

Cultura

Achieving intercultural empathy through contextual user research in design

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The background features a large, soft-edged brushstroke in shades of blue and teal, transitioning into a vibrant red at the bottom. In the upper right corner, there is a complex geometric pattern of overlapping triangles in various shades of blue and white, creating a crystalline or mosaic-like effect.

CULTURA

Achieving intercultural empathy through
contextual user research in design

Chen HAO

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Achieving intercultural empathy through
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Dissertation

for the purpose of obtaining the degree of doctor

at Delft University of Technology

by the authority of the Rector Magnificus, Prof. dr. ir. T.H.J.J. van der Hagen,

chair of the Board for Doctorates

to be defended publicly on

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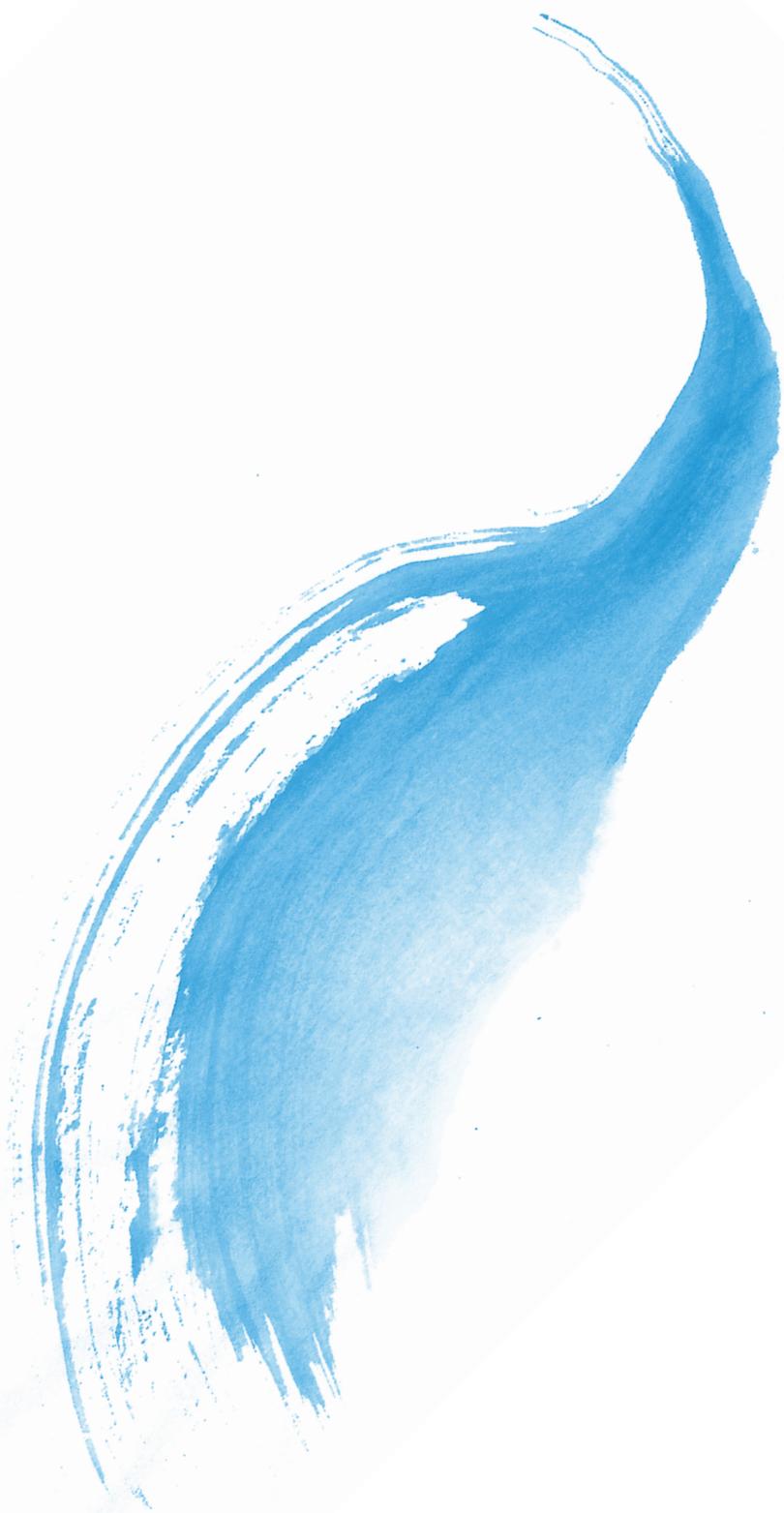
PREFACE

Moving from my first home – a heavy-industry city in China – to a small green town in the Netherlands in which I went to preschool for a year, involved experiencing substantial differences in the way people live their everyday lives. At the age of 5, I didn't have the words to describe all of the differences in the ways people speak, eat, play, think, and more. But my curiosity about diversity never ceased, no matter if I was traveling to various places around the world or living in different regions of my home country. Somehow, cultural diversity, a phenomenon which has exerted an influence on me through the whole of my life, guided me to my work as a designer and a design researcher.

In 2011, I returned to Delft to study my Master's Design for Interaction, in which I had the opportunity to learn and practice 'contextmapping', a technique that involves users sharing personal everyday experiences by making artefacts, and designers building empathy with users based on the rich experiences they shared. However, my first encounter with this technique was intimidating. I can still remember how confused I felt when asked to cut out abstract images and words to make a 'collage' for the very first time, without any clues as to what that was. Unlike in the Netherlands, this was not a common childhood exercise for people in China. But what amazed me afterwards was the rich personal stories shared by the other Dutch students in my group. I could see that if this technique could be adapted to ways that people are used to in other places such as China, according to their cultural preferences, it would be a great benefit. An idea blossomed within me: *'I want to bring contextmapping to China!'* I thought. I knew that a growing numbers of Chinese design students and practitioners were enthusiastic about learning new design tools and techniques, but that not all of them would have the same opportunities to learn and practice as I had. With this idea to motivate me, I began this self-initiated project.

In the early exploratory phase of my research, and with some careful tailoring, the tools and techniques proved to be successful in eliciting rich stories from users in China. However, another challenge became apparent when I brought these user stories to my collaborating partners, who were designers in Europe. Many of them had difficulties in recognizing the empathic triggers these stories demonstrate. Since then, my focus has expanded to include supporting designers in building intercultural empathy towards users who originate in unfamiliar cultural contexts. This has allowed my work to be of use to design practitioners so as to better conduct user research having a cross-cultural dimension, while also putting users at the heart of their work.

This research gave me a precious opportunity to find out more about the subject that I have been curious about since childhood, and to explore it in the field of design research. I hope that the tools and techniques developed throughout this research will support design practitioners, educators and students in executing cross-cultural contextual user research, in coping with the cultural challenges that can be found in the process, and in enjoying their work and making it more fruitful.





1

Introduction

This thesis is about contextual user research: studies executed to inform the early phase of product or service developments about rich insights into users' values, needs and preferences. The focus lies on utilising this type of research in a cross-cultural setting. Specifically, the author conducted and examined a number of case studies in which the designers were faced with the challenge of developing design solutions for users from a different culture. The associated issues were investigated, including the barriers to involving users in gathering rich insights and enriching designers' empathic understanding in such a setting, as well as the enablers of this process. This resulted in a framework to describe the issues, and various tools and techniques to support user researchers in dealing with them. At the end, it offers a process, called *Cultura*, a new and rewarding way forward for conducting intercultural contextual user research.

This chapter begins with a brief introduction to the process of contextual user research and its challenges in cross-cultural settings. Thereafter, it provides an explanation of how the author intends to address these challenges in this thesis. The final section contains an overview of the thesis.

1.1 Understanding users' needs across cultural boundaries

Design is becoming increasingly international, as products and services are sold in the global market. Over the past decade, the value of trade – both in products and in commercial services – has nearly doubled (WTO, 2016). It should be noted that while designing for overseas markets and users has mostly been undertaken by international companies from developed countries, businesses from newly industrialised countries are also increasingly starting to design products and services for people from other cultures. However, unsuccessful international endeavours have emerged, such as when, back in 2006, the giant retailing company Walmart lost its German market (Yoder, Visich, & Rustambekov, 2016), and again more recently, when the Italian fashion brand Dolce & Gabbana experienced marketing disasters in China (Ng, Lam & Jane, 2018). For example, the brand in the latter case, made an advertisement that featured a Chinese model struggling to eat 'the great traditional Margherita Pizza,' by using 'this kind of small stick-shaped tableware' (chopsticks). Many Chinese customers took offense at being depicted in this caricaturing manner. These companies failed to understand the local users because they did not sufficiently consider the local cultural context for which they were hoping to create designs. To provide users who are culturally distant with a fulfilling experience, these companies need to see their offerings from the users' side.

The importance of understanding people's everyday experiences and gaining empathy with users has increasingly received attention in the past two decades (Bruseberg & McDonagh-Philp, 2001; Fulton Suri, 2003; Mattelmäki, 2006). Fulton Suri (2003) exhorts the value of empathy: 'designers need to be more broadly aware of people's goals, aspirations, rituals and values; personal, social, cultural and ecological contexts ...' To keep in mind the diverse user needs and opportunities, user involvement increases in the early phase of product and service development processes. Conducting contextual user research to help designers gain empathy towards users has become an essential part of industrial design practice. To achieve empathy, designers must be able to get 'under a user's skin' (McDonagh, 2006) – to be able to understand how he or she experiences life – and come as close as possible to feeling as if they actually are the user. To do that, design researchers (Bruseberg & McDonagh-Philp, 2001; Fulton Suri, 2003; Mattelmäki, 2006) have urged designers to make direct contact with their intended users. However, this is not always possible, because of limited resources such as budget and time (Postma, Lauche, & Stappers, 2012). In practice, it is usually not feasible for one person to conduct user research and complete the design activities, especially when a cross-cultural setting is involved. It is consequently necessary for user researchers to mediate between users and designers in offering user studies, analyses, and communication to the design team (Sanders & Stappers, 2008).

1.2 Challenges of practicing contextual user research when crossing cultures

Contextual user research studies offer a useful way in which to obtain rich user insights, and they help to raise designers' awareness of what makes people's personal lives meaningful. Contextmapping is one proposed method of conducting such studies. It has been well documented in academic literature (Sleeswijk Visser, Stappers, Van der Lugt, & Sanders, 2005) and has been used in education and design in practice (van Boeijen, Daalhuizen, van der Schoor, & Zijlstra, 2013). The author uses it as an example to showcase the challenges of practicing contextual user research in a cross-cultural setting. The contextmapping process usually consists of a series of activities, roughly divided into two phases: (1) collecting user insights and (2) communicating user insights (Figure 1.1).



Figure 1.1
Standard
contextmapping
process
(Adapted from
Sleeswijk Visser
et al., 2005)

The activities in the first phase (e.g. user session) require participating users to perform a creative assignment, express personal feelings and opinions, and discuss these in a group with others. However, most of these studies have been conducted in Western cultures, with Western markets in mind, and with Western users as participants (Sleeswijk Visser, 2009). Design researchers who applied contextmapping to engage users from non-Western cultures have noticed that it does not always work as expected. The activities in the contextmapping process (such as bringing users together in sessions and having them discuss their own and one another's experiences) are often not suited to different cultural norms and practices, and may even conflict with them. For example, van Boeijen (2015) has reported that students from East Asia were not, generally speaking, at ease with expressing and discussing their own and others' opinions. Many users from East Asia also experienced difficulties during the session when using generative tools, such as word-and-image collages, for the first time (Hao, van Boeijen, & Stappers, 2017). Such a technique involves social interaction among users and within a group, and it is intended to produce convincing insights about these users. If they remain silent, perhaps as a result of feeling uncertain about what to say or being uncomfortable with such an experience, few insights will emerge. To avoid this, it is important to find ways to enable those social interactions to work smoothly and effectively, which means that the researchers need to apply culturally appropriate tools and techniques to support the users in expressing their expertise, needs, and values.

In the second phase, effective communication is crucial in ensuring that the design team understands the users' needs and addresses these in the further development of their products. In most of the cases that have been reported, designers and users shared a similar cultural background, so achieving empathy and generating understanding was built on a tacit cultural common ground. However, when designing for and trying to understand users from very different cultures, designers can sometimes fail to recognise the importance of the empathic information these user insights bring. An example of such a cross-cultural design project (Case 3 in Chapter 5 from this thesis) is described below. It involves stakeholders (e.g. users, designers, researchers, and marketers) crossing continents and revealing challenges in the second phase.

An international company, with its headquarters based in Germany, wanted to develop a shower toilet (a toilet that washes and warms one's backside) that could better match Chinese users' habits and preferences. The final product was to be developed by a design team that consisted of Dutch designers and German marketers. However, the following questions needed to be answered: What

is Chinese toilet culture, and why do people prefer the above-mentioned smart features? To understand the user experience in China, the author was asked to conduct contextual user research in Shanghai and Beijing to gain insights into the context of Chinese toilet use. After the research was completed, the author facilitated a communication and design workshop in which insights regarding users' feelings, opinions, and anecdotes surrounding the shower toilet were shared with the design team. The type of data obtained when involving users at the start of such a design project is often anecdotal; for example, '... I used my first salary to buy my parents a smart toilet lid to show them my love and devotion. They blamed me for wasting money on such a thing...' This quote was intended to offer insight into the social relationships in China and to inspire new ideas for the shower toilet. However, at first, it was not appealing to the design team, until the author explained the concept of 'filial piety', a core cultural value in China that explains the close and affectionate ties between children and parents.

As the example demonstrates, design teams often find it difficult to make sense of information from a culture beyond their own first-hand experience. In the workshop described above, the design team could have dismissed multiple user quotes and anecdotal information because of a lack of cultural common ground with their intended users. Even worse, they could have failed to generate rich insights into users' feelings, opinions, and context surrounding a product or service. This would likely have resulted not only in creating design mismatches (e.g., products that are harmful to, unusable by, or not acceptable for their intended users), but also in missing new design opportunities. The cultural distance between designers and users intensifies the need for structured support in approaching these barriers to achieving empathy.

1.3 The research aim and research questions

As discussed above, users require culturally appropriate tools that can support them in telling rich and relevant stories about their experiences of everyday life, whereas designers need support in dealing with the complexity of empathising with users who are culturally distant. However, there is a distinct paucity of tools and methods to support them in doing so. In this thesis, the author investigates both the barriers and the opportunities that users and designers encounter during the cross-cultural contextual research process. Accordingly, a series of tools and techniques to support users and designers are to be developed along the knowledge exploration. The design

goal driving this research is as follows:

How to support users in telling **rich and relevant stories** and to enable designers build **empathic understanding** under the constraints of cross-cultural contextual user research?

The outcome will take the form of an evolved process and practical tips to help designers and researchers conduct cross-cultural contextual research in their own work. The research questions derived from the design goal are as follows:

RQ1: What are the barriers to, and enablers of, conducting contextual user research in a cross-cultural setting?

RQ2: What **lenses** can be of support in achieving the design goal of this thesis?

The terms in the design goal and research questions are clarified below:

Rich and relevant stories: this concept means diverse user experience information that a user shares regarding his or her product or service use. 'Rich' refers to the diverse array of information available, including personal, anecdotal, and culturally specific data. 'Relevant' means that the information is related to and fits the scope of the design project – as, in principle, any user experiences can be useful for design.

Empathic understanding: this refers to insights into the user that can be translated by the designer into pleasurable, convenient, and easy-to-use products or services (Wright and McCarthy, 2005). Building empathic understanding involves a process in which designers turn their affective and cognitive understanding of users into design ideas.

Lenses: this refers to area(s) of knowledge that the author uses to take a perspective

1.4 Research approach

This dissertation takes a *research-through-design* approach, meaning that instead of selecting a leading theory up front, design and research activities go hand in hand to guide the different steps in the research (Stappers, Sleeswijk Visser, & Keller, 2014). Since this dissertation is about finding new

ways in which to support the conducting of contextual user research in a cross-cultural setting, it is explorative in nature. Through seven case studies, a framework of knowledge for achieving intercultural empathy in design, as well as a series of tools and techniques to achieve this goal, is developed.

Experience from each case study was used as input for the next one. All the data were analysed in a thematic way through open and axial coding and extracting of core themes; these themes were then categorised both among and within case studies. The author used the experiences from each case study, along with the findings from literature and other researchers, to further build and elaborate on the framework. In parallel, the development of tools and techniques followed the same iterative process. In other words, the tools were generated based on the knowledge gained from the previous study and from the literature. During each study, the tools were evaluated, and some of them were improved for the next case study.

In some case studies (1, 2, 3, and 4), the research focused on supporting users' involvement, and in other case studies (3, 4, 5, 6, and 7), it focused on enriching designers' empathic understanding. The qualitative case studies investigated real-life situations and the issues and problems therein. In these case studies, theory and knowledge were derived from the rich data gathered with small groups of participants (comprised of users and designers). To conduct this work, the author carried out two different levels of research. In each case study, she acted as thesis researcher, and in some case studies (1, 2, 3, 5, 6, and 7), she was also the user researcher.

Most case studies were conducted in collaboration with industries. This had two benefits: first, it allowed the author to gather realistic data; second, it increased the applicability of the research outcome in practice. The case studies involved users from China and designers from European countries. The author expected that the differences between these target cultures would allow her to better understand the cross-cultural challenges in the process of contextual user research. Moreover, as a Chinese design researcher who has received design education in the Netherlands, the author anticipated a research outcome that would help to bridge the design work between the Chinese and European contexts.

1.5 Reading guide

The dissertation is structured as follows (Figure 1.2):

Chapter 1 introduces the context, goal, and focus of this dissertation.

Chapter 2 presents the developed techniques for contextual user research. The first contextmapping exploration explains the barriers to conducting contextual user research in a cross-cultural setting, and it discusses some elements that are lacking in literature and empirical design practice.

Chapter 3 reports the state of the art of empathic design and introduces cultural models that can be applied in the contextual user research process.

Chapter 4 illustrates an initial framework for achieving intercultural empathy, based on the previously described theory and experiences. This initial framework serves to structure the findings from the studies in chapter 5.

Chapter 5 introduces seven case studies in the field, along with related tools and techniques. The observations and insights gained from these studies lead to an elaborated framework, which is presented in chapter 6.

Chapter 6 describes the findings from the studies, and presents the answers to the research questions, which are linked to the initial framework in chapter 4. Moreover, the insights and theories from the previous chapters are consolidated in an elaborated framework. Finally, the chapter presents *Cultura*, a new process for executing intercultural contextual user research studies, and a set of useful tips are offered for design practitioners.

Chapter 7 discusses the results obtained and the limitations of the research method. It also presents recommendations for future studies.

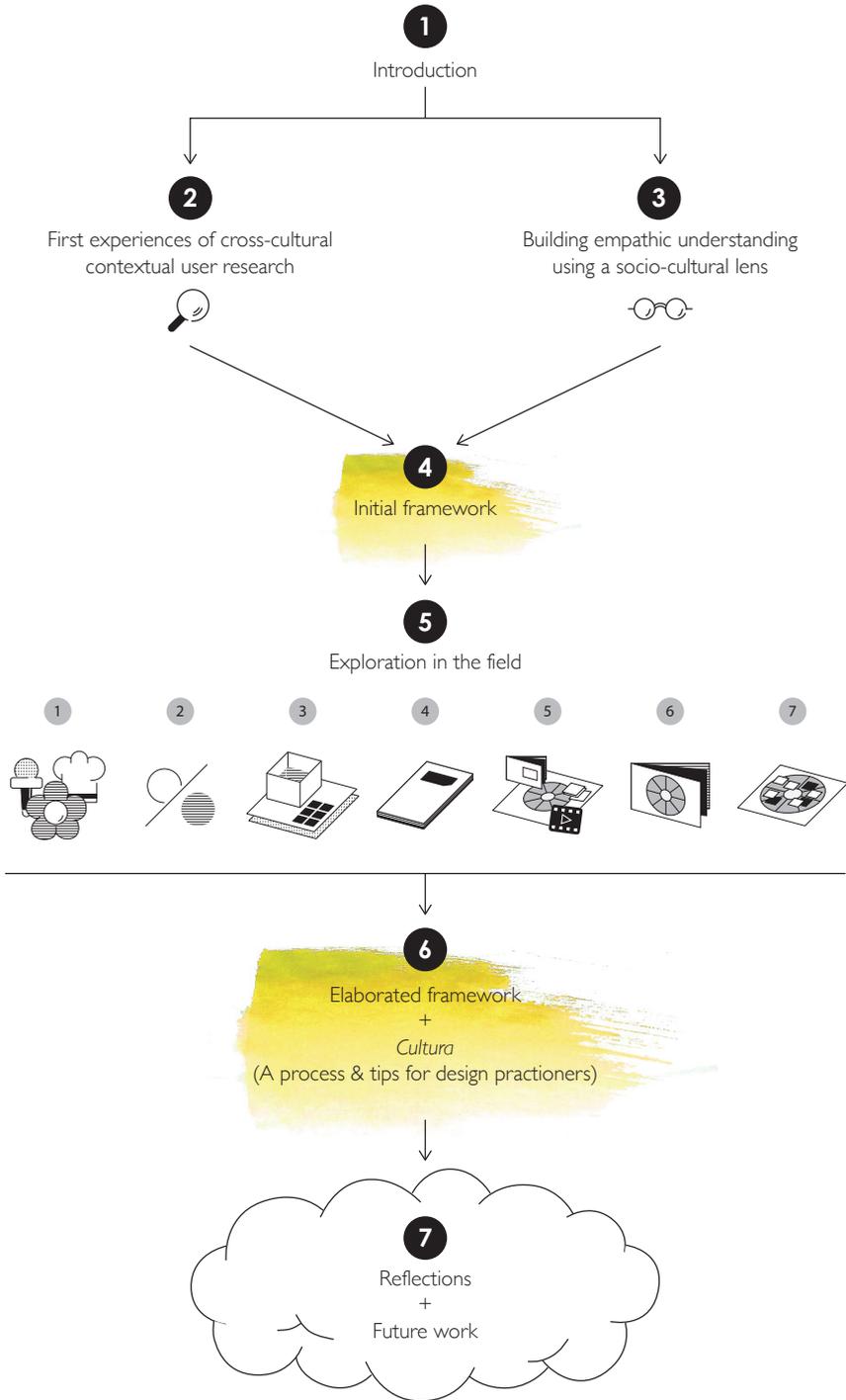


Figure 1.2 The reading guide of this thesis





2

First experiences of cross-cultural contextual user research

2.1 Introduction

This chapter begins by introducing the status quo regarding the methods, tools, and techniques employed for learning about user experiences. Then, a hands-on field experience in China with an established contextual user research procedure is presented. It showcases the activities, tools, techniques, and roles involved in the contextual user research process within a commercial design context. This field exploration provided the author with valuable experience in discovering barriers, tackling difficulties, and finding opportunities to apply such methods when crossing cultures.

This chapter is partially based on the following publication:

Hao, C., van Boeijen, A.G.C., Sonneveld, M.H., & Stappers, P.J. (2017). Generative research techniques crossing cultures: A field study in China, *International Journal of Cultural and Creative Industries*, 4(3), 04-21

There were three reasons to begin with a hands-on experience before conducting an in-depth literature review (in Chapter 3). First, it allowed the author to explore opportunities with an open mind and to discover relevant aspects of research before committing to one direction by fully adopting a theory. This approach embraces grounded theory (Corbin & Strauss, 1990), where theory is built after analysing data, with as little theoretical prejudice as possible. Second, it permits the author to form an opinion about findings in the literature that are related to the field experience (see Chapter 5). In addition, it helps the author to gain experience in conducting cross-cultural contextual research, which assists in differentiating between findings that are either cross-cultural-setting specific or user research in general. The results in this chapter will be part of the framework for building intercultural empathic understanding. They will be adjusted and supplemented by findings from the literature in the next chapter.

2.2 Contextual user research for learning about user experiences

Over the last two decades, a marked shift has occurred in industries towards becoming more human centred (Mattelmäki, Vaajakallio, Koskinen, & Allen, 2014; Sanders & Stappers, 2008). Companies want to understand user needs and place them in a central position in their design development of products and/or services. User researchers and designers have conducted studies to gain deeper insights into the context of product or service use, in order to develop empathy for and gain inspiration from users. These studies are qualitative, consisting of rich user experience information, which is sometimes referred to as contextual user research.

This section begins by reviewing the state-of-the-art methods, tools, and techniques that have been employed in contextual user research for collecting and communicating user experience information. Then, the author positions the research of this thesis based on the topography by Sanders and Stappers (2008).

Methods, tools, and techniques

Beginning with observational studies and user testing of existing products, newer user research methods have emerged that use designerly and participatory ways of gaining user insights. Sanders and Stappers (2008) created a topography of the state of design research methods (see Figure 2.1 on page 23). They view the movement from research-led with an expert-mindset methods (where users are regarded as subjects, and designers are the experts who 'design for' users) to design-led with a participatory-mindset methods (where designers 'design with' users). Most of the methods, including interviews and observations, such as contextual inquiry (Beyer & Holtzblatt, 1998), are from the research-oriented discipline. The techniques used in these methods focus on investigating 'what people do' and 'what people say', as stated by Sanders and Stappers (2012). More recently, methods such as cultural probes (Gaver, Dunne, & Pacenti, 1999) and generative tools (Sanders, 2000) have emerged from the design-oriented discipline, and they aim to uncover tacit knowledge by stepping into people's everyday experiences.

Unlike the 'do' and 'say' techniques, those more recent methods also focus on 'what people make': inviting users to express feelings and thoughts through making creative assignments and artefacts. According to Sanders and Stappers (2012), letting people 'make' and 'say' helps lead to a deeper level of knowledge about user experience that often remains tacit and latent.

Generative design research, with a design-led perspective and equipped with a participatory mindset (Sanders & Stappers, 2008), is often used for contextual user research processes. This type of design research employs both 'say' and 'make' techniques that complement and reinforce each other, thereby allowing for more opportunities to access rich user experiences and insights, as well as to help designers to develop empathy for the users. Such methods actively involve users in research activities, motivating them to talk about their feelings, opinions, and anecdotes surrounding a product or service through the creation of artefacts. However, this method requires more expressive, independent, and creative qualities from the users, and the success of applying such techniques is dependent on users' cultural backgrounds (Lee & Lee, 2009; van Boeijen & Stappers, 2011; van Rijn, Bahk, Stappers, & Lee, 2006). Cultural barriers that evolve during the application of the techniques are explained in section 2.3.

To help designers learn about the contexts of product use and people's everyday experiences, many tools and techniques have been adopted to communicate rich user insights. The above-mentioned generative techniques also have some advantages for communication purposes: the artefacts made by the users are explicit and tangible, and they contain evocative stories. Researchers can thus use them to aid in presenting their findings to designers. Persona comprises one of the most widely used tools and techniques in design practice (Cooper, 1999). According to Pruitt and Adlin (2006, p.5), personas are 'clearly defined, memorable representations of users that remain conspicuous in the minds of those who design and build products'. The principle of personas is reflected in many other tools and techniques for sharing user experience information, such as storytelling (Gruen, Rauch, Redpath, & Ruettinger, 2002), scenarios of product use (Nielsen, 2004), storyboards (van der Lelie, 2006), and user documentaries (Raijmakers & Miller, 2016). Unlike personas, which present static snapshots of fictional users, tools such as journey maps diachronically outline a user's experience with a product or service over time. Howard (2014) provides an overview of journey maps which, according to him, highlight significant changes in the user's needs, feelings, and behaviours towards the product or service, or other use metrics across phases of the user's experience. When employing these techniques, it is recommended that raw data is included, such as photos and videos of users or original user quotes, all of which support designers in making personal connections with the users and developing empathy with them (e.g. Bruseberg & McDonagh-Philp, 2001; Sleeswijk Visser, 2009).

Positioning the research of this thesis

The research described in this thesis leans towards a design-led discipline with a participatory mindset. Compared to other approaches depicted in the topography (Figure 2.1), contextmapping enjoys wide coverage, from the expert mindset discipline to the participatory-oriented mindset. This is because of its comprehensive methods of conducting both sensitising booklets (similar to cultural probes) and generative user sessions (similar to generative tools). In contextmapping, users' contributions can range from 'informant' to 'active co-designer' depending on the designers' needs. Contextmapping is one of the leading examples in the earlier case studies of this dissertation, and it is used to define the opportunities and possibilities of the research. Because it follows a process that has been well documented in academic literature (Sleeswijk Visser et al., 2005) and is used in education and design practice (van Boeijen et al., 2013).

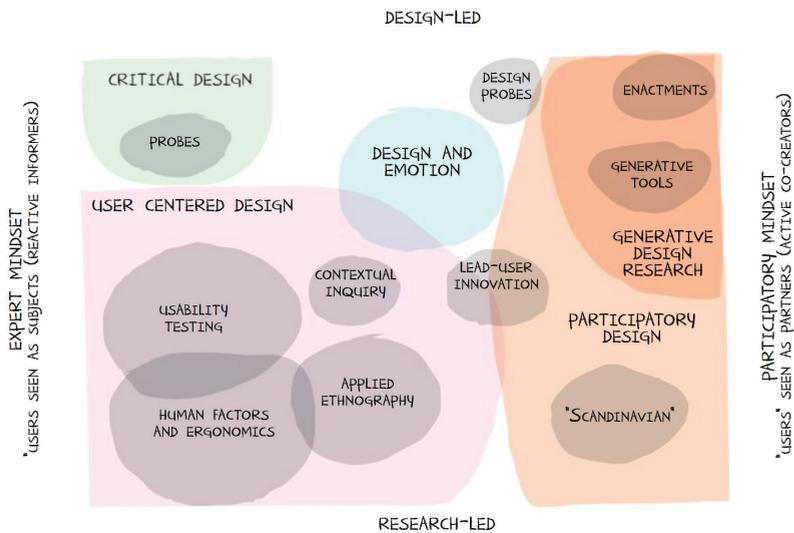


Figure 2.1
The topography of design research from Sanders and Stappers (the 2012 year's version)

Contextmapping views users as the 'experts of their own experiences' (Sleeswijk Visser et al., 2005). However, users are not always aware of their expertise, as it is often latent, unstructured, and difficult to convert into words. Generative tools and techniques are thus used to guide users to access and express deeper levels of experiences. Moreover, contextmapping actively involves multidisciplinary stakeholders in the product development process to ensure that the design fits the needs of various users. This process has been described in detail by Sleeswijk Visser et al. (2005). Contextmapping consists of a series of activities, roughly divided into two phases: collecting user insights and communicating those insights. During the first phase, users are encouraged to make artefacts that express their personal memories and feelings, and they are encouraged to dream about the future use of a product or service. The second phase of contextmapping focuses on analysing the data, formulating insights, and communicating these with the 'design team', who are the main product or service development executors.

