch moderator did not have to do much since Dutch participants actively engaged in discussion as soon as the discussion topic was suggested by the moderator. Some Dutch participants, however, had the tendency to speak too long or speak about the same topic for too long, requiring the moderator to control such behavior.

Interaction among participants. Voluntary interaction amongst group members was more obvious in the Dutch group. As the arrows of Fig. 8 and Fig. 9 show, when someone finished speaking in the Dutch group, opposing opinion and corresponding questions were actively generated. On the other hand, Korean participants tended to ask the question to the moderator. It can be assumed that the uncertainty avoidance causes such behavior, in which the constituents are less likely to engage in free discussion but are more likely to seek for confirmation from the moderator. There was no significant conformity of opinion in either group.

5 Discussion and Proposition

After conducting probe, usability test, and focus group interview in the Netherlands and in Korea, we discovered that productivity and effectiveness was poorer in Korea. Through this, we discovered the differences in spontaneous participation, uncertainty avoidance, tendency of problem criticism, and attitude within the group in Korea, which is a typical collectivistic-high context culture, and the Netherlands, which is a typical individualistic-low context culture.

As a result, when self-observation research methods are used in Korea, constant communication between the participant and the researcher is crucial to boost the participant's motivation.

When product evaluation or concept evaluation is conducted in Korea, sensitizing is very important so that the participants can have a critical attitude. In addition, we expect that indirect interview will be more efficient than a face-to-face interview.

Based on the result, we have compiled guidelines for each of the method when conducting user experience research in Korea.

5.1 Probe

Constant Communication. When probe is used in Korea, constant communication between a participant and a researcher is necessary during the probe period to boost participant's motivation and stimulate the participant's sense of responsibility. The communication between a researcher and a participant should be playful and informal as to make it less burdensome.

Playful Methods. To alleviate any burden from the participant and induce fun, some playful tasks and factors must be added to the probe tool. Not only that, the design should also be done more in-depth and some "cute" and "friendly" factors should be augmented so that participants can feel more comfortable and friendly [17].

5.2 Usability Test

Sensitizing. To increase the efficiency of usability test in Korea, some type of orientation or sensitizing process must be provided to teach participants to have a critical mind.

Less Direct Interview. Attempt to switch to less direct method to find problems rather than face-to-face interview.

5.3 Focus Group Interview

Friendliness and Warming-up. To carry out focus group interview in Korea, warmi-ng-up sessions before the interview and a session to increase friendliness among participants are needed.

Obligated to Speak. Provide devices that will make the participants feel obligated to speak (for example, toy microphone) or factors that will promote detail explanation of one's opinion.

6 Conclusion

This study discovered actual differences from the same user research process done in two different cultures. The differences emphasize the need to consider cultural influence on user experience research. Through findings, this study also suggested guidelines about how to take the different factors into account for user experience research in Korea.

Nonetheless, the limitation of this qualitative research lies in that the sample was small. Besides, the participants did not sample the general population since they were students in their twenties from highly educated engineering schools. Therefore, this paper can become the foundation for future research, which will aim to include a wide range of age groups and numerous participants. If this research continues on, valid data of various cultural groups will become available. Moreover, the guidelines of considering cultural effect in user experience research suggested by this paper will have to prove its usefulness by cases of real life applications.

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Article 2: Facilitating Dynamics of Focus Group Interviews in East Asia: Evidence and Tools by Cross-Cultural Study

Facilitating Dynamics of Focus Group Interviews in East Asia: Evidence and Tools by Cross-Cultural Study

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Abstract: Facilitating cultural sensitivity has become a critical issue in user experience design. Although many design solutions attempts to take cultural differences into account, there have been few studies focusing on the influence of culture on user research methods. Since many user research methods popularly used in design have been developed in Europe and North America, one can question how these methods work in completely different cultures. It is particularly worth investigating how focus group interviews work in East Asia where people have different communication styles and a weaker participatory discussion culture than Westerners. This paper aims at exploring how a focus group interview works differently in East Asia by conducting cross-cultural experiments. The results of a comparative experiment in the Netherlands and South Korea showed passive participation and poor member-to-member interactions from Korean participants. These findings led us to develop tools to facilitate the group dynamics of focus group interviews in East Asia: "pre-activities" to break the ice and build membership, "Mini-me dolls" to support indirect communication and facilitate playfulness, and an imaginary setting of a "TV home shopping show" to empower participants to express their ideas. We tested these tools in the focus group interview with a group of South Koreans to discuss their real usage and potentials.

Keywords - Cross-Cultural Study, Focus Group Interview, Group Dynamics, User Research Methods.

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Introduction

As people's values, behaviours and even cognitive processes differ in different cultures, facilitating cultural sensitivity in design has become a critical issue. Cultural differences have been taken into account in design in various ways, such as focusing on preferences in colour or form of products, using cultural dimensions as criteria for website design (Marcus & Gould 2000), considering human cognition styles in interface design (Kim et al. 2007; Dong & Lee 2008), and creating new experience of mobile communication for target locales (Konkka 2003). There have been, however, few studies focusing on how cultural differences influence user research methods in design. Since the design process increasingly involves users in terms of participatory design and co-design, the relationship between culture and user research methods has become a more crucial notion. In addition, since most user research methods popularly employed these days were developed in Europe and North America, one can question their fitness in very different cultures.

Recently a few studies have addressed the notion of cultural influence on user research methods. In their work on usability evaluation methods, Hall et al. (2004) argued that European participants had more critical attitudes towards tested products and found more problems than Asian and African participants did. They showed users' cultural backgrounds do influence the results and the process of user research, concluding that retrospective think-aloud protocols are less affected by cultural differences than the plus-minus test. Similarly, Chavan (2005) argued that conventional ways to conduct usability tests do not work with Indian users because Indians are reluctant to say negative comments on test products and rather try to work around them. In her work, she modified usability test methods by adopting characteristics of Indian local culture, such as the collective nature in a train or critiques of "Bollywood" films. These related studies show that cultural backgrounds influence users' attitudes and comments during the user research and highlight the need to take culture into account when applying user research methods.

In addition to different attitudes to criticism, how group dynamics is organized in different cultures is also a crucial aspect, especially in group methods, such as focus group interviews and design workshops. The success of such group methods often depends on how participants express their thoughts and feelings in public and how they interact and discuss with each other. In particular, focus group interviews, which are popularly used in different phases of the design process (Kuniavsky 2003), heavily rely on participants' verbal social

Figure 1. Research process

interaction, not only between researchers and participants but also among participants. Because participants' interactions play an important role in producing sufficient and valid information in focus group interviews, it is worth exploring how participants' cultural backgrounds influence this method.

In this study, we aim at uncovering cultural differences in participants' attitudes and behaviours in focus group interviews by conducting cross-cultural experiments. We then derive implications of how to modify this method in East Asia. To achieve these aims, this study consists of three phases. Firstly we reviewed theories in culture and communication studies to build a hypothesis and secondly conducted experiments of a focus group interview in the Netherlands and South Korea. Finally the findings from the comparison led to the proposition of tools which were designed to facilitate group dynamics for East Asians. Figure 1 shows the process of this study.

Culture and Interpersonal Communication Style

According to Toseland et al. (2004), communication processes and interaction patterns are fundamental group dynamics. They are the forces that emerge and take shape as members interact with each other over the life of a group. The participants' communication style influences the development of the dynamics in a group, such as the degree of participants' involvement, centralization, i.e. group member-centred versus facilitator-centred communication, or group cohesion. In this section, we explore the relationship between culture

and interpersonal communication style by reviewing cross-cultural studies in cultural anthropology, cognitive psychology and communication studies. This literature review later led us to hypothesize how participants from different cultures will show different behaviours in focus group interviews.

Discussion Attitudes in Individualistic Culture and Collectivistic Culture

Individualism versus collectivism is an idea that contrasts those who only care about themselves and their direct family members (I-conscious) and those who emphasize the importance of loyalty and unity to the group that cares for them (We-conscious) (Hofstede 1991). This idea is related to the communication pattern of the society's constituents and can be explained in relation to Hall's "context" theories (1977). In Hall's culture theory (ibid.), information during communication or in a message is a part of a context. It is more or less defined by the degree to which the message or communication is internalized by an individual. In "*high-context cultur*e," such as that of China and South Korea, most information is included in the context, thus it expresses less externally. However, communication is direct, clear, and expressed externally in "*low-context culture*," such as that of the United States and the Netherlands. Hofstede (2001) explains that *high-context* communication occurs in collectivistic culture and *low-context* communication occurs in individualistic culture.

Recent cross-cultural studies in cognitive psychology and creativity research have revealed that members in *individualistic and low-context* culture and members in *collectivistic and high-context* culture have different attitudes towards discussion or argumentation because of their different values and education systems (Nisbett 2003; Kim 2005). In his book on cultural differences in human cognitions, Nisbett (2003) explains that "lively discussion" is a part of the culture in individualistic countries, in which discussions support academic activities and formulate social systems. People in individualistic countries learn to argue and persuade from a young age and believe that problems can be solved through discussion. In her cross-cultural studies on children's education, Kim (2005) also explains that parents in individualistic countries educate their children to have a positive outlook in a conflict, while parents in collectivistic countries educate their children to avoid conflicts. Influenced by Confucianism, they tend to compromise when they have conflicts.

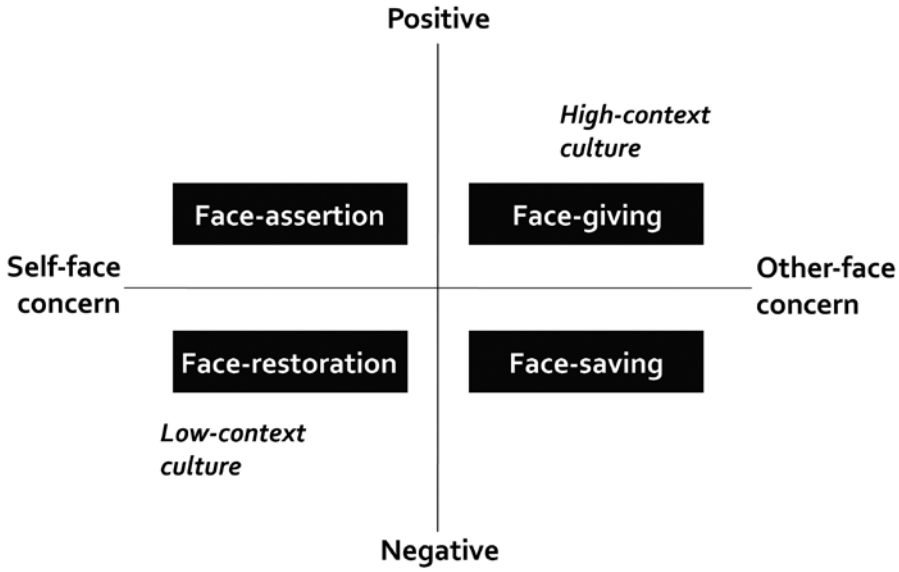

Figure 2. Cultural differences in facework (based on Ting-Toomey & Kurogi 1998): This framework explains the difference in communication pattern in low-context cultures in which one desires not to be disrupted, intruded upon, or forced by others and high-context cultures in which one desires to be liked and approved by other people and is concerned about others' reactions.

Politeness Theory and Facework

In communication studies, these cultural differences are explained at a more detailed behavioural level. Ting-Toomey and Kurogi (1998) connected theories of cultural differences to the politeness theory by Brown and Levinson (1990) whose central notion is the human desire to maintain their "face," the public self-image that every member of a society wants to claim for himself. People want to be appreciated by others (positive face) and do not want to be forced by others to do things they do not want (negative face). Concerns and acts to maintain or threaten positive and negative face always happen in interaction between oneself and others, and thus, communication strategies can be categorized into four types of facework according to two dimensions: positive versus negative and self-face versus other-face (see Figure 2).

According to Ting-Toomey and Kurogi (ibid.), people trying to maintain self-positive face use communication strategies to defend and protect their needs for inclusion and appreciation (face-assertion). Other-positive face

maintenance includes strategies to maintain, defend and support another person's need for inclusion and appreciation (face-giving). People trying to maintain self-negative face use interaction strategies to give themselves freedom and space, and to protect themselves from infringements on their autonomy (face-restoration), while other-negative face maintenance involves the use of interaction strategies to show respect for other persons' needs for freedom, space, and disassociation (face-saving).

Ting-Toomey and Kurogi (ibid.) argue that the communication strategies related to facework differ in *individualistic and low-context* culture and *collectivistic and high-context* culture. In the facework framework, they explain that people from *collectivistic and high-context* culture tend to "face-give," supporting others' needs for appreciation, while people from *individualistic and low-context* culture "face-restore," protecting their own freedom and space. Based on Ting-Toomey's proposition (1998), Hall et al. (2004) compared the face-related characteristics differing in two contrary cultures. (see Table 1).

Table 1. Face-related characteristics in *Individualistic/low-context* versus *Collectivistic/high-context* culture (Hall et al. 2004)

Key elements of 'face'	Individualistic/low-context	Collectivistic/high-context
Identity	Emphasis on 'I' identity	Emphasis on 'we' identity
Concern	Self-face concern	Other-face concern
Need	Negative face need	Positive face need
Supra-strategy	Self-positive and self-negative facework	Other-positive and other-negative facework
Mode	Direct mode	Indirect mode
Style	Controlling, confrontational, solution-oriented style	Obliging, avoiding, affective-oriented style
Speech acts	Direct speech acts	Indirect speech acts
Nonverbal acts	Individualistic nonverbal acts, direct emotional expressions	Contextualistic (role-oriented), nonverbal acts, indirect emotional expressions

The framework in Table 1 enables hypothesizing about cultural differences that can be observed in focus group interviews. For example, the degree to which people care about "positive face" can influence the degree of participation. To illustrate, participants in focus group interviews are asked to talk

about their personal experiences and subjective opinions on certain topics. When people care positive face, they can be afraid that their experiences or opinions sound irrelevant or silly. These concerns supposedly result in passive participation. Furthermore, we can also assume that participants from *collectivistic and high-context* cultures may feel reluctant to criticize or disagree with others' opinions because they do not want to hurt others' feelings and lose their face. Thus this tendency of avoiding confrontation can result in passive participation in focus group interviews.

To attain versatile and valid data from group interviews, fluent interaction among participants plays a crucial role. "Member-to-member interaction" can lead to a higher degree of participation and more versatile results than "member-to-facilitator and facilitator-to-member interaction" (Toseland et al. 2004). As discussed earlier, people from collectivistic cultures are not accustomed to an "arguing" culture (Nisbett 2003). It is also assumed that participants from collectivistic cultures will have weaker member-to-member interaction among themselves and show a tendency to rely on a facilitator.