Contextmapping was originally developed at TU Delft, building on Liz Sanders' work of generative techniques (2000). The book *Convivial Toolbox* (Sanders & Stappers, 2012) details the principles and approach of contextmapping.

2.3 First field exploration: challenges of practicing contextual user research in cross-cultural settings

The tools and techniques used in contextual user research were largely developed and applied in Western cultures. This involved personal expressions, group discussions, and creativity on the part of users (Sleeswijk Visser et al., 2005). Several researchers (e.g. Hsu, 2007, van Rijn et al., 2006; van Boeijen & Stappers, 2011) have experienced cultural challenges when introducing and practicing the generative techniques for contextual user research in a cross-cultural dimension. The activities in the contextmapping process (such as bringing users together in sessions and having them discuss their own and one another's experiences) sometimes come into conflict with cultural norms and practices. Hsu (2007) and Lee (2009) have found that member-to-member interactions in group sessions were difficult to facilitate in Taiwan and South Korea. Van Rijn et al. (2006) and van Boeijen (2015) have reported that East Asian users found it difficult to handle the ambiguity of the generative tools used in contextmapping. Similarly, when the author of the present thesis was working on user research projects at TU Delft and Philips Design, she noticed that most Chinese users were more reserved in expressing views, anecdotes, and emotions, compared to the average Western user. For example, making a collage (a common exercise that most Dutch people have performed since childhood) might not be within the comfort zone of most Chinese users. When the author used a collage tool to express feelings for the first time, she experienced a strange feeling herself.

To deepen the understanding of how contextual user research can be better conducted for intercultural design projects, field research was conducted in a commercial setting in China on behalf of Orange Creatives (OC), a Dutch product design agency located in Guangzhou, China. The commercial goal was to help its client – a medium-sized Chinese manufacturer of electric cooking appliances – to identify opportunities for innovative cooking products for the Chinese post-80s generation. In total, this field study spanned a period of six weeks in Guangzhou, China.

Client company:	GEMSide (Chinese)	This first field exploration produced empirical insights into practicing contextual user research in a crosscultural setting. There are two ways in which it had a cross-cultural dimension. First, this exploration involved gathering user data from Chinese users, analysing it, and communicating it to a multicultural (Dutch-Chinese) design team; second, it involved tailoring 'Western' contextual user research tools and techniques to an 'Eastern' context. In this case study, the author conducted
Design agency:	Orange Creatives (Dutch)	
Project goal:	Exploring the Chinese future cooking experience	
Period:	January–March, 2015	

three user studies with local participants and facilitated a communication workshop to communicate the user insights to the design team by following the general sequence of contextmapping (see Figure 2.2). This section first describes each contextmapping activity and reports on the corresponding operational concerns; finally, it concludes with insights gleaned from this study. In the following sub-sections, the first-person singular voice ('I', 'me', and 'my') is used to express that the author's exploration on the basis of her training as a design researcher, and her understanding of cross-cultural experiences was largely intuitive rather than an examination of the findings within a selection of theories.



Figure 2.2
The general sequence of contextmapping (Adapted from Sleswijk-Visser et al., 2005)

2.3.1 Preparation

Preparation of the research materials (research questions, tools, and techniques) was done in the Netherlands. To overcome the barriers reported in previous studies, as well as in my own experiences, I prepared the materials with the intention of tailoring them for Chinese cultural understanding. A number of studies on cultural differences helped to deepen my understanding of local social interactions. I searched for relevant information in a designerly manner by asking the following questions: What elements from cultural literature help to explain a less formal yet organised social occasion (e.g. user sessions)? What cultural ingredients can be associated with the activities of contextmapping? Such insights from cultural literature helped me to anticipate what activities Chinese users might appreciate and what aspects should be avoided. For example, Kwang (2001) reports that East Asians are more reserved than Westerners when it comes to expressing their views. Nisbett (2003) pointed out that when confronted with different opinions, East Asians tend to prefer to remain quiet or to seek a 'middle way'. It was expected that habits such as these would hinder the process of obtaining relevant data from Chinese users, because the process largely depends on independent opinions and personal anecdotes. These insights also served to guide me in designing new generative tools and techniques for use in the field. To help make the tools more appropriate, I also incorporated local elements, such as karaoke and other games that are more familiar to Chinese users. As a result, eight new tools and techniques (see Case 1 in Chapter 5 for more details) were tailored to engage Chinese users in field research.

The recruitment of the participants was undertaken by the design agency OC in China, whose recruiters were unfamiliar with generative tools or the contextmapping procedure. It was challenging for them to explain the format of the user session to potential participants and to manage the participants' expectations. For example, according to the recruiters, most people were not willing to participate, because they thought 2.5 hours was too long for an 'interview'. Before the required users could be found and persuaded to participate, additional support was required in the form of visual materials that depicted what could be expected from a generative user session. We eventually received a sufficient number of 15 users who wanted to join the user study.

2.3.2 Sensitising

To help participants better connect with their own experiences regarding the topic of cooking, they were given one week to complete a sensitising workbook before they came together in the user session. This workbook included a variety of generative tasks about activities that people engage in during the day, the ways in which they prepare food, and different situations regarding cooking.

Establishing a trustworthy relationship with the Chinese participants was important. To achieve this, a Chinese designer from OC joined me in delivering most of the sensitising packages to the participants and in issuing instructions to them in person. However, it proved to be a chaotic task. First, it was challenging to commute to multiple locations within a large city that has an area of 7,400 square kilometres. We tried to meet the participants at places that were convenient for both them and us. Sometimes, we met them inside a metro station on their way home, and at other times in front of a restaurant or even in a classroom where a participant was taking an English training course (see Figures 2.3). Second, most of the participants were less strict with time, which made the appointments difficult to fulfil; we experienced several last-minute cancellations or rearrangements.

Another challenge we experienced was in interpreting users' reactions and responding appropriately. For instance, cooking frequently at home was a key criterion in recruitment. However, on meeting the participants in person, we were surprised to learn that some of them began telling us that they did not in fact cook often and their cooking skills were not good. After the session, we realised that they were simply following Chinese cultural practices in being modest. Since the participants had not been aware of the cooking skills of others, they tended to be modest about their own expertise before the user session.



Figure 2.3

On the way to deliver the sensitising packages to the participants during the peak hour in Guangzhou (top); Introducing the sensitising workbook to a participant before her English training class (bottom)

After the sensitising week, the participants were asked in the session to share their experiences of completing the workbooks. They all indicated that the generative tasks in the workbook were new to them and not easy to fill in. *'It was too complicated. I was afraid that I did not fill in the right answers you wanted,'* one participant explained. Instead of reflecting on their personal experiences, the participants had been thinking of the answers expected of them. Moreover, although the participants were invited to write and draw freely in their workbooks, only two of them attempted to draw something, while the rest of them wrote their descriptions. In addition, most female participants (9 out of 11) carefully completed their workbooks by filling in all the tasks. In contrast, all of the male participants (four out of four) went through the sensitising process with little effort, handing in half-empty workbooks. This was an unexpected gender difference, and dealing with it required special attention.

2.3.3 User session

Three sessions were conducted in the office of OC. In each session, half of the participants arrived between 15 and 45 minutes late. Therefore, all the sessions started later than the scheduled time. Most of the participants were impressed by the cosy and creative decorations (e.g. design sketches and prototypes) in the office, which turned out to be a conversation starter between us, helping to pass the time while we waited for the others to arrive.

The sessions were conducted in Mandarin, which is the common language of Mainland China. In each session, the participants were asked to work on three

creative assignments: a collage of their best and worst cooking experiences, a map to imagine a perfect scenario for preparing meals, and a creation of an ideal cooking utensil (e.g. a mock-up made with clay). During the sessions, I applied the eight new tools and techniques at different moments and with a range of purposes in mind. For example, as Figure 2.4 illustrates, a user wore a chef's hat when presenting his thoughts, and he was encouraged to act as if he was a master of cooking. The chef hat, called *Master Of*, was tailored to support participants' expressions by facilitating their sense of authority. We were pleased to observe that this tool not only aided the presenter in not being too modest, but also encouraged the other participants to listen to his story. However, not all the tools and techniques worked as expected for all situations. For example, when facilitating the group discussion, I noticed that most of the participants agreed with others' opinions or only shared their thoughts when similar ideas were mentioned. When asked for different opinions, they largely remained quiet.



Figure 2.4. A participant was given the tool *Master Of* to aid in expressing his thoughts during the user session

A healthy relationship among participants was revealed to be particularly crucial throughout the user session. It was observed that if relationships were not well established, then participation was of a lower quality. For example, one young woman was late for the session. When she arrived, the session had begun, and a certain rapport had been established among the other six participants. It was therefore difficult for her to become involved in the group activities, even though she knew some of the participants in advance. She consequently dropped out in the last assignment.

The lead designer of this project was a Dutch designer from OC. She was motivated to observe the user sessions in order to have direct contact with the participants. According to her, attending the session was helpful in gaining an impression of who she was going to design for. However, the fact that sessions were conducted in Mandarin proved to be a significant obstacle, and she decided against further visits in person.

2.3.4 Analysis

The sessions were transcribed in Chinese, and two Chinese designers from OC translated selected key quotes into English. The lead Dutch designer and I followed an analysis-on-the-wall method (see Sanders & Stappers, 2012) by interpreting and categorising user quotes and formulating insights in the form of personas. The sensitising workbooks and the artefacts made by participants were carefully saved and frequently referred to during the analysis process, as illustrated in Figure 2.5.

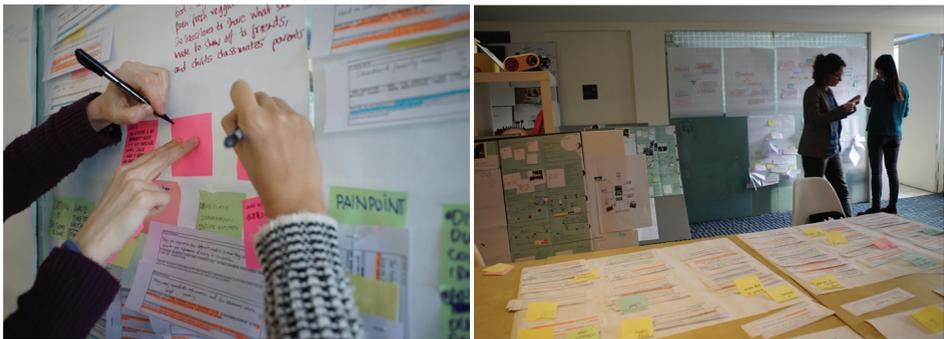


Figure 2.5 Conducting data analysis 'on the wall' together with the Dutch designer

The Dutch designer had lived in China for seven years, and her familiarity with Chinese culture and other contextual issues, including societal changes, trends, and general differences between the northern and southern regions, helped to lower the threshold of communication. However, sometimes she still had difficulties in understanding and interpreting the user quotes, as they consisted of many personal and anecdotal perspectives. Some quotes were more appealing to me but less to her, because of her level of familiarity with Chinese culture. During the analysis, I assisted her, from time to time, with discussions on matters such as common cooking techniques, local expressions, and the cultural values that people shared.

2.3.5 Communication & design

The project ended with a communication workshop with the design team, including six stakeholders: three clients from the company and three designers – two Chinese and one Dutch – from OC. During the workshop, user research findings were shared, and all of the stakeholders were invited to brainstorm design ideas together (Figure 2.6). In general, both the designers and the clients felt that the user insights were impressive and inspiring, although many of them found the communication tools, such as personas and other generative materials to be unfamiliar and hence required some

guidance on how they should use and interpret them. For instance, both the local designers and clients tended to skip the uncovering and analysis of the deeper insights behind the findings, and they directly moved to propose solutions to the obvious 'issues' mentioned in the personas. These result-oriented behaviours could be explained by a 'masculine society', as described by Hofstede, Hofstede, and Minkov (2010); however, those behaviours might also have been because the designers and clients found the concepts of personas and co-creation unfamiliar:



Figure 2.6
The stakeholders were generating design ideas, where most of the ideas were described in texts (in Chinese) instead of sketches. This hindered the Dutch designer from building her ideas on theirs.

A considerable power distance was observed in the workshop. The manager, who had the highest position in the client team, tended to turn the workshop into a Q&A session instead of a co-creation process. This occurred naturally because the rest of the attendants from the client team were expecting their manager to offer his opinion first, before expressing aloud their own thoughts. Therefore, they either took notes or agreed and went along with everything that had been discussed. Meanwhile, the Chinese designers from OC often catered to what the client leader was saying. All members in the session consequently played their own roles at the different hierarchical levels, thereby making it difficult for discussion points to be directly shared and argued. The Dutch designer was limited in participating in the discussion or contributing her ideas because of the language barrier and the hierarchical dynamic. Communication in the co-creation process thus became less effective. This workshop demonstrates cultural challenges that I could not have expected before the field study. Further studies on the effectiveness of communicating user insights would therefore be valuable.

2.3.6 Challenges observed from the first exploration

This field exploration had the benefit of revealing some of the cultural barriers that users, researchers, and designers might encounter during contextual user research processes in intercultural settings. In this sub-section, I reflect on the lessons learned from this exploration and connect them to the findings

from previous research on applying contextmapping in other cultures. These lessons are from the following two phases: (1) collecting user insights and (2) communicating user insights.

The activities in the first phase of contextmapping, such as user sessions as discussed above, require users to perform a creative assignment, express personal feelings and opinions, and discuss these in a group with others, in order to provide insights into their motivations, attitudes, and preferences. There is reason to believe that different norms for social interactions are at play here. According to Kwang (2001) and Nisbett (2003), because of social norms, East Asians are generally more reserved when it comes to expressing their views or when confronted with different opinions in a group. In this project, I encountered some of the same barriers that have been reported in previous research (Hsu, 2007; Lee & Lee, 2009; van Boeijen & Stappers, 2011; van Rijn et al., 2006, van Boeijen, 2015), such as participating users having difficulty in sharing individual opinions, especially oppositional ones, and finding it challenging to handle ambiguity when the generative tasks were too open-ended. These habits hindered the collection of rich individual and anecdotal user experience information. Moreover, generative tools are used in this phase to support and facilitate the creative expression of participants. When the users were not familiar with the tools or did not clearly understand the purpose of the tasks – in this case, the sensitising workbook and the collage sheet – it created additional barriers to bringing out their expertise. In addition to the findings from previous studies (e.g. van Rijn et al., 2006; Hsu, 2007), I observed that a healthy relationship among the users and with the researcher played an essential role in determining the quality of the research outcome. When the relationship was not well established, especially among the users, participants could not engage fully in the session, as was evident with the young lady mentioned above, who dropped out from the session altogether. Another challenge was to involve foreign designers in this phase. Even though the Dutch designer in this project could meet the users in person, the language barrier made it difficult for her to communicate and further build empathy with them.

In the second phase, the focus was on analysing data and formulating insights, and then communicating these with the design team. Unlike the first phase, few studies have been undertaken in cross-cultural situations that could provide me with past experiences from which to learn. In this phase, effective communication is again crucial in ensuring that the design team develop empathy based on the user insights and address these in the further development of their products or services. Again, cultural challenges played a role here. One such challenge arose with the Dutch designer who was analysing the data gathered from the Chinese users. She required additional

information to be able to interpret the user quotes because of a lack of a common cultural ground with the Chinese users, and this limitation perhaps hampered her generation of insights empathically. Another challenge was found in the communication workshop. Many local stakeholders did not have participatory conversations or effective collaboration, which might be influenced by the high power distance. The hierarchical dynamic also hindered the participation of the Dutch designer. Paletz, Sumer, and Miron-Spektor (2018) have recently reported a similar case, indicating that design teams experienced difficulties, such as handling conflicting opinions, in multicultural co-design activities. One can expect that this challenge is especially great in cultures where people are more sensitive to hierarchy than in a 'flat' society.

2.4 Discussion and conclusion: opportunities for cross-cultural contextual user research

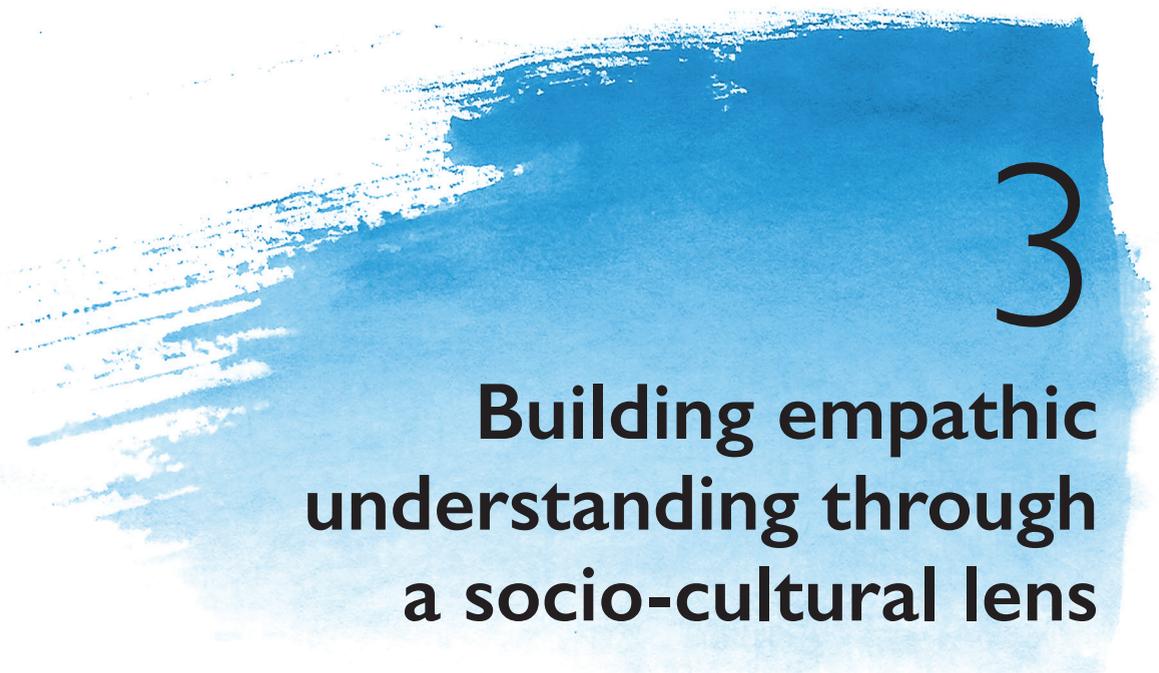
The previous research using contextmapping in non-Western cultures (e.g. van Rijn et al., 2006) has mainly reported barriers in the first phase of collecting user insights, whereas few barriers in the second phase have been reported. To improve the integrity of the study, this first exploration in the field provides insights into the overall process. It demonstrates that a successful contextual user study is embedded in convincing insights into users and communicating these insights to the main stakeholders involved in product and service development. To achieve useful results, three roles – the users, the user researcher, and the designers – interact with one another, paying particular attention to cultural barriers during the process.

As discussed above, not only is contextual user research a process of successive research and design activities, but it also involves social interactions between people within a group. However, an ideal interaction among the users and with the researcher can be difficult to establish. This challenge can be on an operational level – for instance, local people dealing with appointment times differently, or male and female participants reacting differently to the sensitising tools. In addition, these practical issues are also affected by the local culture. Therefore, understanding the practices of local social interaction is crucial. This first exploration demonstrates not only challenges but also opportunities for practicing cross-cultural contextual research. Taking into account the social interactions among people during the research process, for example by tailoring tools and techniques to facilitate rich conversations, can bring extra benefits to the research and can yield significant findings.

Making sense of cross-cultural user insights and utilising them for creative solutions can be challenging for the design team. In this first exploration,

most of the stakeholders in the design team had their own preferred ways of working and were not yet accustomed to the communication tools and techniques the author utilised, which hindered effective communication of user insights. In addition, with regard to communication with the Dutch designer, the cultural barriers limited her involvement; for example, she was not always able to directly communicate with the users, and she had difficulties in comprehending the user quotes. Additional explanations about the Chinese local culture helped her to develop an understanding of the users; however, the explanations were shared in an improvisational manner. This highlights opportunities to develop a well-structured method of communication that can provide relevant cultural knowledge and support designers in developing an empathic understanding of the users.

This first exploration reveals cultural challenges in sharing rich user insights with designers for developing empathy in a cross-cultural setting. It also identifies useful directions for searching literature (in Chapter 3) and conducting case studies in the field (in Chapter 5). In the next chapter, the author will review literature that offers insights into empathic design and culture.



3

Building empathic understanding through a socio-cultural lens

3.1 Introduction

The previous chapter reports on some of the challenges encountered during the process of cross-cultural contextual research with a hands-on experience in China, such as barriers to comprehending local social interactions and user experience data. As reported in earlier works, if designers cannot make sense of the cultural cues embedded in the user insights, they will probably find it hard to be sensitive to users, and to understand their needs and feelings in order to become empathic and create appropriate design solutions. These experiences reveal the importance of embracing cultural sensitivity in the contextual research process.

This chapter begins by reviewing literature on empathic design, which provides insights into the development of empathic understanding, and the challenges of developing empathy in cross-cultural settings in design. Following this, four cultural models are introduced and analysed. The most relevant ones are selected, which have the potential be applied to the contextual research process in building empathic understanding. The findings of this chapter will serve as a part of the foundation for the framework described in chapter 4.

3.2 Empathic design

The importance of understanding users' needs and their everyday experiences has been highlighted in human-centered design (HCD) over the past two decades (Koskinen, Mattelmäki, & Battarbee, 2003; Sanders & Stappers, 2012; Sleeswijk Visser et al., 2005). Empathic design is a design approach that helps to connect designers with the world of users. It is applied in the early phases of new product development, where design opportunities need to be identified, and where products or concepts are generated (Koskinen & Battarbee, 2003). During these phases, inspired by insights into experiences of users, their situations, needs and wishes, the empathy which designers gain aids them in generating design ideas. Through this process, empathic understanding is developed, which is defined as the combination of a cognitive and affective understanding of the user; and the capability to translate this understanding into product concepts and services (Wright & McCarthy, 2005).

The following sections explore how designers build empathic understanding with users in the early stages of new product development, specifically, when it is in cross-cultural contexts. From this, we seek to gain useful elements for developing tools and techniques to help designers build empathic understanding across cultures.

3.2.1 Empathy in design

The notion of empathy in relation to design emerged during the mid-1990s, when design considerations moved from experiences of individual products to complex integrated systems. It was at this time that researchers in the design community began to see the necessity of building stronger emotional connections with users (Dandavate, Sanders, & Stuart, 1996; Fulton Suri, 2003; Mattelmäki et al., 2014). This led to the practice of involving users in the early process of design and being committed to understanding users' needs, wishes, and feelings; in short, developing empathy. Over the past two decades, empathy in design has been highlighted as addressing different aspects such as user-product relationship (Segal & Fulton Suri, 1997), user-centred design (Fulton Suri, 2003), user-designer experiences (Kouprie & Sleeswijk Visser, 2009; McDonagh, 2006), and tools and techniques (Mattelmäki, 2006; Sanders & Stappers, 2012).

The word empathy is originally a translation of a German concept *Einfühlung* which was utilized in the field of aesthetics in the 19th century (Duan & Hill, 1996). It was first used by Robert Vischer, a German philosopher, to describe the process of projecting one's feeling upon an object and even merging with this object. Following this, Edward B. Titchener (1867-1927), a British psychologist, translated 'Einfühlung' into the English term empathy, a combination of the Greek words 'em' (in English 'into') and 'pathos' (in English 'feeling') (Titchener, 1909). The meaning of *Einfühlung* changed significantly as it extended to include other people instead of objects (Barnes & Thagard, 1997; Verducci, 2000). Today it often includes both affective reacting and complex cognitive processing, described as 'a basic social emotion' (Boyer, 1997), 'the ability to see others from their point of view' (Chen, Starosta, Lin, & You, 1998) and 'action of understanding, being aware of, being sensitive to, and vicariously experiencing the feelings, thoughts, and experience of another' (Merriam-Webster-Dictionary, 2018)

In human-centered design, empathy is described as 'an imaginative projection into another person's situation' and as an attempt to capture users' emotional and motivational qualities (Koskinen & Battarbee 2003, p.45). It is also regarded as an essential quality for developing products and services that meet people's needs (Koskinen et al., 2003). According to Kouprie and Sleeswijk Visser (2009), empathy is 'a range of activities where designers should imagine what it would be like for themselves to be in the position of the user' (p.438). In this process, the designer takes the role of the user, becoming aware of his or her thoughts, feelings and perceptions. This process of perspective taking can further be described as producing understanding (DeTurk, 2001; Howe, 2012; Thompson, 2001). This understanding has to be empathic. Wright &

McCarthy (2008) describe it as 'an understanding of what it feels like to be the user, what the user's situation is like from his/her own perspective' (p.638). It takes from information about the user's everyday experiences, including inspiration for design and empathy for the user (Postma, Lauche, & Stappers 2009). Accordingly, achieving empathic understanding with the user involves affective resonance (e.g. an intuitive and emotional response to a person) and cognitive perspective taking (understanding a person's feeling and situation), both of which are recommended in empathic design (Kouprie & Sleeswijk Visser, 2009).

Wright and McCarthy (2005) explain that building empathic understanding also includes a process of turning the affective and cognitive understanding of users into design ideas. According to them, empathic understanding is insights into the user that can be translated by the designer into pleasurable and easy-to-use products or services. This implies a process of building a dialogue between designers and users in which products are key statements (Koskinen & Battarbee, 2003). To encourage such dialogue, Mattelmäki and Battarbee (2002) and Fulton Suri (2003) emphasise the importance of conducting qualitative user research to inform and inspire designers to create 'more useful and enjoyable things for people'. Similarly, Bruseberg and McDonagh-Philp (2001) indicate that carrying out user research provides primary information to support designers in developing empathic understanding of the real needs for the design of products.

3.2.2 The empathising process

The above literature shows that building empathic understanding is a process. To gain a sense of how empathy is developed, this sub-section begins with a review of empathising frameworks on the basis of philosophy and psychology, where empathy has been extensively discussed. This is followed by a discussion of the expected limitations in cross-cultural settings.

In the field of philosophy, Depraz (2001, 2012) built her work on philosopher Edmund Husserl's 'the second person approach', introducing four complementary stages of empathic experience. For clarity, we use the first-person perspective to describe 'the empathiser' as 'me', and the second-person for 'the empathee' as 'you'. The four empathising stages are: (1) A passive association of my physical body with that of yours; it serves as a passive recognition of other as a 'moving, breathing, and living human being'. (2) An imaginative resettlement from myself to yourself, which Depraz calls 'imaginative placement'. In this stage, you and me mutually spontaneously transpose ourselves imaginatively, each into the other: For instance, you are very sad when your friend is suffering from illness. I am not capable of knowing what the concrete experiential content of your emotions is, but I

am spontaneously able to imagine a similar self-experience of sadness. (3) An interpretative understanding of yourself as being a stranger to me. At this stage, I communicate and interpret your opinions and feelings, through relating to comparable experiences, which leads to understanding, sometimes also misunderstanding. (4) An 'ethical responsibility' towards you which is felt by me. Depraz suggests that when reaching the last stage, the empathiser regards the empathee as an affective human being.

The framework by Depraz (2001) gives a fundamental overview of how empathy can be achieved. It is not exclusively related to design, but is applied in fields such as philosophy, neuroscience, cognitive science and therapeutic work. Kouprie and Sleeswijk Visser's design framework (2009) gives more concrete guidance. They proposed a four-step framework based on psychological literature, in which the empathiser (read: designer) takes the perspective of the empathee (read: user), and reflects on his or her own experiences. At each step, the designer adopts a different role, which creates a different perspective between him or herself and the user. This framework offers a basic understanding of the designer's mental process while gaining empathy with the user in mind. The four steps are: (1) *discovery*, where a designer steps into the life of a user; by making a first contact with the user, the designer becomes more curious about the user's life; (2) *immersion*, in which the designer explores the user's world, being inspired by user information (i.e., qualitative user research data); (3) *connection*, meaning that the designer makes a connection and begins to resonate with the user on an emotional level; (4) *detachment*. In this final step, the designer steps out of the user's world with an increased understanding of the user, as well with analytical insights on how to use this understanding in generating design ideas.

The expected limitations to applying the frameworks in a cross-cultural design setting, the context for the studies in this thesis, are discussed as follows:

I. Limited insights into the cultural context of the individual.

Both of these frameworks show how empathy development is closely connected to the emotional world of individuals. However, individual people are members of cultural groups, and their behaviours, needs and dreams are shaped by these groups. As designers usually design not only for an individual but for groups of people, it is also useful to understand what individual needs and dreams mean in the cultural context they are part of. Therefore, designers also need to be able to deal with, understand, and design for users as members of different cultural groups with complex social interactions therein. Thus, empathy towards the *individual* should not be the only focus, because focusing on the *individual* cannot provide insights

into the cultural factors. These may include a user's social relationships, his or her values shared within the community, and how they influence his or her experiences, wishes and needs regarding products or services.

2. **Limited common experiences with users.** Two frameworks both identify a key stage in which the empathiser relates to a similar experience as a way of achieving empathy. This assumes the experiences of the empathee are relatively close to the empathiser's experiences. But in the cross-cultural design setting this thesis deals with, the experience of users from a different culture can be very different from that of designers. For example, when Dutch designers were doing user research in Kenya, they found it hard to understand how the local users valued time (van Boeijen 2015, p.107). To be able to resonate with the experiences of users, designers might need to look for slightly different, yet still comparable experiences.
3. **Limited contacts with the empathee.** Both frameworks emphasize the empathiser to having contact with the empathee. Depraz's framework (2001) in particular requires a direct physical contact, which is not always applicable in cross-cultural projects. Even if the physical contact is made possible, cultural barriers such as the language barrier reported in Chapter 2 can hinder the designers 'discovering' the world of users.
4. **Limited access to users' own culture, since users are not aware of it.** The framework of Kouprie and Sleeswijk Visser's emphasizes that the designers should *immerse* themselves and be inspired by the user data. However, in the same way that fish in the water does not know or see the water, people are often unaware of their own culture and how it rules their own patterns of interaction (e.g. Dzenowagis, 2009; Meyer, 2015). Similarly, Chipchase (2017) pointed out that the more familiar users are with their own culture, the less they are probably aware of why things in their everyday life are as they are. Customs, rituals, how a product or service is being used in their cultural context, these all become givens. This indicates that the less users are aware of their own culture, the less likely they describe or share related stories. In consequence, this makes it harder for designers to access the culturally specific information about the user context and be inspired.

3.2.3 The empathic ability of designers

Being able to empathise with someone is not only a quality of the design process; it also depends on the individual capability of the empathiser. McDonagh (2006) states that designers need to be able to get 'under a user's skin', to be able to understand and feel as if he or she is the user. The term 'empathic horizon' (McDonagh-Philp & Denton, 1999) is used to indicate a limit on an individual designer's capability to empathise with other's feeling and thoughts that are beyond the characteristics of his or her group, such as nationality, age, gender, cultural background, experiences and education. As a person's empathic ability grows, his or her empathic horizon extends.

An individual's empathic horizon varies in strength from one person to another. It is connected to the life course of an individual and his or her unique experiences (Kouprie & Sleeswijk Visser, 2009; McDonagh, Thomas, & Strickfaden, 2011). As individuals broaden their social network through their lives, they enrich their understanding of other people and places, and so their social and cultural awareness is increased. According to McDonagh et al. (2011), a designer's empathic horizon can be extended, both through training and his or her own life experiences. Suggested ways to increase the designer's empathic ability consist of supporting an open attitude towards users (Sleeswijk Visser, 2009), training designers in research skills (Kouprie & Sleeswijk Visser, 2009), and embracing 'cultural cues' in the user context (McDonagh et al., 2011, p. 305). To achieve this takes a considerable amount of time and effort, and it is highly dependent on designers' individual ability.

Designers usually work on diverse projects that require them to study many different topics, with which they must establish an empathic link with users under the constraints of time and budget. In most cases, it is not feasible to only work with designers who have high empathic ability, and nor is it possible to train the designer's individual ability in a short period of time. In addition to that, designers in cross-cultural projects are asked to empathise with users who often have very different backgrounds to them, which requires extra attention to help move the 'empathic horizon' of the designers.

Although it is very difficult to significantly improve designers' individual ability in the short term, their empathic horizon can be broadened through the use of a variety of tools and techniques. The primary technique is to build a direct link with users. Several researchers (Bruseberg & McDonagh-Philp, 2001; Fulton Suri, 2003; Mattelmäki, 2006) have urged designers to make direct contact with their intended users. However, this is not always feasible due to limited resources, such as distance, budget and time (Postma, Lauche, & Stappers, 2012). This is especially challenging in cross-cultural projects in which the designer is not familiar with the cultural context, finding it hard

or even impossible to build an understanding of end users based on desk research (van Boeijen, 2015). Another fact is in practice, user researchers mediate between users and designers in doing user studies, analysis, and communication to the design team (Sanders & Stappers, 2008). This means that designers and end users are relatively distant. As direct contact is not always possible, a growing range of communication techniques, including personas (Pruitt & Adlin, 2006; Pruitt & Grundin, 2003), scenarios (Fulton Suri & Marsh, 2000) and storyboards (van der Lelie, 2006), has been proposed to help designers in making sense of user experiences. Role-playing, simulating the user's conditions, has been promoted as allowing designers to step into the user's world. Buchenau and Fulton Suri (2000) refer to exploring new product concepts, or interactions with such simulations, as 'experience prototyping'. It is 'any kind of representation' that aids in understanding, exploring or communicating what it might feel like when engaging with the products or services that are being designed. These simulations can inspire new design ideas. For example, wearing a pair of cumbersome kneecap devices while walking enables a designer to feel how difficult it is for an elderly people to climb the stairs. Similar to this, BARNGA, a game to train culture sensitivity, helps people to be aware of and experience cultural differences (Fowler & Pusch, 2010). However, although techniques such as this aid in understanding the behavioural and experiential aspects of user experiences, they are not so helpful in understanding the emotional world of users.

Kouprie and Sleeswijk Visser (2009) encourage empathic discussions between designers, as these can trigger emotional connections with others and lead to further empathic understanding. They designed a sensitizing tool (2008) addressing designers' own experiences, which was used for stimulating designers' empathy during 'ideation' workshops. Even though they did not go so far as to say that stimulating designers to reflect upon their own experiences could directly contribute to increasing empathy with users, it has been shown that this approach triggered designers to discuss their findings empathically. For the research in this thesis, it is assumed that taking the experiences of designers may also benefit them in cross-cultural design projects.

3.2.4 The perspective of achieving empathy: from individual to intercultural

The early development of empathic design focused on building creative understanding of an individual's feeling and thoughts. However, design opportunities have increasingly extended from individual-product interactions to complex (service) systems that also concern social interactions. This means the larger the scale of a context is, the harder it is to see the individual's needs

and emotions within it, and the greater the challenge of achieving empathy towards users.

To make sense of the bigger picture and the individuals within it, the focus on empathy in design has broadened from the individual perspective to a larger scale. Postma (2012) suggests scaling up the area when looking into the user's world. She argues that designers need to take the 'social' aspect into account when building empathic understanding, because human activity is fundamentally social, as opposed to individual. If designers want to make sense of user information, merely looking at how a user interacts with a product or service is unlikely to yield rich insights. Instead, they need to include the social relationships, interactions, values and needs of the user. More recently, Sustar and Mattelmäki (2017) discuss how to bring in the role of cultural empathy, underscoring its value for designing holistic concepts and complex structures in developing local immigration systems. They stress that critical reflection is needed to extend the meaning of empathy in design when dealing with individuals with different cultural backgrounds in larger contexts. However, Sustar and Mattelmäki only discuss a design case, and do not design a general guideline for employing and developing intercultural empathy for other projects.

As the scale of the design context extends, so does the distance between users and designers. Currently, designers are not only creating products or services for domestic users but also for users who are more culturally distant. Generally speaking, the effort needed to build empathy towards similar people is less than towards those who are very different from us (Howe, 2012; Raboteg-Saric & Hoffman, 2001). In other words, the greater the dissimilarity in cultural backgrounds, the greater the challenge of achieving empathy. In line with McDonagh-Philp and Howard (1999), as the cultural distance with users is large, designers will need support to broaden their 'empathic horizons'. Unlike achieving empathy with users who share a same cultural background with the designers (e.g. based on a shared language and national history), achieving empathy with users from a great cultural distance has not been extensively reported in design literature. Thus, it may be helpful to study literature in other fields of social science to find applicable lessons.

Several researchers discuss the importance of empathy, particularly in cross-cultural contexts in international communication, pedagogy and sociology. In these fields, extending empathy across cultures has been promoted as a competence to avoid people's natural tendencies leading to lack of understanding differences and disparaging the values of others (Boler, 1997; Calloway-Thomas, 2010; Chen, Starosta, Lin, & You, 1998; Zhu, 2011). Ibrahim (1991) identifies the need to convey empathy culturally when working with an intercultural group. DeTurk (2001) explains that empathy is considered as

a central intercultural competence for communications across different social groups. Similarly, Rifkin (2009) argues for the necessity of extending empathy towards individuals across different cultures and continents. According to him, fostering 'global empathy' can bring people together to corporately work on international issues.

To gain a sense of what intercultural empathy is, it is important to understand how the nature of empathy in intercultural contexts differs from empathy in other contexts. Calloway-Thomas (2010), a communications scholar specializing in culture, sets out the notion of intercultural empathy, saying that it is to better understand values, views and behaviours that differ from ours. She defines intercultural empathy as 'an ability imaginatively to enter into and participate in the world of the cultural other cognitively, affectively and behaviourally' (p.8). Ivey, Ivey, and Simek-Morgan (1997) describe it as 'seeing the world through another's eyes, hearing as they might hear, and feeling and experiencing their internal world' (as cited in Zhu 2011, p. 117). Rasool, Eklund, and Hansen (2011) further elaborate on it as 'feeling, understanding, and caring about what someone from another culture feels, understands, and cares about' (p.8). As these findings illustrate, ways to relate to others and to be mindful of differences are vital matters when examining intercultural empathy.

What is special about intercultural empathy as compared to the type of empathy that has been practiced in design? Most of the above literature treats intercultural empathy merely as empathy practiced over a great distance. However, Zhu (2011) points out that intercultural empathy is about understanding of a culture's values and beliefs appropriately. According to him, there are three counter-forces (namely, stereotype, prejudice and lack of cultural sensitivity) which stand in the way of achieving empathy across cultural distance. To explain these one by one, stereotypes make people tend to amplify a particular behaviour performed by another particular group while neglecting the things they have in common. This can be a conventional and oversimplified opinion or impression, based on common attributes of a group of people (McGarty, Yzerbyt, & Spears, 2002). Prejudice is a premature judgment that is often based on stereotypes that are either oversimplified or over-generalized views of other groups. Similarly, Holliday, Hyde, & Kullman (2010) explain that people are apt to perceive the world in the form of cultural others, which usually involves processes of stereotyping and prejudice. Cultural sensitivity is an individual quality that is to be aware and accepting of other cultures. According to Stafford et al. (1997), being culturally sensitive means recognizing the existence of cultural differences and similarities and their roles in individuals' values, beliefs and behaviours. But it does not always mean 'liking other cultures or agreeing with their values of ways of life'

(Bennett, 2004, para.28). A lack of cultural sensitivity can lead to ignorance of differences in values, norms, beliefs and different ways of thinking.

As mentioned above, intercultural empathy involves awareness of differences, understanding of other people's socio-cultural values and beliefs, and cultural sensitivity. There is reason to believe that these findings are beneficial for designers seeking to build connections with users from other cultures. In the next section, cultural models that focus on these topics will be reviewed.

3.3 Models to deal with culture in design

In a fast-changing world economy, companies aim to market their products and services to a wide range of countries across the globe. The role of culture has been highlighted in a number of literature and real world cases of market failures where companies did not carefully consider local cultural contexts (e.g., Hofstede, Hofstede, & Minkov, 2005, 2010; Pendrous, 2013; Sun, 2012). As the distance between designers and users grows, and as the scale of the design focus extends, achieving empathy with users has become demanding. Several design researchers have underscored that designers need to recognize and embrace the user's cultural context in design (Moalosi, Popovic, & Hickling-Hudson, 2010; Sun, 2012; van Boeijen, 2015).

The notion of culture comes from a vast area of theories and field work. To deepen our understanding of what the cultural context of users is, the cultural models mentioned in some of the major works that have been successfully used in design are reviewed. These models consist of components, such as composition of cultural groups, their shared values, and how these values are expressed in daily practice, which might be useful elements to include in practicing contextual user research.

3.3.1 Culture and cultural context of users

Culture is a complex notion that carries multiple connotations from different disciplines such as sociology, anthropology, psychology, design history, communication, philosophy and ethnomethodology. Several researchers (e.g., van Boeijen, 2015; Sun, 2012; Postma, 2012) make cultural models beneficial for designers and their practice, mainly from anthropological literature. The work of anthropologists can be used to understand the cultural values and practices of the present. Understanding the present is not only about better matching our products and services with the contemporary cultural values and practices (Loewy, 1951), but also to be able to rethink what needs to change and why. As culture changes over time, it is not possible to gain up-to-date understanding of cultures by relying on literature alone. In HCD, designers regard people, and their needs and experiences, as an integral

part of the design process. In order to develop new products and services, designers need to know what to change (or intend to change). Thus, designers are future oriented people, trained to create ways of shaping the future (Margolin, 2007, van Boeijen, 2015). For these reasons, van Boeijen (2015) demonstrated how cultural models of anthropology can give designers more guidance. In line with anthropologist Clifford Geertz (1973), culture in this thesis is considered as the meanings, behaviours, practices, values and beliefs, as well as the tangible manifestations, such as artefacts, that groups of people develop and share over time.

The goal of this thesis is to support collecting rich data of the local cultural contexts of users, as well as designers to gain insights accordingly. Thus, understanding what components are embedded in a cultural context is important. Hofstede et al. (2010) dissect a cultural context into different layers: national, regional, gender, generational, social status, and organizational. Likewise, Sun (2012) argues that a local cultural context consists of a variety of socio-cultural elements, including national and/or ethnic culture (e.g. hierarchy vs. egalitarianism, or collectivism vs. individualism), subgroup culture (e.g. age, group, gender, and organizational affiliation), individual factors (e.g. personal background, values, and interests), ways of life, daily activities, and interpretations of these. Similarly, Lee (2012) argues that a cultural context not only contains the traits or behaviours of the individuals, it is collectively formed by people in and through their everyday activities. These findings suggest that it is best to learn about a cultural context through different levels, and to embrace the diverse cultural components within it.

Much research has been done to help designers and user researchers to study local cultural contexts with a holistic approach. Lee (2012) examined the misinterpretations of HCD methods and explains how these methods are used in understanding culture and social actions. She argues that design researchers should not fail to recognize the local cultural context where a method is applied, because all methods are 'culturally bounded' in the HCD field. To allow design practitioners to gain a comprehensive view on a local cultural context, Sun (2007) developed an activity approach to cross-cultural design, which is used to study the 'action and meaning of uses' of local users. According to Sun (2012), as user experience is heavily influenced by its material and sociocultural contexts, designers need to consider the different aspects of contexts to achieve a holistic view. Likewise, Postma (2012) proposes a cultural theory as a thinking tool for empathic design, which helps designers to consider the social aspects of local contexts for new product development. Van Boeijen (2014) analysed several cultural models and developed tools and guidelines to help designers study cultural contexts of local users, which has been proven useful for designers in overcoming

challenges in cross-cultural design processes.

However, the research mentioned above did not address achieving empathy towards users and dealing with cultural distance at the same time. As mentioned in Section 3.3, to achieve empathy, designers currently face the challenge of the growth of scale and distance. Postma's work (2012) is only about extending the *scale* by addressing the social aspects of user experiences, not dealing with the *distance*. The work of van Boeijen (2015) and Sun (2012) focused on the *distance*, specifically coping with cross-cultural design challenges, but their approaches were not based on empathic design. Because of this, in the following section, the author reviews the cultural models mentioned in their work, examines their application and uses related elements to tune in with the aim for this thesis.

3.3.2 Cultural models used in design practice

As Sun (2012), Postma (2012) and van Boeijen (2015) have successfully applied several cultural models in design practice, these models are expected to be helpful in understanding the cultural context of users. Moreover, the models are expected to contain elements for designing tools and techniques, supporting cross-cultural user research and design activities. This section will introduce **Hofstede's set of cultural dimensions**, **onion model**, **activity theory** and **the circuit of culture** shortly.

Cultural dimensions and **onion model** (Hofstede et al., 2005 & 2010) have gained popularity in applied contexts, such as design and international training.

The set of cultural dimensions was based on a large survey study regarding cultural values across the worldwide target groups. Hofstede et al. (2010) developed the following six cultural dimensions to identify local culture:

Power Distance (PDI) describes the acceptance level of unequal power distribution by less powerful people in a culture.

Individualism vs. collectivism (IDV) indicates the interdependence of people ('I' or 'we').

Masculinity and femininity (MAS) refers to gender roles associated with work goals in a society. This also illustrates people's motivations in terms of achieving the best results ('masculine') or enjoying what they do ('feminine').

Uncertainty avoidance (UAI) expresses the extent to which people feel anxious in the presence of uncertainty.

Long- vs. short-term orientation (LTO) shows how people maintain links with their own historic points of view, or how they cope with changes in the present and future.

Indulgence vs. restraint (IND) explains the degree to which people try to control their desires and impulses.

Although it has been criticised from a number of perspectives, such as the relevancy of the research method, the limitation of using nations as units of analysing cultures, the ignorance of the variations within a nation, outdated data (e.g., discussed by Jones, 2007, and McSweeney, 2002), and rebutted (Hofstede, 2001, p73, 2002, 2006), designers have found it to be useful in organizing their own observations and in generating questions to fine-tune design methods (van Boeijen, 2015). Specifically, this model has been used for designing user interfaces (Ford & Kotzé, 2005; Snelders, Morel, & Havermans, 2011). In addition, it has offered a way to understand the differences and similarities of user experience and to think about culturally appropriate metaphors for different user profiles (Marcus, 2006). Furthermore, van Rijn et al. (2006) have used this model to understand, explain, and design extensions of generative techniques for contextmapping user sessions in South Korea.

The onion model (Hofstede et al., 2005) illustrates that values are the invisible core of a culture, manifested through cultural practices. The onion is used as a metaphor, to show that these values are hidden within layers. It explains that in discovering the *values* of a culture, one needs to first peel off the outer layers, which have been shown to be *rituals*, *heroes*, and *symbols*, as illustrated in Figure 3.1. This model has been used to help designers become aware of cultural practices and understand how cultural values can be influenced by design; It has also been used as a generative tool in contextmapping user sessions to help users map their cultural practices and values (van Boeijen, 2015).

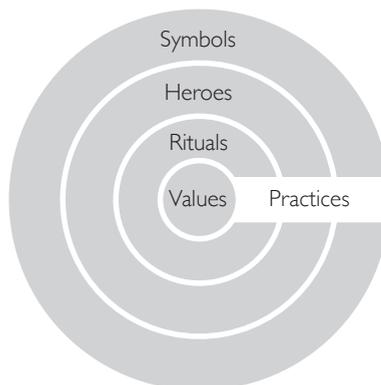


Figure 3.1 Hofstede's onion model: Cultural values and practices at different levels of depth (adapted from Hofstede 2005, p.7)

Symbols, the outer layer of the onion, refers to texts, behaviours, figures, language, objects and artefacts (e.g. consumer products or services). This is the layer most related to what designers elaborate on in design practice (van Boeijen, 2015). The layer below this, *heroes*, stands for persons serving as role models, whether alive or dead, real or fictional. They represent the values shared by the cultural group. In design, a role model can be used to represent a person (including an imaginary one) who possesses characteristics, visions, or dreams that are highly appreciated by the end users. As a hero could be someone in the past, or someone who lives in an imaginary future, this gives the designers plenty of scope for interpretation. *Rituals* are socially essential collective activities, including the special events held within a cultural group, styles of communication, both verbally and behaviourally, and also daily interactions (Hofstede et al., 2005). *Symbols*, *heroes* and *rituals* are important parts of *practices*. They are observable, but their cultural meanings are often not, and can only be interpreted. *Values*, at the centre of the onion model, are invisible, as opposed to *practices*. They are collective tendencies to prefer certain courses of events over others. Hofstede et al. (2005) explains them as 'feelings' which are expressed with two opposite qualifications, such as good versus bad, clean versus dirty, or ugly versus beautiful.

Activity theory (AT) is a framework that illustrates the structure, development, and socio-cultural context of people's activities. It was initiated by Lev Vygotsky (1978) in the early 1920s, and then further developed by his disciple Alexei Leont'ev (1978). According to Engeström (2001), AT has evolved through three generations of research. It became known worldwide in the early 1980s, after related work had been published in English. In 1987, Yrjö Engeström presented a framework of human activity in a socio-cultural context that builds on Leont'ev's AT (Engeström, 1987; Engeström, 2001; Kaptelinin & Nardi, 2006).

Engeström (2001) models an activity system which is the basic unit of analysis in AT (Figure 3.2). It consists of six components that explain the what, how, and why of people's behaviours in their sociocultural context: *subjects*, *objects*, *artefacts*, *rules*, *community*, and *division of labour*. According to Kuutti (1996) this model addresses three mutual relationships among *subjects*, *objects* and *community*. *Artefacts* mediates the relationship between *subjects* and *objects*; *rules* mediate between *subjects* and *community*; *division of labour* mediates the relationship between *objects* and *community*. In the model of an activity system, the *subject* is a person or a group who strives to achieve an *object*. The *artefacts* are mediated tools or symbols that are used to facilitate performance towards these *objects*. In addition, the model indicates that a cultural context also consists of *rules* (written and unwritten), the *community* (a group of people who share values and meanings), and the

division of labour (how roles of the group members are divided). AT argues that one needs to take all of these components into account to develop a meaningful understanding of the human psyche.

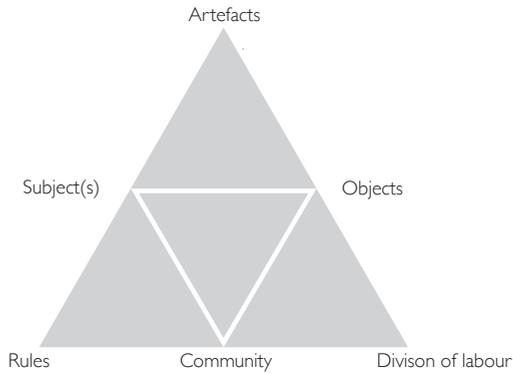


Figure 3.2 Engeström's model of an activity system (adapted from Engeström, 2001)

AT has been promoted as a framework for interaction design (Kaptelinin., 1996) and human-computer interaction (HCI) research (Bødker, 1996; Honold, 2000; Kuutti, 1996). According to Kuutti (1996), AT provides a set of basic principles for studying contextually embedded interactions, taking account of the complexities of the observed world. This is in line with Sun (2012), who argues that AT is a useful framework to study the contextual factors of a local culture for technology design. AT has been used to help designers to build empathic understanding by taking the social aspect into account. Postma et al. (2012) suggest that AT be used as a thinking tool for using empathic design when practicing new product development – although it is often considered difficult to learn and to put into practice.

The circuit of culture (du Gay et al., 2013) is a model for studying the cultural meaning of products. It examines the development cycle of an artefact (see Figure 3.3), includes five key processes: *representation* (how the product is represented), *regulation* (what regulates its distribution and use), *consumption* (how it is consumed and what meaning people give to it when they use it), *production* (how it is produced), and *identity* (what social identities are associated with it). This model explores contextual elements, illustrating the mediation of meanings of the social aspect of human actions. Du Gay et al. (2013) suggests that a study of the whole circuit of culture is necessary in order to examine a cultural product comprehensively, and in practice, these elements overlap and intertwine contingently (Sun, 2012). According to van Boeijen (2015), this model has the advantage of comprehensiveness, showing the dynamics and fluency of culture. Moreover, Sun (2007) indicates that applying this model to cross-cultural design gives a clear overview of how the other four processes interact with and contribute to the consumption

process in the whole life cycle of a product. However, according to Sun (2012) this model is mostly used to study contextual factors at an individual level. Moreover, van Boeijen (2015) argues that this model does not provide a lens to identify differences from one culture to another.

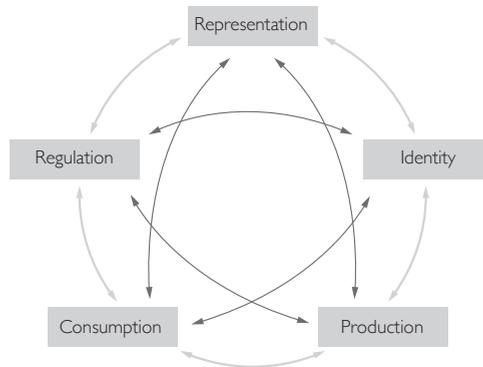


Figure 3.3. The circuit of culture (adapted from du Gay et al., 2003)

3.4 A useful socio-cultural lens for achieving empathy in contextual user research

The cultural models mentioned in the previous section are useful for providing insights into the cultural contexts of users. However, each of them is has a different level of relevance to conducting cross-cultural contextual user research, the focus of this thesis. This section will elaborate on each model and discuss its applicability.

As suggested in the previous section (3.2), in order to achieve empathy culturally, one needs to be aware of the existence of cultural differences and their effects on values, beliefs and behaviours. **Hofstede's set of cultural dimensions** seems to provide designers with such a lens. It defines people's practices in terms of general characteristics of cultures. It focuses on the dominant cultural values of a target group and provides vocabularies with which to access dissimilarities across cultures. According to Sun (2012), the set of cultural dimensions is the most popular approach applied in cross-cultural design. Similarly, the **onion model** also focuses on uncovering values, the invisible part of culture. Unlike the set of cultural dimensions emphasising on the differences between various values, this model provides a structure for stepping into particular cultural values. But a common disadvantage of both models is that they are somewhat abstract and do not directly refer to rich contextual data, such as the actual social activities, subculture factors (e.g. age groups, educational levels), nor anecdotal and individual information (e.g. emotions, feelings). However, designers must be careful of the pitfall of

zooming on to a larger scale but losing sight of the individuals, something that methods used in empathic design endeavour to avoid (Sustar & Mattelmäki, 2017).

The **onion model** also encourages designers to study the cultural practices of users, with shared cultural values in mind. This model emphasises that designers cannot uncover the invisible part of culture without understanding practices, or vice versa. To be more specific, practices can be observed easily but change quickly, as they can be learned through people's lifetimes. For instance, designers might be interested in how users' morning rituals, or how they prepare a family dinner. Such things can vary significantly between individuals, as well as from generation to generation. However, while *practices* change fast, *values* shared by a cultural group are relatively stable (Hofstede et al., 2005; Schwartz, 2006). Thus, the understanding of values can help to explain why these everyday practices are important, or unimportant. This is in line with the empathic approach (e.g. contextmapping), which attempts to uncover people's latent needs through exploring why people do things in the ways that they do.

Expected relevance to conducting contextual user research:

Since Hofstede's set of cultural dimensions and the onion model both focus on analysing cultural values, their relevance will be discussed together. Cultural dimensions, as they distinguish value orientations between different cultures, have the potential to support user researcher by tailoring the tools and techniques that fit the local culture. As was mentioned in Chapter 2, many of these techniques were originally developed and tested for Western markets, with users from Western cultures. When applying these techniques to non-western cultures, they did not always work as expected, often due to a failure to adapt to local cultural norms and values. The value oriented cultural dimensions have been used successfully to localize generative tools for contextmapping for Korean users, based on the comparison between Dutch and Korean cultural values (van Rijn et al., 2006). Thus, the set of cultural dimensions is expected to help researchers anticipate what values and related social interactions can be expected from local users. This can help researchers to fine-tune tools and techniques before heading to the field.

The onion model focuses on particular cultural values, rather than comparisons. At the same time, this model also studies people's practices. It has shown potential for supporting communicating user insights to the designers, where it is expected to assist designers in discussing cultural values and the practices of users explicitly.

Engeström's model of an activity system (2001) identifies what matters for people's ongoing activities in specific cultural contexts. Similar to the onion model, this model is expected to draw designers' attention to the socio-cultural practices of users. As Kuutti (1996) stated, it is a model to study 'different forms of human practices' (p.13). This model places the activity at the centre, claiming that people's activities are object-oriented and tool-mediated processes. The notion of object-orientation means that the objects motivate human activities, appealing to the subjects' needs and wishes. An object can be either a physical one or an objective to achieve. In design, object-orientation aids in understanding the ultimate 'why' of user actions (Postma 2012). Sun (2012) believes that the notion of mediation is essential in studying the use of artefacts, people's activities and experiences, and uses this model to examine the people's activities of product use in a local cultural context. AT begins with individual consciousness, but through Engeström's work these individual concerns are turned into a set of models, seen as 'scaffolds of context' (Postma, 2012) and 'systems without experience' (Sun 2012). For example, in the case of the shower toilet (see Case 3 in Chapter 5), Engeström's model (2001) can illustrate why a user chooses a shower toilet according to its usability efficiency, and how this product probably helps the user to maintain his or her identity within their group; but it lacks the vocabulary to describe the actual user experience. Likewise, Postma (2012) found that this model does not focus attention on the emotional domain of user experiences, which is the most prominent issue in empathic design. Good news, according to Kaptelinin (1996), is that AT has the potential to be integrated with other models and frameworks. Thus, Engeström's model of an activity system may be adjusted to support achieving intercultural empathy and include the richness and emotional aspect of user experience.

Expected relevance to conducting contextual user research:

As mentioned above, designers cannot understand cultural values without understanding their practices, or vice versa. Based on Kuutti (1996), Engeström's model of an activity system is expected to help designers take a closer look at different socio-cultural practices of users. The onion model also emphasizes the practices of people. Thus, the model of an activity system has potential to be combined and/or adjusted with the onion model in order for them to enrich each other.

As this model studies not only the individual but also socio-cultural aspects of interactions, it is expected to contribute to the process of contextual research in two ways. First, it provides a socio-cultural lens for the user researcher to gather relevant user data in the field. Second, it is helpful for designers to examine user data gathered from the field user research.

The circuit of culture (du Gay et al., 2013) shows how cultural meanings are produced through five processes. *Representation* is the process where the meaning of a product is given shape: 'we give things meaning by how we represent them' (Hall 1997, p.3), often through marketing campaigns, such as packaging or advertisement. *Consumption* is a process where people create meanings by using products in everyday life. For example, using a shower toilet means comfort in China, whereas this may not be the case in the Netherlands. *Production* is the process whereby the developers of products imbue their products with meaning, such as products labelled with a 'fair trade' sign by its manufacturers. *Identity* is the process where the meanings of the product accrue to people's social networks. *Regulation* has to do with the norms and values of society, which influence how the product comes to exist in a society.