Based on the discussion above, we can build a hypothesis of cultural differences in a *collectivistic and high-context* culture and an *individualistic and low-context* culture as follows:

> *In focus group interviews, participants from a collectivistic/high-context culture will show less activeness in participation and poorer member-to-member interaction than participants from an individualistic/low-context culture.*

Comparative Experiment

To test the hypothesis, we conducted cross-cultural experiments in the Netherlands and South Korea. This section describes the process and results of this comparative experiment.

Test Cultures and Participants

We recruited two groups of people from the Netherlands and South Korea. According to Hofstede's cultural dimensions (1991), the Netherlands scores 80 out of 100 in the dimension of individualism, while South Korea scores 18, which is remarkably distinctive. The Netherlands well represents the *individualistic/low-context* culture and South Korea the *collectivistic/high-context* culture.

Typically the ideal size of a focus group for most noncommercial topics is six to eight participants. Smaller focus groups, with four to six participants are, however, becoming increasingly popular because the smaller groups are easier to recruit and host, and they are more comfortable for participants (Krueger & Casey 2000). Especially, if the questions are meant to gain understanding of people's experiences and the researcher wants more in-depth insights, this is usually best accomplished with this smaller group. We thus invited five participants in each session: three males and two females in the Netherlands and two males and three females in South Korea. Participants in the two countries were engineering students in their early twenties. None of them had previously participated in focus group interviews. The participants in both countries met the facilitator for the first time about a week before the focus group interview. Two of participants already knew each other before the session in the Netherlands, and two in the Korean group also knew each other. The rest of the participants were meeting for the first time.

Since the facilitator was a non-Dutch speaker, the session in the Netherlands was held in English while the Korean participants spoke in their mother tongue. Although English is the second language for Dutch participants, they spoke the language fluently because it was their official language in everyday practice in university.

Procedure

The same format of focus group interview was conducted in each country: the first experiment was in the Netherlands and the second one in South Korea a month later. The topic of the interview was "the use of digital multimedia devices."

The same researcher took the role of a facilitator in both countries. To allow group-centred interaction and minimize the facilitator's influence on participants' interaction patterns, we limited the facilitator's role to giving topics and distributing speech turns. To elicit different kinds of speech styles, such as storytelling or argumentation, questions in the focus group interviews varied from asking about personal experiences of digital multimedia use to discussing existing products and participants' desired future products. Each session lasted for 110 minutes including a ten-minute break. Each session was video-recorded for further analysis.

Results

The analysis mainly aims at comparing the degree of participation and interaction patterns in the two countries. Since this study focuses on verbal communication styles in different cultures, the analysis was done on participants' utterances and the direction of group interaction. From the analysis on transcriptions of videos, utterance categories were developed to identify participants' interaction patterns.

First of all, to identify the participants' member-to-member interaction pattern, their reciprocal utterances were divided into three categories: "asking a question," "approval" and "disapproval." Utterances by the facilitator were also categorized into four criteria: "providing a topic," "calling on a person," "asking for volunteers" and "detail questioning." These criteria were set to discover what kind of role was required from the facilitator and how much participants relied on her, which in turn provided cues to determine the participants' activeness and interaction patterns. Table 2 shows examples of utterances in each criterion.

Table 2. Utterance categories and examples

Categories		Examples
Participant interactions	Asking a question	How do you use these two cameras? (Dutch participant 5, asking participant 2 about his mobile phone with two cameras)
	Approval	I agree, I also do not think those functions will be converged any more. They will be rather specialized. (Korean participant 5, agreeing with participant 1's opinion of specialization of mobile phone features)
	Disapproval	*I would say that's a freaky idea! Why don't you just call? (Dutch participant 1, responding to participant 3's idea of a mobile phone locating people)*
Facilitator roles	Providing a topic	What aspects do you put more values on when you buy a mobile phone?
	Calling on a person	What is your opinion, Mr. Chang?
	Asking for volunteers	Does anybody have a different opinion?
	Detail questioning	Would you explain further why you value more the size and weight than the style when buying an mp3 player?

Table 3. Comparison of participants' utterances in the Netherlands and South Korea

Categories	The Netherlands						South Korea					
	D1	D2	D3	D4	D5	Total	K1	K2	K3	K4	K5	Total
Total	89	77	58	67	62	353	33	80	45	39	27	224
Asking a question	11	5	7	7	17	47	2	1	6	2	1	12
Approval	9	2	4	8	7	30	1	1	1	2	1	6
disapproval	17	11	2	3	15	77	2	5	2	1	1	18

Table 4. Comparison of facilitator's utterances in the Netherlands and South Korea

Countries	Facilitator's utterances				
	Providing a topic	Calling on a person	Asking for volunteers	Detail questioning	Total
The Netherlands	18	23	7	16	64
South Korea	30	32	10	19	91

We then counted the number of each participant's utterances in order to compare the degree of participation in the two countries. The number of utterances by each participant in the two countries is compared in Table 3. In Table 3, the category of "Total" refers to all kinds of utterances, including storytelling or answering to the facilitator's questions, as well as three reciprocal utterances particularly categorized in rows below.

A comparison in Table 3 indicates:

- Overall, Dutch participants produced more utterances than Korean participants.
- From the numbers in the three categories of "asking a question," "approval" and "disapproval," we found more member-to-member verbal interactions in the Netherlands and the difference was large.

We also counted the facilitator's utterances (see Table 4). This numerical comparison gives us findings as follows:

- Firstly, we found more utterances from the facilitator in South Korea.
- Difference in the categories of "providing a topic" and "calling on a person" was especially large. Relating this finding to the differences in participants' utterances, we can infer that more active speech and member-to-member interaction by Dutch participants made such facilitator's roles less prominent in the Netherlands.

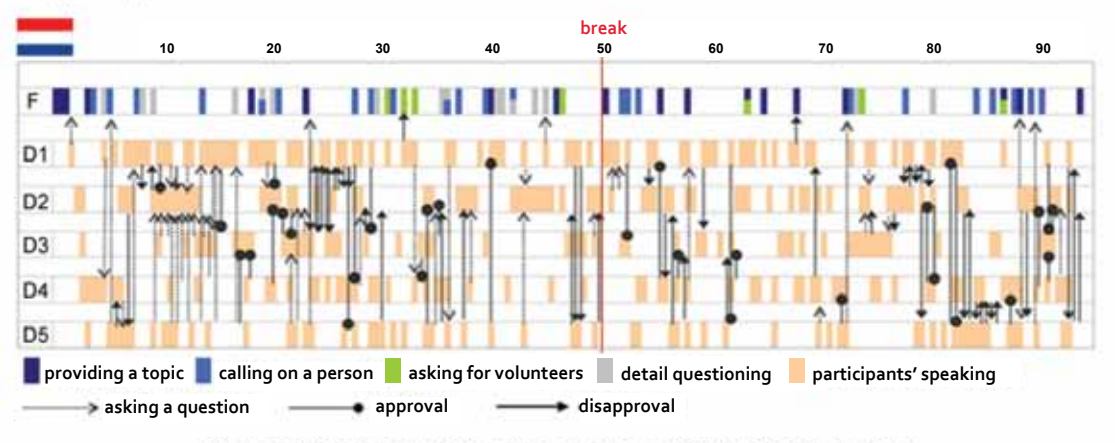

Figure 3. Timeline analysis of the focus group interview in the Netherlands: "F" on the top row stands for the facilitator and "D1" to "D5" stand for the Dutch participants. The distribution of the pink coloured bars in the rows for each participant indicate frequent changes of a speaker, which implies active member-to-member interactions as well as the frequency of the arrows.

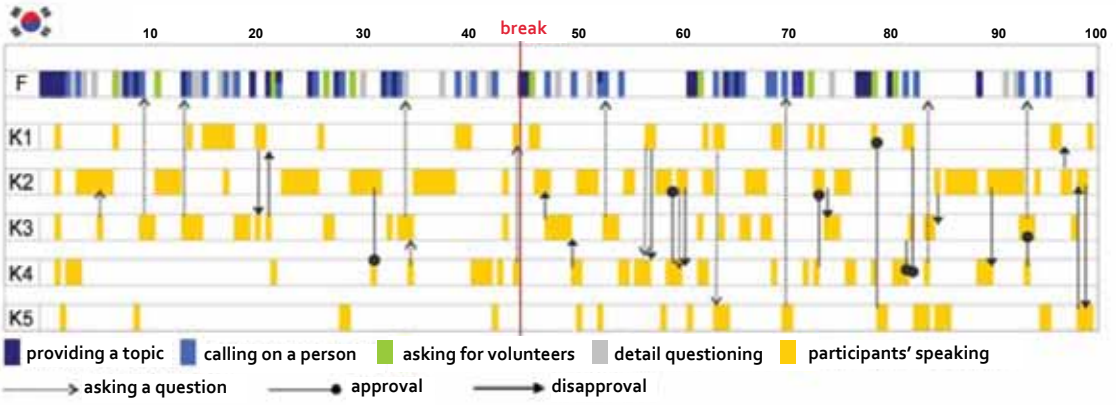

Figure 4. Timeline analysis of the focus group interview in South Korea: "F" on the top row stands for the facilitator and "K1" to "K5" stand for the Korean participants. The loose distribution of the yellow coloured bars in the rows for the participants indicates slow turn-takings. After the break, more yellow coloured bars, i.e. participants' utterances, and more arrows, i.e., member-to-member interaction, are found.

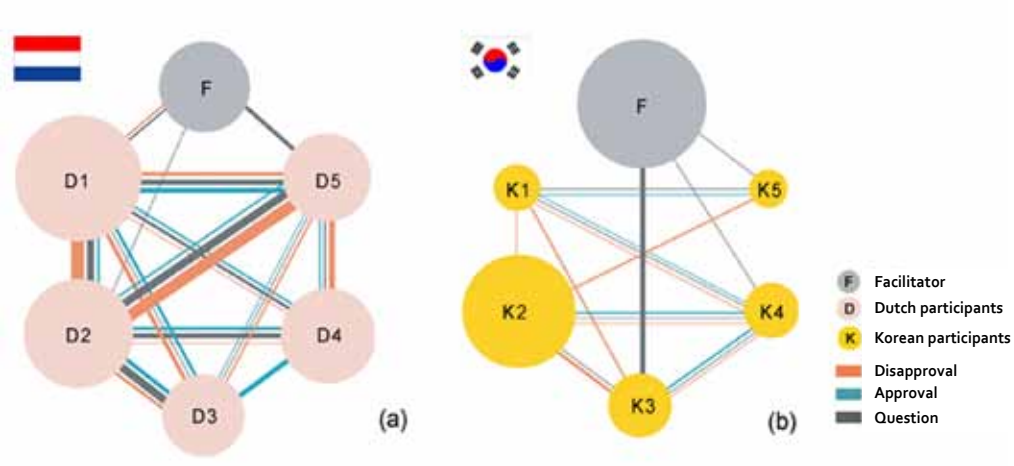

Figure 5. Each member's verbal participation and member-to-member verbal interaction (a) in the Netherlands and (b) in South Korea: the size of circles displays the number of utterances by each member and the thickness of the lines displays the frequency of member-to-member verbal interaction. The different types of member-to-member interaction ("disapproval," "approval" and "question") are symbolized with different colours. In the Korean focus group, the facilitator made utterances the most among all participants and member-to-member conversations numbered much less than in the Dutch focus group.

To identify how participants' participation and interaction changed over time, we presented these utterances in a timeline graph (see Figure 3 and Figure 4). In the graphs, a timeline of the 100-minute interview was divided into 30-second interval units. When an utterance was observed, the units were highlighted. On this timeline graph, the three categories of reciprocal utterances are presented as different types of arrows. The arrows start from a person reacting and head to another person to whom the comment is pointed.

These timeline graphs of the Netherlands and South Korea allow us to visually compare the degree of participation between the countries: the graph of the Dutch focus group interview (see Figure 3) displays more coloured bars which mean more utterances than the Korean one (see Figure 4), as also identified from the numerical comparison in Table 3 and Table 4.

Besides the degree of overall participation, these graphs indicate how Dutch and Koreans participated in the interview over time. Dutch participants were actively involved from the beginning, while utterances and member-to-member interactions were increasingly observed in the latter part of the interview in South Korea.

To easily compare member-to-member conversations and the equivalence of participation by each member, we diagramed the number of each member's utterances and member-to-member verbal interactions (see Figure 5).

Figure 5 shows richer member-to-member interaction in the Dutch focus group interview than the Korean one, especially between D1 and D2 and between D2 and D5. In Korea, the facilitator made the most utterances among all group members and the difference between the dominant participant and the others was larger than in the Netherlands. Figure 5 shows the facilitator and the most dominant participant in Korea (K2) had no verbal interactions. This is because K2 spoke voluntarily when the facilitator introduced new topics.

Discussion

"NARRATIVES" FROM DUTCH PARTICIPANTS VERSUS "SHORT ANSWERS" FROM KOREAN PARTICIPANTS

Overall, Dutch participants produced more active discussion during the interview than Korean participants. When a topic was provided to the participants, Dutch participants told "narratives" related to the given topic, while Koreans gave "short answers." For example, when the facilitator asked what kind of digital devices the participants have, one Dutch participant told stories about his mobile phone, such as when he bought it, what he likes and dislikes about it and even the subscription he had. Another participant then responded by telling his story, such as getting his phone from his brother and the moments he almost broke it. In contrast, Korean participants answered relatively shortly, by saying, "I have a mobile phone and an electronic dictionary. I do not use an mp3 player."

One reason for this tendency in South Korea can be that Korean participants feel less comfortable talking about their personal stories in front of strangers than the Dutch. Koreans might be more concerned about whether their answers look irrelevant to the topic as hypothesized from the facework framework (Ting-Toomey & Kurogi 1998).

POOR MEMBER-TO-MEMBER VERBAL INTERACTIONS AND BIG FACILITATOR'S ROLE IN INSTIGATING IN KOREAN FOCUS GROUP INTERVIEW

We found that member-to-member interaction was considerably more passive in South Korea. The Korean participants heavily relied on the facilitator, while Dutch participants proceeded with active discussion among themselves. In the Netherlands, when one participant finished his or her story, another voluntarily continued the discussion by bringing his experiences related to stories

told before or asking questions. On the contrary, in South Korea, when one person finished his talk, response to the talk from others was rare. Instead, the focus of the group members went to the facilitator, and the facilitator needed to respond, ask detailed questions or ask other participants to tell their stories.

By reviewing Ting-Toomey's facework framework (1998), it was hypothesized that Korean participants would feel reluctant to show disapproval to others' opinions. As a matter of fact, the result of this experiment showed that Korean participants expressed fewer responses in every category, such as disapproval, approval and questioning. As we shall argue, the reason is that the Korean participants heavily relied on the facilitator, and this tendency led to a facilitator-centralized discussion.

MORE ACTIVE PARTICIPATION AFTER THE BREAK IN KOREAN FOCUS GROUP INTERVIEW

In South Korea, participants' utterances and member-to-member interaction increased over time, especially after the break, while Dutch participants discussed actively from the beginning of the session and did not show much difference in the timeline. As discussed earlier, the reason why Korean participants became more active in the latter part of the interview is that they became more accustomed to the other members and the discussion situation over time, especially after casual talk during the break. This observation implies that Korean participants would need more time to break the ice than the Dutch. Thus, a tool for breaking the ice can support a more efficient process in focus group interviews in South Korea.