These processes aim to give a comprehensive view of understanding the cultural meanings of products. However, this model emphasizes the cultural meaning-giving process from the point view of an existing product, and does not offer much help in understanding its users. This may shed a different light on the development of empathic design, where the products are made meaningful with users in mind and user experience is the forefront. Moreover, unlike value-oriented models, the circuit of culture does not offer a lens for looking at possible cultural differences, even though cultural differences are important for achieving empathy across cultures. In fact, this model has often been used in design history discipline. Instead of using it to envision a future product or service, it focuses on the past, examining how the cultural meaning of a product is developed over time. Accordingly, this model is expected to be less relevant for designers building empathic understanding towards users and their cultural contexts.

Expected relevance to conducting contextual user research

The circuit of culture focuses on the meaning of existing products or services which gives a macro level of analysis (Sun 2012). One focus area of this thesis is involving users in the early phase of product development, in which users are encouraged to dream about ideal products and services in the future. Another focus is supporting designers in gaining empathy through user experiences that contains dreams and wishes of the future. Both focuses are future oriented, which is merely addressed in the meaning-oriented model. Moreover, instead of focusing on people, the analysis focus of this model is anchored in the products. Therefore, this model will not be elaborated on in this thesis.

The above models provide a comprehensive view on approaching cultural contexts in design. A common problem reported by Postma (2012) and van Boeijen (2015) is that these theoretical cultural models are often too complex to be applied in practice. They need to be tailored to the 'language' which appeal to designers. Table 3.1 illustrates an overview of each perspective and summaries its relevance to the purpose of this thesis.

Table 3.1 An overview of the cultural models and their expected relevance to the focus of this thesis

Cultural models	This model	Analysis focus	Expected relevance to the focus of this thesis
Cultural dimensions	<ul style="list-style-type: none"> • Highlights the distinctions of values between cultural groups, having the potential to help user researchers tailor tools and techniques for users. • Has risks that may lead designers to zoom out to a larger scale but lose sight of the individuals 	Comparison of cultural values of people	Help user researchers tailor tools and techniques to collect user data in the field
Onion model	<ul style="list-style-type: none"> • Provides user researchers with a lens to gather, analyse and communicate data about users' socio-cultural activities • Shows how human practices are formed in a cultural group, helping designers generate a holistic view • Has potential to be combined with other models • Lacks of guidance towards people's emotions 	Cultural values and practices of people	Help designers to examine user data gathered from the field user research
Model of an activity system	<ul style="list-style-type: none"> • Provides user researchers with a lens to gather, analyse and communicate data about users' socio-cultural activities • Shows how human practices are formed in a cultural group, helping designers generate a holistic view • Has potential to be combined with other models • Lacks of guidance towards people's emotions 	Practices of people	Help user researchers to look for relevant user data in the field Help designers to examine user data gathered from the field user research
Circuit of culture	<ul style="list-style-type: none"> • Focuses on a product, helping designers to study its cultural meaning • Provides a discursive structure for analysis of the existing artefacts • Lacks of guidance towards people's shared values 	Meaning of products	The relevance is thin, and will not be elaborated on further in this thesis

3.5 Conclusion

The main goal of this thesis is twofold: one is to gather rich and relevant stories by involving users in user research activities; the second is to support designers in building empathic understanding towards users. Both are under the constraint of cross-cultural projects, in which designers need to cope with the growth of the scale (the cultural context) and distance (between users and designers), in order to develop products and services that provide fulfilling user experiences.

This chapter identifies several limitations of empathic frameworks, tools and techniques for cross-cultural situations. First, most of the current solutions focus on the individual perspective. In order to develop intercultural empathy, designers should not only gain insight into individuals, but also their cultural contexts (e.g. how users interact within the socio-cultural group they take part of). Moreover, users are often not aware of their own cultures. This may reduce the richness of the stories they share and the relevance of them to the cultural context. Furthermore, designers often have limited contact with users. User researchers often mediate between users and designers, who lack culturally appropriate tools and techniques. In addition to these limitations, the literature also suggests ways to expand the designer's 'empathic horizon', such as connecting designers to their own experiences, which has the potential to be further explored in cross-cultural settings.

The literature suggests that achieving intercultural empathy requires a sensitivity: being awareness of cultural differences and understand other culture's values. Therefore, four cultural models depicting the components of cultural contexts, addressing the cultural differences and values are reviewed. Three models – namely the Hofstede' set of cultural dimensions, the onion model and Engeström's model of an activity system – are expected to serve as a useful socio-cultural lens for building empathic understanding. These models articulate cultural values and practices, which are key components for designers to understand the shared values of and recognize differences between cultural groups. All these findings form the basis of the framework, an initial vision on building empathic understanding crossing cultures, which will be described in the next chapter.



4

The initial framework: intercultural empathy in contextual user research

4.1 Introduction

The findings from the first field exploration and literature discussed in Chapters 2 and 3 come together to form a framework in this chapter. This initial framework serves three purposes. First, it connects and structures the findings from the explorations made in the previous chapters. Second, it consolidates the understanding of achieving intercultural empathy in contextual user research proposed in Chapter 1, phrasing the research questions in more detail. Third, this framework will guide the case studies in Chapter 5 as well as the development of the tools and techniques for both users and designers. This chapter introduces the initial framework and highlights four areas, each with a detailed formulation of one or more sub-research question(s), which will be explored in Chapter 5.

4.2 Four areas of attention of the initial framework and related research questions

The goal driving the research of this thesis (as stated in Chapter 1) is to support users in telling rich and relevant stories, as well as to enable designers build empathic understandings under the constraints of cross-cultural contextual user research. Figure 4.1 on the next page depicts the initial framework that describes how this goal is expected to be achieved. With the findings from Chapter 2 and Chapter 3, the framework mainly draws attention to four areas (marked with numbers in Figure 4.1): (1) **users and designers**, (2) **user context to be studied**, (3) **tools and techniques**, and (4) **process**. They will be introduced in the following sub-sections. For each area, we first clarify the meaning of the key terms used. Moreover, since cultural factors are expected to play a role in cross-cultural settings, we discuss foreseen barriers and enablers per area. Finally, a more specific formulation of the main research questions (sub-research questions) is presented. These sub-research questions will be used to guide the exploration of the case studies in the next chapter. The last sub-section discusses the roles that the author plays during the case studies.

4.2.1 Area 1: users and designers

Contextual user research involves a number of people in different roles, such as users, user researchers, designers, marketers, and clients. In this thesis, the focus lies on three of these roles: the user, the user researcher, and the designer. First, users have first-hand experience in interacting with a certain product or a service, and, as participants, they are assigned the position of 'experts of their experiences' (Sleeswijk Visser et al., 2005). They participate

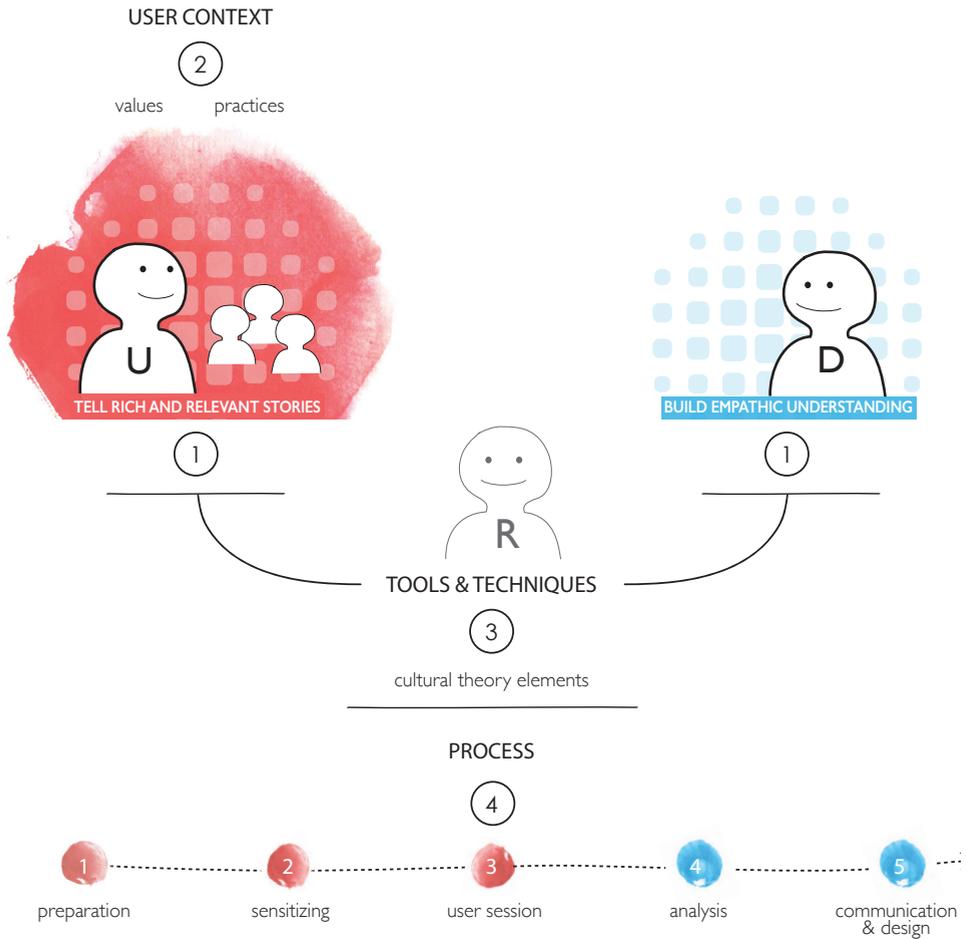


Figure 4.1 Framework for intercultural empathy in contextual user research, resulting in four areas of attention.

actively in user research activities, such as group sessions, wherein they express their thoughts, feelings, and needs, and they ideate the ideal context of future use of products and services. Second, the user researcher facilitates interaction between the users, bringing them into the ‘design world’ in the most appropriate manner. In addition, the user researcher collects user data, analyses it, and communicates the emerged user insights to the designers. Third, designers are trained professionals who seek to create opportunities and devise design solutions that are appropriate to the user context. They deepen their understanding based on the user insights and play a critical role in giving form to the ideas, needs, and wishes of the users.

Either an individual person or a team can fulfil each of the above-mentioned roles. In practice, the roles tend to overlap. For instance, a person who takes the role of the designer can also be involved in conducting user research, and

a person who assumes the role of the user researcher can also contribute to generating ideas. In cross-cultural projects, barriers such as language, budget, logistics, and distance often make direct contact between the designer and the user difficult. For this reason, the user researcher mediated between the user and the designer in the case study described in this thesis. Furthermore, the roles of the user, the user researcher, and the designer were played by different people (except for Case 7).

In a cross-cultural setting, we expect significant differences between the environments in which the user and the designer grew up and currently live, as well as differences in the values and beliefs between those two types of people. We also expect the connection the researcher makes by using tools and techniques to be able to cross cultural boundaries. The research focus of the case studies is particularly on the **users** and the **designers**, rather than on the user researcher. During the case studies, the goal was to examine the factors that can support users in telling rich and relevant stories, and that can assist designers in building empathic understanding. Although it is expected that the role of the researcher (and his or her cultural background) will be important in intercultural empathy in a design context, it is beyond the scope of the fieldwork in this thesis. Therefore, the character of the user researcher in Figure 4.5 is presented with less contrast than that of the user and the designer.

The field experience in Chapter 2 has already addressed several cultural barriers in facilitating people's expressions in a user session. Based on that experience, we expect different norms for social interactions to be at play when facilitating appropriate social interactions between the users and with the researcher. The following questions thus arise: what enables the users to be guided through a user session, and how can their interactions and expressions be facilitated appropriately according to their own cultural preferences?

When communicating user insights to designers, difficulties may arise in developing empathic understanding towards the users. It may be easier to make sense of what users say and do if the users and designers share a similar cultural background. However, in intercultural situations, it is to be expected that the designers will require additional support in understanding and empathising with users. As suggested in Chapter 3, in addition to the experiences of the user, the designer's own experiences play an essential role in developing empathy. The blue-dotted background of the designer in Figure 4.1 represents his or her own experiences. The case studies will contribute to an understanding of how designers' reflections on their own experiences support them in building intercultural empathy.

The sub-research questions to be answered in the case studies regarding this area are as follows:

- What are the barriers and enablers with regard to users sharing rich and relevant stories?
- What are the barriers and enablers with regard to designers building intercultural empathic understanding?

4.2.2 Area 2: user context to be studied

To promote coherent research results in the field, the user context to be explored for each study must be limited. The term 'user context' refers to all facets (e.g. people, places, activities, situations, and time) that influence a user's experiences. The term 'user experience' refers to a user's first-hand knowledge regarding the use of a product or service, and his or her associated feelings and emotions. When executing contextual user research, the researcher determines a focus (what the central experience of the study will be about) in the user context and a scope (how broad the study will be; see Sanders & Stappers, 2012, p,128), both of which guide users to share the stories of their experiences around the central objective of the research. Figure 4.2 below zooms in to area 2, in which the watercolour-like red background behind the user represents the scope of the user context to be studied, and the dots around the user specifically represent his or her individual experiences.



Figure 4.2
The user context to be studied
in contextual user research

In cross-cultural situations, we expect that more factors and differences will be at play, compared to a local application; furthermore, the scope of the user context might need to be expanded. If so, then the following must be determined: the size of the scope of the user context, the aspect(s) of information regarding the user context that would be useful to designers, and the information that should be in the user context.

The literature in Chapter 3 indicates that designers should consider not only the individual users, but also the way in which they interact with one another within the socio-cultural group they are part of (the group of three

small white characters in Figure 4.2). Moreover, it suggests studying the user's cultural context and paying special attention to **practices** and **cultural values**. These aspects will serve as starting points for the exploration during the case studies. The goal is to identify the interplay between these aspects. In addition, it is worth determining whether there are other aspect(s) of the user context to be explored.

The following sub-research question is to be answered in the case studies regarding this area:

- What aspect(s) of information should be in the scope of the user context?

4.2.3 Area 3: tools and techniques

A series of tools and techniques is typically employed for conducting contextual user research. The term 'tools' means physical objects, used as a means to support interactions between the different roles during the activities, and the term 'techniques' represents the way in which these tools are used (Sanders & Stappers, 2012). For instance, the *Master Of* tool, mentioned in Chapter 2, takes the form of a chef's hat; the technique involves inviting the participating user to wear it during his or her speaking turn.

To bring out the creativity of both users and designers, there are two sets of tools and techniques, as illustrated in Figure 4.3. One set is for facilitation and helps users to express their experiences. The other set is for communication and helps designers to receive rich user insights in an inspiring and informative way. The author's goal is to develop and evaluate both sets of tools and techniques through the case studies. The main focus is on how people with different roles interact with the tools and techniques.

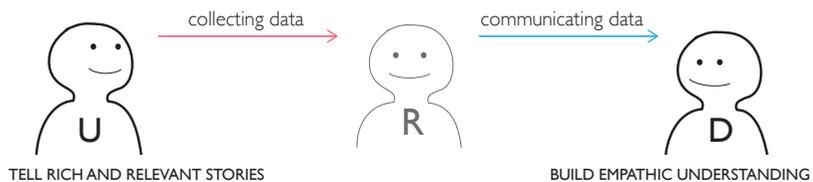


Figure 4.3. Two sets of tools and techniques used in contextual user research

When it comes to cross-cultural situations, the tools and techniques need to fit the local cultural norms and values with which the users and designers are familiar. In the case studies, the observations will focus on how the tools and techniques are used to create a culturally bonding atmosphere among the users and between them and the researcher. We will also assess how

the tools and techniques can be used to gather a set of data, connecting particularly to the values and practices that are present in the users' cultural context. Furthermore, new ways for retaining the richness of culture-related user insights and presenting them to the designer will be considered. Last but not least, we will examine how the designers work with the user insights conveyed through the tools and techniques.

A selection of elements from cultural theories in Chapter 3 will be deployed in developing tools and techniques, and the sub-research questions are as follows:

- Which of those element(s) contribute to developing the tools and techniques?
- What tools and techniques can help in collecting user insights and in communicating them to designers in cross-cultural settings?

4.2.4 Area 4: process

The case studies in this thesis will follow the basic sequence of contextmapping, as described by Sleeswijk Visser et al. (2005), paying attention to five activities, which are divided into phase 1 and phase 2, as introduced in Chapter 2. The activities in phase 1 (marked with red dots in Figure 4.1) involve interaction between the user and the researcher. The former receives sensitising tasks that are delivered by the latter. Then, the user shares his or her personal stories either in a group session or in a one-on-one interview facilitated by the user researcher. The interaction between the designer and the user researcher begins in the activities in phase 2 (marked with blue dots in Figure 4.1). The user researcher analyses the data, and sometimes the designer takes part in a joint analysis session. The user researcher communicates the emerged user insights to the designers, who will then use these insights as input for idea generation. In most of the studies, the users and designers will be multiple people.

It is anticipated that cultural factors will likely influence the activities in the process in cross-cultural settings. For instance, to enrich designers' understanding, the user is required to share various aspects of his or her cultural background. However, as discussed in Chapter 3, the users may not be aware of these cultural aspects, because to them, the cultural aspects are obvious and not worth mentioning. How can the activities in phase 1 be adjusted to enable users to become aware of and reflect on their own cultural context? Similarly, in phase 2, given the substantial cultural differences between the users and the designers, the latter might not immediately recognise the importance of the obtained user insights. If the users can

be prepared for the user session by being sensitised, can the designers be prepared for the communication? Furthermore, how can the activities in phase 2 be tailored to achieve this?

In the case studies, ways in which to make the process more effective for cross-cultural settings will be explored, for instance how each activity can be tailored.

The sub-research question to be answered in the case studies regarding the above-mentioned process is as follows:

- What are the barriers in the process for cross-cultural settings, and can they be overcome?

4.2.5 The role of the author of this thesis

The author performed two different roles during the case studies in the next chapter. First, as the user researcher, she mediated between the users and the designers, gathering data from the former and communicating them to the latter. Second, the author acted as thesis researcher, examining the process (by which the user researcher performed her own role and the other two previously mentioned roles, namely as a user and as a designer), as well as observing and analysing the actions of the users and the designers. In the remaining sections and chapters, the 'user researcher' will be referred to as 'researcher' for the reason of simplicity. The term 'thesis researcher' will be used when the author refers to herself as the researcher answering the questions in this thesis.

4.3 Conclusion

This chapter introduces a framework that highlights four areas of attention in a cross-cultural contextual user research process. It illustrates how the users, the designers, and the researcher interact with the tools and techniques employed during the different activities of the process. In addition, it depicts a user's cultural context that is studied, paying attention to the social relations among users, as well as their cultural values and practices. This initial framework will be used to set up and study the cases described in Chapter 5.



5

Explorative case studies in the field

5.1 Introduction

To find answers to the research questions proposed earlier, this chapter introduces seven empirical studies in which we explore the contexts, designing tools and evaluating them in the field. Each study investigates a part of the framework introduced in Chapter 4, building on the knowledge gained and exploring it further, following the action-reflection loop (Sleeswijk Visser, 2009).

Most of the cases followed a design brief of a commercial context and were restricted in time and budget; in half of them, the data gathered led to a design solution(s). This type of case study is set up to generate output in two ways: The first is adding value to the design development, which is delivered to the client within each case; the second is to inform and elaborate on the framework in Chapter 6.

The case studies in this chapter follow an explorative and design-driven research approach. Explorative in the way that they seek to understand what factors and how they play a role with an open attitude, without predefining them. Design-driven means aiming to develop knowledge and create solutions in the form of tools and techniques for design practices. For reasons of clarity, the case studies are introduced in logical rather than chronological order. The descriptions of each case study follow the same outline, as presented in Table 5.1.

1. Introduction	Introducing the background of the study, the research goal and the collaborating parties.
2. Procedure	The research procedure, the selection of participants, and the methods of analysis.
3. Considerations for tools and techniques	Overview of considerations when designing tools, as well as choices made for the techniques.
4. Observations and discussion	Observations, key findings and discussions during the case study.
5. Conclusion	Findings of the case study.
6. Input for the framework	Summary of relevant insights for elaborating the framework, reported according to the four areas proposed in Chapter 4

Table 5.1 Outline of each case study description

5.2 Seven case studies

Table 5.2, on the next page, presents an overview of the case studies of this thesis. It shows the research goal of each study, its topic, the key findings, and the areas of the framework each study focuses on. The table also explains the evolved tools, the research setting, the location and companies and/or universities involved in each study.

Table 5.2 Overview of the case studies

Study	Toipcs	This Study
1 Tailoring tools and techniques for collecting user insights in a nonwestern culture	'Co-creating future cooking experiences'	<ul style="list-style-type: none"> • A first attempt at conducting contextual research in China • Explores how generative tools and techniques can be tailored to gather rich insights from local users, supported by cultural theories
2 Discovering the strengths of users	'My body'; 'My friends'	<ul style="list-style-type: none"> • Identifies four strengths of Eastern and Western users, which benefit them in participating in contextual user research activities
3 Collecting and communicating user insights across cultures	'Understanding toilet culture in China'	<ul style="list-style-type: none"> • Is a cross-cultural contextual study involving Chinese users with a Dutch-German design team • Verifies some of the findings in Case 1 • Examines barriers to communicating user insights in a cross-cultural setting.
4 First attempt to support communication across cultures	'Enhancing sport experiences'	<ul style="list-style-type: none"> • A cross-cultural contextual study, involving Chinese users and a Danish design team • A first attempt to overcome barriers to communicating user insights
5 Building empathic understanding using <i>Cultura Communication Toolkit</i>	'Social life on campus'	<ul style="list-style-type: none"> • Compares three design sessions (each employs different communication tools), ascertaining ways to help designer build empathic understanding • Develops and evaluates a communication toolkit and a sensitising tool for designers • Involves the end users in evaluating design concepts
6 Improving users' cultural consciousness	'Me, and my university life'	<ul style="list-style-type: none"> • Tries out a new way of sensitising users to their own cultural contexts
7 <i>Cultura Analysis Canvas</i> for data analysis	'Caring about my clothes'; 'On the road together'	<ul style="list-style-type: none"> • Develops further the communication toolkit in Case 5 into a research tool, to support designers in analysing user data

Relevance to the framework Area(s)	Tools and Techniques	Setting	Location(s)	Company (University) Involved
1 3 4	8 new facilitation tools & techniques	6-week field work	Guangzhou, China	GEMSide; Orange Creatives
1 3	No new tools	Four 2-hour workshops	Delft, The Netherlands	TU Delft-IDE
1 2 3	3 new facilitation tools	5-week field work	Beijing and Shanghai, China; a city in Germany	An international company headquartered in Germany; MMID Full Service Design Team
1 2 3	<i>Culture Brochure</i>	22-week Master's thesis	Shanghai and Xiamen, China; Copenhagen, Denmark	Jabra
1 2 3 4	<i>Cultura Communication Toolkit</i> ; <i>Cultura Sensitising Workbook</i> for designers	Three half-day design workshops; One half-day evaluation session	Delft, The Netherlands; Shanghai, China	TU Delft-IDE; Donghua University
1 3 4	<i>Cultura Sensitising Workbook</i> for users	1-week design workshop	Shanghai, China	Donghua University
2 3 4	<i>Cultura Analysis Canvas</i>	Two 1-week design workshops	Wuxi and Shanghai, China	Midea; SAIC motor; Jiangnan University; Donghua University

Case 1

'Co-creating future cooking experiences'

Tailoring tools and techniques for collecting user insights in a non-western culture



16 Chinese users aged between 20 and 30, who love cooking



A design team formed of 6 Chinese and Dutch members

User context to be studied:
Young people preparing food

Tools and techniques:
8 new tools and techniques for facilitation

Process:
Preparation, sensitising and user session

1

Introduction

This study is a first attempt to conduct contextual research with contextmapping technique in China. The aim is to explore how generative tools and techniques, using Western styles of thought and social interaction, can be tailored to users who are from a non-western cultural context. Informed by cultural literature, we developed eight new tools and techniques to support gathering rich user insights, applying and evaluating them in the field with a commercial design context in China. The findings of the case study give detailed answers to the following questions: How to design tools and techniques informed by cultural literature? Which cultural values can be identified as parameters for designing tools and techniques for China? What cultural behaviours and interactions with tools and techniques do participating users exhibit? What benefits, barriers, and opportunities of applying tools and techniques in other cultures?

2

Procedure

The study was conducted according to the following process: (1) reviewing the existing tools and techniques of contextmapping through the lens of cultural theories, to identify where these tools and techniques rely heavily on culturally specific models of thought and interactions; then, based on these insights, developing tools and techniques that are more appropriate to a Chinese situation; (2)

The description of this case study is based on the following publication:

Hao, C. van Boeijen, A.G.C, Sonneveld, M.H., & Stappers, P.J. (2017). Generative research techniques crossing cultures: A field study in China, *International Journal of Cultural and Creative Industries*, 4(3), 4-12.

The design outcome of this case study:

A set of containers helping declutter different food ingredients and tidy up cooking space, launched by GEMSide (2017)

Researcher:
the author of this thesis and a Dutch designer from Orange Creatives

Company involved:
GEMSide and Orange Creatives

Period:
6 weeks between January and March, 2015

Location:
Guangzhou, China

evaluating the tools and techniques in a contextmapping study where insights were gathered with local users, who were fourteen post 1980s and two post 1990s highly-educated urban dwellers working in Guangzhou. For the purpose of simplicity, the participating users will be described as 'participants' in the remaining sections of this case study.

Designing tools and techniques for contextmapping

We used Hofstede's cultural dimensions as a lens to foresee and prepare for the challenges of applying contextmapping in a different cultural context. Fan's theory and Nisbett's observations were further used to deepen our understanding of the specific Chinese situation. We identified Chinese cultural values based on the following concerns: (1) which value(s) explain a social occasion (e.g. user sessions), that is less formal, yet still organized? (2) which of the values can be associated with contextmapping situations? (3) the number of values selected should be manageable, so that they can effectively give guidance to design tools.

The identified cultural value parameters served as guidance to design the tools for gathering user insights. They were used to anticipate what interactions Chinese participants could appreciate and what aspects should be avoided. In designing these tools, we also incorporated local cultural elements, such as karaoke and local games, which were more familiar in Chinese contexts. The design ideas were generated based on the identified cultural parameters. We selected and further examined promising ones. The evaluation of the design ideas was based on literature and our previous experience.

Evaluating tools and techniques in the field

We applied the new tools in a case study where contextmapping was used for a commercial client in China. This study focused on observing and improving the sensitising and user sessions, where the new tools and techniques were used for Chinese participants. User insights were communicated to the design team in a co-creation workshop, from which the tools were excluded. Three groups of participants took part in the sensitising and user sessions:

one group of 3 participants to pilot (group 1) and fine-tune the whole procedure; and two groups of 6-7 participants for the actual data sessions (group 2 and group 3). Participants in the pilot knew each other. Those in group 2 were less acquainted, i.e., two of the participants did not know the other group members. The last group members were strangers. In this way, we could observe how the tools worked differently between in-group and out-group members, and how they supported creating a sense of trustworthiness (see section below). In each group, the introduction of the tools and the method of facilitation were adjusted based on the reflection of the previous group. The set-up and tools for each group are illustrated in Figure 5.1.1.

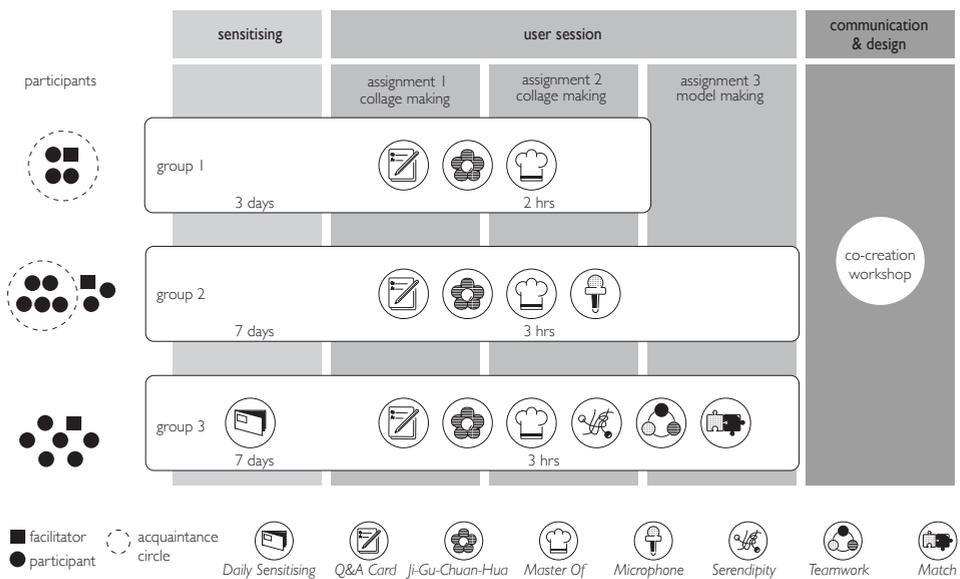


Figure 5.1.1
Overview of case study
set up and the application
of the tools

3

Considerations for tools and techniques

First, we explain how we identified the cultural value parameters for the Chinese situations based on cultural literature. Then, the translation of the parameters into tools and techniques will be showcased.

Identifying Chinese cultural value parameters

We used Hofstede's set of cultural dimensions (Hofstede et al., 2010) as a set of suggestions to pay attention to certain aspects of behaviour instead of using it as predictive model with numerical precision. Van Boeijen (2015) has found it useful to designers in organizing their own observations and in generating questions to fine-tune design methods. Van Rijn et al. (2006) have used this model to understand, explain and design tools for use in South Korea. If we follow their reasoning, looking at the cultural values of Dutch, South Korean and Chinese cultures described in table 1, some conclusions can be drawn.

Table 5.1.1 lists Hofstede's dimensions, and for each gives a short explanation of the dimension, and a rough indication of the values for the Netherlands (NL), Korea (KR), and China (CN) on that dimension. It shows that the East-Asian countries KR and CN are similar on four of the dimensions. Their dimensions Power Distance (PDI) and Individualism (IDV) differ substantially from the Dutch. For Longterm Orientation LTO) and Indulgence (IND), there is a smaller contrast to the Dutch. When techniques which worked well for Dutch participants (as in Sleswijk Visser's studies) but are problematic in East Asia, looking at how the techniques connect to these dimensions may help explain why there are problems, and may suggest ways to improve the situation.