These findings enabled us to elicit several crucial factors to encourage more active discussion in focus group interviews in South Korea, East Asia in a broader range. To implement these findings in a real case, we designed four types of tools including props and activities, to facilitate dynamics of focus group interviews in East Asia.

Designing Tools for Focus Group Interviews in East Asia

Helping participants to build a relationship with other members: Pre-activities

Our comparative experiment indicated the significance of participants' relationship building before or in the early phase of a focus group interview in

East Asia. This finding is also supported by cross-cultural studies in business research which argue that building a relationship is important but requires more time and efforts in East Asia (Hofstede 1991; Chen 2004). We propose to conduct "pre-activities" before a focus group interview in order for participants to gain familiarity and trust in a focus group. Two types of pre-activities can be facilitated: "pre-question cards" and "pre-session talk."

The origin of "pre-question cards" is in "sensitizing tools," one step in contextmapping techniques (Sleeswijk Visser et al. 2005). In their study on contextmapping techniques, Sleeswijk Visser et al. argued that performing small exercises can "sensitize" participants to the research topic before group sessions. We expect that this sensitizing step will especially profit East Asian focus groups in two aspects. One is to help them both mentally and materially prepared with a discussion topic. In contextmapping techniques, sensitizing tools usually contain a small workbook or postcards with open-ended questions and a disposable camera, following the Cultural Probe approach (Gaver et al. 1999) but tuning its usage as a preparation for generative sessions. In our study, pre-question cards are also to serve as a preparation step to enhance participants' contributions in a focus group interview. They are designed for participants firstly to self-reflect on their experiences and secondly to be prepared with what to say and show to the focus group. Pre-question cards thus ask questions related to topics that will be dealt with in an early phase of a focus group interview to easily open discussion. Questions also ask participants to make small drawings to illustrate their ideas, and these drawings can serve as visual aids in discussion.

Another benefit of pre-question cards is to provide a stage for participants and a facilitator to build a relationship. A facilitator delivers these cards to the participants several days before the focus group interviews and, at this time, participants can meet the facilitator in person. This relationship building offers East Asian participants trust, certainty and familiarity to the facilitator, which help them to feel more comfortable with interacting with the facilitator in a group session.

"Pre-session talk" provides a stage for participants to become familiar with each other and open dialogues. Since our experiment in South Korea showed that participants becomes more active in the latter part of the focus group interview, having a short tea time for 10 to 15 minutes in a casual manner will break the ice and help participants to contribute more in the earlier phase of a group session.

Figure 6. "Mini-me" dolls: (a) before faces are drawn (b) after drawing faces

Providing a shared ground and supporting indirectness: "Mini-me" Dolls

We designed *Mini-me* dolls to be used as tangible tools for participants to express their emotions and presence in focus group interviews (Figure 6). In interview sessions, each participant is given his or her own *Mini-me* doll. The dolls' faces are blank at the beginning, and participants can draw faces on their own dolls expressing their identities. Participants can also put the dolls' arms up and down similar to how people raise their hands for attention. Our literature review and experiments indicated that East Asians do not want to interrupt or disapprove of others' utterances in a focus group interview. These doll-like representations would empower East Asian participants to express their willingness to speak or disapprove in an indirect and humorous way. In addition, drawing the *Mini-me*'s faces can allow participants' emotional attachment to these representations. This activity can also facilitate playfulness that can make participants feel at ease in the early phase of a focus group interview.

In addition, a design of *Mini-me* dolls aims at providing a shared ground for participants by having the same representations to express themselves, like virtual avatars in online games and blogs.

Utilizing a random effect in taking turns: A Spin-the-Bottle Game:

We observed that a facilitator needed to play a heavier role in encouraging participants to talk in South Korea. The strong role of a facilitator would make participants rely more on him or her and lead to a facilitator-centralized discussion rather than member-to-member discussion. To hand the authority of turn-giving to the participants, van Rijn et al. (2006) developed a prop called *"Ki-bun,"* a Korean word for current mood and state of mind,

which participants can give to others when they finish talking or have nothing to say. We assumed that selecting the next person to speak might pressure the person who is supposed to choose. To lessen the pressure, we facilitated a random effect to it. A *"Spin-the-Bottle"* game, one of the Korean drinking games, was adopted for random turn-taking. A bottle is placed in the centre of the tabletop, and participants can spin the bottle when they finish talking or any time.

Facilitating an imaginary situation to support indirectness: TV Home shopping show

Van Rijn et al. (2006) introduced using a TV frame for idea presentation in their study of contextmapping techniques in the Netherlands and South Korea. They found the TV frame worked as a frame for discussion in South Korea, while it was never used this way in the Netherlands. We adopted this idea of the TV frame as a stage for both idea presentations and discussions for South Koreans but facilitated a more imaginary situation in it. We set the situation of a *TV home-shopping show* in which hosts and actors have unique actions and speech tones. By setting this somewhat exaggerated situation, we wanted participants to place themselves in different roles so that they can be less affected by the structural facework. This setting also aims at facilitating a playful atmosphere where participants can feel more comfortable when presenting and evaluating ideas.

Testing Tools

We conducted another session of a focus group interview with South Koreans to test real usages of the proposed tools. This section describes how the new tools were used in the focus group interview and discusses their strengths and weaknesses.

Participants in the Test Case

Unfortunately we could not conduct the test in South Korea this time. Instead we recruited five Korean students who live in Helsinki, Finland. Because living in a different culture can influence participants' perceptions and behaviours (Nisbett 2003), we tried to minimize influence of studying abroad

by recruiting students who have lived abroad less than 8 months. Two of the participants were exchange students who were supposed to go back to Korea in a few months. Other settings were facilitated with native factors: the facilitator and the assistant were Koreans and all participants spoke Korean. As cross-cultural studies in cognitive psychology argue, these native factors in a setting are important in people's systems of thoughts (Peng & Knowles 2003). In their experiments on Asian Americans, Peng and Knowles (2003) proved that Asian Americans think differently when their self-concept is stimulated with Asian culture and when it is primed with American culture. We assume that meeting Korean researchers and speaking Korean helped to minimize this influence of living abroad on Korean students' behaviors in this test experiment.

The tools were designed to foster member-to-member interaction and participants' storytelling, especially for the focus group interview the aim of which is to gain understanding of people's experiences. A group of four to six people is thus preferable in applying these tools. Therefore we invited five participants this time, too. The participants consisted of two female graduate students in furniture design and three male undergraduates in business management. Two female participants knew each other before this focus group interview and both had a slight acquaintance with the facilitator, while the rest met the facilitator for the first time when receiving the pre-question cards.

Procedure

The discussion topic was "experiences with digital media use," the same in the first comparative experiment. The facilitator was also the same in this test. Three days before the group session, participants were given pre-question cards. The pre-question cards consisted of two activities: one is to draw scenes or objects that participants usually take photos or videos of and another is to draw a map illustrating with whom and how to share those photos. Two individual cards containing each activity were delivered in an envelope with the information of the group session. We used folding card paper which the questions were placed inside. The paper was A4 size when unfolded to ensure enough space for drawings and notes.

On the interview day, before starting the actual group session, the facilitator and participants had a 15-minute tea-time together to break the ice and get to know each other. While having tea and snacks, the facilitator asked

Figure 7. Focus group interview with new tools

the participants about their experiences with doing the pre-question cards, which became a shared topic in the tea-time conversation.

This new focus group interview consisted of different activities, from sharing personal stories, making "dream products," to presenting and evaluating design ideas, in order to prompt various types of interactions. The "Make" session followed the fundamental principles of "Generative tools" developed and propagated by Sanders (2000). We allowed the participants to work in pairs instead of individual working to empower them with collective participation (Chavan 2005). After the *Make* session, the *TV home shopping show* was set when participants presented their design ideas.

During the session, the facilitator wrote keywords from the participants' talks on post-it notes in order to show that the participants' stories were considered valuable. We avoided using a whiteboard because we did not want to give the impression of a facilitator with a higher power status in this collectivistic cultural group. The new focus group interview lasted about two hours including a ten-minute break and was video-recorded for analysis. After the focus group interview, the participants were asked to write down how they felt about their participation in focus groups and how each tool supported them.

Results

This time we also adopted a timeline analysis to see the distribution and frequency of utterances and interaction patterns among participants. Even though this test uses the first experiment in South Korea as a baseline measure, we do not aim at comparing those two cases in a quantitative manner. Instead we focus on detailed discussions of how each tool worked with East Asians in a real case. Besides the findings from observation, the participants' feedback on each tool was also reviewed in analysis.

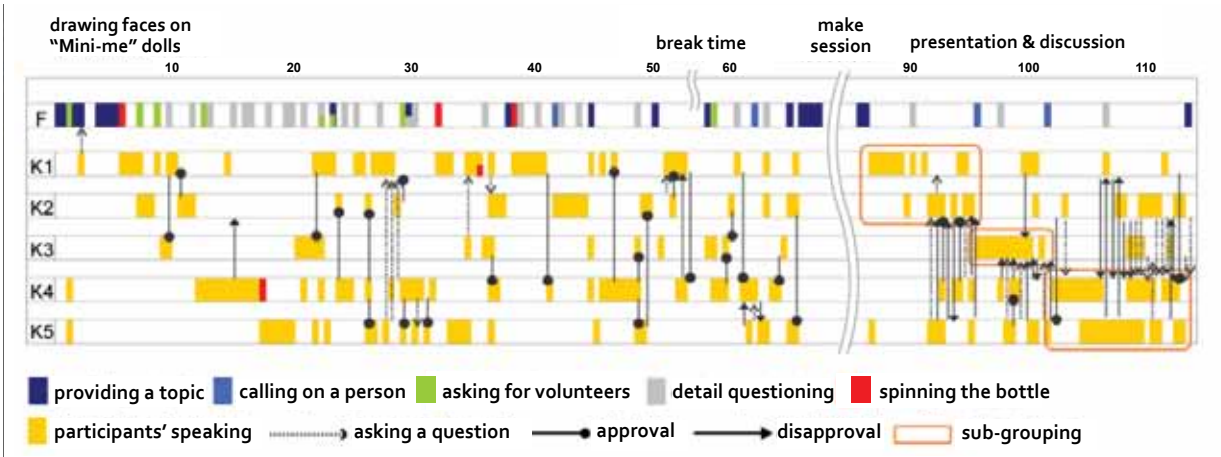

Figure 8. Timeline analysis of the focus group interview with new tools

TIMELINE ANALYSIS

Overall, the participants showed more fluent member-to-member discussions this time. In Figure 8, the first row for the facilitator's utterances shows that the facilitator did not need to ask participants to speak many times (see light blue and green bars in the first row in Figure 8). However the facilitator still needed to ask many detailed questions to probe what participants had said and elicit more in-depth stories (see light grey bars in the first row in Figure 8). Figure 8 shows that five participants talked in turn from K1 to K5 for the first 20 minutes. This is because each participant was talking about what they had answered in the pre-question cards in turn.

Concerning member-to-member interaction, participants K1 and K4 played a role as a voluntary speaker and broke ground for others to respond. Game-like activities, such as playing with the *Mini-me* dolls and spinning the bottle, helped participants to break the ice and to feel at ease. In the idea evaluation session with the *TV home-shopping* format, participants actively threw out questions and spoke out what they thought good or bad about the presented ideas. The following sections depict how each tool worked with South Koreans in more detail.

PRE-ACTIVITIES

When delivering the pre-question cards, the facilitator was able to make closer acquaintance with the participants by having tea together. During this time, the facilitator also explained the purpose and procedure of the focus group interview. This activity also gave certainty to the participants.

Every participant answered the pre-question cards faithfully before the group session. The pre-question cards provided participants with a basis to open dialogues at the beginning, by allowing them to talk about how much time they spent answering the questions or how difficult they felt of them. During the group session, participants were interested in looking at the others' drawings on the pre-question cards and made comments on them. The cards served as visual aids while the participants were presenting their answers.

"MINI-ME" DOLLS

Participants showed much interest in the *Mini-me* dolls. They appreciated and made jokes about each other's doll faces, and this process apparently played a critical role in breaking the ice. They even took pictures of themselves with their own dolls. Some participants used the dolls to volunteer by waving the doll's arms and saying, "I'll go first," when the facilitator threw out new topics. Some of the participants changed the dolls' faces and postures according to the situations during the focus group interview.

The dolls were mainly used for drawing others' attentions by making jokes rather than for taking speech turns or showing disapproval. The best achievement of the *Mini-me* dolls in this experiment was that they were able to draw emotional engagement of the participants to the interview situation and create a fun atmosphere.

A SPIN-THE-BOTTLE GAME

A *Spin-the-bottle* game was played mostly by the facilitator right after introducing new questions. Participants did not voluntarily spin the bottle except when asked by the facilitator. After the focus group interview, participants said that they felt quite active in the discussion and did not need to play the game.

The main purpose of this *Spin-the-bottle* game was to provide another means for turn-giving. However, once participants felt comfortable with interacting with other members and a flow of turns, it became unnecessary and awkward to choose a person by playing the game. Instead, we found this game more useful for the facilitator than for participants. The game served to call participants' attention when the agenda needed to be shift or to decide an order for presentations.

IMAGINARY TV HOME SHOPPING SHOW

When presenting and evaluating ideas in the imaginary *TV home shopping show*, every participant imitated the way the TV hosts typically speak. While

the participants presented their ideas, the others did not interrupt but listened to them until they finished. After the idea presentation, they showed appreciation first with applause and then started to comments on the ideas. The discussion after each team's presentation was surprisingly intensive. When commenting on the product ideas, participants still talked as if they were show hosts and customers.

Discussion: How to Facilitate Dynamics of Focus Group Interviews in East Asia

Based on the findings from the first cross-cultural experiments in the Netherlands and South Korea and the test experiment of the proposed tools, we were able to derive important elements for facilitating group dynamics of focus group interviews in East Asia. In this section, we discuss reflections on the designed tools and finally propose tips to conduct focus group interviews in East Asia.

One of the important findings from the proposed tools is that these interventions facilitated "stimuli" which can boost participants' interest and motivation in focus group interviews. These "stimuli" then brought "engagement." The engagement to the focus group increased member-to-member interaction, which can lead to a higher degree of participation (Toseland et al. 2004). Small talks before the focus group interview and playful representations like *Mini-me* dolls also helped participants to build a relationship with the facilitator and other members, which is important in *collectivistic and high-context* culture of East Asia (Hofstede 1991; Chen 2004). In the participants' feedback on the tools, they said that they had expected a boring and serious focus group interview before participation, but they found it fun later. Most of them showed satisfaction with the degree of their participation.