These values would explain that participants in both China and Korea are more reluctant to express their opinions or to tell personal stories to strangers (because of the high PDI), or how they react to the opinions of others (because of the low IDV). According to Hofstede et al.'s score on the dimension Uncertainty avoidance (UAI), Chinese participants are likely to be much more tolerant of uncertain situations than Koreans (low UAI). The benefit of low UA is that participants may be more able to accept new situations and I

Table 5.1.1 The six cultural dimensions: Definitions and comparisons among three countries

Cultural Dimensions	Definitions	NL	KR	CN
Power Distance (PDI)	Describes the acceptance level of unequal power distribution by less powerful people in a country	-	+	+
Individualism (IDV)	Indicates the interdependence of people ('I' or 'we')	+	--	--
Long-term orientation (LTO)	Shows how people maintain links with its own historic point of view or cope with the changes of the present and future	+	++	++
Indulgence (IND)	Explains the degree to which people try to control their desires and impulses	+	-	-
Masculinity (MAS)	Illustrates people's motivations in terms of achieving the best results ('masculine') or enjoying what they do ('feminine')	--	-	+
Uncertainty avoidance (UAI)	Expresses the extent to which people feel anxious with uncertainty	-	++	-

Note: We simplified the numeric scores by Hofstede, Hofstede and Minkov (2010), by indicating them as following: - relatively low; -- very low; + relatively high; ++ very high.

able to take the initiative in adapting their approaches to generative assignments. Finally, on Masculinity (MAS), the Dutch and Korean scores were similar, and both very different from the Chinese. With regards to this dimension we could expect that Chinese participants value achievements, and also that women are less free in expressing opinions or taking credit than men. In both Chinese and South Korean cultures, participants are likely to be more aware of contextual factors and personal relations than Dutch participants (because of high LTO), which would be helpful in finding context-based insights.

However, the model by Hofstede et al. (2010) does not step into a local culture specifically. To further deepen our understanding of the Chinese situation and local social interaction forms, the work

Table 5.1.2 Four identified cultural value parameters and possible relations to contextmapping activities

Cultural value parameter	Description	Relation to contextmapping
Harmony	The importance of maintaining harmonious relationships dates back to ancient China, to the time of Confucius (5th Century BC). One of his famous sayings was: 'In carrying out our rites, it is harmony that is prized.' In a highly collectivist society like China, where people have intense and continuous social contact, the maintenance of harmony with one's social environment becomes a key virtue (Nisbett, 2003). Confrontations such as debates are therefore discouraged.	The contextmapping process encourages people to speak their minds in a free manner. Thus, it is necessary to help Chinese participants feel at ease to express their personal opinions in a user session.
Humility	<i>Humility</i> as one of the roots of the Chinese culture is highly embodied in the Chinese way of expression (Gao, 1998). For instance, when a Chinese person receives a compliment, (s)he would automatically give a humble expression of denial in return: 'na li, na li' ² which means 'not at all'. This also influences the way that Chinese people view the world, believing that one 'cannot understand the part without understanding the whole' (Nisbett, 2003, p.15).	Chinese participants may act in a modest and restrained fashion in the user session, especially when they do not have a holistic view in advance.
Mianzi	<i>Mianzi</i> (face) is a concept generated in a collectivist society (Ho, 1976; Hu, 1944). In Chinese culture, it basically describes the proper relationship of a person's social environment (Hofstede, Hofstede, & Minkov, 2010). Lin Yutang (1935), one of the most influential Chinese authors described <i>mianzi</i> as 'the most delicate standard by which Chinese social intercourse is regulated'. Preventing others from losing face and being aware of giving face to others are crucial in maintaining a good relationship in China. Chinese speak of 'giving face' in the sense of honour, which means not only showing respect to others, especially in public, but also actively doing something to make another person look better, even at your own expense.	The participants may not like to share embarrassing experiences that would make them lose face. Furthermore, participants may pretend to agree with other people's opinions in order to help them to preserve face, or to 'give' face. Therefore, to avoid collecting insufficient information due to participant's face concerns, the facilitator is challenged to take care of participants' <i>mianzi</i> concerns in the user session.
Trustworthiness	Chinese people value social relationships. Nisbett (2003) pointed out that East Asians tend to feel the members of their in-group are more approachable and reliable than those of the out-groups. They will need to ensure that they can trust the intentions of others. Building on a relationship of trust is expected to be important for facilitating social activities in China.	Chinese participants may feel ill at ease when attending a user session with out-group members. In addition, the facilitator should act in a trustworthy way him/herself.

² na li, na li, with the literal meaning of 'where, where', implies the meaning of 'it's nothing', an expression of politeness and modesty in a Chinese context - for example, when receiving a compliment from others.

of Fan (2000) appears to give more guidance on tuning the type of activities performed in contextmapping. Fan's classification of Chinese cultural values distinguishes a total of 71 values, grouped into eight categories based on an original survey conducted by the Chinese Culture Connection (1987). The 8 categories are *National Traits*, *Interpersonal Relations*, *Family Orientation*, *Work attitude*, *Business Philosophy*, *Personal Traits*, *Time Orientation*, and *Relationship with Nature*. The category of *Interpersonal Relations* was most relevant with regards to contextmapping, because it links the best to the barriers, such as dealing with social interactions, reported in the earlier studies (see Chapter 2). The other seven categories (for example, *National Traits* or *Business Philosophy*) were not suitable for explaining the less formal occasions that contextmapping deals with. Similar to the identification of the values within the *Interpersonal Relations* (in total 13 Chinese values), a value such as *Tolerance of Others* could not be associated with contextmapping situations. As a result, four values *Harmony*, *Humility*, *Mianzi*, and *Trustworthiness*, were identified as relevant cultural value parameters for contextmapping. In Table 5.1.2 on the left we introduce them and discuss with the support of other cultural theories, e.g. Nisbett's (2003) how each value may influence the contextmapping activities.

Designing tools and techniques

Eight tools and techniques were created in order to facilitate proper social interaction during user sessions in China. Table 5.1.3 on the next page presents each of these tools and techniques and its related cultural value parameter.

Table 5.1.3 Eight tools and techniques and their relevance to the four cultural value parameters

Cultural value parameter	Tool and technique	Description
Harmony	Ji-Gu-Chuan-Hua supporting the first presentation 	<i>Ji-Gu-Chuan-Hua</i> ³ is based on a popular Chinese game. It is comparable to the Western game Pass the Parcel. The idea is to pass an artificial flower among a group of people until drumbeat randomly ends. The one getting the flower is expected to do a required task. Chinese people may not be use to initial a conversation with a group of strangers. Directly assigning a participant to be the first presenter can break the social harmony between participants or between participant and facilitator. This tool was intended to motivate the first presenter, yet not to break the harmonious vibe in the group.
	Serendipity giving an excuse for assigning people to work in pairs 	<i>Serendipity</i> was used to separate the participants into sub-groups in a harmonious way. It consists of several pieces of intertwined strings. Each participant is of a piece of string. Two participants who pick the same piece of string are formed into a group. This is because Chinese people tend to keep their distance from the out-group members (Nisbett, 2003). Pre-grouping by the facilitator might break the group harmony. <i>Serendipity</i> was expected to help to break the ice between participants but not break the harmony.
Humility	Master Of providing sense of authority 	<i>Master Of</i> was made as a role-play tool to encourage the presenter act as a master of a specific experience. Since Chinese participants are likely to maintain a humble appearance in conversation, this is intended to facilitate their sense of authority. In this study, the target groups were 'cookery lovers', thus the 'master of' tool was a chef's hat. The participant was given the hat when presenting and encouraged to act as if he/she was the master of cooking. It was expected not only to prevent the presenter from being too modest, but also to help other participants listen to his/her story.
	Microphone creating a professional context 	<i>Microphone</i> was developed to create a professional context, because a microphone is associated with paying attention to a specific person. For example, the extensive popularity of karaoke in China (Zhou, 2008) provides an occasion where a microphone can free one's voice and put one into the role of an expert. The tool is given to a participant when he/she needs to present ideas. This interaction is intended to give the participant a subtle message: 'You are the expert of your experiences, and the stage is now yours.'

³Ji-Gu-Chuan-Hua which can be literally translated into 'drumming, passing flower'.

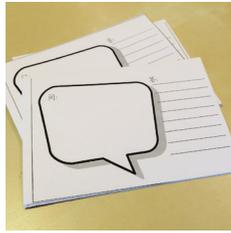
Teamwork ensuring a holistic view



Teamwork was intended to help the participants look at the task from a comprehensive perspective, as Chinese people tend to view the world in a holistic way (Nisbett, 2003). The participants can be restricted to express thoughts when a holistic view cannot be ensured. They may keep a humble manner, even if they are knowledgeable. Moreover, China has a highly collectivist culture and therefore completing the assignment within a group was the chosen method.

Mianzi

Q&A cards giving a way to ask questions



Q&A cards were placed next to each participant's assignment sheet, in order to prevent him/her from losing face in front of others. The participants were instructed to use a card to write down any question that he/she would feel embarrassed to ask publicly during the session.

Match to trigger ideas



Match was an activity where the session assignments needed to be completed as a team. Each team was encouraged to share as many design ideas to be able to win a prize (the figure on the left shows the example of a prize for the winner of a match). Due to the success- and achievement-driven culture in China, we expected Chinese participants to be more proactive when in a competitive mood. It was expected that the competitive situation would make the participants less worried about losing face when generating design ideas.

Trustworthiness

Daily Sensitising to begin a good relationship



Daily Sensitising consisted of daily mobile messages and 5 envelopes filled with sensitising assignments. The researcher kept in daily contact with each of the participants, starting from the sensitising period. A daily greeting was sent to each participant, reminding him or her to open an envelope. In return, the participants were expected to report back about their daily assignments by sending a photo every day. It was expected that the daily communication would help the participants to enhance the sense of trustworthiness before the session day.

4a

Observation

In general, we found that most of the tools and techniques in Table 5.1.3 were helpful in encouraging participants' expression. According to some participants, they found the session a fun and valuable experience. Furthermore, these cultural related interactions were also observed on other occasions during the study. Below, we report our findings with regard to the four cultural value parameters. After that, some additional findings will be reported in the final subsection.

Tools and techniques and interactions regarding *harmony*

During the sessions, the *Ji-Gu-Chuan-Hua* and *Serendipity* tools were used to find volunteers to speak about ideas and to divide participants into groups. None of the participants seemed to be offended or to react with a perfunctory answer. Instead, they seemed to be familiar with such forms of interaction and enjoyed playing with the tools. In fact, these tools even brought an entertainment vibe to the session. However, the majority of the participants agreed with others' opinions, or only shared their thoughts when similar ideas were mentioned in the group discussion. When asked for different opinions, they largely stayed quiet. In addition, one participant in the third session said she was afraid of not being able to give the 'correct' answers that the researcher might want.

Tools and techniques and interactions regarding *humility*

The *Master Of* and *Microphone* tools worked well in giving the participants confidence. When putting the chef's hat on the participant's head, the facilitator emphasized, '*Let's invite the Chef! Now please confidently tell us your stories.*' All the participants seemed to be happy to put on the chef hat and shared their stories with little hesitation. Similar reactions were observed when using the microphone (see Figure 5.1.2). In addition, when a participant used these tools for presentation, most of the other participants paid attention to his or her stories.

The *Teamwork* technique grouped two participants into one small team so that the two participants were given the opportunity to share their opinions before sharing them with the entire team. Compared with work as individuals, when the participants worked in teams, no questions or complaints about the assignment were mentioned to the facilitator. This made the process of group 3



Figure 5.1.2 Using the Microphone to support the participant expressing her ideas

smoother. The drawback was that fewer independent opinions were shared than in group 2. Moreover, less attention was paid to other teams once two participants were grouped as one.

In addition, a number of humble expressions were spotted during the studies. For instance, cooking frequently at home was a key criterion for recruitment. However, although when receiving the sensitising package some of the participants tried to explain that they did not often cook, during the session they readily talked about their cooking experiences. After the session, we were informed that this was because the participants were not aware of the cooking skill of others (missing a holistic view). Thus, they were far too modest before the session. Moreover, participants were often observed giving a shy smile after sharing their own opinions. This was recognized as a mannerism intended to downplay one's contribution.

Tools and techniques and interactions regarding *mianzi*

The *Match* technique was applied in group 3. It was announced that the team which came up with the most product ideas would get a prize. They became competitive. While one team was presenting, other teams kept working on their own assignment. Most of the participants came up with more ideas than group 2, but they also talked less about their experience. The participants in the two sessions did not use the *Q&A cards*.



Figure 5.1.3
Examples of the assignment sheets filled in by the participants

Most of the participants hesitated to show their own workbooks or even to bring them to the stage. Moreover, some participants in the first exercises used blank paper to hide their assignment sheets, indicating they did not want to present something that was not 'right' or did not meet the group's or the facilitator's expectations. Such *mianzi*-related behaviours were not as common as the ones related to the other cultural value parameters.

Tools and techniques and interactions regarding *trustworthiness*

Daily Sensitising was only applied in group 3. All the participants let us know their progress daily and two participants asked us questions when a task was not clear enough. Moreover, two days before the session, we built a group chat for the participants and researcher via local social media for getting to know each other. During the session, they got at least the first in-group feeling, because the participants had seen and even talked to the researcher before via mobile phone. Thus, group 3 had a smoother start than groups 1 and 2.

Before the session started, all the participants were quiet. After the introduction and first assignment were done, the participants started talking to each other spontaneously. The participants' social status had shifted gradually from out-group to in-group. This was primarily seen among the participants who did not know each other. One case from another perspective explained how the in-group and out-group situations existed in the session. One participant, who knew the other four participants, was late by almost one hour on the session day in group 2. When she arrived, the session

had started and the trust had been built in the group of the other six participants. It became hard for her to be involved with the group even though she knew some of the participants in advance. Consequently, losing the trust of other group members negatively influenced her performance. She dropped out in the last assignment.

Other observations

Next to the observations discussed previously, a few other factors were observed in the studies. Although the influences are minor, it is still worth mentioning and recommending for future studies.

Firstly, we noticed different *Sensitising Workbook* results between male and female participants. Most female participants (10 out of 12) carefully completed their workbooks by filling in all the tasks. In contrast, all the male participants (4 out of 4) got worked somewhat carelessly by handing in half-empty workbooks. Moreover, details in the behaviour of male participants were sometimes different from female; for example, during the session, all the male participants tended to walk to the 'stage' when presenting their work.

Secondly, Confucius' Five Relationships theory (Wu Lun) introduces the idea that the junior should be respectful to the senior and in return the senior needs to take care of the junior; which was also shown in the session. A typical example was that, when the participants were divided into three teams, instead of giving a fun or neutral team name, two out of the three teams named their team after the name of one of the team members. Specifically, the team formed by two young women used the name of the eldest. In the other team formed by one male and one female, the team was named after the female participant's name.

Moreover, all of the participants expressed the opinion that they were in favour of a digital format such as a mobile app rather than a paper-based workbook, as smart-phone use is a social trend in China (BBC NEWS, 2015). In such a way, they can easily complete tasks wherever they are (e.g. on public transport).

Furthermore, the Chinese education style was found to be influential on participants' performance. More than half of the participants started the collage assignment in an 'exam style' by filling in answers,

because a blank collage sheet with linear questions was reminiscent of a typical Chinese exam paper at school. Also, some participants said that if the facilitator was standing close to them when making the assignments, they felt as if they were under surveillance by an invigilator:

Lastly, the participants seemed to be more at ease with writing instead of drawing or using visual elements for the generative assignments. During the sessions, most participants immediately started writing when receiving the assignment sheets (see Figure 5.1.3). As well as the sensitising materials, only 2 out of 16 participants tried drawing in their workbooks.

4b Discussion

A primary consideration in a user session is empowering equal expressions among participants, which depends on building-up and maintaining good relations. In general, the new tools worked well to support that. The four cultural value parameters related to interpersonal relations were considered influential on this process, and could be identified in the case study.

First, the participants' intentions to maintain harmonious relationships came to our notice. For instance, a participant received applause after his presentation at the beginning of the session and this applause ritual lasted through the whole session. This observation showed that the participants tended to keep harmonious relationships by treating everyone else the same. The *Ji-Gu-Chuan-Hua* and *Serendipity* tools helped avoid breaking harmonious relationships among the participants, as well as with the facilitator.

Next to that, humility, often embedded in modest behaviours, was found from all the participants by nature, and during the sensitising period to the sessions. When the Chinese participants felt uncertain about the situation, context and/or other people, they were observed as being careful in expressing their opinions. In addition, a participant missing a holistic view was found to be influential in humble expression. We noticed that the *Microphone* and *Teamwork* worked well. Since hearing others' thoughts provided

the participants with a better holistic view of the situation, they were able to feel at ease when reacting to it.

However, both maintaining harmony and being humble also generated several side effects that could not be avoided by the tools. For instance, participants agreed to each other's options, in order not to break the harmonious atmosphere of the talk. Working in a group hindered giving individual opinions.

Furthermore, we noticed that *mianzi*-related observations were not as notable as the observations related to the other three parameters. This could be that the analogous social backgrounds between the participants and with the facilitator helped to minimize concerns about 'face', and that the Teamwork technique that we designed supported participants in reacting freely. In a competitive situation, the participants seemed to care less about sharing some 'dull' ideas. In other words, they were less concerned about losing face in front of others. The *Q&A Cards* were not used by the participants. Thus, the effect of this tool could not be observed.

Similar to maintaining a harmonious relationship, building up trust was not only an issue among participants, but also between the participants and researchers. In fact, the trust building started from the delivery of sensitising materials: both the *Daily Sensitising* and delivering sensitising materials in person contributed to this. Generally speaking, the atmosphere of group 2 was better than that of group 3, perhaps because most of the participants in group 2 were acquainted with each other. We also noticed that the outcomes of group 2 were richer than those of group 3. The trustworthiness among in-group members helped them to feel more at ease when expressing themselves.

The other observations described above, such as the participants seemed to be more at ease with writing instead of drawing or using visual elements for the generative assignments. This observation could not be linked to the parameters. However, this might have to do with the nature of Chinese language, which is contextual and also an art form (Lindqvist, 2008). Chinese participants may be able to better express themselves explicitly by writing. Another reason could be that a blank collage sheet with linear questions was reminiscent of a typical Chinese exam paper at school. Such

observation is not related to the local cultural values, but suggests other aspects (e.g. creative expressions) to be considered for the developments of new tools.

5 Conclusion

With the eight new facilitation tools and techniques, gathering rich user experience information in a non-western culture was successful in terms of engaging with the local culture. The findings from this study suggest that to conduct contextual user research requires the ability to deal with local social interactions. Facilitating culturally appropriate interpersonal relationships between the users and with the researcher was found to be particularly important for getting the users to speak their minds and express themselves. However, the barrier between enabling individual opinions and maintaining harmonious group relationships still needs to be overcome. Using the cultural theories focusing on local cultural values, especially the ones elaborating on the interpersonal relationships, was effective in helping the researcher anticipate, understand local interactions, and design tools for the local situation. In addition to that, attention to local characteristics, such as the nature of local language and creative expression, revealed room for improving the form of the tools.

In this case study, attempts have been made to support users in expressing themselves by modifying the tools and techniques to help overcome the weaknesses, e.g. letting the shy users speak. The next study will explore how to empower users from the perspective of using their strengths.

6

Input for the framework



- Establishing and retaining good relationships between the users, as well as with the researcher, is essential in the activities during the collection phase (phase I).

- In the sessions, users' abilities to express themselves can be improved by designing remedies that help to overcome the weaknesses.



Not the focus of this case study.

User context to be studied

Not the focus of this case study.

Tools and techniques

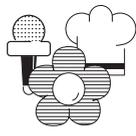
- For facilitation

Cultural theories (namely Hofstede's set of cultural dimensions, Nisbett's observations, and Fan's classification of Chinese culture values) were used to inspire new tools and techniques. Among them, a number of elements focused especially on local cultural values entered into designing tools and techniques, which proved useful for facilitating appropriate social interactions among users.

Some local characteristics, such as elements from popular games and events, helped ensure that the tools were presented appropriately.

- For communication

Not the focus of this case study.



8 tools and techniques:

- Ji-Gu-Chuan-Hua; Serendipity;*
- Master Of; Microphone;*
- Teamwork; Match; Q&A cards;*
- Daily Sensitising*

Process

This case study explains, in a detailed manner, how the activities of *preparation*, *sensitising*, and *user sessions* are best utilised, and have been tailored to a cross-cultural setting.

For the *preparation*, extra time and effort are required (in comparison to a local application), in order to review cultural literature, anticipate challenges in the field, and develop appropriate materials.

The *sensitising* activity is found to be a crucial phase, in which the researcher can initiate good relationships and build trust with the users.

During the *user sessions*, emphasis should be placed on establishing and maintaining interpersonal relationships among the users, and empowering their expressions.



84 master's students of
industrial design engineering

User context to be studied:

Personal body care;
Social life with friends

Tools and techniques:

No new tool

Process:

Sensitising and user session

1

Introduction

This study identifies four strengths of Eastern and Western users for participating in contextual research activities. Characteristic elements of techniques used in contextual research are an appeal on and support of the individual creativity of users as well as collective creativity deriving (Sanders & Stappers, 2012): tools such as sensitising workbooks and collages have been used to facilitate users reaching their best ability to express their creativity and independent thoughts. Many of the tools have been developed to enhance the users' autonomy to achieve expressions of experiences, opinions, and concerns.

In the previous study, attempts were made to modify the tools and techniques to forms that are more appropriate to the Eastern Asian users. But these attempts emphasized suggesting remedies that deal with the weaknesses in the user session. In this case study, we explored and compared the strengths of both Eastern and Western users in the sessions. We wanted to discover what strengths users have and how we can make use of them to actively involve the users in contextual research activities.

We compared the differences and commonalities among four groups: East Asian design students (from China and South Korea), an international group of design students (from Europe and America),

The description of this case study is based on the following publication:

Hao, C., van Boeijen, A.G.C., & Stappers, P.J. (2017). Culture sensitive contextmapping: Discovering the strengths of Eastern and Western participants. In *proceedings of 19th international conference on Engineering and Product Design Education*, 7-8 September 2017, Oslo, Norway.

Researcher:

the author of this thesis and
three design teachers from
TU Delft

University involved:

TU Delft-IDE

Period:

four half-day workshops,
September, 2015

Location:

Delft, The Netherlands

and two groups of design students from the Netherlands. As it was part of an educational program, there were two themes (one was about body care and another was about friends) were given to the participants for sensitising and user sessions.

2 Procedure

With the intention to explore the aspects that users are good at in participating in user sessions, 84 master's students from the faculty of Industrial Design Engineering, TU Delft, participated in this case study. The participating students were divided into four groups: East Asian (18); International (21); Dutch-a (23) and Dutch-b (22) according to their nationalities. They are referred to as 'participants' in the remaining paragraphs.

Each group followed the same procedures, consisting of a week of sensitising with the theme through a sensitising workbook and a 2-hour user session. The session included an interview round and a collage-making-and-presentation exercise. Four researchers facilitated the sessions synchronously, following the same script. Due to the limitations of the educational setting, the group size was tripled as well as the length of the tasks used in the workshop being condensed, a format which has been in use in the educational program for about ten years.

After the session, each participant filled in an open-question questionnaire to report his or her experiences of the sensitising week and during the user session. The collected qualitative data included observation notes, transcriptions of the sessions, interviews of the facilitators, collages made by participants, and video records of the user sessions. Six industrial design teachers were invited to review the collages.

3 Considerations for tools and techniques

We did not employ new tools or techniques in this case study. The content of the sensitising workbook and collage tool were materials of the educational program.

4

Observations and discussion

The observations revealed major differences between the East Asian group and the three Western groups, and only minor differences between the International and the two Dutch groups. In this study, we examined the strengths of the East Asian group and the three Western groups respectively. From the observations and literature findings we identified four strengths; two discovered from Western participants (creativity and autonomy) and two discovered from Eastern participants (sensitivity and effort). They are discussed below.

Creativity

Generative tools are designed to assist users in sharing their contextual experiences regarding product or service use, and coming up with possible design ideas. The outcome highly relies on how much the users are used to creative expressions. In the study, we noticed that the participants in the Western groups in general acted in a more creative style compared to their Eastern Asian counterparts. The strength of the Western groups was reflected in both the atmosphere during the group discussions and the collages they made.

During the workshops the dynamics between the East Asian group and the other three groups differed greatly. Participants from the former group in general seemed to be constrained and disciplined in behaviours, whereas Western participants were found to be relaxed and proactive. For instance, the East Asian workshop remained silent except when the participants were asked to speak. In contrast, the Western workshops were filled with continuous chatter and discussions among participants and with the researcher. Cultural theories explain some of these differences. For instance, Kwang (2001) discusses the different behaviours and attitudes towards creativity between Westerners and Easterners. He asserts that in general East Asians experience difficulties in thinking, feeling and acting in a creative manner in their society. According to him, in a tightly organized and collectivistic Asian societies people tend to act in a 'conforming manner' to keep social harmony.

In addition, when examining the collages made by Western and Eastern groups (see Figure 5.2.1), those of the Western groups were considered as 'more creative', 'personal styles' and 'diverse'; comments to those of the Eastern Asian group were 'modest', 'restricted', and 'with many white spaces (unfinished)'.



Figure 5.2.1
Some of the collages
made by East Asian
group (left) and
International group
(right)

Autonomy

The activities in the user session required participants to think and express freely, and autonomous acts were appreciated. In this study, Western participants were found to be more independent in terms of completing tasks and self-expression during the workshop. For example, when asked to make a collage of their experiences, most of the Western participants started cutting out images and words as soon as the facilitator handed out the materials. Most of the Asian participants waited for the facilitator's instruction for the next step. Even after an additional explanation, the participants hesitated, instead of starting trying things out straight away.

The differences were also found in the ways of group discussions. In the Western groups, for instance, a discussion often began with a topic led by the facilitator, and then it gradually turned into a free style during which the participants shared thoughts spontaneously. However, the discussions in the East Asian group were always in a facilitator-led fashion, during which every participant was persuaded to give opinions. Few spontaneous reactions were observed. And often, the facilitator asked closed questions such as 'Do you have a similar experience?' in order to get responses from the participants. Accordingly, Western participants showed higher degree of autonomy.

Western individualistic societies in general value expressing oneself,

in which one can express feelings and ideas intrinsically through different acts (e.g. speech, actions) to achieve individuality (Kim & Sherman, 2007). This means expressing autonomy and freedom is more appreciated in Western societies. Thus, we expected that Western groups were able to complete the tasks and share opinions independently. The Asian participants were relatively dependent. As a result, the facilitator gave many encouraging signs (e.g. 'Come on, you can do it', 'Don't worry, just give it a try.') during the workshop.

Sensitivity

According to Hall (1976) and Nisbett (2003), Eastern Asians are found to be more sensible and skilled in observing relationships between objects and environment compared to Westerners who see objects as discrete and separate from their environments. This nature of being sensitive to the contextual situation was observed in the study. Although it took more time to get East Asian groups started in making collages as discussed above, the contents of the stories presented by East Asian groups were rich. They indicated the connections between selected images and words used in their collages. Also, they used the connections to explain their own experiences. All the presenters described their collages in a storytelling style, including what happened about the chosen elements and why they mattered. In comparison, information collected from Western groups contained much less contextual information. Most of the participants tended to talk about fragmental stories, such as liking or disliking a single object (chosen from provided materials), in a summarized manner with few links to personal feelings and emotions.

Two stories with the 'body care' topic of 'feeling clean', illustrate these differences:

'I drew a lot of arrows for a lot of things I didn't like [regarding feeling clean], such as a mascara. It sometimes leaves stains on my face. I like fresh orange juice because it makes me feel clean. I can start my day from a nice breakfast with a glass of orange juice. And I used this [image], a girl with dirty hands. Because when you are young, you probably show your dirty hands to your mom with proud, but now I don't like my hands dirty anymore...' said a Dutch participant.

'To me, feeling clean is not only physical but also mental. I want to find a place to do exercise, whenever I feel exhausted, annoyed, or if my mood is not very "stable". That's why I used some beautiful scenery pictures where could be great for doing excises, and with fresh air and aroma showed in these images...Eventually I would become sweaty and not clean, but my mind will be opened up and I'll feel fresh afterwards...' said a Chinese participant.

For most Asian participants in the group, the collage was a new format of creative expression that they were not familiar with. The feedback collected from the participants after the session surprised us. The Asian group was more positive about using the generative tools than we had expected. Although some of the participants had difficulty getting started and therefore requested examples, most of them found the images and words provided were helpful in expressing feelings and thoughts. In contrast, the Western participants felt the collage was less helpful. The sensitivity to the contextual factors and the ability to seek relationships among objects were found to bring the Asian group an advantage in reporting rich personal experiences.

Effort

To involve users as co-designers in contextual research, they were invited to complete a one-week sensitising exercise in a workbook and then join a two-to-three-hour generative session afterwards. Consequently, it required much more effort from the participants than conventional user research methods such as interview and questionnaire. In this study, the willingness to complete regardless of effort was obviously observed in the Eastern Asian group.

High involvement was first found in the completeness of the sensitising booklet, in which only one Asian participant did not finish it. In comparison, ranging from four to six of the participants of each Western group handed in uncompleted workbooks. Next to that, a few common characteristics were found from Asian students' workbook results. Specifically, all pages were filled in with both texts and drawings as suggested in the provided examples and most of the page contents were well organized, neat and clean (see Figure 5.2.2).