Another remarkable finding is that supporting "indirect communication" can empower East Asians to express their opinions and emotions. Although the *Mini-me* dolls were used mostly for drawing others' attentions by making jokes in this experiment, the dolls show potentials to serve as tools to express negative opinions in indirect ways when the purpose of a focus group interview is to evaluate products. In such cases, the *Mini-me* dolls can empower East Asians by providing means for indirect emotional expression and support their willingness to maintain other's face which were identified as East Asians' communication styles (Ting-Toomey & Kurogi 1998).

The imaginary setting of the *TV home shopping show* can be explained to the same extent: the analogy of the imaginary setting and roles offered East Asians indirectness. The Korean participants placed themselves well in an imaginary setting and yielded intensive discussion in this setting. We argue that this analogy can "release" the Korean participants from the structural facework they typically have, because different types of rules are established in the imaginary setting.

With regard to intensive discussion in the *TV home shopping show*, we should not overlook the fact that the *Make* session was held at the end of the focus group interview and the familiarity built during the whole session might have resulted in intensive discussion. This finding also indicates that activities requiring criticism work better in the latter part of the discussion.

Based on these findings and discussions, we suggest tips for conducting focus group interviews in East Asia.

- **Foster sensitivity and motivation by providing playful props and activities.** Utilizing playful stimuli allows participants from East Asia to feel comfortable with the interview situation and to become motivated.

- **Provide for indirectness by facilitating imaginary roles and situations.** Participants from East Asia become empowered in role playing and imaginary situations that support indirect communication.

- **Ice breaking is especially important for East Asians.** Participants from East Asia need more time to become accustomed to the interview situation and other members. Try to open dialogues before a focus group interview by providing pre-tasks or informal meetings. Playful props and activities will also help to break the ice in the beginning.

- **Place tasks of evaluation and critique in the latter part of focus group interviews.** Participants from East Asia tend to be reserved in the early stage of focus group interviews. However, they become more active once they gain familiarity with the interview situation and the other participants. Place tasks requiring criticism in the latter stage.

- **Visualize respect for their participation and information.** Showing approval of and respect for the participants' opinions will give them certainty and motivation.

Conclusion

This study aimed at unpacking cultural influence on user research methods by theoretical reviews and comparative experiments. We revealed different behaviours that participants showed in the focus group interview in two different cultures, the Netherlands and South Korea. Korean participants made fewer utterances and relied more on the facilitator than Dutch participants. Moreover, member-to-member interaction was poor in Korea but increased remarkably in the latter part of the focus group interview. Based on these findings, we designed tools, including *Mini-me* dolls and an imaginary *TV home shopping show*, to facilitate the dynamics of East Asian focus groups. The test of these tools allowed us to elicit important findings for conducting focus group interviews in East Asia: for example, empowering East Asians by facilitating "indirectness" in communication, allowing East Asians to build a relationship with a facilitator and other participants before a group session and placing evaluation tasks in the latter part.

We hope our findings put an emphasis on facilitating cultural sensitivity in the user research process and offer a basis for further studies on this issue. This study has limitations that the findings from the comparative experiments and the test of the tools are based on a small number of subjects, especially limited in student groups. To complement the study's rigour and contribution, further studies should follow with more subjects and various study contexts. In addition, this study only focuses on the degree of participation and performance of participants in focus group interviews. Further research on properties and quality of data produced from focus group interviews will give a fuller picture of how the method works in different cultures and can be localized.

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Article 3:
Co-Experience in a Cross-Cultural Notion: Unpacking the Effect of Culture on Users' Social Interaction

Co-Experience in a Cross-Cultural Notion: Unpacking the Effect of Culture on Users' Social Interaction

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Abstract: How people experience technology as a group has become an important subject in user experience design. Even though previous studies addressed the effect of culture on organization of user experience, few cross-cultural studies have focused on users' social interaction. This paper aims at exploring relationship between culture and user experience in social interaction, in a catchier term, "co-experience." By reviewing literature on cultural variations of interaction styles, we derived a conceptual framework of role-taking and facework to look at co-experience of interactive technology in different cultures. To test the framework in a real world, we designed a new technology, called "Visual-talk table," displaying the degree of verbal participation of each member. Visual-talk table was tested with Finnish groups and Korean groups on the question of how the technology intervenes in social dynamics. Finally the implications for design were discussed.

Keywords: user experience, social interaction, culture, interactive technology

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1. Introduction

People's social interaction has become an important subject in user experience design. The development of Information and Communication Technologies (ICTs) increasingly promotes collaborative activities. In addition, recent studies have reported that new, unexpected ways of product use emerged when products were used by group of people (for some examples, see: [1, 17]). Understanding how group of people act through technology and shape their social actions is a critical issue in design of interactive systems.

During recent decades the fields of Computer-Supported Cooperative Work (CSCW) and social computing have focused on users' embodied actions with the environment and meanings arising in the process of acting through technology [8]. Some studies in this field were particularly interested in how social norms and actions in the conventional physical world were adapted to computer-mediated settings (for example, see: [14]).

Very recently a similar study is also found in user experience literature. Co-experience is the term, firstly introduced by Battarbee [1], to define how individual user experience emerges and changes in the process of social interactions. This concept highlights the fact that there is another type of user experience, organized in the meaning making process through interacting with other people, which can be distinguished from experiences created when alone.

The review of these studies led us to find one common aspect interacting with users' behaviors that are reconfigured in mediated settings; their cultural backgrounds. Social norms and communication strategies employed in a group determine a culture of the group: a culture can be distinguished by variations in those social norms and communication strategies in different societies. It is needless to say users' cultural backgrounds in the real-world also intervene in social interactions in technology-mediated settings. In this study, we are interested in explicating the role of culture when people collaborate in mediated settings and act through technologies. Are there cultural variations in perceiving and adapting technologies when collaborate in mediated settings? How does culture interplay with user experience of technology?

Although considering user's culture in the design of interactive systems is no longer a new notion, previous studies have typically focused on what takes place between an individual and a system (for examples, see: [7, 16]) and little is known about how culture affects multi-users' social interactions with a system. Recently a few studies on computer-mediated communication

(CMC) have attempted to explore cultural effects on collaborative work in technology-mediated settings. For example, Chinese groups were more talkative in group brainstorming in a text-only chatroom than a video-enabled chatroom [20]. These studies succeeded in examining interrelationship between culture and user performance with communication media, but are not yet capable of explaining how a group of people reconfigure their actions in mediated setting and create meanings in the situations.

This study aims at exploring how users' cultural backgrounds interplay in the process of their reconfiguring of actions in technology-mediated settings. Consequently the study aims to learn what those cultural interplays inform the design of interactive systems. This paper presents a design experiment as a part of the ongoing work and discusses findings and future directions.

2. Co-Experience: Theoretical Landscape

Battarbee [1] has classified user experience frameworks into person-centered (need-based), product-centered (design checklists), and interaction-focused strands. As she also points out, a good deal of the writing has had no theoretical grounding. In those few attempts in which the concept has been given a theoretical interpretation, it has usually been linked to pragmatist philosophy. In particular, Wright et al. [21] build on Dewey's [5] philosophy in their distinguishing sensory, emotional, spatio-temporal and compositional strands of experience, stressing its sensory and emotional character rather than just cognitive. Forlizzi and Ford [10] also build on Dewey. For them, a good deal of experience is ongoing and "subconscious," but experience may also become a focus of attention (storytelling), becoming "an experience," which is meaningful and memorable, having a clear beginning and an end.

However, user experience has mostly been used in an individualistic way, by placing the individual into the center of thinking. To address the problem of social action in user experience literature, Battarbee [1] introduced the notion of co-experience. She specifically posed the question of how experience is related to social action. She linked her notion to symbolic interactionism, following Blumer's [2] formulation of this framework. According to this framework, people act toward things through the meanings they have for them and meanings arise from interaction with other people. Then meanings are handled in, and modified through, an interpretive process used by the person in dealing with things he encounters.

As we shall argue, this concept opens important vistas for designing collaborative systems. However, studies on co-experience have one important limitation. The concept has its origins in Helsinki, Finland, and although other studies have been conducted in North America and Europe, no cross-cultural studies have been done.

3. Conceptual Framework: Role-Taking and Facework

3.1 Role-Taking and Its Cultural Variations

What people see as a proper way of acting in any situation depends on how they position themselves and others into it. In particular, what interactionists call "role-taking" plays a crucial role: identities and roles are key resources when people construe lines of actions for any situation [18]. Battarbee inherited her idea of interaction from Blumer, understanding action as a labile process, reducing role-taking almost to situational improvisation [1, 2]. This view may have been appropriate in Chicago in the 1930s, a city of restlessness with high immigration and social disorder. However, once these meanings are learned, they remain relatively stable, and even in restless environments, people strive for stability and respectability of conduct [9]. In more stable surroundings, structural roles and identities, such as those from age, social status or gender, play a greater role in shaping social interactions in given situations.

This idea is in line with a power distance index, one of cultural dimensions by Hofstede [15], which deals with perceptions of the superior's style of decision-making and of colleagues' fear to disagree with superiors, and with the type of decision-making which subordinates prefer in their boss. In more stable and tradition-respecting societies, power distance is typically higher and determined by structural roles. Interactions in a group thus follow social norms generated from power distance among structural roles. As co-experience is a co-constructive process, we assume that social norms defined by cultural systems result in cultural variations of co-experience.

3.2 Facework

Facework is also one of frameworks that can explain different interaction strategies in different cultures. Faces are the public image of an individual,

or group, that their society sees and evaluates based on cultural norms and values and facework refers to the communication skills one uses to uphold and manage face [12, 19]. Ting-Toomey [19] postulated face negotiation theory to explain how different cultures communicate and manage conflict. Based on numerous case studies, she proposes cultural-level facework on the dimension of individualism versus collectivism by Hofstede [15]. In her propositions, individualistic cultures predominantly express self-face maintenance interests while collectivistic cultures are more concerned with other-face maintenance. In addition, members of collectivistic cultures are more concerned with mutual-face maintenance than individualistic cultures. As shown in Table 1, she also proposes interpersonal conflict-managements styles related to facework in two different cultures.

Based on facework framework, we can easily presume that members of a collectivistic culture, typically with high power distance, more try to maintain face of a higher-status person than members of an individualistic culture do. For this reason, facework can also serve as a framework to explain how role-taking is expressed in a behavioral level.

Table 1. Cultural variations in role-taking and facework

	Collectivistic culture	Individualistic culture
Role-takings	Strong function of structural role from age, social status or gender as well as situational roles	Strong function of situational roles
Facework interaction strategies	*Face-giving*: supporting others' needs for appreciation	*Face-restoring*: protecting own freedom and space
Conflict communication styles	Avoiding, obliging, compromising, indirect emotional expressions	Direct, dominating, competing, emotionally expressive

Table 1 summarizes the framework of role-taking and facework that helps us to observe co-experience in different cultures. This framework leads to the research questions of this study:

- **How do role-taking and facework affect co-experience of interactive technologies in different cultures?** In a *collectivistic* culture, one has to act not only in terms of situational identities, but also on

structural identities by, for example, giving priority to more senior and higher status people. If the technology intrudes with social order, it may insult seniors and embarrass juniors. However, if the technology overly denotes a power or a dominance of a higher status person, it may also disrupt one's face. On the other hand, members in an *individualistic* culture play down issues like honorifics and status. They tend to go with the flow and their turn-takings may have less to do with a hierarchy within a group.

- **Then, how should the design of interactive technologies consider cultural influence on co-experience?** Understanding the effect of culture on co-experience can inform designers how to design interactive systems that culturally fit. Technology can be designed following social norms and facilitating group dynamics. Or technology can also manipulate them.

4. Experimental Design

To explore questions raised above, we conducted a cross-cultural experiment with a new designed technology, called "Visual-talk table." The research questions were reformulated into a sensitizing concept in designing Visual-talk table. In the experiment, we wanted to observe how people in different cultures interact with this new technology and eventually to show how design ideas can be derived from the experiment findings.

4.1 Apparatus: "Visual-Talk Table"

The design idea of Visual-talk table started from the question of how technology can influence or facilitate group dynamics. For that purpose, visualizing the degree of member's participation during a group activity was chosen as a main functionality. Visual-talk table gives visual feedback of each member's real-time verbal participation so that group members can compare their contribution to others. With this design intervention, we were interested in exploring questions as follows;

- How would people react when Visual-talk table displays their real-time participation? Would they get motivated to participate more or annoyed?

Figure.1 The design of Visual-talk table: patterns of light ripples and traces

- How are their experiences of Visual-talk table related to their social positions in a group and their cultural backgrounds?

We designed interaction of Visual-talk table subtle, peripheral and environmentally-immersive instead of straightforward or direct. This was to prevent participants from being distracted much by visualization and to have aesthetic qualities in interactions. The form of table was chosen because typically the combination of a table and chairs can invite a group of people and create social interaction in nature, for example, tea time, a brainstorming meeting or a group game. We mounted a net of LEDs on the tabletop so that participation is visualized by lightings. As Figure 1 shows, we designed a honeycomb pattern which consists of 75 hexagons containing microprocessor units with dual LEDs in each. A honeycomb pattern is capable of displaying various kinds of patterns on it and associated with patterns of tablecloth. Visual-talk table is typically for four persons, and four directional microphones are installed in each quadrant of the table.

On the table, light areas are divided into two; one is a *ripple area* displaying participants' ongoing talking and another is a *trace area* displaying the accumulated amount of each participant's speaking. When a microphone senses the voice from an assigned quadrant, LEDs mounted on the tabletop are turned on from the side of a person currently speaking. As speaking continues, the light ripples with yellow color spread. They go off when speaking stopped. When a person speaks long enough for ripples to reach the trace area in the middle of the table, one of blue LEDs in the person's sector is turned on. The light ripples and traces enable members to recognize who talked the most and the least as well as interaction flows by the shape of traces.

Figure.2 The set-up of Visual-talk table in a research room

4.2 Participants

Visual-talk table was placed in an open kitchen area of a research room in University of Art and Design Helsinki, where people often gather for coffee and less formal meetings every day (figure 2).

To compare behaviors of different cultural groups, participants consisted of Finnish groups and South Korean groups at Finland academic institutions. According to the cultural dimensions by Hall [13] and Hofstede [11], Finland and South Korea have distinctive characteristics: Finland is of *low-context and individualistic* culture and South Korea *of high-context and collectivistic* culture. 3 groups from each country participated and there were 3 to 4 persons in a group (10 Finns; 11 Koreans). Koreans were born and raised in South Korea and had been in Finland to study for less than 3 years. The groups were mixed according to age, gender, and familiarity with each other as friends or work colleagues. In Finnish groups, there were one all female group, one 2-female/1-male and one 2-female/2-male group and the ages of the participants varied from 20 to 46. In Korean groups, there were one 2-female/2-male group, one 3-female/1-male group, and one 1-female/2-male group. Their ages varied from 21 to 39. All groups knew each other as colleagues, organization members or friends because they were from the same institutions or student organizations. While participating in the experiment, Korean groups spoke in their native language. It was important to allow Korean participants who study abroad to speak in their mother-tongue so as to facilitate their native culture in a group. Finnish groups spoke in English for a better communication with a non-Finnish speaking researcher. English is an official language at universities that Finnish participants work in, and they were all fluent in English.

Figure.3 Group discussions around Visual-talk table: a Korean group (left) and a Finnish group (right)

4.3 Procedure

To design for co-experience, Battarbee [1] suggests naturalistic methods providing social settings in a real context, based on one particular strand of interaction sociologist [2]. This framework is feasible primarily for within-culture studies that aim to capture variance in interaction. To observe how cultural differences influence co-experience, we adopt a more structured, quasi-experimental methodology [4].

In the experiment, the groups were introduced to Visual-talk table and sat around it. They were told a basic idea of Visual-talk table as a technology that responds to their talk participation. How Visual-talk table specifically behaves was not told in order participants to get to know how to interact with it. The groups were given a discussion topic: making a plan for three-day Helsinki tour for visitors. The topic was chosen because it enables the groups to generate a large number of ideas, browse and negotiate options, and make final decisions. At the same time, the topic was engaging and contextually relevant to the participants. There was no big a gap of knowledge to the topic among participants because subjective experiences and interests play out in discussions. The group discussions were video-recorded for follow-up analysis. After the discussions, participants were asked about how the behaviors of Visual-talk table had influenced their actions and emotions while having discussions. On the day or the following day of the experiment, the participants reviewed the videos together with the researcher and were interviewed of their experiences of Visual-talk table.

4.4 Data Analysis

The first data was note taken by the researcher observing participants' behaviors throughout the group discussions. Notes were taken focusing on research questions presented above. Secondly, we analyzed findings from on-site interviews asking how much attention participants paid to the table and how they felt with and reacted to the behaviors of Visual-talk table. Thirdly, the video review with the participants helped to verify and specify findings from the observations and interviews. When reviewing videos, we especially focused on the events, such as 1) *when turn-takings took place* and 2) *when the degree of participation was not equal*.

5. Findings

In the presentation of findings, we focus on 1) *how participants recognized behaviors of Visual-talk table* and 2) *how behaviors of Visual-talk table affect participants' feelings and actions*. We also discuss 3) *how co-experiences of Visual-talk table, constituted with those feelings and actions, have similarities and differences in two different cultures*. We firstly present the overview of the findings and then take a more detail look at findings relevant to research questions.

5.1 Overview of Findings

The time groups took on a task ranged from 11:08 minutes to 29:20, with an average time of 21:13 minutes. We found no big difference of the time between Korean groups and Finnish groups: an average time of Korean groups was 20:14 minutes and Finnish group 22:12 minutes. In follow-up interviews right after the group discussions, participants said that they had not paid much attention to the visual feedback, i.e. light ripples on the tabletop, as the group discussion had went on. However, when watching videos of their group discussions, they remembered implicit interactions they had with Visual-talk table.

5.2 The Less Talkative, The More Sensitive to the Technology

From the interviews and video-reviews with participants, it was found that participants became more aware of the technology when the light ripples are all off than when all on. This finding was similar across two cultures.

The dark area, to me, was more recognizable than the bright area. When I found lights in front of me were off, I felt like, I needed to talk. (male participant from the Korean group)

When I found there was no light in front of me, I felt like that I should talk. But it was not a stressful way but a more supportive way. (female participant from the Finnish group)

We also observed that this sensitivity to Visual-talk table was mostly found from the participants who were reticent throughout the group discussions. On the other hand, talkative participants among group members said that they had not paid their attentions on the technology but focused on the task at hands. When reviewing videos with the participants, talkative participants commented that recognizing no light ripples in front of them had not provoked them at all.

5.3 A Peripheral and Subtle Way of Interaction

From the observations on 6 groups, light ripples on Visual-talk table did not seem to disturb participants' ongoing discussions. Participants commented that, once the discussion started, the behaviors of Visual-talk table hardly took their attentions away from the discussion. Throughout discussions on the given topic, participants' comments on the technology were hardly found except when they asked a researcher if they could put a water glass on the tabletop.

Both Koreans and Finns commented that they felt motivated or supported from the visual feedback rather than embarrassed or annoyed when they had found no light ripples in their quadrants. We argue that Visual-talk table enabled participants to save their face by providing peripheral, subtle and aesthetic feedbacks: because the interaction was subtle, participants did not worry much about how others noticed the feedback on the table.

5.4 A Higher-Status Person Doesn't Want to Look Dominant in Korea

We did not find significant discrepancy of participation resulted from differences in ages or social positions of the group members in both cultures. The distribution of turn-takings or decision makings was not found

to be related to members' structural roles in a group. Instead, looking at a subset of data from Korean groups, we found that higher-status members in Korean groups had become reticent when they had recognized full lights ripples in their own quadrants of Visual-talk table. This was found from one oldest male member in a three Korean students group and a president (the oldest among members) in a Korean student union group. They commented that they did not want to look dominant to other members.

> *When I found the lights were all on in front of me, I felt like I was conquering the table. Then I felt that I might stop talking and listen to. (the oldest male participant in a Korean student union group; he is a president of the union)*

On the contrary, we did not find this tendency from any higher status members, i.e. senior researchers or senior students, in Finnish groups.

6. Discussion and Conclusions

6.1 Co-Experience and Culture

This paper presents the conceptual framework of co-experience and culture and findings from the pilot study with Korean and Finnish groups. For the pilot experiment, we designed Visual-talk table that visualizes the degree of each member's verbal participation to explore how the technology can change social dynamics of group members. Findings from the Korean groups and the Finnish groups showed that facework is a promising framework that plays a considerable role in co-experience of technology. Because facework is, as our conceptual framework proposes, different in different cultures, it determines interrelationship between culture and co-experience.

Firstly, our findings showed that participants from both Korea and Finland appreciated peripheral and subtle interaction of Visual-talk table because those ways of interaction supported facework of both cultures: face-saving in Korea and face-restoring in Finland. Secondly, in a subset of Korean group data, we found a higher status member in a group was sensitive to visual feedback when the table denoted more participation from him. The higher status members in Korean groups were concerned of Visual-talk table making them looking dominant in the group task. We did not find similar tendency from the Finnish groups.

These findings imply cultural affect on organization of co-experience. These implications will provide new concepts or criteria in the design of interactive technology. For example, technology can be designed to facilitate group dynamics for meetings requiring equivalent participation from people in different positions. For a high-context and collectivistic culture like Korea, technology can be designed in order to encourage reticent people to participate more and to prevent higher status people from dominating situations by providing visual feedback of their participations.

Even though we argue that findings from this study will open new vistas for the design of interactive systems, since this was a pilot study, based on the findings, further studies should be conducted more rigorously. In further steps, experiments should be conducted in a more natural environment for a longer period of time. To investigate how facework and role-taking in different cultures intervene in social interaction with technology, groups of more various compositions should be observed. In addition, one of the limitations of this pilot study was to recruit diverse Korean groups since the study was done in Finland. Even though we tried to facilitate Korean culture during the experiment, we should note that living abroad might influence their behaviors and attitudes. To unpack cultural affect more rigorously, we plan to recruit local people in native countries.

6.2 A Role of Technology

While supporting facework of both cultures, Visual-talk table still encouraged reticent participants to verbally participate more. Because having light ripples looks more engaging, the less talkative ones became more sensitive to the visual feedback, while more talkative ones did not pay much attention. However, it was also commented by participants that they might have become more sensitive and would have shown different behaviors if Visual-talk table provided more delicate feedback, for example, more levels of light ripples and more reactive speed.

We argue that we could get different results depending on what kind of feedbacks technology displays. In a previous study where each member's participation was displayed as a histogram on a screen wall, denoting over, average and under participation, under-participators did not tend to increase their participation while over-participants reduced their speech unless they held critical information [6]. The direct, straightforward and mathematical interaction forced over-participators to save their face. Moreover, under-par-

ticipators commented that they did not much believe the system denoting their under-participation. This different report implies that how interaction is provided determines people's experiences even though technology is designed for the same purpose.

To conclude, this paper discussed how culture affects organization of co-experience and what it implies for the design of interactive systems. Although the findings were from the early step of ongoing study, they opened important vistas for user experience design that culturally fits. Based on these findings, further studies considering group composition, types of tasks and types of interactions are expected to provide clearer and deeper understanding of this issue.

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Article 4:
“It has to be a group work!”
– Co-design with Children

"It has to be a group work!" – Co-design with Children

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Abstract: Design researchers are increasingly interested in techniques that support creative teams in various design processes. The methods developed for sharing knowledge and generating solutions are mostly focusing on adults. Creative collaboration with and among children have a specific set of challenges to be considered. In this paper, we describe two design experiments that were conducted with children aged 7 to 9, to explore the applications

of co-design methods with children. In those experiments, we observed that children are capable of utilizing make tools but have challenges in group dynamics and reflecting everyday experiences into design ideas.

Categories and Subject Descriptors: D.2.10 [Design]: Methodologies

General Terms: Design

Keywords: Children, design games, make tools, co-design

1. Introduction

Co-design aims to set the stage for useful and inspiring dialogues among different stakeholders in the design process. In co-design, people are encouraged to express their experiences and desires with generative tools such as visual collages or simple mock-ups. *Make tools*, introduced by Sanders [5], is one of the methods developed to amplify people's creativity and support their ideation in co-design. Our previous experiences from co-design [6], and in line with e.g. Brandt [1], point out that when people build design artefacts together, ideation, negotiation and justification take place during the process. We consider that this dialogue can be even more important for guiding the design than the created artefacts. Based on this perspective, we regard co-design in this paper as a collaborative generative activity that aims at gaining information and inspiration about people, contexts and design possibilities.

Today children grow surrounded by technology. Co-design with children is expected to bring insights from children's perspectives on technology. Because children have differing abilities to express their ideas and to follow structured tasks, the methods for collecting information and generating solutions should be sensitive to their skills. Interested in these issues, two design experiments were conducted to study how co-design methods should be adjusted for children. These experiments were part of an on-going research on studying and developing co-design methods and design games in particular.

In 2007 and 2008, we were invited to a primary school in Espoo, Finland. We took this opportunity to experiment co-design with children. Both of the experiments were conducted in the classroom environment and the children worked in groups. The first experiment applied Make Tools [5]. Then, guided

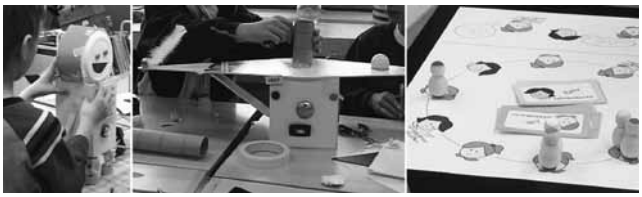

Figure 1. Left: The learning buddies looked like robots that had faces or even wings. Right: The scenario building game

by the observations on the first experiment, the second experiment followed the Design Games [2] approach. This paper reports the experiments.

2. The first experiment: Make tools

the first experiment was conducted with 23 children aged 7 to 8 years from one class. Our main interest was to gain experiences of applications of Make Tools with children. Make tools can be blocks with various shapes and sizes which can be easily attached and detached. Those blocks can represent forms, buttons or displays and can be easily reconfigured into new combinations by potential users.

2.1 Procedure

Our main interest was methodological and we did not have a specific design objective. Thus, we invented an artificial design task: to create an intelligent interactive device that supports learning and collaboration in teams. To set an easy starting point for ideation, we took an example from a school book familiar to the children. In the book 'Pikkukone (i.e. 'small machine') creates words from letters that are fed into it. Our design brief for the children was to design 'a cousin of Pikkukone', a learning buddy.

Before starting the design phase, we discussed with the class situations in which learning and team collaboration support could be useful and fun. Then, the children were asked to think in teams what kind of a learning buddy they would like to have; what would help groups in learning; what they could do with it and how it would function. To benefit from the learning context we encouraged them to consider surrounding artefacts, such as tables and books, and other equipments in the classroom as triggers for ideas while designing their learning buddy.

Make tools kit included various sized blocks, ready-cut pieces of cardboard and buttons that have symbols such as question marks, snowflakes and words

including 'help' or 'error'. With these materials, the children started building rather robot-like creatures with imaginative functionalities such as wings for flying and "a spelling corrector" (figure 1). Finally, in the end of the experiment the designs were introduced and their functionalities were explained to all.

2.2 Observations: The First Experiment

In the first experiment, the following topics were observed:

CLASSROOM RULES

The experiment was conducted in the classroom and the design task was connected to the learning practices and the surrounding environment. However, it seemed that the class room practices did not really inspire the children.

We assume that the rules in the classroom prevented children in having a collaborative atmosphere as also noted by others [3, 4]. In normal learning situations, children should not talk freely and walk around without permission. Also, in the classroom setting the children were sitting too far away from each other for easy collaboration. Because of this, it took some time to warm them up for the team work. As the children started to move and come closer to each other the collaboration became more active.

CHALLENGES IN GROUP COLLABORATION

The children's abilities are highly dependent on the age. Participants in this experiment were 7 to 8 year olds who had not yet used to team work at school according to the teacher. They had challenges in participating equally in the group work and seemed to follow quite openly their personalities and roles: the active ones seemed to dominate the team activity while the shy ones remained more passive.

Even though each group ended up with one design solution, the final solutions were not all based on very constructive negotiations. The decision making process was not clear and included poor arguments. Also, in one of groups, team members did not share the overall vision of their design but made different things separately and only in the end put them together for the final outcome.

GAP BETWEEN REAL LIFE AND DESIGN IDEAS

To warm up for the design phase, we asked the children to suggest activities and needs related to their learning practices. We expected that this discussion

would help them to apply real life situations when designing. However, based on the feedback given by the teacher and children, we realized that children had difficulties in making connections with the discussed activities and the design ideas. The feedback also suggests that the discussion might have been too abstract for the children. Thus, the warming up discussion was not well presented in the designs.

In the design phase, the familiar starting point, 'a cousin of Pikkukone', helped to motivate children in the beginning but it seemed also to constrain their ideas. Most of outcomes resembled Pikkukone to some extent. In addition, we observed that children enjoyed putting more effort in its outlook such as colour and shape, than its functionalities.

MATERIALS FOR MAKING

M*ake tools* provided an engaging stage for building the designs. The symbols and ready made items were a good starting point for ideation and the children started to generate ideas through building. The buttons with different symbols evoked associations and were designed into new features of the device. For instance, one of the groups explained that "when the picture of a gift box is pushed, the device says comforting words, and when the picture of snow flake is pushed, it tells information about northern pole". Children also reshaped given materials and crafted those into shapes as they needed.

To our surprise the children were upset of us collecting the design outcomes. Jones et al [4] had also observed that children were so proud of their contributions that they wanted to show those to their parents. Children's strong emotional attachment to their design outcomes could thus be applied for motivating them. One time use of the make tools kits for children is not a problem but has to be considered when planning the procedure.