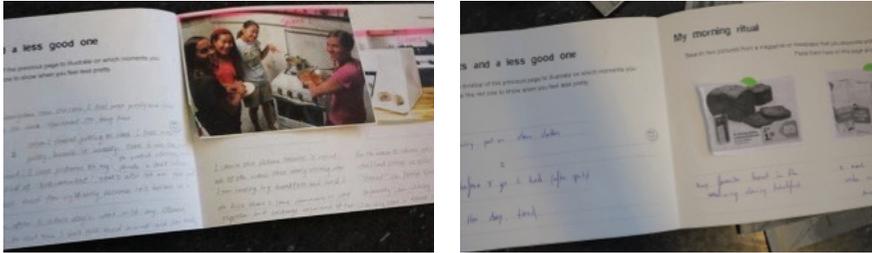


Figure 5.2.2
Workbooks filled
in by a Chinese
participant (left) and
a Dutch participant
(right).

Besides, we found that Asian participants had a stronger wish to complete the tasks in the best quality in general, and therefore were willing to put more effort in the workshop. They took more time than their Western counterparts to think carefully, and organized their thoughts before conveying them in collages. Consequently, they were mostly not able to complete the task within the given time.

5 Conclusion

This study showed that some of the characteristics of generative techniques fit better with either Western or East Asian cultures, and could be modified to better accommodate the users' culture-based preferences. We identified four cultural respective strengths: creativity, autonomy, sensitivity, and effort. Most participants in the Western group were able to quickly adapt to the generative tools, whereas the East Asian group required additional facilitation. This indicates that empowering East Asian participants' creativity and autonomy takes extra time and effort. Furthermore, inspired by the richer outcome from the participants of the East Asian group, their sensitivity to contextual information was found to be beneficial. In addition, putting more effort in participation was found to be a strength of the East Asian participants. The observations from this study suggest not only to adjust the tools and techniques to compensate for the weaknesses but also to encourage users in what they are good at when involving them in contextual research activities.

6

Input for the framework



Helping users to express themselves can be achieved by steering clear from tasks or subjects that the users are not familiar with, and also by empowering their strengths. In this case, four strengths have been identified, some in East Asian users, and some in Western users. For instance, Western users were found to be more at ease in expressing their autonomies, whereas East Asian users were found to be more skilful at finding connections between different subjects. Users are more likely to express themselves when the tools and techniques help to bring out their different strengths.



Not the focus of this case study.

User context to be studied

Not the focus of this case study.

Tools and techniques

- For facilitation

Although this case study did not employ new tools, the findings have shown the urgency of modifying the characteristics of tools and techniques in order to better accommodate users' cultural preferences.

- For communication

Not the focus of this case study.

Process

Not the focus of this case study.

Case 3



'Understanding toilet culture in China'

Collecting and communicating user insights across cultures



28 Chinese users who own a shower toilet at home



A design team formed by 7 German and Dutch members

User context to be studied:
Toilet use at home and public space in first-tier cities in China

Tools and techniques:
3 new tools for facilitation

Process:
Sensitising, user session, and communication & design

1

Introduction

The goal of study was to verify some of the findings in Case 1 and to further research barriers to applying contextual user research in a cross-cultural design project. A Dutch design agency MMID supported its German client in developing new shower toilets (a toilet that washes and dries one's lower part) for the Chinese market. The client company is an international brand who produces premium ceramic products of bathroom and tableware. The design team needed in-depth understandings of Chinese users' aspirations, habits and values to be able to develop suitable products. What is Chinese toilet culture? What are the hidden reasons that people prefer these advanced features? How can a European company make an innovative product that fits the Chinese market? To answer these questions, the author helped the companies to explore the context of Chinese toilet use in the field.

Four user sessions with a total of 28 participating users were conducted in Beijing and Shanghai, China. Three new tools were developed in order to support conducting the user sessions, as additions to the tools and techniques described in Case 1. After that, the emerging insights were communicated to the design team that consisted of members from both companies through a workshop at the headquarters of the client company in Germany.

This case study evaluated the new tools and verified some of the findings described in Case 1. More importantly, the real-life setting

Researcher:
the author of this thesis, a designer from MMID, and a manager from the client company

Companies involved:
MMID and an international company with its headquarters located in Germany

The design outcome of this case study:
A shower toilet launched in 2017 (product name removed for confidentiality)

Period:
5 weeks between January and February, 2016

Locations:
Beijing, Shanghai China, and a city in Germany

of this case study, which was in a cross-cultural commercial context, enabled the author to gain preliminary insights into the challenges regarding the communication with the design team.

2 Procedure

Two user sessions in Shanghai and another two in Beijing were conducted. Each session consisted of seven shower toilet users. They will be referred to as 'participants' in the remainder of this case study. They were partially recruited by a local recruitment agency (20), and the rest were from the author's own network (8). The recruitment followed the same criteria (see Table 5.3.1). The sensitising packages were delivered to the participants 3 days (Shanghai) and 5 days (Beijing) before the sessions. Since it was not efficient to deliver the sensitising packages to the participants in person in large cities (see the lesson learned in Chapter 2), the packages were delivered by express.

Table 5.3.1 The recruitment criteria

The participants used a shower toilet (minimal once a week)
The participants were middle-upper class with a total family income 4-6k euro/month
The participants lived with family, or without child or partner
The age of participants ranged from 22 -65 years old
The participants were able to express their ideas clearly
It was desired that the participants should be diverse in each session, in terms of education, age, gender and living situation

The user sessions in Shanghai were conducted in an observation room with built-in video cameras and one-way mirrors, whereas in Beijing the sessions were facilitated in the meeting room of the client's office (see Figure 5.3.1). All the sessions followed the same procedure and used the same sets of assignments and tools (see Table 5.3.2). The sessions were conducted in Mandarin, the standard tongue in Mainland China, and the author facilitated the sessions. A designer with Chinese background from MMID and a German project manager from the client company observed the sessions. They were asked to take notes of useful user quotes or behaviours. While the project manager did not speak Chinese, the designer



Figure 5.3.1 One of the user sessions in Shanghai, taking place in a meeting room where the project manager greeted the participants at the beginning of the session(left). One of the user sessions facilitated in the client's office in Beijing (right)

helped translate the key information from time to time during the sessions. A professional stenographer transcribed each session simultaneously.

Table 5.3.2 The session procedure and the use of tools

Warm up assignment	General questions about shower toilets
Tool employed	<i>Lottery Box</i> (see this case)
Assignment I	Map the experiences of 'how I encountered with a shower toilet'
Tool employed	<i>Ji-Gu-Chuan-Hua</i> (see Case 1); <i>Colourful Assignment Sheet</i> (see this case)
Assignment II	Design a remote-control panel containing ideal shower toilet features
Tool employed	<i>Dare to Draw</i> (see this case)
Wrap up assignment	Make a TV commercial for the shower toilet
Tool employed	<i>Microphone</i> and <i>Serendipity</i> (see Case 1)

As we saw in Chapter 2, translating the full transcripts from Chinese to English can be time-consuming and costly. Therefore, the author analysed the data in Chinese together with the Chinese designer from MMID who observed the sessions. Seven themes were identified, and infographics were created.

The results were communicated to the design team in a one-day workshop. The team consisted of people from marketing, R&D and communication of the client company, and designers from MMID. They were encouraged to draw or write down any ideas or

comments emerged alone the workshop. These ideas were gathered and used as a basis for discussion (see Figure 5.3.2). The workshop with the design team was not recorded due to confidentiality concerns. The author took notes immediately after the workshop to document observations, key quotes, thoughts, and reflections.

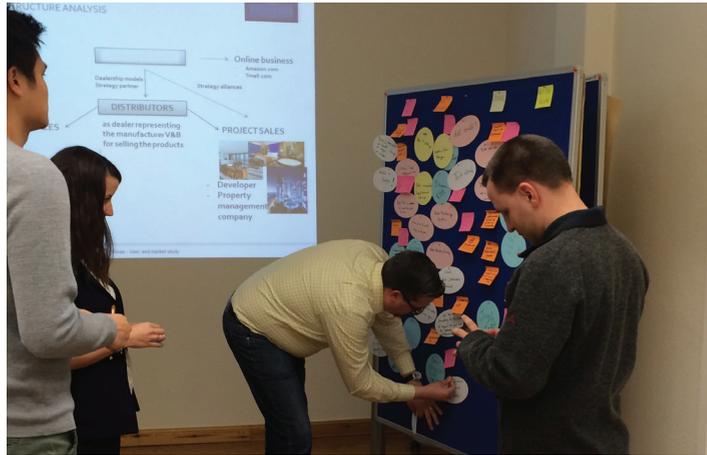


Figure 5.3.2
The team members were discussing opportunities for design and strategies while gathering the ideas.

3

Considerations for tools and techniques

Personal experiences of using the toilet are an intimate and sensitive topic. Therefore, we assumed that letting users talk about their experiences around toilet use would be challenging – not to mention that Chinese users in general find the generative user session unfamiliar (see Case 1). How to engage them in the group user session? How to support their narratives and to bring out their creativity? Keeping these thoughts in mind, we employed some of the tools which worked successfully in Case 1. In addition to that, three new tools were designed: *Lottery Box*, *Dare to Draw* and *Colourful Assignment Sheet*. We expected the new tools to support us in surmounting the barriers observed in the previous studies.



Figure 5.3.3 The Lottery Box with several pieces of question sheets inside

Lottery Box

The *Lottery Box* is an ice-breaking tool. Inside the box, there are several question sheets containing general topics about the shower toilet (see Figure 5.3.3), such as *'Could you share a piece of the latest news or an anecdote you've heard about shower toilets?'* In Case 1, many participants did not feel like to show their workbooks when asked to introduce themselves. To avoid letting them feel embarrassed, but at the same time to warm up the session, we expected the *Lottery Box* to encourage their first self-introduction.

Each participant was asked to pick one question sheet at random and to introduce him or herself using the chosen topic. In the meantime, the author explained to them that *'these questions were sent here all the way from Germany, because the entire design team is looking forward to knowing your opinions'* - a permissible 'white lie' told in order to facilitate conversation. We expected this technique

to help fuel the participants' curiosity and let them feel they were taken seriously.

Dare to Draw

Dare to Draw is a set of tools to support the participants imagining ideal experiences and designing solutions by themselves. It includes a piece of foldable whiteboard, several white magnetic tiles, a whiteboard pen and an eraser (see Figure 5.3.4). In this study, it was used to facilitate participants speculating on the ideal features of a shower toilet by designing a control panel for it. Several magnetic tiles with abstract images and words (e.g., light, smell, automatic, drying) were provided to the participants. Some of the tiles were left blank, where the participant could write or draw things by him or herself. This set of tools allows the users to manipulate the tiles and their ideas by erasing or moving around freely. In this way, it was hoped that these would help to the threshold of expressing creativity, releasing participants' fears of making mistakes and making them feel at ease during the idea generation session.

Figure 5.3.4
A shower toilet remote-control panel made by one of the participants using *Dare to Draw* (top-left). A participant was detailing her design by adding descriptions (bottom-left). Another participant was generating ideas while skimming through the magnet tiles (right).

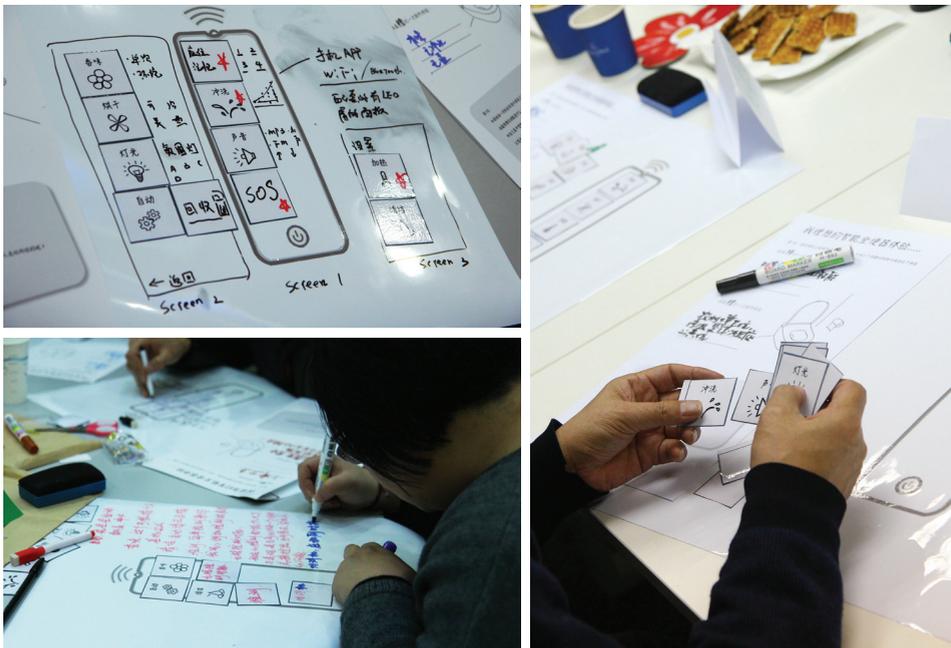




Figure 5.3.5
The participants were working with *Colourful Assignment Sheets*

Colourful Assignment Sheets

Many participants in Case 1 associated the white assignment sheet with linear questions with the traditional exam sheet. To improve on this, the collage assignment sheets were made colourful, with the questions formulated and visualized in a more informal and inviting style (see Figure 5.3.5).

4

Observations and discussion

The use of tools and techniques

It was expected to be more difficult to facilitate the user sessions due to the sensitive topic. But we did not observe any additional barriers than those discussed in Case 1. This showed again that the tools developed in Case 1 largely supported facilitating social interaction among the participants. In this study, these tools further enabled the participants to share experiences around a sensitive topic.

In addition to the tools applied in Case 1, in general the three new tools worked well in supporting the participants expressing their feelings and experiences. The *Colourful Assignment Sheet* was not intended to facilitate social interaction, but to avoid the barrier mentioned in Case 1 where many participants associated the white assignment sheet as a piece of exam sheet. When applying it, none of the participants filled it out as an exam sheet.

We noticed that the other new tools particularly gave the participants control over the situation and helped them develop a feeling of ownership. To be more precise, the *Lottery Box* helped to break the ice at the beginning of each session. We observed that many participants smiled after they heard the questions were prepared by

the design team in Germany. All the participants picked a question sheet from the box, introduced themselves and gave an answer to it. The tool enabled a smooth start for each session. According to a participant during the break of a session: *'I never had expected that you [the company] would take our opinions seriously. Questions from Germany, I felt honoured.'* Moreover, the *Dare to Draw* seemed to lower the threshold of tackling a 'design' task, which supported the participants filling out the design assignment smoothly. Most of the participants immediately started playing with the tiles. Many of them did not write or draw on the white board right away until they were told the markers were erasable. In each session, it took only a short time for the participants to get used to the set of tools and get started designing. Almost all the participants came up with explicit design ideas and related the ideal futures to their own experiences. According to several participants, the movable magnet tiles helped them to see their progress of building a design idea, which made them feel more in control over the creative process. Both the *Lottery Box* and the *Dare to Draw* tools enabled a light start for the participants to engage in the session.

Sub-cultural differences among the participants

The sub-cultural differences, such as those between the young and old participants, or between Beijing and Shanghai participants, have come to our notice in this case study.

Unlike in Case 1, the participants in this study had a larger age span. We noticed a few differences between the younger and the older participants. In general, when asked to do a task, the older participants took more time to get started. They seemed to be more uncertain about what to do and what to say at the beginning. Moreover, they were less expressive than the younger participants. The author had to ask more yes-and-no questions to 'beg' them for more answers. Furthermore, the communication styles used by the young and the old were quite different. This had to do with the local culture. For example, it was appreciated in Chinese culture to show respects when talking to the older ones. As a consequence, the author had to be considerate with her words when talking to the older participants, whereas talking with younger ones was much relaxed. During the sessions, we noticed that most of the younger participants tended to agree with what the older ones had

just said. This might be a way for the younger participants to show their respects and to maintain a good relationship with the older ones. But in the same way discussed in Case 1, this hindered the participants from sharing individual opinions.

A few differences between the sessions in Shanghai (south) and those in Beijing (north) were noticeable. The atmosphere in Shanghai sessions was a little tense, especially in the beginning where they were quiet and seemed not to be at ease when confronted with a group of strangers. But the sessions in Beijing were not the same. Many participants started chatting to their neighbours even before the session. During the sessions, the Beijing groups were in general more expressive and each of them shared individual opinions more freely than the Shanghai groups. These observations could perhaps be explained by the 'rice theory' by Talhelm et al. (2014). They used China's history of rice farming to explain why people in north China tend to have more freedom to express individualism than those in the south.

Barriers and enablers for designers building empathic understanding

In general, the insights gathered from this user research received positive feedback from the design team during and after the communication workshop. However, we observed several barriers that hindered the communication with the design team as well as a few enablers due to the cross-cultural dimension of this project.

Due to a lack of familiarity with Chinese culture, the design team needed some assistance in understanding certain user quotes or anecdotes during the communication workshop, which hindered them in developing empathy towards the users. For example, one user quote was '*I used my first salary to buy my parents a premium bathroom product to show them my love and devotion.*' This anecdote did not appeal to the design team at first, until they learned about *filial piety*, a core cultural value that explains the close relationship between children and parents in China. In another case, the design team could not figure out why most of the Shanghai users considered a warm toilet seat to be comfortable. The Shanghai users wished to incorporate the seat heating feature into the shower toilet, whereas the majority of the Beijing users did not mention this need at all. We

noticed that the design team were not familiar with the distribution of public heating infrastructure between northern and southern China – most households in most parts of northern China (e.g. Beijing) have well-constructed heating infrastructures, whereas those in southern China (e.g. Shanghai) do not. After explaining that to them, they could understand the situation better and even imagined how the users would feel in that situation: *'(In Shanghai) they must feel cold and clammy at home, especially in the toilet.'* said a German designer. Both examples indicated that the individual elements of the user insights needed to receive the benefit of a larger cultural context. The additional information, such as local cultural values, social relationships, public infrastructure, etc. seemed to help the team to better comprehend the user insights.

In addition to the barriers mentioned above, several things appeared to be useful for the design team and helped them to generate ideas. User stories containing social elements were of particular interest to the design team. For example, an anecdote about a user concerning toilet use among different family members, saying that the size of toilet seat was too big for her 4-year-old son, or all the advanced features were too complicated for her parents in law. Eventually, she had to come up with some individual remedies in order to support her entire family. Anecdotes such as these made the design team aware of how different the situation was compared to a German or a Dutch family, especially since none of the team members lived together with a large number of family members. An understanding of the users' social relationships further helped the designers to see more design opportunities. For instance, when the designers recognized that their design needed to accommodate up to three or more different generations of a Chinese family, they came up with more ideas to benefit children and elder family members. Moreover, the pictures collected from the field triggered lots of discussion about the users. Among them, the pictures of the users' bathrooms (see Figure 5.3.6) taken by the participating users themselves (as a sensitizing task) received most comments by the team members, because the pictures gave the design team a direct impression of the living situation of the users. And perhaps they appreciated the authenticity of the photos as they were taken by the users themselves.



Figure 5.3.6
Pictures taken by the participating users of their toilet rooms showing their living situations, triggered discussions among the team members and questions to the researcher

Our observations indicated that the designers needed support in dealing with the complexity of an unfamiliar cultural context. With only individual elements of the user insights, the author noticed that the design team had difficulties in building understanding and developing empathy towards the users during the workshop. The culturally specific information (e.g. local values, family structures, public infrastructures) and pictures taken by the users supported the design team in working with the user insights and coming up with better design ideas.

5

Conclusion

In general, the tools developed in Case 1 and the three new tools developed for this case worked well in supporting users in sharing personal experiences around a sensitive topic. This result verified what Case 1 had proposed: local cultural values about interpersonal relationship were inspiring and useful sources for tailor making tools and techniques for users. However, a few barriers to collecting insights (as reported in the previous studies) were still noticeable (e.g. difficulties in supporting individual opinions and maintaining the group relationship at the same time). Moreover, this study showed the importance of paying attention to differences in the users' sub-culture when facilitating group user sessions. Furthermore, additional barriers were found in communicating user research outcome to design teams in cross-cultural design projects, where designers could not build empathic understanding due to the lack of a shared cultural basis with the users. At the same time, this revealed opportunities for developing communication tools that help add a broader scope of contextual information to the individual user insights.

6

Input for the framework



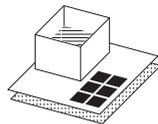
- A feeling of ownership helps users to engage in the user sessions, in which they encounter various generative tasks. A light start helps them to feel at ease, and to feel confident about sharing their ideas.
- Users' sub-cultural differences (e.g. regions, ge, genders, etc.) should be considered during the activities in the collection phase, especially during a user session.weaknesses.
- Visual elements about users' lives, such as photos taken by the users themselves, were able to trigger empathic discussions within the design team.
- Lacking of a shared cultural common ground with users (e.g. cultural values) is an obstacle for designers working with anecdotes, quotes, expressions of individual users.

User context to be studied

Additional information about user contexts (such as local cultural values, as well as macro factors such as geography, public infrastructures, or climate) can support designers in making better sense of the individual aspects of user insights.

Tools and techniques

- For facilitation
Tools giving the users control over the situation, such as an erasable whiteboard, contribute to developing feelings of ownership.
- For communication
Not the focus of this case study.



3 tools and techniques:

Dare to Draw;
Lottery Box;
Colourful Assignment sheet

Process

Not the focus of this case study.

Case 4

'Enhancing sport experiences'

**First attempt to
support communication
across cultures**



21 Chinese sport headset users aged between 25 and 55



4 Danish members from Jabra UX team

User context to be studied:
Using smart devices for physical exercise in Chinese cities

Tools and techniques:
a *Culture Brochure* for communication

Process:
One-on-one interview, co-design session with users, and communication & design communication & design

1

Introduction

This case study further identifies the barriers in conducting contextual research in cross-cultural settings, particularly focusing on the activity *communication & design*. Qi Zhou, a Chinese student, was conducting cross-cultural contextual user research as part of her master's graduation project. The aim was to gain Chinese user insights for Jabra, an international company that specialized in developing headsets for mobile phone users, contact centres and office-based users. The commercial goal of this case study was to help the UX team, located in Jabra headquarter in Denmark, to understand Chinese user experiences regarding premium sport headsets. Qi was responsible for creating a customer journey map, and for developing design concepts based on the user research results.

Qi conducted multiple one-on-one interviews to collect user data, then facilitated a co-design session with 8 participants. In this case study, she did not employ any new tools or techniques to support collecting user data. In the phase of communicating user insights, Qi made a new tool, *Culture Brochure*, in addition to the customer journey map, to overcome the barriers in communicating user insights mentioned in Case 3.

This research is described in more detail in the master's thesis of Qi Zhou, TU Delft, www.repository.tudelft.nl

Researcher:
Qi Zhou, a master's student conducting her graduation project

Period:
22 weeks, 2016

Companies involved:
Jabra

Locations:
Xiamen and Shanghai, China, Copenhagen, Denmark

In this case study, the author acted as her graduation mentor, advising her for the research activities but not directing her research direction. After the project, the author interviewed Qi to discover what barriers she had experienced and what enablers she had found for conducting cross-cultural contextual research.

2 Procedure

User data was collected in two ways: 13 participants joined for one-on-one interviews in Xiamen; 8 participants joined a co-design session in Shanghai, China. Each participating user (called a 'participant' for short) received a sensitising workbook one week before the sessions began. Qi conducted the one-on-one interviews at the participant's working place or at a comfortable and quiet cafe, together with a local UX designer who was working for Jabra in China. Each interview took about one and a half hours. For the group session, the participants were asked to brainstorm about related products, interactions and ideal future using scenarios around the topics in the sensitising workbook. Qi analysed the data by following the 'on the wall' method (Sanders & Stappers, 2012).

After data analysis, Qi translated the user insights that had emerged into five personas and a customer journey map, which were then communicated to the Jabra UX design team in Denmark in a communication and design session. The session consisted of a presentation, followed by 'questions and answers' time, and then an idea generation session. The Danish design team (which included two designers, one product manager and one user insights analyst) was asked to work in pairs and to brainstorm about new design ideas for their potential Chinese target users. The primary goal of the session was to inform and inspire the design team with the Chinese user insights. The secondary goal was to help Qi evaluate the customer journey map and give her suggestions for improvement.

3 Considerations for tools and techniques

No new tools and techniques for facilitation

In this case, Qi did not develop new tools and techniques that help users express their experiences for two reasons. First, tailoring tools and techniques for dealing with cultural barriers was not in

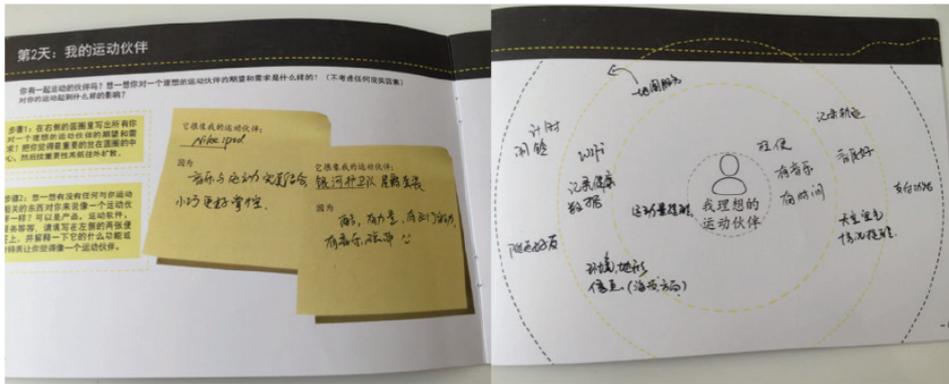


Figure 5.4.1
A page of the workbook in which the user was asked to brainstorm about his or her values of an ideal 'exercise buddy'.

the scope of her graduation assignment. Second, there was a strict graduation time schedule which did not give her room to explore further on this topic. As a result, she only prepared a sensitising workbook (see Figure 5.4.1) for each participant by following the guidance of Sleeswijk Visser et al. (2005).

A Culture Brochure to support communicating user insights

Figure 5.4.2
Some of the pages of the Culture Brochure made by Qi Zhou, which highlighted the insights that particularly address the needs of Chinese users.

As discovered in Case 3, it was challenging to communicate the cross-cultural user insights to the design team. The author recommended Qi to take this issue into account when communicating the Chinese user insights to the Danish design team. To overcome this barrier, she made a tool, called 'Culture Brochure', consisting of extra information such as trends, customs and social activities regarding sport in

China (see Figure 5.4.2). It was intended to provide the design team with a more comprehensive introduction to the context in which the target Chinese users' experiences are situated, as well as to highlight the uniqueness of the Chinese user insights.



4

Observations and discussion

One-on-one interviews vs. group user sessions

Unlike the other case studies, one-on-one interviews were conducted to collect user insights, since it was easier to align the availabilities of the participants and the researchers. Qi used the sensitising workbook as the main tool to facilitate conversations during the interview. Only a few participants had difficulties in filling in one or more tasks in the workbook, such as a collage excise or a design excise that had an open-end form. According to Qi, this problem could be simply solved by explaining to the participant about it during the interview. She reported that the one-on-one interviews went smoothly with most of the participants. However, she experienced some difficulties in facilitating the co-design session. According to Qi, the atmosphere during the session was quite serious and there was not much interaction among the participants throughout the session. It was particularly difficult for the participants to map out their ideal usage scenarios or future products or services. The participants mostly wrote down some features of other similar products they have seen on the market, and had difficulty in relating these features to their own experiences. After the session, the participants told Qi that they were not familiar with this type of tasks. Most of them did not believe that they were able to design anything, not even to own or to add credit to the design outcome. Perhaps a feeling of ownership was lacking. As a result, Qi generated user insights mainly based on the user data of the one-on-one interviews rather than that of the group sessions.

In this case, although Qi did not design any new tools and techniques to support the facilitation. Interviewing the participants individually was not a problem, because the social interactions between the user and the researcher were relatively simple, and it required little attention to manage relationships with the participants. However, it became problematic when the participants were gathered in a group. This was in line with some of the findings reported in Case 1.

The differences are appealing to designers

When communicating the user insights to the Danish team members, they asked Qi many questions about the differences between the Chinese personas (made by Qi) and the Western personas (the internal materials from Jabra's previous research).

During the brainstorming session, all of the design team members were asked to generate ideas based on the customer journey map Qi had made. Qi observed that most of the time, the team members generated ideas based on the differences they had found. Unlike comparing different personas, the customer journey only illustrated the experience flow of the Chinese customers. It was more challenging for the team members to spot the differences, as a team member commented:

'The comparison between the Chinese users and the Western users is not emphasized; therefore, the uniqueness of the Chinese user was not standing out from the [customer journey] map itself. Additional knowledge that emphasizes the comparison of the Chinese and western users was necessary and helpful for readers to use the map in creative activities.'

From the discussion with the design team, Qi confirmed her observation. The team members intended to compare the Chinese users with Western users, because the dissimilarities helped them come up with new design ideas.

The Culture Brochure helps designers gain insights into Chinese user context

In general, the UX design team of Jabra considered the *Culture Brochure* helpful, since it provided an additional layer of knowledge about the Chinese user context, which had not been part of the personas and the journey map. It helped them to move from individual personas to a broader picture of the context, by taking local culture into account. This helped them recognize the values of those 'opportunities' presented in the journey map.

In the interview with Qi, she reflected on making the *Culture Brochure*. It was difficult for her to decide what areas of information to be included in the *Brochure*, for two reasons. One was that the topics and ingredients regarding the Chinese culture were diverse and broad; the second was that there was little guidance from literature that she could follow. According to her: *'I selected the information largely based on my intuition, but I was not sure whether they would be relevant [for designers].'* In her opinion, the preparation of the *Brochure* could have been more structured.

5

Conclusion

This case showed that without employing tools and techniques to support facilitating user interactions during the user group session, the users were not able to express rich information or brainstorm ideas freely.

During the communication & design session, it was noticeable that the design team consistently compared the Chinese and the Western personas. The differences were appealing to the design team and used as points to start for the ideation and the discussion.