2.3 Refining Research Questions

The first experiment guided us to focus on the facilitation of group collaboration and on the documentation of children's ideation process. Earlier studies [e.g. 3, 4] suggest that a lot of resources including many adult facilitators, recording devices and time to review documents are needed when working with children. Based on this notion, we posed new challenging questions for the new experiment: How can we better facilitate equal participation in children's collaborative design? Could game-like structure support collaboration and reduce the need of many adult facilitators in co-design with children?

3. The second experiment: Design game

The second experiment was conducted in spring 2008.

3.1 Design Game

Design games have been discussed in the context of co-designing with adults, and they have proved to be useful frameworks for facilitating the exploring of design opportunities together [e.g. 2]. During the first experiment we observed that children had difficulties in group collaboration and in conducting constructive discussions in the co-design process. To the second experiment we applied a design game approach to investigate if a game-like structure with turn takings and rules can solve some of those challenges and support more equal participation. Also, we wanted to experiment with conducting generative sessions with only a couple of facilitators.

3.2 Procedure

The same class participated in the second experiment. Like in the first one, we invented an artificial design task for the experiment. During that time, the school had a specific theme of environmental awareness in their program, so we applied the theme for the design task. Since children had already had some exercises related to this topic, we also expected they were to some degree sensitized with this topic before the actual co-design session.

We already knew that the classroom environment constrained kids' physical and free collaboration due to its spatial arrangement and rules. Nevertheless, we could not let kids out of the classroom. Instead, we tried to overcome the constraints by facilitating other aspects in co-design activities. We expected that the game structure and role playing can support children into more open collaboration. In following, the three steps of the second experiment are described.

FIRST STEP: DIVING INTO THE TOPIC

The structure of the session influences the ability of reaching a creative mood and generating design ideas. Sanders [5] have suggested an evolving structure which starts with an easy sensitizing pre-task. As a sensitizing stage we showed children a two-minute clip from *The Simpsons movie* in which Lisa convinces the city of Springfield to protect the nature. The aim was to create

a framework for following activities, and after the movie we told children that their task is to help Lisa to save the planet.

SECOND STEP: SCENARIO BUILDING GAME

The next task was to build scenarios of every day life by playing an 'eco-game'. The 'eco-game' material consisted of a game board, game pieces, a dice, task cards, a scenario board and scenario cartoon cards (see figure 1).

The first objective of the game was to observe how the game structure can encourage children's discussion without adult facilitators. By letting children play this game, we also wanted to facilitate children's equal participation. We expected that the turn-taking rules could lead to a situation in which each member of a team could equally participate in the scenario building. The third aim of this scenario building game was to have documentation of children's discussions. We also expected that having the visual scenario created by children would help them to reflect their experiences when generating design ideas.

In the eco-game, children were told to throw a dice and move their game pieces on the board turn by turn. The board had faces on it and when a kid's game piece stopped on the faces, she was supposed to flip one of cards over. The cards had instructions for the discussions and building scenarios. For example, one card asked to pick a scenario card and tell experiences related to the environmental issues in situations of the cards. The scenario cards had different images representing children's daily lives such as going to school or washing teeth. The cards also had blank bubbles; children could write quotes and create stories based on them. After telling their stories to other members, they placed that scenario card to the scenario board. When children finished building the scenarios, they could earn a key to open the *make tools* box and move on to next step, the make session.

LAST STEP: MAKE SESSION

In make session, children were asked to design a magic tool or a secret weapon to save the earth by using *make tools*. In the first experiment, we learned that crafting work took quite a long time. Thus, we collected materials that were easy for the children to work with. This time the make tools kits contained disposable materials such as cardboard boxes, plastic or glass bottles that they could keep. In addition, various kinds of symbol stickers including "smileys" and numbers were also provided.

We told children to consider what they had discussed while building a scenario so that they could reflect their everyday life experiences in their design.

After the make session, each group presented their design outcomes to other groups and questioning and answering followed.

3.3 Observations: The second experiment

CHILDREN'S ABILITIES TO PLAY THE DESIGN GAME

In the scenario building game, we realized that children did not clearly understand all the instructions and tasks of the game. It seems that the game had too many rules and tasks. Thus, the 'over-designed' games did not really succeed in facilitating group dynamics as we had hoped for. In some groups the more dominant kids kept throwing the dice and taking the scenario cards without waiting for their turns. In the later part of the game, some groups skipped throwing a dice and just focused on filling the scenario board.

In most groups, children actually discussed various situations relevant to the topic while playing and those were then documented on scenario cards. However, some other children just added text and stickers to make images more fun and nicer.

Earning a key to open the make tools box motivated the children to finish the scenario building task and getting them excited to move to the make session. However, because children got quite excited to open the box, we observed some groups trying to fill in the scenario board as soon as possible without focus on the discussion.

PLAYING WITH KIDS' RULES

The game-like construction did not fully remove the team collaboration challenges identified earlier. For example, one of child preferred staying under the table for most of the time. We also saw children dominating the procedure, e.g. one girl took the make tools kit under her arms and allocated the materials according to her rules. Such details demand great flexibility from the methods and the researchers.

While making a magic tool, some of the teams were not able to collaborate in deciding the functions and appearance of their designs. Instead, one or a couple of children separately made different parts and later they put those parts together to make their design look like an outcome of group work emphasising the brief as pointed out by one of the students: "Attach that thing to this device…this is group work…it has to be part of the group work."

CREATIVE CORNERS

Even though the setting in a classroom remained the same during the whole event, the way children used it changed when they moved from the game to the designing phase. During the game, they mostly sat as they usually do in normal class. However, the situation changed when children were provided with the tangible materials for designing. All group members became more active to better access the materials by being closer to each other in one corner of the table. Although this being a rather obvious observation, we want to emphasise that enabling children to move their positions and being closer to each other can better support creative and generative thinking also in class.

4. Discussion

The two described co-design experiments gave us hands-on experiences on application of co-design methods with children. The experiments are part of an on-going research on studying and developing co-design methods. Thus in the following, are our early findings from method perspectives.

4.1 Adults as Facilitators

Regardless of the challenges we found during the first experiment, we especially wanted to investigate if the game structure could facilitate group dynamics without adult facilitators. However, as discussed earlier, the game format somewhat supported the collaboration but was not enough. More active participation by adults could have been needed to guide children's dialogues and focus on the design theme.

We also observed that children could not really connect their everyday life to design ideas. Although in both experiment we tried to set the stage by discussions they were not well-linked to their designs. This connection could have been better supported with an adult facilitator who asked questions about children's everyday life and its connection to their design outcomes during the ideation.

4.2 Make tools for Children

Children were motivated or even enthusiastic with the Make tools. Easy configurations and ambiguous shapes that enable various interpretations are

the strengths of the make tools. Even though children were slow at building, they did not hesitate in transforming make tools for their own purposes. Make tools did not seem to restrict them and provided an easy starting point for the idea generation.

As mentioned earlier one of the important aims of co-designing is to enable people to think aloud, negotiate with team members and justify different solutions. This reasoning behind is important for the researchers because it reveals people's attitudes, needs and desires. Therefore, when co-designing with children, their discussions should be well documented.

4.3 Considerations for further studies

The design experiments lead us to pose new considerations: We emphasized equal participation in children's collaboration. Could the observations be applicable for adults as well. And could we instead nurture the power relationships for a more effective team work?

In this work, we experimented with artificial design tasks. If we had "a real world" design task the observations could have been different. Without an actual design project it is challenging to measure if the applied methods were successful for feeding the design or not.

As well as practical lessons learned, the design experiments with children gave us sensitivity to perceive children as co-designers. This sensitivity should be the base when exploring new research questions in further studies and also conducting design projects for and with children.

5. Acknowledgments

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Article 5:
Tracing Situated Effects of Innovative Design Methods: Inexperienced Designers' Practices

Tracing Situated Effects of Innovative Design Methods: Inexperienced Designers' Practices

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Abstract: In recent years the design research community has been active in developing new methods for user involvement and collaboration in the design process. The new methods, often called *innovative design methods*, correspond more to designer's genuine ways of thinking and working than do traditional user-centered ones. The entire purpose of innovative method is to

allow for designer's creativity in the design of method and reflective learning, instead of relying on predefined rules of method. For this reason, codification and scientific evaluation are often regarded very challenging, if meaningful at all. This leads us to raise a question; *what could be relevant ways of framing and communicating innovative design methods to better capture their nature and value?*

As one attempt to explore this question, our study takes a close look at inexperienced designers' practices with innovative methods, such as probes or co-design workshops. We chose students as research subjects because their situated actions – and the challenges they face in understanding and applying these methods – reveal just kind of knowledge about the innovative methods that needs to be communicated. To do this, we analyzed students' learning diaries written during the design course. When the students reported uncertainties and disappointments due to 'ill-defined' nature of such methods, we were able to trace the reasons for disappointments. We also found that the innovative design methods in fact supported the students for empathic learning and design inspiration from the making process of the methods.

Keywords: Innovative design methods, co-design, empathic design, design education

Introduction

> *How do you analyze the data from the generative workshop? (audience question to Elizabeth Sanders' keynote speech on Generative Tools at IASDR 2009 conference* [21])

Methods to involve users in the design process are shifting. With the establishment of User-Centered Design (UCD) and Scandinavian Participatory Design since 1960s and 1970s [3], methods for involving users in the design process have been actively developed, communicated, and practiced. More recently as objects of design become more complicated and innovative potentials from user communities are more appreciated, mindsets, actions and tools to support such phenomena have been a topic of active academic livelihood [10]. New design topics are introduced, such as Design for User Experience, Emotional Design, Empathic Design, or Co-Design, and the correspondent mindsets and practices are also introduced in a form of methods, such as the Probes [4][15], Genera-

tive tools [19], or Design Games [2][23], to name a few. These new methods suit particularly well for the early design process, the fuzzy front-end, to direct design decisions; to inform what actually should be designed, and for whom.

In this paper, we call these new methods *the innovative design methods,* following Bruce Hanington's renown nomenclature [8]. Whereas traditional UCD methods are mostly borrowed from marketing research, ethnographic study or human engineering, the innovative design methods rather correspond to designer's genuine ways of thinking and working, i.e., visual, creative, and inspired learning. According to Hanington [8], the whole purpose of innovative method is to allow for *creativity in designing methods appropriate to the project situation.* Rather than being an objective tool with predefined rules, innovative method is actualized as designer's or researcher's competence in interaction with particular circumstances [10]. Due to this nature, discussion about the relevance of scientific validation and codification of such methods, i.e. a recipe for applying 'a right method right', has been ongoing (for example, see [1]). In fact we seldom read about innovative method development that elaborates the themes much further or deeper than case trials along the path of rigorous validation and generalization [10].

Due to this nature of innovative methods, i.e., without predefined rules to guarantee 'right outcomes', we have observed that people who are inexperienced with these methods often report uncertainties and disappointments, and sometimes doubt about effectiveness of these methods. In multi-disciplinary design projects, stakeholders from conventional science fields also show similar reactions to the use of innovative methods. This observation leads us to raise a question; if the innovative methods can hardly be codified or generalized, what are then relevant and appropriate mindsets for applying these methods in design projects? And what kind of knowledge should be communicated and published to better capture 'true effects' of innovative methods and encourage such mindsets?

As one attempt to explore these questions, we propose to have a closer look at human actor's (designer or design researcher) situated actions, emotions, changing mindsets, and challenges with innovative methods - *phenomena as it occurs*, beyond a procedural and normative perspective – *what it ought to be*. In so doing, we expect that audience of the methods may gain the perspective that can deal with uncertainty (e.g. [6]) or creative adaptation (e.g. [15]) instead of over-relying on procedures or techniques of the methods.

From this perspective, this study looks into how inexperienced designers go about the innovative methods for their design projects. The reason

why we particularly chose inexperience designers' practices, instead of experienced ones', is that their interpretation, actions and confusions may reflect the nature of innovative methods. And that is where we can start building discussion on what kind of knowledge should be communicated about those methods and how.

> *Indeed the students learn by doing, but they are often left with a rather inexpedient frustration of "methods that don't work", as they have no opportunity to reach a level of equilibrium* [9].

As Iversen and Buur [9] posit, the students are less able to flexibly and reflectively adapt the new methods for their design projects than experienced designers. They tend to rely on a method as a pre-defined tool rather than creatively adapting it for their own ways of working. Thus the situated actions, emotions and challenges from the students' design work can more saliently show possible discrepancies between real application cases and what are written in 'method papers.'

In this paper, we analyzed students' weekly learning diaries written during User-Inspired Design (UID) course at Master's degree program of Industrial and Strategic Design, Aalto University (more about the UID course, see [17]). In the UID course, the students learn about notions and methods related to Design for User Experience, Empathic Design and Co-Design through lecture series and team projects. While carrying out design projects by involving target users, individual students were supposed to write the learning diary every week, in which they should reflect the work, learning and difficulties. The purpose of the learning diary is to help the students off-loop-reflect, as well as instructors follow their performance and problems. The diaries that we analyzed in this paper were from the years 2008 and 2009. The authors were instructors and tutors for those years. We did not have the research intention proposed in this paper at that time, so the students' learning diaries and the whole course were not intervened with research purpose at all, but very much grounded in students' design projects.

Before proceeding with analysis of the students' learning diaries, we firstly review how innovative design methods are explained in related literatures to build a lens for the analysis. Then the results of diary analysis are presented with a focus of how the students went about, felt and evaluated the innovative methods in their design projects. Finally we discuss how to perceive 'true roles' of the innovative design methods.

Underlying Nature Of Innovative Design Methods

It was already many years ago when Hanington introduced three different categories of research methods in UCD [8]. In his article, *'Methods in the Making - A Perspective on the State of Human Research in Design'*, Hanington explains about innovative methods that are more corresponding to designers' genuine ways of working, creative and visual, by comparing them with traditional and adapted methods in conventional UCD.

According to Hanington [8], innovative methods are typically identified by their participatory nature, creative engagement and outcome, and their relatively specific application to design research. The whole purpose of the innovative methods is *to allow for creativity in designing methods appropriate to the situation*. Although the flexible and pragmatic adaptation is also encouraged for traditional methods, innovative methods can be newly developed and re-designed with structure, procedures, operational actions, and materials. For this reason, Hanington also noted that the examples of innovative methods listed in his paper, such as design workshops, collage, visual diaries and etc., are in no measure a complete list [8].

Recently Keinonen [10] proposes three taxonomies for conceptualizing the innovative methods: *instrument*, *competence* and *agenda*. While the *instrument* (tool) perspective is close to epistemology of the traditional UCD methods and the *agenda* perspective more deals with design paradigm or movement, the *competence* perspective is what we find particularly relevant. He explains the competence perspective of a method;

> *(A new design) method is seen as situated action utilizing and depending on the environment, the language, and the physical, technical and social surrounding. Depending on the designers' expertise, and on the knowledge available in the environment, a method can be completely or partly internalized skill of a person and tacit, or to a remarkable extent, but never completely explicit and transparent* [10].