The *Culture Brochure* supported the design team in understanding the experience of Chinese target users and in identifying future design opportunities in China. It was a useful attempt to support communicating user insights across cultures. It also revealed the need for such a tool that should provide a thorough structure to the researcher for communicating cultural related information to designers.

6

Input for the framework



- It is difficult for users to imagine and design for future experiences when their feelings of ownership are not facilitated.
- The need for facilitating interpersonal relationship is less prominent in a one-oneone interview than in a group session.



- Designers find the cultural differences between users and themselves to be appealing, which helps trigger discussions.

User context to be studied

Additional macro factors such as lifestyle, demography, and trends about the user context are useful for designers to make sense of and work with the individual aspects of user insights.

Tools and techniques

- For facilitation

Without the tools and techniques that facilitate social interaction during the user session, users often experience difficulties in telling rich stories or brainstorming ideas freely.

- For communication

In this case, the *Culture Brochure*, highlighting the uniqueness of Chinese user insights, was a promising first attempt at supporting communication with the design team. Yet, a more thorough tool in terms of structure is needed.



1 tools:

Culture Brochure

Process

Not the focus of this case study.

Case 5

'Social life on campus'

**Building empathic
understanding using
*Cultura Communication
Toolkit***



11 Chinese bachelor students provided user data and evaluated the design concepts



6 design teams formed by 20 European designers

User context to be studied:

Students' social life on the university campus in China

Tools and techniques:

Cultura Communication Toolkit; *Cultura Sensitising Workbooks* for designers

Process:

Communication & design, and user feedback

1

Introduction

To enrich the designers' empathic understanding of the users they design for, rich user insights have been communicated to them. However, these insights are often anecdotal, emphasizing the user experiences of individuals. Case 3 and Case 4 showed that designers often find it difficult to empathize with these user insights from a culture beyond their first-hand experience. To step beyond this limitation, these insights should be placed in a larger understanding of the cultural context. Moreover, connecting designers to their own experiences is recommended as a way to enrich their empathic understanding. Therefore, in this case study, we developed a *Toolkit* that helps communicate user insights based on a structured cultural basis to the designers. In addition to that, we wanted to find out how designers' own experiences can help them reach a far 'empathic horizon' under the constraints of the cross-cultural setting.

We selected and reworked the elements from the cultural models introduced in Chapter 3, which resulted in the *Cultura Communication Toolkit (Toolkit)* and a *Cultura Sensitising Workbook (Workbook)* for designers. The goal of the study was to evaluate how the *Toolkit* could support communicating cross-cultural insights to the designers. Moreover, we wanted to find out how the *Toolkit* and the *Workbook* could contribute to designers building empathic understanding.

The description of this case study is partially based on the following publication:

Hao, C., van Boeijen, A.G.C., & Stappers, P.J. (2017). *Cultura: A communication toolkit for designers to gain empathic insights across cultural boundaries*. In *proceedings of IASDR conference 2017*, 31 October - 3 November 2017, Cincinnati, Ohio, United States.

Researcher:

the author of this thesis and a Dutch senior researcher from TU Delft User context: Students' social life on the university campus in China

Period:

- Three half-day workshops with designers, November, 2016
- One half-day evaluation session with users, August, 2017

Universities involved:

TU Delft-IDE; Donghua University

Locations:

Delft, the Netherlands and Shanghai, China
Copenhagen, Denmark

This was evaluated by design teams in the Netherlands in three sessions, with each session using a different combination of tool(s): (1) The designers were only given the *Toolkit*, (2) The designers were sensitized with their own experiences and given the *Toolkit*; and (3) The designers were only sensitized and not given the *Toolkit*. The design teams were formed of 20 designers who had grown up and received education in Europe. They were asked to design products and services that could enhance university students' social relationships in China. After that, the design concepts generated by the design teams were evaluated by 11 end-users in China.

2 Procedure

This case study consisted of two steps: (1) conducting design sessions with design teams, and (2) evaluating the design concepts with the end users in the field. Figure 5.5.1 illustrates the procedure of the study. Each step is described below in details.

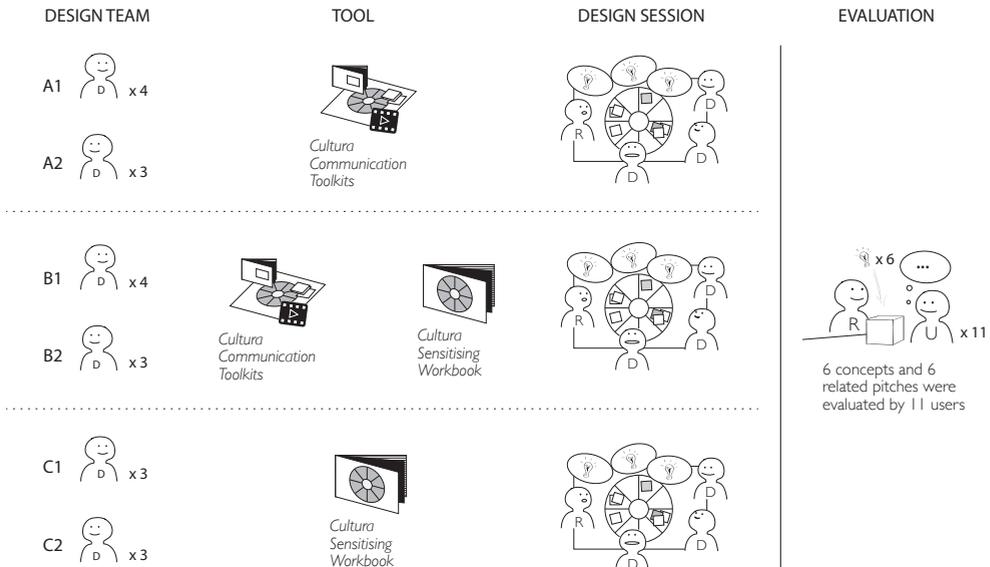


Figure 5.5.1
The procedure of the study

(1) Conducting three design sessions

In total, 20 industrial design master's students or recent graduates who had similar levels of design experience participated in the design sessions in the Netherlands. They had grown up and received

their education in 4 European countries: The Netherlands (14), Germany (2), Turkey (2) and Italy (2). They formed six design teams (A1, A2, B1, B2, C1 and C2). Each team had three to four design students to enable in-depth discussions. Each design team received a design brief, which was 'to design products and services enhancing university students' social relationships in China'.

Three combinations of the *Cultura Communication Toolkit* and the *Cultura Sensitising Workbook* were applied in the sessions, referred as 'Toolkit' and 'Workbook', respectively, in the remainder of this case study. Teams A were informed about user insights by using the *Toolkit* during the session; teams B received *Workbooks* one week prior to the session and used the *Toolkit* during the session; and teams C only received the *Workbooks* one week prior to the session.

The *Cultura Communication Toolkit* (shown in Figure 5.5.2; for details, see next section) was used to communicate related user insights to the design team. These user insights were based on the user data gathered from 26 university students in Shanghai, China. These Chinese students worked through a *Workbook* on the theme of 'me and my university life'. In addition, each of the students recorded a 1-2 minute-documentary video clip (Raijmakers & Miller, 2012) to showcase his/her living environment at the university – the dormitory room, a shared residential room for four students of the same gender. Next, the students were divided into three focus groups, and each was led by the one the researchers. The user data was translated into 72 user insight examples, which were described in the form of cards and video clips (the second and third tools in Figure 5.5.2).

Each design session lasted for approximately three hours. A and B teams began with a half hour introduction about the Toolkit. The design teams received and studied the printed *Cultural Wheel* (the first tool in Figure 5.5.2). For the rest of the first half hour, they were shown a set of four user videos (the third tool in Figure 5.5.2) about which they had been asked to write down observations on the user context. After the video clips, the design team clustered their first observations as groups. In the next hour of the session, the team

received a set of 72 insight cards. The designers studied the cards and came up with design ideas. Each group was asked to select one idea and develop that into a concept in half an hour. Following the concept generation, each team presented that selected concept as well as their pitch (designers' statement of their design motivation). At the end, all the designers were interviewed about how they experienced the overall process, and about their experience of using the *Toolkit*. C teams were first asked to generate design ideas. Then each team presented one selected concept. The *Toolkit* was shown to them after that. Finally, the designers were asked to share their experiences of the process, and to give comments on the *Toolkit*.



Figure 5.5.2
The overview of the tools in the *Cultura Communication Toolkit* (details see page 126)

All sessions were video and audio recorded, and the quotes of the designers were transcribed. The author analysed the data together with another researcher (the second author of the related publication), using the same method mentioned above for the data gathering study. Our findings were structured based on three main sources: the designers' reflections, the observations during the design sessions and a preliminary evaluation of the design outcome.

(2) Evaluating the design concepts in the field

During the design session, each design team selected one of the best ideas to further develop into a concept. After the session, an independent illustrator made drawings of the six selected concepts, to the same level in terms of description and visual representation. In order to evaluate the concepts with the end users in China, the descriptions were translated in Chinese.

11 out of the 26 Chinese university students who provided user data as input for the design session evaluated the design concepts in a session in Shanghai, China. They evaluated these six concepts by means of a questionnaire, in which each concept was presented in the same sequence: the designer's pitch, the drawing, and its description. They spoke out loud and considered if the pitch made sense to them, to what extent the pitch was relevant to their own and to most students in their context, and to what extent the pitch resonated with them and with their context. Next, they rated to what degree the concept showed appropriate respect to the local cultural. Lastly, they mapped the concepts on to a poster according to the degree that each concept fits to the context of the users (best fit, partly fitting, not fitting) and discussed their reasons. Finally, each of them was asked to choose one best fitting pitch and one best concept. The students then presented and discussed their results in a focus group (see Figure 5.5.3).



Figure 5.5.3
The Chinese students
discussing their opinions
on the design concepts

3

Considerations for tools and techniques

(1) *Cultura Communication Toolkit*

To provide designers with a structured cultural basis, our experience suggested that we would require elements such as composition of cultural groups, shared values, and ways in which these values are expressed in daily practice. Out of several models and approaches mentioned in Chapter 3, we selected two that appeared to have these qualities: **Hofstede's onion model** (2005, p.7) and **Engeström's model of an activity system** (2001), referred to as OM and AT in

The name '*Cultura Communication Toolkit*', was based on van Boeijen's PhD dissertation (2015, p.193), in which she suggested the development of '*Culturas*'.

the remaining paragraphs respectively. Then we identified promising elements for the creation of a hands-on design *Toolkit*, which could be illustrated with appealing examples, and did not require elaborate introductions.

The *Toolkit* was designed for use in a design workshop setting, informing and inspiring designers and encouraging discussions. To make it practical, the *Toolkit* should be used in a one-day workshop, by a design team whose members are not trained in cultural theories. This meant that we needed to adjust and simplify the language and the complexity models. For example, where Engeström talks of 'artefacts', designers are more familiar with 'things and products'; and instead of 'subjects striving for objectives', designers often speak of 'users trying to achieve their 'goals'. Regarding complexity, both of the models explicitly elaborate not only on each element, but also discuss the relationship between the elements. For the *Toolkit*, we decided not to convey these considerations, although the tools would invite the designers to address such combinations if they thought it appropriate.

The Backbone

In this manner, we formulated a structure, called *Backbone*, which includes nine themes of a cultural context based on the above models. Table 5.5.1 illustrates the nine aspects, indicating from which model(s)/element(s) each aspect was derived. However, the last theme, *Macro Developments*, was not derived from these models. We added it for two reasons. First, the designers not only needed to understand the current culture, but also the trends and developments that influence people's everyday lives. Second, as learned from Case 3, such information is expected to support the designers in making better sense of user insights.

Table 5.5.1 The 'Backbone': A structure that describes nine themes of a cultural context, and their related cultural models

	Themes	Descriptions	Related cultural model elements	Perspectives of focus
1	Socio-Cultural Values	Values are the social standards, concerning which behaviours are acceptable and which are unacceptable, important or unimportant, right or wrong, workable or unworkable, in a cultural context. Individual values may differ from those of groups.	Values (OM)	Values
2	The Material World	Our material world is composed of artefacts (products, or things which have been designed). These artefacts (also called material culture), not only have utilitarian functions, but also carry particular symbolic meanings. They have social significance that refers to a specific group of people, or a specific time and place.	Symbol (OM) and Artefacts (AS)	Practices
3	Community	A community is a group of people who have a shared concern or who wish to reach a goal, and interact regularly to do so. The community distinguishes who/what does or does not belong to the group. However, the scope of the community varies with different design projects. Designers need to decide how to delineate boundaries for each project.	Community (AS)	Practices
4	Division of Roles	The division of roles describes how duties are distributed among community members. For example, what the activities are and how they are distributed according to people's position in the hierarchy; whether it is a collective or individual activity; or division of roles by gender.	Division of labours (AS)	Practices
5	Rituals in Everyday Lives	Rituals are sequences of collective activities to reach desired ends, which are considered as socially essential. These also includes daily routines, special events, and activities in people's spare time.	Rituals (OM)	Practices
6	Know the Rules	Rules, in the context of culture, consist of written and unwritten social agreements created by people during shared practices in order to achieve a goal. They deal with people's social relationships and are continuously being formed and changed, reflecting the nature of the culture.	Rules (AS)	Practices
7	Angels vs. Devils	An angel represents a person (perhaps a super hero or celebrity) who is highly esteemed in the community, and who can also serve as a role model. Of course, the opposite can also exist – a devil (an enemy, or anti-hero). It is even possible for a person to be seen as both angel and devil by different parties.	Hero (OM)	Practices
8	Goals of End Users	The end users' goals describe the short- and long-term goals that users want to achieve, or personal intentions that are meaningful to them or their community (in a specific context).	Objects (AS)	Practices
9	Macro Developments	Macro developments describe contextual factors such as the composition of the population and geographical characteristics, including developments in demography, economy, politics, infrastructure, and so on.		Macro factors

Three tools based on the Backbone

The *Backbone* (Table 5.5.1) was further used to develop tools for the *Toolkit*. The final design of the *Toolkit* includes three tools indicated above in Figure 5.5.2: a visualized *Cultural Wheel*, a set of *Insight Cards*, and a series of *Video Clips*.

Cultural Wheel shows the *Backbone* on a large printed sheet of a visualized wheel (See Figure 5.5.4). The form of a wheel was chosen to make the information accessible to a design team, and to give each theme equal weight. The theme *Socio-Cultural Values* is positioned in the middle of the wheel because it is the core that binds all other themes.



Figure 5.5.4
The tool *Cultural Wheel* visualises the *Backbone* themes on a large printed sheet. The insight cards are distributed on the *Cultural Wheel* according to the nine themes

Insight cards consisting of user quotes and/or narratives, and pictures from the local context, were used to communicate in total of 72 insight-examples. The reason is that cards can be used flexibly spread out, studied individually, placed together, and shared among members in a design team (Beck et al. 2008). Each insight example was categorized according to the nine themes (see the bottom-left corner on the cards in Figure 5.5.5). Most of the cards included not only emerging insights, but also raw user experience data such as user quotes and images from the field, as suggested by Sleeswijk

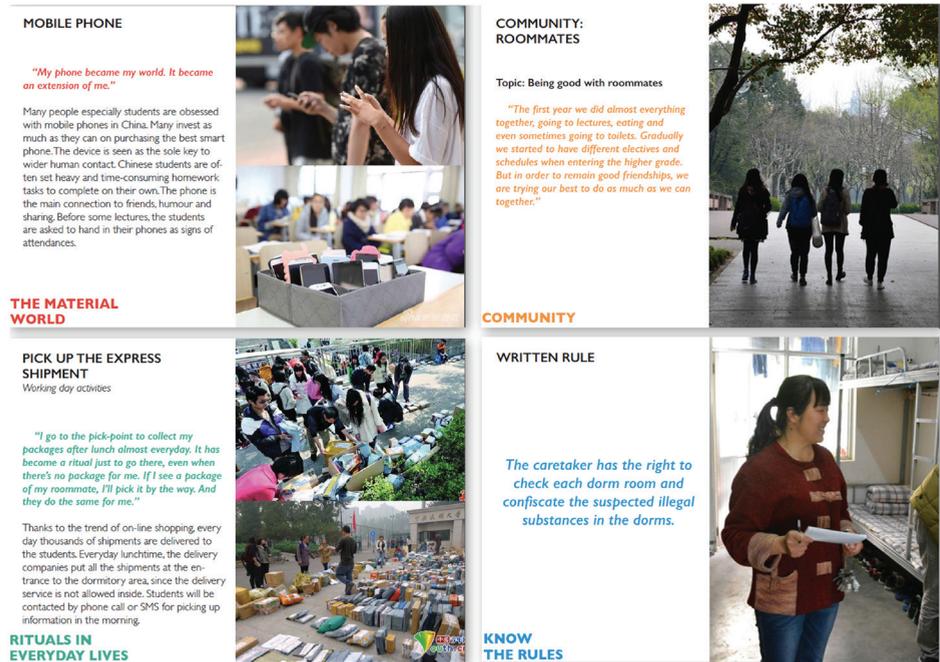


Figure 5.5.5
Example of *insight cards* that illustrate the relevant cultural theme, a user quote(s), and a picture(s) of the situation in the field

Visser (2009). The other cards (related to the themes *Socio-Cultural Values* and *Macro Developments*) consisted of information gathered from literature and desk research. Figure 5.5.4 illustrates how the insight cards were presented on the *Cultural Wheel*, and Figure 5.5.5 gives examples of the cards.

Video Clips were made to provide designers a lively impression of the intended users and their everyday lives. We selected four out of all the documentary video clips made by the 26 Chinese students. Because all together they covered most themes of the *Backbone*.

(2) Cultural Sensitising Workbooks for designers

We made a *Workbook* for each designer, in order to find out whether reflecting on their own experience would aid designers in building empathic understanding in cross-cultural situation. In it, they were asked to reflect on their own experiences in the area of 'student life'. We took some of the themes showed in the *Backbone* (Table 5.5.1), to help formulate the sensitising tasks. For example, the designers were asked to imagine an ideal roommate, a question based on the theme *Angels vs. Devils*.

4

Observations and discussion

In the remainder of this section, we will first discuss our findings on how each tool of the Toolkit was used; then we will report on other findings during the sessions; and finally, we will present the user feedback gathered in the field which used for evaluating the design concepts.

(I) The use of the tools

Generally, teams A and B considered that the *Toolkit* helped to inspire them to become more empathic, with user insights from a different cultural context leading towards creative design ideas. Moreover, most designers said the design format of the *Toolkit* was inviting and the process was creative. Yet they found it challenging to process all the information thoroughly and generate ideas simultaneously within the limited time available.

The **Cultural Wheel** provided designers with a clear overview of what aspects need to be considered when encountering an unknown cultural context. In the evaluation interview, one designer said the *Cultural Wheel* 'gives a clear overview'. He added, 'If you have an overview, I think it really helps your design and also speeds up the process, more importantly, coming up with richer ideas.' These themes also helped the designers to structure, manage, and keep track of user information. As we observed during the sessions, all the designers used this structure to organize their post-it notes and to arrange the filtered insight cards (Figure 5.5.6). 'It helped us to make connections among all the themes and based on the connections we develop an understanding about their situation,' explained a designer.

Figure 5.5.6
The designers are using the *Toolkit* in the design sessions

Next, the designers were asked to reflect on the nine themes, one by one. Each of the themes and their related cards were found



to contribute to generating an overview of the intended cultural context: *'The connection between those [themes] is really interesting for understanding the situations. I don't think an individual category will be enough to gain such understanding. I think we used a lot of connections between those.'* This confirmed our confidence in not explicitly providing theory about the connections, but rather evoking them through the format of the *Toolkit*.

More specifically, the *Socio-cultural Values* was used to inform the designers about the main drive for activities that the users do and the reasons why they perform these in a specific way in a cultural context. According to most of the designers, they did not draw inspiration from this theme and its corresponding cards, but used them to study a specific value or to confirm design ideas. The themes *The Material World* and *Rituals in Everyday Lives* were expected categories: *'As we are product designers, it's kind of our nature to be interested about users' material world and their everyday activities.'* The themes *Know the Rules*, *Division of Roles* and *Community* were relatively new to the designers: *'Somehow I would consider people's roles or their community in my normal design process, but not explicitly. So, the way it emphasized these aspects was helpful.'* A designer added, *'The aspect of rules was really new to me, and it triggered us [to have] many ideas.'* The other themes did not contribute to generating ideas directly, but they supported designers in generating a holistic view of the users' situation. For example, *Angels vs. Devils* helped designers to find out who the users wished to become, so that they could understand what social pressures they were struggling with in their lives. However, some aspects of behaviour-related insights were found to be missing in the structure of the *Cultural Wheel*. A number of interactions in the video clips were observed which could not be assigned to any of the current themes, such as expressions and behaviours.

The **Insight Cards** and **Video Clips** provide static and dynamic ways, respectively, to communicate user insights. On one hand, each of the *Insight Cards* consisted of either user quotes or narratives, and at least a picture from the local context, which gave a more in-depth explanation of the impressions that designers received from the video. Moreover, the insight cards covered each themes of the *Cultural Wheel*, giving more information than the video could offer.

On the other hand, we were interested to find that the video clips not only exhibited most of the themes in the *Cultural Wheel*, such as *The Material World*, *Angels vs. Devils*, *Rituals in Everyday Lives*, and so on, but also showed the behaviours of the intended users, in such ways as expression and gestures. These behaviours seemed to help the designers feel almost as if they were there. In addition, it gave the designers a direct impression of the cultural distance between themselves and the intended users. According to a designer: '*These behaviours [in the videos] are very helpful in understanding the needs of people when facing a new culture.*' As a result, several designers phrased the benefit of having both as follows: '*Video gave the realness whereas the cards gave insights,*' in combination '*the two aspects paint the story in a complete way.*'

The **Workbooks** for designers served as the 'accelerator' for the B sessions. The designers (in session B) who got the *Workbooks* immersed themselves in the session much faster than those without (in session A). Moreover, the teams in session B had more discussions and ended up with more ideas compared to those in session A. There could be two reasons for this: one is that the *Workbook* helped them to spot differences between their own situation and that of the users more easily; and another is that the topics of the exercises in the *Workbook* covered many themes of the *Cultural Wheel*, which helped prepare the designers in advance. Without being informed about user insights by using the *Toolkit* during the session, the designers in the C sessions did not relate or mention anything from the *Workbook*. It was not found useful in helping them generate design ideas.

When developing the *Toolkit*, we aimed to represent the users and the cultural context as dynamic. We acknowledged the common problem of generalization, which Stake (2000) has addressed, where a small group of people may be erroneously presented or understood as 'covering all possible variations.' In fact, two designers from the sessions asked to what extent the insight examples represent the Chinese students' lives. This shows the necessity that we need to prevent designers from interpreting user insights conveyed by the *Toolkit* as a statistically, absolutely complete and true representation of a cultural context. Instead, the

Toolkit, at its best is an authentic way that invites designers to engage with relevant cultural aspects by giving them both structured cultural basis and user insights.

(2) Evaluation of the design sessions

Most of the designers in teams A and B indicated that working with the *Toolkit* helped to broaden their mind set, and most of them had more or less stereotyped impressions of the target users in mind. After studying the user experiences communicated by the *Toolkit*, we found that those impressions had changed completely. A designer explained: *'...when we heard about the design brief, we started seeing things: an invented picture about the context. But actually, there are so many things made us 'wow' and 'oh', which were totally surprising.'* The video clips provided the designers with a direct impression of the cultural distance between them and the intended users: *'The Chinese students were more standing still when expressing themselves instead of bla, bla, bla [the waving gesture] as what our Italians do.'* said an Italian designer. Discussions among the designers were continued throughout the sessions with teams A and teams B. In contrast to them, the C teams articulated that it was very difficult to generate ideas without knowing the target user experiences. During the sessions with C teams, we observed few discussions among the designers.

The numbers of ideas each team came up with were: 6 (team A1), 4 (team A2), 8 (team B1), 7 (team B2), 3 (team C1) and 2 (team C2). It appears that the teams which were informed about the experiences of the users came up with more ideas than the groups who were not. The teams in which the designers were sensitized to their own experiences as well as being informed about the users, turned out to have the most design ideas (8 and 7), compared with the other teams (6 and 4; 3 and 2). This was also shown in the diversity of the design outcomes. The design ideas produced by teams A and B had higher diversity and broader topics than those of the C teams. The outcomes of C teams were only mobile APPs for the students, whereas the A and B teams looked at different aspects (e.g. places, time, means, social pressure) and took multiple roles (e.g. students, parents, caretakers) into account.

In addition, almost all the designers in A and B teams explicitly

mentioned their own experiences as students to their design team during the session. Several of them articulated that the comparison between their own experience and the users helped them to gain empathy with the unfamiliar context. By making these comparisons, they could make the unfamiliar situations relevant to their own context. *'Comparison is the most effective tool to see yourself in the shoes of the other person.'* a designer explained. In the session with the C teams, the designers did not speak out loud about their own experiences when generating ideas, but a designer did reflect, during the interview, that: *'[When generating ideas], we tended to reflect on our rituals and routines in our cultures immediately without wanting it.'* Accordingly, the purpose of using the *Sensitising Workbooks* to C teams was not as clear as B teams. We noticed that teams B1 and B2 referred more frequently to the users and to themselves, than the A teams. They shared more personal stories and discussed how similar or different the experiences of these users were. This could be an indicator that stimulating the designers to recall their own experiences helped increase their empathy.

The designers' own memories of student life played another positive role in generating ideas. By comparing user experiences to their own, the designers were able to relate the unfamiliar situations to their own contexts, which was found to help trigger design ideas. In this way they found many differences and things in common between the familiar and unfamiliar contexts. All the designers considered those experiences to be very helpful in finding design touch points and triggering discussions. *'We could not only find similarities and also differences in a short period of time. It really helped to come up with ideas because we got the knowledge,'* confirmed one designer. Moreover, we noticed that most designers were more attached to the differences when generating ideas, which is in line with the findings of Case 4. *'I think we did comparison automatically. In the beginning, we wrote down what was surprising to see... and I think the surprising parts were inspiring for coming up with ideas.'* Another team added, *'I think especially the difference between your own culture and the culture you design for, those are the things that really stand out. You pick them up spontaneously because there's so much contrast.'* This process made it efficient for designers to learn about the unfamiliar aspects of another culture. However, the disadvantage was that they might overlook things they had in common, which might be

meaningful to the intended context. Furthermore, it was noted that when the differences were too great, designers also found it difficult to relate to their own experience.

(3) Evaluation of the design concepts

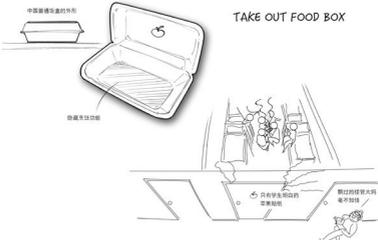
The Chinese students who participated in the evaluation session did not expect that they would be involved again to share opinions on the design concepts. They were enthusiastic to see the design concepts and felt honoured to give feedback to the designers. During the evaluation workshop, all of them examined the design concepts and the pitches of the designers carefully. They gave us elaborate feedback in the questionnaires and during the discussion.

In general, the designer's pitches and the design concepts of the A and B teams turned out to be more culturally appropriate than those of the C teams. The designer's pitches of B teams were most appropriate and insightful, whereas the design concepts of the A teams received mostly favourable reviews. Table 5.5.2 presents designers' pitches, their design concepts and the feedback given by the Chinese students.

More specifically, recalling designers' own experiences seemed to be helpful in developing empathic insights into the user context. The pitches of B teams were voted as most insightful and appropriate by the students. In addition, compared to A teams, the ideas of the B teams were based more on what the designers learned from the *Toolkit* in combination with their own experiences of student life. For example, team B1 could relate to their own experiences of having social activities in a students' house in the Netherlands. They loved the common area in their house where everyone could easily get together. There were no such areas in Chinese dormitories. As a result, they came up with the concept conversation pillow, aiming to facilitate more social activities inside the dormitory. However, according to the students, the concepts of A teams better fitted the target users than the concepts of B teams. This indicated that recalling own experiences contributed to building more empathic understanding, but that understanding did not fully land in the design concepts.

Contrary to A and B teams, the concepts of the C teams, especially

Table 5.5.2. Designer's pitches, presentations of each design concept and evaluations by the end users

Team A1	Team A2
Designer's pitches	
<p>'Cooking is forbidden in dormitory but it's still preferred. The students sometimes cook food together, such as hotpot, for a better diet as well as for having quality times with roommates. They may strive for a high achievement or have strong collective sense of honour, but probably also have more or less day-to-day struggles. Maybe they think of being a little bit rebellious to get through those (dormitory rules) they perceive not nice.'</p>	<p>'There are many rules in the dorms, such as roommates are assigned to you; boys and girls are not allowed to visit each other; everyone needs to be back to the dorm before 11 p.m.; and no chance to switch roommates for 4 years. These more or less limit the students' social and personal development.'</p>
Design concepts and descriptions	
	
<p>The Take-out food box is a portable take out box with a hidden cooking function. The students can use it to cook simple dishes either in the dorm or on the balcony. When the caretaker coming for an inspection, she will probably notice the smell of the food. But the food (cooked in the box) look just like any other take-out food. It's a compromise for students who strive for something rebellious to do, yet tolerable.</p>	<p>University service APP is a service provided by the university to support improving students' social relations prior to and during their stay at the university. It consists of features such as roommate matching; finding friends/ teammates in the university town etc.</p>
Evaluations by the students	
<p>This concept received the most favourable reviews, with more than half of the students voting it to be the most appropriate one. In the same way as the designers pitched, cooking together in the dorms was considered as 'rebellious a bit yet acceptable'. All the students admitted that they had cooked food in the dormitories: 'Although we have to do it sneakily, it's great to cook, and most importantly, to eat together.' However, a student corrected the designer's pitch: 'In China, we value the idea to share one dish, especially when it comes to collective living. That is more important than cooking itself.' A student pointed at the dormitory caretaker illustrated in the concept: 'My electric cooker was just confiscated by the care taker! I wish I had got this design at that time.'</p>	<p>Most students recognized the problems pitched by the design team: their social and personal development was limited due to many strict rules. A dormitory is where the students spend most of time for personal activities. According to a student: 'In China, the students had roommates assigned largely at random. The different lifestyles and routines between roommates often cause conflicts in the dorms.'</p> <p>Therefore, the students thought the concept would serve an opportunity to choose their own roommates, matching their needs and the local situation. 'What we need are just a bit more flexibility and having a chance to tune up our situation,' a student explained. 'This concept is what we need. I think it will work,' another student added.</p>

Team B1

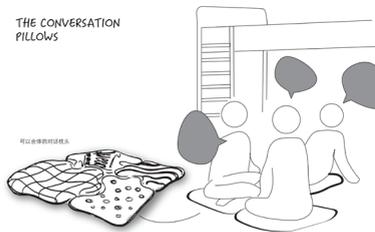
Team B2

Designer's pitches

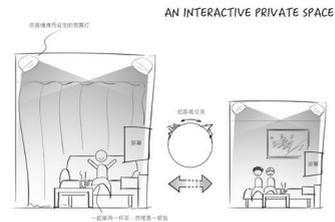
'In the dorm, it is appreciated to care for each other and spend quality time together. Many roommates often chitchat together at bedtime, sharing food together, watching dramas or playing computer games together. But there is not enough space in the dorm room that can facilitate such activities.'