This conception of 'method as competence' includes the human actors and the particular circumstances of application into the necessary elements of its definition and description. Thus its objective validation among alternatives is very challenging, and sometimes even irrelevant.

In their original introduction of Cultural Probes [4], Gaver and his colleagues have proposed the assumption shift in engaging a user perspective in design [5]. They suggested empathic, direct and subjective engagement with

everyday people, who are conventionally framed as users, by denying the conventional belief on scientific study on users for systems design.

> *We developed the Probes in part because of our reluctance to use existing methods…Methods based on science, we believe, have a tendency to separate the researcher from the people they are studying. Because of science's aim to be generalizable, the subjectivity of the researcher is suppressed, leading to the ideal of objectivity and a tendency to rely on quantifiable data. However, this tends to encourage researchers to take the role of experts, while participants try to fulfill the role of a good subject* [5].

Based on this mindset, they sought to disrupt the conventional positivist approach and the Probes was their alternative proposition as part of a pleasurable process that would continue with their designs – not to provide information as an end of research, but inspiration as a means for design. Mattelmäki [15], who adapted the original probes more suitable for UCD with design for experience focus, also promotes an empathic approach of the probes, which enable designers and researchers to build a relationship and dialogues with users. Mattelmäki's *Empathic Probes* are an extension of designers' skills, and require reinterpretations every time they are applied.

> *The motto of her dissertation about probing crystallizes this with one single word: "Apply!" (cited from* [10])

Sanders [19][20] propagates researcher's and designer's *participatory mindset* when applying the innovative methods for personal engagement and immediate working with users, as opposed to an *expert mindset* emphasized in culture of conventional (positivist) research. Many following studies wherein generative workshops or make-tools are applied put an emphasis on *designers' situated skills for knowledge management and social management* [14], designers' abilities for *attention* [24] *and empathy* [22].

Drawing on these notions from the earlier studies, we frame conceptions of innovative design methods in three aspects in this paper: *method-human actor relationship*, *outcomes of method*, and *method validation*. In this paper, the term 'human actor' refers to those who apply the method in practices, such as design students, designers or researchers.

- *Method-human actor relationship*: Whereas traditional research methods in UCD are conceived as an instrument with power and rigidity separable from a human actor, innovative design methods are rather internalized competence of her, situated actions and reflections. Creating, applying and learning from innovative methods depend on the human actor, thus different for individual designers or researchers.

- *Outcomes of method*: Learning from innovative methods depends on researcher's or designer's level of reflection. Outcomes produced by the methods as results may not be 'objective', 'measurable', or 'complete' sets of data in conventional science sense [6]. The outcomes can be researcher's and designer's empathic engagement with users. And knowing about users may be internalized learning rather than explicative data. Furthermore, this 'inspired learning' is not merely about user information, but also about framing and editing design possibilities. Westerlund [25] and Kim and Stolterman [12] conceptualize this phenomenon as *framing design space*.

- *Method validation*: As the innovative design method is actualized by human actor's skill and interpretation of the circumstances, generalizing and objectifying the method is very challenging. In addition, outcomes of the method are hardly explicit or transparent. Since the success of the method depends on actor's personal competence and situated learning, assessing validity and effectiveness of the method among alternatives needs different criteria than in conventional science. Evaluating whether application of method is successful or not is also challenging because the situated learning may be reflected later in the design process, not immediately.

Looking Into Design Students' Weekly Diaries

In analysis of students' learning diaries, we focus on how the aforementioned aspects of innovative design methods are interpreted, achieved or disregarded by the students. As innovative design methods hardly suggest standard guidelines that ensure explicit, immediate outcomes, the students were apt to experience uncertainty, insecurity or even frustration. Nevertheless we were also able to locate students' mindsets, improvisations and learning when they

deal with the uncertainties. For analysis of the students' learning diaries, we focus on following questions;

- What expectation and first image do the students have on innovative design methods?
- How do the students design the methods for their project contexts? What kind of mindsets and strategies do they have?
- What challenges do the students face when they go about the methods, and how do they deal with the challenges?
- How do the students see outcomes from the methods?

User-Inspired Design Course

User-Inspired Design (UID) course is organized for the master students of Industrial and Strategic Design program and Usability School, which is a collaborative program for industrial design, cognitive science and computer science students in Aalto University, Finland. In the course, the students learn designerly and novel approaches for finding out future design opportunities by involving users into the design process [17]. The course encourages the students to explore innovative approaches for concept design [11] beyond the scope of traditional UCD projects. During the 9-week course, the students proceed with the comprehensive concept design process from framing design opportunities, working with users, interpreting qualitative user data, to generating and evaluating concept designs.

Through lectures and literature study tasks, the students learn notions of Design for User Experience, Empathic Design and Co-Design, together with innovative methods, such as the Probes, Designing with Video [26], Co-design workshops or Design Games. Each year the course explores alternative themes that are inspiringly open: for instance, the theme of the year 2009 was *Piazza*, and in 2008, it was *Celebration*. The student groups reflect their own interests and interpretation on the theme, and decide a target design context and users.

Each year the course accepts approximately 25 students and the students are formed into five groups in the beginning of the course. The instructors group the students by considering their backgrounds (e.g. industrial design, computer science), nationalities, and gender. More than half of the students are in their first year of master's study.

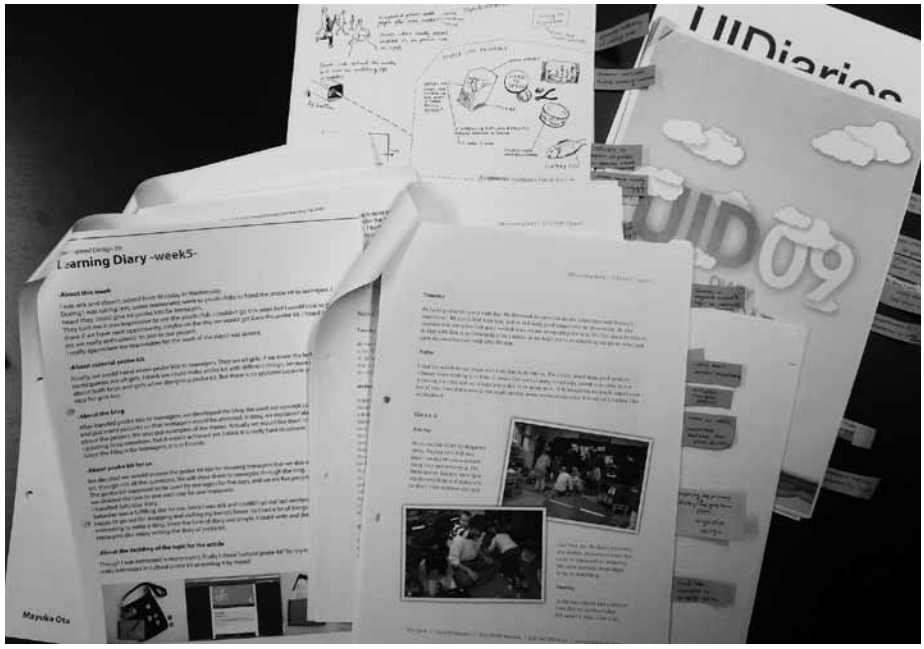
Students' Learning Diaries

Over the whole span of the course the students wrote personal learning diaries and submitted them to the course instructors every week. The purpose of the learning diary is to help the students reflect on their own learning process, including subjective experiences, and relate learning from literature to their ongoing design project. The learning diary includes;

- What has been done and what is ongoing during students' project, including challenges and reflections
- Reflections on the literature and other sources about the topic, including expectations, questions, insights
- Problems in understanding the course objectives or group work
- Solutions that they come up with

Since the learning diaries were written every week in parallel with the project, they contain lively emotions and reflections grounded in the project context. The diaries were written by the students without any further research purpose at that time (in 2008 and 2009), thus not interfered with

Figure 1. Students' Weekly Learning Diaries from User-Inspired Design Course



the researcher effect. The students' learning diaries were also to help the instructors access to students' work and concerns for developing the course and evaluating each student's performance. The instructors informed the students that evaluation on the learning diaries is not about how 'successfully' they conducted the design project, but more about how deeply the students were able to reflect. Therefore, most of the diaries contain rich and detail descriptions of what occurred and what the students did, felt and learned. The students wrote in average one page of diary each week and used mind-map drawings, sketches or pictures in addition to text to express their reflections (Figure 1).

How Students Go About Innovative Design Methods

Since the students' learning diaries contain rich, revealing and subjective narratives, we did not want to use some systematic quantitative analysis methods, but focused on revealing details in the whole context. Since we observed the students' design projects as the course instructors, we were able to understand the context behind the written text. We read each student's diary carefully and identified interesting phenomena and connections through Grounded Theory-inspired approach [7]. To examine our interpretation on the data, follow-up interviews were conducted with some of the students.

In the diaries, we often read about the students feeling uncertain and disappointed at innovative methods because the methods do not have well-defined structure to guide the students with 'the successful process for successful results'. The students also showed frustration and disappointment at what they had gathered as 'data' at hand. Students' detail descriptions on their situated actions at different phases, emotions and reflections, however, reveal that they actually gained understanding of users and design inspiration already from the making process of the methods.

In following sections, we present how the students interpreted the innovative methods at first, and show their situated actions, challenges and learning with the methods. Then we discuss what are the values of designing the methods, what are the actual outcomes from the methods, and what roles we can consider the methods to play in design projects.

From Honeymoon to Disappointment

HONEYMOON WITH THE NEW METHODS

In this course, few students had experience of the innovative design methods, e.g. the probes or co-design workshops. Some of them who had pre-experiences of user study were more familiar with traditional methods, such as questionnaire or interviews. In the beginning of the course, many of the students expressed their excitements of learning new methods. One student wrote about her expectation that the new methods would enable her get inspired with 'ideas' from users.

> *"Reason for me to join UID course was that I want to learn new methods I can use in my design process. Especially the fact that I could find inspiration from users sounds tempting. Last year I attended a service design course where many different kinds of methods were introduced. After trying them out during our service design project I got interested in users and their ideas in designing new solutions to different problems."*

Another student recalled her memory about the traditional methods;

> *"In my bachelor's thesis, I did surveys and was more technical about the user observations and getting the data. I also did very intensive market research and research about other things that were competitive in nature to the product. These all helped me to see what was missing out there, as well as be aware of what was already done. However, the tough part of this process was when this research keeps shooting down all my ideas…"*

METHOD WITHOUT A DEFINED PROCESS?

When learning the new methods through the course lectures or literature reviews, some students described their first impression of methods that are rather too open, sometimes poorly defined with poor rigor.

> *"I am a bit disappointed though that after many lectures about methods it is mentioned that 'the goal of these methods is to spark discussion…' It almost feels like no one has any developed and proved methods how to get ahead, but only way to make more questions…"*

"(When reading about methods) as a reader trying to get more insight, it gets confusing, and you cannot help being technical and focused on definitions of words and processes. I guess as designers all start different processes in tandem, this universe of new jargon and descriptions is unavoidable… I really do not think there is a defined method for approaching user-inspired design. It cannot entirely be seen as a method either, since it is not entirely defined."

The students may have this impression of 'ill-defined methods' because the innovative methods neither involve predefined step-by-step guidelines nor promise fixed forms of dataset. Although disappointed, the students acknowledged the poor-defined nature of the innovative methods, and because of that, they appreciated the opportunity that they can actually practice the methods during the course.

POOR OUTCOMES AFTER ALL THE EFFORTS, "…IS THIS IT?"

For the design project, the students put a lot of efforts for recruiting users and designing the methods. At the phase where their probes were delivered to users, many students described curiosity as well as anxiety whether the probes that they designed would work well or not.

"I have little reservations about our design probes. I'm afraid that the questions in the probes are somehow wrong…or not the right type of questions anyway. I'm afraid that we are not getting the right kind of answers. But then again this is the first time I am doing this kind of research or design probes so I don't know what to expect. I have no ideas what the probe are going to tell us."

When the boxes of the probe returns were opened and the generative workshops were finished, they at first felt disappointed and frustrated with what they had gained as outcomes of the study. Regarding the probe returns, many of the students became disappointed with the low completion of the tasks.

"We were excited like little kids with their Christmas presents seeing what we got, and to be honest were at first a little disappointed with the results, mainly because some of the users hadn't done all the probes, and some had written very little in their diaries etc."

"I started to interpret the probes and the first feeling was a bit like…is this it…"

Many of the students also expressed uncertainties of what the outcomes are after conducting co-design workshops with users.

> *"Maybe there are too much happened during the two hours (of the co-design workshop), I believe none of our team member have a clear impression of what we actually got from it. I am kind of worried and feeling uncertain of our next step just after the session."*

We see that the students were disappointed because they expected explicit datasets that contain complete user information or promising design ideas, with which they could start to analyze and design. And they considered the work prior to collecting the user data as *preparation for user study*, not as actions through which *they can already gain understanding of users and design inspiration*. As far as we concern, the 'outcomes', i.e. knowledge about users and design ideas, are not only identified from end results of the probes or the generative workshops but embedded in students' internal and reflective learning built throughout the whole span of the project, i.e. from contacting the users, designing the methods and so on. In following sections, we will discuss how we see the effects and the outcomes of the innovative design methods by closely examining the students' learning diaries.

Multi-Faceted Roles of 'Method Design'

STUDENTS' CONCERNS ON HOW TO DESIGN ENGAGING METHODS

In the UID course, the instructors emphasized the importance of designing methods appropriate to different design (project) contexts. The students wrote in diaries how important they realized to design methods for engaging users as well as gaining relevant and inspiring results. At the same time, many students wrote that designing a method was one of the most difficult tasks for them. Especially the students described difficulties of imagining how the user groups from different ages or cultural backgrounds than the students would respond to the probes. One student whose target group was teenagers in the city of Helsinki described;

> *"…How to create the probes was quite a big issue for us. Teenagers are part of society which changes really quickly and in different periods of teenage they have different interests…"*

In this group's case, they planned to apply the probes for understanding teenagers' emotional attachment and perception on public places in Helsinki. However, they had difficulties to recruit the participants in the beginning, so they needed to design the probes before knowing who will be their participants, and put lots of efforts on making the probes as 'attractions.'

"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 few of them interested in our topic."

Of course designing motivating tasks for the participants was an important issue for the students. Besides, this group also considered a lot about what kind of 'look' of the probes could motivate the participants and what 'compensation' could express the value of their participation. By considering that their users are teenagers, the students especially paid attention to the look of the probe kits.

"We designed buttons that they can attach to the bag, which is not related to the research directly but we made it for motivating teenagers by jolly-looking kit. We also put candies in the bag for the same reason… We discussed color too. The teenage boys don't like pink and girls like vivid color and so on. It was interesting to hold such heated debates imagining the teenagers' feelings and preferences..."

METHOD DESIGN, NOT ONLY FOR USERS BUT ALSO FOR DESIGNERS

The making process of methods requires the students to devote huge amount of efforts and time. But at the same time the students found the process fun and rewarding in two aspects: firstly they can use their design skills, and secondly the process of making the methods supports designerly way of solving problems (Mattelmäki [16] also discussed the effect of the making process of the probes for multi-disciplinary design collaboration.). Many students reflected in the diaries that they had become sensitized with the topic and the target users over the process of designing the methods.

"For the team, designing and doing the probes was a fun task and it got us always thinking of our users and the focus of our study. By making them finished we wanted to convey that we have been thinking about them that could also motivate the users to complete the tasks"

"First of all, I realized 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 color would our users prefer? Or which font size is enough for our user to read? So, we should really consider characteristics of our users to get right results." (One student whose participants were elderly people)

The students put huge efforts on method design for the pragmatic reason: to enhance users' participation both in quantity and quality wise. Beside this, the process of method design played a very important role for the students as well: the students became more and more sensitized and empathic with users even before collecting any user data. The sequence of actions for method design allows the students to already think in users' shoes; what would be the circumstances for the users to write this probe? If I were them, how would I do? Which would I prefer? And why? By thinking in participants' mind while designing methods, be it a probe task, package outlook, or materials for a generative workshop, the students became more and more acknowledged and empathic with their target users.

The abovementioned student group whose target users were Helsinki teenagers had challenges in assuming how the teenagers would respond to their probes. Thus the group decided to set the mood in order to recall their own teenage memories for bridging a gap to target users before recruiting participants and designing the probes.

"I have tried to set the mood. I have tried to remember how it was like when I was in my teenage 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 feelings. To me it worked as some sort of mirror of my feelings and energy, a way to escape, although I did not have that hard time at teenage. I felt strong and confident and I thought I knew almost everything that is essential in life."

Then the group read recent news materials about teenagers, and compared them with their memories.

"In today's Helsingin Sanomat (major newspaper in Finland) there was an article of a 23-year-old woman who has slit her writs since she was 12 years. In another

article this week teenaged girls explain that the important places in their lives are home, school, shopping mall and McDonalds. What can I say about the mall and McDonalds? At this point so called empathic design demands a lot from me."

Through this process, the students framed the teenagers who hang around the public spaces as their initial design space. Then they did video observation at shopping malls to see what teenagers did there, and then designed the probes.

Since the students worked in a team, the process of designing methods also allowed them to keep articulating about the topics and users with team members and to co-frame the design space. One student wrote his reflection while designing the probes:

"It was also a good way to find a common language in our team or designers and to get to know the detail view on the topic of team members. So design probe was not only a tool for collaborative learning with users, but also to learn about the other team members' point of view."

Values of Unstructured Meetings around Methods

The students had several unstructured meetings with user groups throughout the design process. For instance, one group of students baked cakes and ate them together with the elderly people when trying to recruit them for the probe study. Another group had dinner with the users at their residence. Some students drank coffee together with users at café when delivering and collecting the probes. These unstructured, informal meetings are not necessarily defined as methods or included in method descriptions, but what the methods enable around themselves. The students frequently described their motivating feelings, learning, reflections, and emotional commitment that they gained from those unstructured meetings.

One of the student groups from 2009 aimed to design a service for elderly people in Helsinki Metropolitan area so that the elderly people can become more active at public places. They wanted to apply the probes for their user study and contacted one community facility where elderly people gather and spend time together. When visiting there to recruit participants for the first time, the students realized that they had stereotypical images of elderly people and their initial design aim was based on that stereotype, i.e. elderly people are lonely without many things to do.

Figure 2. (left) informal meetings with the elderly - the elderly ladies were enjoying their craft activity while talking with the students. (right) the students' final concept ideas of 'Service for Skill Swap'

"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 preferences. First of all, the elderly ladies were afraid of having to use much of their time for the probes. Contradicting to our stereotypic thinking, they were extremely busy..."

"Our initial plan was actually to meet them everyday for the five days and exchange one probe for another new one. It was our way of keeping the whole process interesting and fun for them. But from Tuesday (when they firstly met the elderly) we realized that is not suitable for their busy schedule, so we modified the package and sealed each daily task in different envelopes, which all retains the suspense element."

Through the informal, unstructured meetings with the elderly people, this group realized their 'busyness' and activeness, thus needed to adjust the probes. This sequence of actions and reflections from the informal meetings had values not only for enhancing users' participation but also for the students reframing the design space (thus being 'outcome' in itself). As noticing the elderly people's 'busyness', the students became interested in elderly people's 'collaborative productivity'. The students also saw the elderly ladies enjoying a craft activity when they tried to talk to the ladies (see Figure 2). This situated learning and empathy in the long run led to the key design driver of the students' final design concept, 'productive relaxing'.

The informal, unstructured activities with users also enabled the students to have more personal access to the users. In so doing, the students seemed able to build emotional commitment to the user groups.

"I was really happy with elderly people who live in Loppukiri (a residence for the elderly in Helsinki area), Arabianranta. First of all, they were much kinder than we had expected and we got four volunteers who are willing to participate in our project. Also, we were able to understand their context while having dinner together and had an opportunity to look around the elderly people's apartment."

"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 got surprised in some way."

Empathic Mindset is Driving Force: Method is a Medium

We find that the empathic mindset built throughout the dialogues with users, e.g., including the abovementioned kind of informal meetings, becomes the key driving force for interpretation of gathered materials and for design. By reviewing the students' learning diaries, we identified that once the students built empathic mindset to their participants, they less showed the obsession of 'following right method right' or 'analyzing data right'. The students expressed their mindsets that they really 'wanted to do something' for their users.

"The Friday evening went by translating the probes and diving into the worlds of our users. I cried several times reading the probes."

"After the final meeting with the users, it felt like we took so much away from them (the participants) then it was an anti-climax to end the project with no form of real implementation or improvement for them. The idea about building a relationship with the users was also obvious, 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."

The groups who built empathic commitment with their users tended to approach the user materials (gathered through the probes or generative workshops) based on such mindset as well as confidence. The empathic understanding with users was a key factor that drives data interpretation and all the way to design. In contrast, the groups who were not able to build such mindset showed a tendency that they rather relied on the pure data or details on the design concept.

"I got the feeling we wasted a lot of precious time in defining specific details in a concept idea. The lack of empathy, which was not enhanced enough was reflected in this, which was very detached from the user perspective."

We found that the students who were not able to build empathic mindset and confidence for their users were those groups who did not, or failed to, build continuous dialogues with focused user groups: either they did not ground in a group of 'real' people but were occupied with generalized images of users or they failed to recruit target users early enough, thus lack of interactions due to practical problems.

Where Are The Outcomes?

As we presented in the earlier section, many students wrote that they were disappointed at the probe returns and confused with what they gained during the generative workshops, although they devoted substantial efforts to prepare for them. One student described the probe as a gamble.

"For now I am not sure if the probe diary gives us any new insight about their lives and the texts on the postcards may be too abstract to implement in this project. But still about probes, you have to gamble."

One student who did the co-design exercises with kindergarten kids evaluated the session positive in a sense that the kids at least enjoyed in it, but negative in a sense that it did not produce design ideas innovative enough.

"Later the kindergarten teacher sent us an email saying that the children really liked the activities and that showed that we had planned it right. I also think that the session went well, even though the results were not as outstanding as we had expected."

We speculate that the students were disappointed with the workshop results because they only focused on 'representations' created by the children. The students in this group were disappointed that the number of ideas created by the children was fewer than they expected and those ideas did not seem more innovative than existing ones. However, at the workshop, if the students focused not only on the created outcomes, i.e. mock-ups or drawings, but also on the sequence of actions while the kids creating those outcomes, they might have been able to gain rich understanding and inspiration for de-

sign. For example, they could have asked questions to the kids: Why did you draw this? Why do you want this? The students have not yet built enough sensitivity and insights to know what to look at from those generative workshops. And this is not the knowledge that students can learn from literature or lectures (although they can suggest tips), but the knowledge they can gain by having enough experiences.

THE PROBE RETURNS MIGHT NOT BE THE MAIN DATA.

As shown above, the students thought that their methods for user study were not productive because they sought explicit forms of outcomes that they could immediately identify and take for design. However, as we have argued throughout the paper, the merits and learning are not mainly from end results of the user study, but *emerge and are constituted in the sequence of actions* already from contacting users, designing methods, and at various informal meetings. Although the sequence of those actions are not conventionally considered primary in user study, we have observed that those actions taking place around the innovative methods can actually provide considerable inputs for the students: for knowing about users and (re-) framing design space, just as the student group realized their stereotypic image to the elderly and reframed the design direction.

As a matter of fact, the students reflected in the learning diaries their inspired knowing of users, which was gained through different phases of method applications, although they might not have recognized them as 'the outcomes'. For the student group who conducted the co-design session with the kindergarten children, they thought that they did not gain enough ideas from the co-design session because the design ideas created by the kids did not impress them. However, we read from the learning diaries that they in fact gained understandings about the kindergarten children by observing their behaviors on the stage of the co-design workshop. For instance, one student described her finding on children's senses of ownership, which she observed at the co-design workshop.

> *"In our session, we realize that kids become very attached to their creation by asking if they can take those home. The senses of ownership appear as the enjoyment from our co-creation session and kids really want to keep their creation to share with their family or friends. At this point, if we can guide the children to understand about ownership and belongings, kids could learn about taking responsibilities to maintain and take care of their own things and the place that they belong to."*

Relating this learning to their final design concept, we speculate that this situated learning at the co-design workshop might have led to one of the design drivers. This group proposed the concept of 'Bumblebee Garden' as a service through which children can collaboratively learn and interact with a bigger community. One of the design driver implemented in this concept was 'ownership and sharing to enhance children's responsibility and motivation for gardening.'

DESIGNERLY, REFLECTIVE APPROACH TO USER MATERIALS

For interpretation of gathered user materials, the course instructors told the students that the materials gathered by the probes or generative tools are not only meaningful when they are scientifically analyzed but when the students continuously try to reflect on the materials. While the students felt at first insecure of how to transform the materials from the user study into a design concept, some students' started to show designerly attitudes for transiting back and forth between user materials and ideation.

> *"The first feeling I had when I was reading and translating the diaries was desperation. Like T (the course instructor) said, 'at first look there might be nothing there and you have to take closer look.'... that was exactly what happened. First it looked like that there was not that useful information in the diaries but then again it makes sense that there is when you are not asking straight questions and you are not looking for problems but design opportunities."*

While waiting for the probe returns after delivery many students expressed frustrations whether their probes would be able to collect relevant answers. At the same time, some students took the designerly approach of framing the user data, rather than trying to get everything only from what users answered. One student group decided to generate idea sketches while waiting for the probe returns. He explained this as 'creative hypotheses' that would equip designers with implicit frames for interpreting the returns.

> *"The start of the week was slightly frustrating in that we had managed to get the probe kits organized and set out the week before, and now felt like we were waiting for our user data with empty hands. This feeling was perhaps a failure in our earlier project planning – having been simply to keen to start on the probes. We attempted to plan the interpretation that would follow on receiving the probes the next day but on realizing this was futile and unnecessary I suggested that we begin*

brainstorming ideas – creative hypotheses that we could prove or disprove with our findings later and something that would perhaps initiate creativity."

This group used this tactic of drawing for interpreting the probe returns as well. Another student in this group explained this process;

"A lot of interpreting needed to understand this kind of data and that involves quite much intuition as well… Later we started to draw concept ideas in order to break away from trying to understand the data only verbally. Drawing seems like a good way to synthesize concepts from tacit knowledge."

Discussion

Students' situated actions and emotions when going about the innovative methods reflect what they expect from the methods first and how they make sense of roles of the methods as the project proceeds. The students were excited that they could use their designerly skills in making the methods, but at the same time felt uncertain whether their methods would collect 'right data.' After conducting the probes or the generative workshops, end results were not always satisfactory for them. And some students tended to evaluate that their method wasn't right.

We argue that disappointment and confusion that the students reported are partly from the image of user study methods: credible user information (only) lies in end results of methods, and one can construct a comprehensive picture of user by analyzing the results [6]. In cases of the innovative methods, however, meaningful user information is not only identified from the 'dataset' produced by the methods but also are emerging and constituted throughout the whole span of project, e.g., while designing the probes, drinking coffee with users and so on. Most importantly, the innovative design methods support the students to build empathy towards users, and such mindset plays an important role in having confidence for creatively employing the methods and for deciding design solutions.

To better capture these situated effects of innovative methods, we propose to frame and communicate the innovative method in terms of an *evolving process* and a *constitutive stage*, rather than a tool. This framing of method as evolving process and constitutive stage includes the method design phase or informal meetings with users within the conceptual boundary of method.

This holistic view helps to acknowledge that learning about users and locating design possibilities can occur throughout the whole process, and they are *living outcomes* of innovative methods. The living outcomes are reflected in next actions, such as modifying initial probe designs or re-framing design directions.

In academic publications, innovative design method is often introduced in case studies; many papers describe aims and designs of the method, procedures, and results. We argue that with this procedural manner for describing methods, there might be much of importance that 'falls through the cracks' due to simplistic attitudes. As we discussed throughout the paper, in most cases codification of innovative design method is very challenging because of its particularity that is actualized by designer's competence and project circumstances. As far as we concern, it is important to explain in a rich manner how human actors actually make the method work in local situations, their situated actions, concerns and improvisations; the phenomena as it occurs rather than the procedure what it ought to be.

Concluding Remarks

In this paper, we aimed to explore how innovative methods should be framed and communicated in order to better capture their nature and values. We have proposed alternative view to understand innovative methods as an evolving process and a constitutive stage that embrace the method design or various types of meetings with users as important activities for gaining user insights and design ideas.

This leads to another important discussion about boundaries between user research and design: if user insights and design ideas can emerge already from the making process of methods, who should be involved in 'research' phase and who should be in 'design' phase. Whereas in the students' cases of this paper all team members were consistently involved in whole span of the design process, it is not easy in company projects to organize in such way, thus needs further consideration. We have pointed this concern in [18].

Finally, since our argument is based on students' practices and several particular methods under the category of innovative method, mainly probes and co-design workshops, our argument and proposition may not cover other types of inexperienced designers or other types of innovative methods. Nevertheless we would like to note that our argument is also inspired by our

experiences from several university-company design research projects that showed similar tendency.

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Design researchers have recently been active in developing new design methods aimed at greatly improving their understanding of people's subjective felt-experience, and their creativity and values. Although these *innovative methods* were developed as alternatives to more traditional means, human-centered designers (especially in HCI) have shown a tendency to use a traditional, scientific rationalization when applying them – essentially, "method as recipe." This dissertation analyzes these misinterpretations of innovative methods and seeks a more constructive way of understanding and describing how they actually work for understanding culture and social action. With the provocative title, *Against Method*, this book seeks to promote reflection and sensitivity among practitioners, researchers, students and educators in human-centered design.

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