'The students have limited space for themselves as well as for the group. They have almost no privacy. For instance, the other roommates can hear what you are saying when you are making a phone call; girls and boys are not allowed to enter the others' dorms, so you can't see boy/girlfriend that often; you need to adapt to these and your roommates for 4 years. You need to show to your parents you are doing fine and on schedule with things. These can be solved by using mobile phones, as social media provided them "digital privacy". There are limited chances, like meet-up at the library, or visiting parents, where they can have physical interactions.'

Design concepts and descriptions



The Conversation pillow is a personalized pillow that every roommate owns. A person putting the pillow on the ground or on the bed implies a subtle invitation to other roommates for starting a conversation (or a chitchat). Without immediate disruptions, people who are available at the moment can feel free to join.



A private room for digital meet ups is a space that facilitates meet ups and interactions for long-distance contacts, e.g. girl/boy friends, family members, and friends. The room has a good vibe with digital facilities for video calls, and even for physical interactions via technologies that translates your feelings to the device on the other side.

Evaluations by the students

Three students voted this designer's pitch the most appropriate one and the rest of the students rated it positively. They liked it because the concept linked to insights into togetherness. A female student explained: 'The pitch is very true. We do many things together in order to create a harmonious dorm culture.' All the girls agreed that there is little space for social activities. A boy disagreed: 'I think the space is enough. Playing computer games doesn't need an extra common space. We can just sit in front of our own desks.'

The concept, however, received mixed reviews. Some of the students liked that it created a subtle invitation for chatting. A student explained: 'We can easily whisper without interrupting other roommates who want to study.' A few students had the opposite view. 'I think the 'subtle' way is nonsense. Why not just say it? Perhaps the designers thought the Chinese students are too shy than we actually are.' argued a student.

Most of the students said the designer's pitch described their concerns and worries well. All the female students fully agreed that there was a lack of privacy in the dormitories: 'We'll be happy to have such a place because we really don't have privacy at dorm. When making a private call or wanting to cry, we had to hide in the corner at the corridor or go on the streets.' Next to that, they found the designer's insight into 'digital privacy' very precise: 'I only type to my parents, because it's awkward to chat with them when my roommates are around.' However, two male students did not find the lack of privacy to be problematic: 'It's quite fine in boys' dorms. We are open to each other and we know each other's life.'

Most of the students thought the concept served their needs: 'Most of us live far away from family. Such concept will make us feel as if we are with them.' However, all of them thought the design using high technology too complex and too futuristic.

Team C1

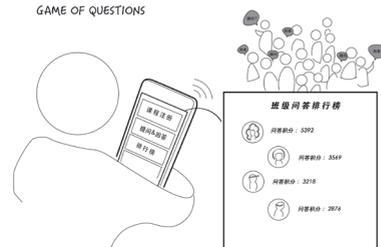
Team C2

Designer's pitches

'People need certain excuses for meeting up and getting to know new people.'

'Chinese students work very hard. They spend a lot of time at school and have less time for social activities.'

Design concepts and descriptions



Community Builder APP creates opportunities for knocking on other people's doors. For example, if you don't have milk or salt. By receiving a message on your app with a suggested house or neighbourhood, you get a perfect excuse to meet new people.

Game of Questions APP supports a class of students to develop their skills. Every one of the class can post questions, or answer other's questions. They can use it to prepare for exams. There is a ranking list of the students that is based on the number of questions he/she has posted or answered. In this way the students become more connected.

Evaluations by the students

The students thought the designer's pitch was insightful, but rather general. A student said: 'It's very accurate. But it's an insight into social relations in general, not particular for university students.'

The concept also received some negative feedback, and two students voted it as the most inappropriate for the intended context. 'I think the drawing is so unrealistic. It's very inappropriate to hug a stranger in China,' a girl explained. Another student added, 'For most of the students, we get to know someone via friends or our networks, for example, through a party. But this concept seems to get into contact with completely strangers. It's not suitable for students.' Some students even questioned if this concept was designed based on western students' life style.

All the students unanimously dissented, shaking their heads to the designer's pitch. Most of the students considered it to rest on an incorrect assumption about Chinese students. According to a student: 'It's not appropriate at all. Most of students as far as I know are actively involved in social activities.' Some of them pointed out that this situation only applied to the exam week. 'A very small group of students may like this, studying very hard and spending little time for other things, but perhaps less than 5%,' added a student. One male student argued that study is the priority for most university students. 'This design concept could support us achieving study objectives and at meantime developing social relations,' he explained. Another student disagreed: 'The competitions (the ranking feature) won't make people's relationships any better in China.'

the pitches, were considered as too vague (or even incorrect) according to the students. The C teams seemed to make some stereotyped assumptions of the students and their contexts, showing that their pitches were either too general, or even erroneous. They

used experiences of their own, leading to rather general pitches and inappropriate design concepts, instead of tailoring them to the intended context. All the students disagreed with the pitches of team C2.

In this case, the participating students (who provided user data) were chosen for the concept evaluation, for reasons of expediency and limitation of budget. Although students (who shared the same circumstances) did not involve in the research could give more objective feedback. They would be very expensive to sensitize to the degree as we did with the chosen students. To minimize these limitations, we used multiple methods of evaluation, such as questionnaires and concept evaluation maps, asking the students explicitly whether the concepts fit their personal situation or the general target group. For further research, it will be valuable to find out if the concepts resonate on a larger scale with those who were not involved in the user research.

Table 5.5.3, on the next page, shows an overview the results of the sessions under three conditions and the evaluations of the design concepts generated by the design teams. From the results we can argue as follows: first, designing with only the designers' own experiences does not work in cross-cultural design projects. The designer's own imagination ended up with incorrect assumptions. Second, the *Toolkit* augments a structured cultural basis to the individual user insights. It helped the designers fill in many blind spots of the context of users and come up with appropriate design solutions. Third, recalling designers' own experiences as an addition to the *Toolkit* greatly supported designers in building empathic understanding towards the users, which resulted in more and richer empathic discussions and more design outcomes. However, we did not find evidence that the designers' own experiences contributed to the quality of the design outcomes.

Table 5.5.3. Summary of the study results

Team	Tool	Observation from the design session	Diversity of design ideas	Number of ideas	To what degree the designer's pitch is insightful into the contexts of the end users	To what degree the concept showing an appropriate respect to the end user's cultural needs
A1	Toolkit	On-going discussions Mentioned their own experiences explicitly	Showing a great diversity	6	Most students considered the pitch to be insightful, while three said parts of it were inappropriate	The most appropriate.
A2			Showing a great diversity	4	All agreed to the pitch, while three said it was plain fact rather than an insight.	The third most appropriate.
B1	Toolkit and Workbook	On-going discussion Fast immersion in the session More comparisons between designer's own experiences and the users	Showing more diversity	8	The most insightful pitch.	Received mix reviews.
B2			Showing the most diversity	7	All 9 female students said the pitch was insightful while all 2 male students said parts of it were inappropriate.	The second most appropriate
C1	Workbook	Few discussions	APPs and a comparable digital solution	3	All the students said the pitch was insightful but not particular for the student group.	Received negative reviews
C2			Only APPs	2	All the students voted the pitch as stereotype, while two students said it was incorrect.	Received mix reviews

5

Conclusion

This study showed that the *Backbone* formed a structured cultural basis of the explored user context. The *Backbone* was furthered made into the *Cultura Communication Toolkit* and the *Cultura Sensitising Workbook*, which helped the European designers develop empathic understanding towards the Chinese students. The current format of the *Toolkit* did not emphasise the relationships between the different cultural aspects of the user context explicitly, but it was interesting to observe that the designers started making these connections themselves during the sessions. Moreover, we found that the *Toolkit* supported the designers in organizing and managing their thoughts and findings effectively during the sessions. Inspired by this, we believe there is room to extend the *Backbone* to a research tool, which can serve as a lens for designers to collect and analyse data if they join the user research activities themselves. This will be further explored in Case 7.

In this study, we compared three situations for supporting designers in building empathic understanding. We found that the designers' own experiences, in combination with the user insights conveyed by the *Toolkit*, contributed the most to helping designers build empathic understanding. The design teams who took time to recall their own experiences resulted in more empathic discussions than those who did not; they also appreciated more the insights into the cultural context of users. It led to a more efficient process and more design outcomes, even though it did not directly contribute to the quality of the design. In addition, similarly to the findings in Case 4, designers were particularly inspired by the cultural differences and used them as starting points to generate ideas.

This study involved the end users in a feedback session for concept evaluation, which is a useful step to include in the cross-cultural contextual research process. Their feedback and participation not only helped us to understand the effect of the tools we applied, but also brought valuable insights which helped designers evaluate and improve their design concepts.

6

Input for the framework



Not the focus of this case study.



- The cultural differences between the users and designers appeal to the designers, as it helps trigger empathic discussions among designers, and serve as starting points for ideations.
- Designers' own experiences play a positive role in supporting them as they attempt to make sense of the user insights gathered from an unfamiliar culture, and to design solutions accordingly.

User context to be studied

The nine-theme of the *Backbone* describe a cultural context from three perspectives: values, practices and macro factors. The study showed that the user data related to these perspectives were useful and relevant for designers gaining insights into the explored user context.

Tools and techniques

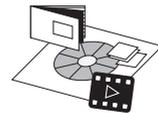
- For facilitation
- Not the focus of this case study.

- For communication
- The elements of Hofstede's onion model and Engeström's model of an activity system were used to create the *Backbone*, a structure describing nine cultural aspects of the user context. It offered the designers a structured cultural basis while working with user insights. The *Backbone* was further developed into a *Toolkit* and a *Workbook*, which were proven useful for designer building intercultural empathic understanding.

Cultura Communication Toolkit, consisting of:

- *Cultural Wheel*,
- *Insight Cards*
- *Video Clips*

Cultura Sensitising Workbook



Process

This case shows the benefits of adding the activities sensitising designers and gathering user feedback to the process.

- For the activity *sensitising designers*, the designers should be informed clearly about the purpose of reflecting on their own experiences, as it is generally considered as a 'task' for the users.
- The activity *gathering user feedback* not only helps to ensure the cultural appropriateness of the design outcome, but also to retain the users' feelings of ownership.

Case 6

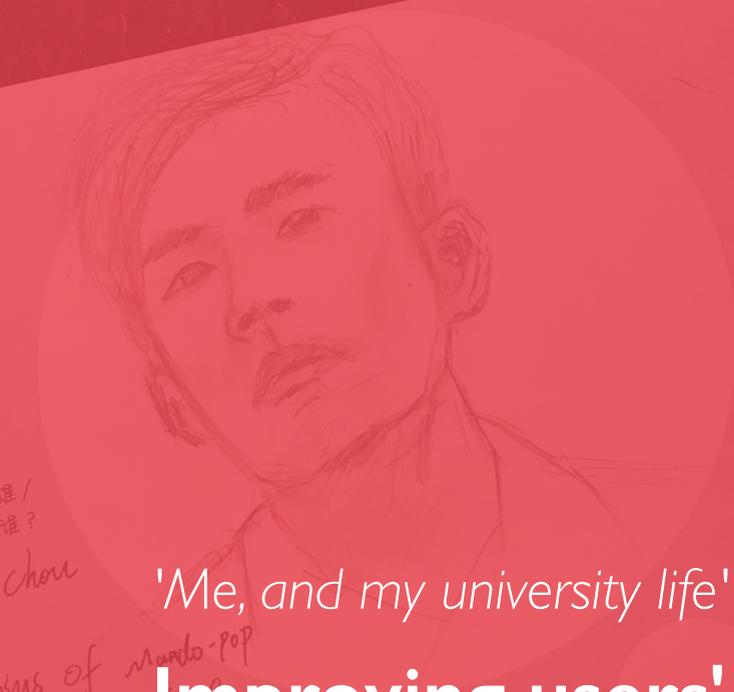
我和

我的大学生活



deadline Stay UP L
的小任务

暑期工作坊
时间：8月8日 星期一 9点45分
地点：学院楼模型室



第2步
如果你是男生，你觉得班级里女同学的大学生活是怎么样的？
如果你是女生，你觉得班里男同学的大学生活是怎么样的？
在不跟对方打听的情况下，请你用想象把对方寝室环境，生活的样子画出来



'Me, and my university life'

Improving users' cultural consciousness

谁/谁?
Chore
Mrs of Mando-pop



26 Chinese bachelor's students

User context to be studied:
Students' social life on university campus

Tools and techniques:
Cultura Sensitising Workbooks for the users
Process: Sensitising users

Process:
Sensitising users

1

Introduction

This study tried out the *Cultura Sensitising Workbooks* for users, which aims to support them in becoming aware of their own cultural contexts. To support designers in understanding users' cultural contexts and to develop empathy accordingly, sufficient user data needs to be gathered. However, this cannot be achieved if the users take their culture for granted and are not sufficiently aware of it, a problem discussed in Chapter 3. Thus, we wanted to seek ways to help users become aware of and to be able to reflect on their own cultural contexts. This study investigates how different themes of the *Backbone* (introduced in Case 5) can be used to enrich the results of user data collection.

This case study was a part of a one-week design workshop in Shanghai at the Donghua University – Department of Industrial Design, given by two senior design researchers as well as the author, from TU Delft. The aim of the workshop was to teach 'design for experiences' to 26 bachelor students from industrial design and mechanical engineering. In the course of one week, the students learned to do contextual user research, using contextmapping through lectures, hands-on exercises and the application of insights into concepts. As part of the practice of the workshop, the students filled in a *Cultura Sensitising Workbook* under the topic 'My university life: feeling connected on the campus in China'. This included questions such as: What do university students do in China? Where

Researcher:
the author of this thesis and two Dutch senior researchers from TU Delft

Universities involved:
Donghua University

Period:
A one-week design workshop, August, 2016

Locations:
Shanghai, China

do they live? What happens in their everyday life? What are things they enjoy and problems they face? After this, the participants shared their experiences in group interviews.

During the workshop, we gathered user data through the *Workbooks*, focus group interviews and discussions among the students while designing. This data was used as input for making the insight cards and the video clips in Case 5.

2 Procedure

Each participating student received a *Cultura Sensitising Workbook* (referred as '*Workbook*') one week before the beginning of the course. We set two criteria for the selection of the sensitising topic: (1) The topic aligns with the design students' experiences; (2) The expected experiences about this theme are culturally specific; students will share experiences that are typical of their cultural context. Thus, it was important to have a theme that resonated with the background of the participants so that they could interview each other about their experiences.

On the first day of the workshop, the participants were divided into 3 groups, each facilitated by a researcher. Then, within each group, the participants were divided into pairs. They were asked to exchange *Workbooks* with their partners and to interview each other based on the *Workbooks*. Next, each participant was asked to share the interview findings with his/her group. After that, each participant made a collage based on the topic 'being connected' and presented it to the group. At the end of the workshop, all the participants gathered to reflect on the course (the process and results) and gave feedback about the *Sensitising Workbook* (see Figure 5.6.1). The final discussion between the participants was recorded on video. Two Chinese teachers from the local university also joined the workshop. They were not experienced in contextmapping, but were able to support coaching the sessions and reflecting on the techniques introduced at the end of the course.



Figure 5.6.1 The students giving feedback on their Sensitising Workbooks

3

Considerations for tools and techniques

Figure 5.6.2 (left) An example of a sensitising task where a student drew his idol Jay Chou, a pop singer well known among to Chinese students. The student described how he would like to have Jay Chou as his roommate, because the student admired Jay's creativity in song-writing and his courage in challenging norms. (right) An example of summaries of hidden rules between and among students on the university campus or in the dormitory.

Cultura Sensitising Workbook for users

The form of the *Workbook* remained similar to the one used in other cases, including generative tasks, such as making a collage, and taking pictures or videos. The difference was that we used the *Backbone* to help design the contents of the sensitising tasks. In this case, seven out of nine themes were implemented in the sensitising tasks to investigate if these could benefit sensitising users. Multiple reflective tasks around the topic were incorporated, such as the student's social groups (based on *Communities*), spoken and unspoken rules in the dormitory (based on *Know the Rules*), different roles in the dormitory and in the class (based on *Divisions of Roles*), personal goals in life (based on *Goals of End Users*) and ideal roommates (based on *Angels vs. Devils*). These elements were used to help prompt the users to recall and reflect on culturally specific information. Figure 5.6.2 (left) shows a sensitising task in which the user, the university student in this case, thought of and described an ideal roommate that he or she adored or admired. Figure 5.6.2 (right) shows a list of hidden rules determined by the participants based on their own experiences of living in the university campus and/or dormitory.



4

Observations and discussion

Sharing the 'normal' insights

According to the participants, the *Workbooks* enabled them to share the mundane things of their everyday lives, which they might not otherwise have considered important or interesting enough to mention. For instance, the sensitising questions regarding their communities and rules resulted in many stories such as the relationship with roommates and situations in the dormitories. One participant explained,

'It's very common that university students live in a dormitory room share by 4 to 8 roommates [in China]. If it wasn't asked in the Sensitising Workbook, I guess I wouldn't bring up this subject myself, because everyone knows it.'

Another participant added:

'I never paid attention to the rules around me, since they were just normal. But filling in the Workbook made me realize what exactly they are and how they have influenced my life.'

With the help of the *Backbone*, the topics of the sensitising tasks prompted the participants to reflect on their 'normal' experiences. These aspects of everyday life (considered by the participants) can provide much relevant information that designers need in order to build empathic understanding.

Deepen the discussions

During the focus group interviews, most participants started by sharing personal stories that were factual. Later, several of them mentioned their personal beliefs and values. According to one of them, the question such as 'Who's your ideal roommate, and can you describe or draw him/her/it?' (based on *Angels vs. Devils*) resulted in dilemmas between her personal values and the shared ones which were rooted in the culture, because this question prompted her to think about what kind of values were appreciated or unappreciated by herself, by her friends, her family and by society. Although not all the participants recognized the same point and reflected on it, we noticed that such a topic helped to broaden and deepen our discussions.

5

Conclusion

Most participants in this case study mentioned that everyday things around them were 'just normal' and not worth mentioning to others. This helped to confirm conclusions from Chapter 3. To deal with this problem, we found that the *Backbone* was helpful. Its various cultural themes provided useful topics for formulating sensitising tasks. The sensitising topics, such as the hidden rules and the division of roles, helped the participants to talk explicitly about the negligible aspects of their everyday experiences. It also encouraged many participants to talk about personal and shared values, which gave deeper insights into the underlying reasons of their everyday experiences. Although only one format was used in this case study, our first attempt has shown the potential to improve the users' consciousness about their own cultural context.

6

Input for the framework



Users may neglect the mundane elements of their everyday lives, things that they may not consider important or interesting enough to mention. This

hinders the users from telling rich and relevant stories about their own culture.



Not the focus of this case study.

User context to be studied

Not the focus of this case study.

Tools and techniques

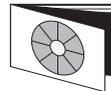
- For facilitation

Sensitising users to their own culture is made possible. This can be achieved by incorporating various themes of the *Backbone* (e.g. spoken and unspoken rules, or division of roles), in the sensitising tasks.

- For communication

Not the focus of this case study.

I tool:
Cultura Sensitising Workbook
for users



Process

This case shows that it is useful to make users aware of their own cultural contexts in order to share stories that can help designers understand culturally specific information (things that are personal and influenced by the culture the users are in). This can be achieved by improving the *sensitising* activity.

Case 7

'Caring about my clothes';

'On the road together'

Cultura Analysis Canvas **for data analysis**



9 design teams formed by
45 designers;
8 design teams formed by
33 designers

User context to be studied:

Doing laundries at home;
Social activities in the car

Tools and techniques:

Cultura Analysis Canvas

Process:

Analysis

1

Introduction

This study makes the *Backbone* into an analysis tool to support designers in analysing user data. In Case 5, the *Backbone* was developed and turned into the *Cultura Communication Toolkit*. It was found to be an effective motivator for designers to synthesize the user insights of individuals, build empathic understanding and to come up with design solutions. Particularly, we noticed that the *Backbone* had potential to be used as an analysis tool. Thus, in this study we turned it into a visual template and applied it in two design workshops, where designers used the template to analyse user data and developed products and services based on the insights that emerged.

This study consisted of two one-week design workshops in China, given by two senior researchers and the author from TU Delft. During the workshops, design professionals and design students worked on specific design briefs. The first one included a total of 45 designers – 25 Master's design students (Jiangnan University) and 20 design professionals (Midea). The user data gathered in this study were about how people take care of their clothes. The second workshop had 33 designers: 28 bachelor design students (Donghua University) and 5 design professionals (SAIC Motor). The topic was about social in-car experiences 'on the road together'. The designers,

Researcher:

the author of this thesis and two
Dutch senior researchers from
TU Delft

Companies involved:

Midea; SAIC motor

Universities involved:

Jiangnan University; Donghua
University Locations: Wuxi and
Shanghai, China

Period:

Two one-week design workshops,
February and August, 2017

Locations:

Wuxi and Shanghai, China

teamed up in four to six design students and professionals each, used the data as a starting point for analysing and generating insights. Based on the gathered user data, the participants in both workshops came up with product and service solutions. Each team presented one final concept to the client companies who selected promising ones for further development.

2 Procedure

The two design workshops followed the same procedure. A week prior to the workshop beginning, each designer received a *Sensitising Workbook* that consisted of 6-day -assignment. These were partly based on the *Backbone* – for example, 'What do's and don'ts apply to your family when doing laundry?' (a sensitising topic based on *Knowing the Rules* in the first workshop), and 'What role(s) do people play when you are on the road together with your family or friends?' (a sensitising topic based on *Divisions of Roles* in the second workshop).

At the beginning of each workshop, the designers were divided into three groups to undergo interviews, facilitated by one of the researchers. They interviewed each other in pairs based on each other's *Workbooks*, and shared their interview findings with the rest of the group. Meanwhile, each designer was asked to take notes on interesting findings, using post-it notes. Later, they were grouped into small teams, with each team containing four to six design students and professionals. The designers interviewed each other in-depth and the data was used for analysis. Every team received an A3-size printed template of the *Backbone*, to be used as a basis for data analysis.

We did not give the designers step-by-step instructions on how they should use the template, as this was the first attempt to apply the *Backbone* as an analysis tool. Instead, the designers were encouraged to use it in any form they saw fit, as long as it could help their analysis. During the analysis session, three facilitators went to each group to discuss their progress and to observe how each team used the *Backbone* themes for analysis. At the end, each team gave a presentation of their analysis outcome before reassembling for final thoughts on design ideas.

3

Considerations for tools and techniques

Cultura Analysis Canvas

The nine themes of the *Backbone* (see Table 5.5.1 in Case 5) are displayed as a template with the visualized shape of a wheel (see Figure 5.7.1). The template was printed in A3 size and given as a handout during the workshop. It is referred as 'Canvas' in the remainder of this case study.



Figure 5.7.1
The *Cultura Analysis Canvas*

4

Observations and discussion

In both workshops, it was observed that the majority of people in the design teams made use of the *Canvas* and attuned themselves to it in their own ways. The atmosphere in most teams was lively and filled with lots of discussion. Only one team found it difficult to use it and needed support.

As the design teams were given freedom to try out the *Canvas*, it was further observed that the *Canvases* were used in several different ways. In the first workshop, five out of nine teams used it as a 'template to be filled-in', placing the user quotes and design ideas onto related themes (see Figure 5.7.2, left) and repeating this process until insights emerged. Three teams used it as a 'checklist'. They did not cluster the user data, but actively referred to it now and then

during the analysis. According to them, it was used to help them check if any relevant information had been overlooked. For example, one team discussed several anecdotes regarding interactions among family members during laundry. Those interactions were recorded on post-it notes as discussion points. However, the products (e.g. an iron, a washing machine) that triggered the interaction were neglected until the design team saw the theme *The Material World*. One team almost did not use the *Canvas* at all, and they were not as active as the other teams during the analysis. We did not know the reason for this behaviour, as they did not explain it.

We observed similar situations in the second workshop. First, two teams used the *Canvas* as a 'template to be filled in', after which the other teams followed. They attached the *Canvas* to a large flipchart sheet on the wall. Some teams started generating ideas spontaneously and used different colours of post-it notes to distinguish emerged insights and ideas (see Figure 5.7.2, right). Most of the designers found this template efficient in helping them build an overview of the user data and related insights. They found it easy to access the *Canvas* from any direction, which was of added value when it came to team work.

According to most of the teams, the *Canvas* broadened their views on what aspects of user data to look for. User data relating to the themes *Division of Roles* and *Community* were generally gathered, but often staying implicitly. Using the *Canvas* made these implicit insights more explicit. Some of them also pointed out a noticeable distinction between data gathered from people and from desk research. For example, unlike the other themes where the data was based on

Figure 5.7.2
(left). A team using the *Cultura Analysis Canvas* as a fill-in template in the first workshop
(right). A team hanged the *Cultura Analysis Canvas* on the wall in the second workshop



user experiences, data related to *Macro Developments* describing the societal facts were mostly gathered from desk research. As this theme has a different focus compared to the others, the distinction could have been illustrated better in the *Canvas*.

Overall, most of the design teams received positive feedback from the companies on the insights which emerged during the analysis. From their presentations, we noticed that only two out of nine teams (from the first workshop) and one out of eight teams (from the second workshop) referred to the theme *Socio-Cultural Values*. Apparently, they paid most attention to the rest of the themes. This may have been due to two reasons. First, the *Socio-Cultural Values* is the most abstract theme, and is difficult for designers to address, as discussed in Chapter 3. Second, the design teams did not find substantial cultural differences between the target users and themselves, as they were designed for the local users in this case.

5 Conclusion

In this study, the *Backbone* (introduced in Case 5) were applied as a tool to support designers in analysing user data of individuals with special attention to the various cultural aspects of the intended user context. Designers were able to use the *Cultura Analysis Canvas* in useful ways. It was mostly used as 'a template to be filled-in' by the designers, providing them with a clear overview of the user data and giving room for generating ideas.

This study provided insights to help improve the format of the *Cultura Analysis Canvas*. Specifically, designers approached the theme *Macro Developments* differently than the other ones. The format used in this study did not highlight this difference, and it is recommended that this be improved on in future applications.

6

Input for the framework



Not the focus of this case study.



Not the focus of this case study.

User context to be studied

The *Cultura Analysis Canvas* helps cluster the user insights, according to three perspectives: cultural values, specific practices, and macro factors. Among them, practices related insights triggered most discussions, whereas cultural values related insights led to few discussions.

Tools and techniques

- For facilitation

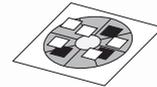
Not the focus of this case study.

- For communication

The *Backbone* has been tuned into an analysis tool to help analyse data. It offers the researchers/designers a hands-on template with which they can work in teams to more easily process.

I Tool:

Cultura Analysis Canvas



Process

This case shows how the activity *analysis* can be supported the *Backbone*. Using the form of a canvas helps the researchers/designers discuss the various cultural aspects of user context thoroughly, and generate specific cultural insights accordingly.



6

The elaborated framework

6.1 Introduction

The initial framework in Chapter 4 presented interpretive expectations, which were then used to approach the case studies in Chapter 5. This chapter subsequently reports on the elaborated framework, which brings together all of the insights from the case studies (6.2) and answers the main research questions of this dissertation (6.3). The insights collected in the elaborated framework resulted in the *Cultura* process (6.4), which is an evolved process for supporting designers in building an intercultural empathic understanding of users. In addition, advice is offered to aid in guiding design practitioners, step by step, in conducting cross-cultural contextual studies in the early stage of a product or service development process.

6.2 The development of the elaborated framework

The case studies explored factors that are deemed relevant for conducting cross-cultural contextual user studies. Their findings indicated the need to take cultural sensitivity into account when supporting users and designers and to study the user context from both individual and social perspectives. This can be achieved by designing appropriate tools and techniques and improving the process of a contextual study. The findings are reported according to the following four areas of attention: users and designers (6.2.1), the user context to be studied (6.2.2), tools and techniques (6.2.3), and process (6.2.4).

6.2.1 Area 1: users and designers

This sub-section first establishes the factors that encourage users to tell rich and relevant stories. Thereafter, it identifies the specific factors that inspire designers to develop empathic understanding.

Encouraging users to tell rich and relevant stories

In all of the studies, users expressed their thoughts more freely and shared richer personal stories when they were able to take an active part in the user research activities in phase 1 (see the activities marked with red dots in the left section of Figure 6.1). Users also felt more at ease in sharing personal stories and provided richer responses when their interpersonal relationships, abilities to express themselves, and feelings of ownership were facilitated in ways that were in accordance with their cultural inclinations.

(1) Interpersonal relationships

Empowering user expressions was found to be highly dependent on building and maintaining healthy relations among the users and between

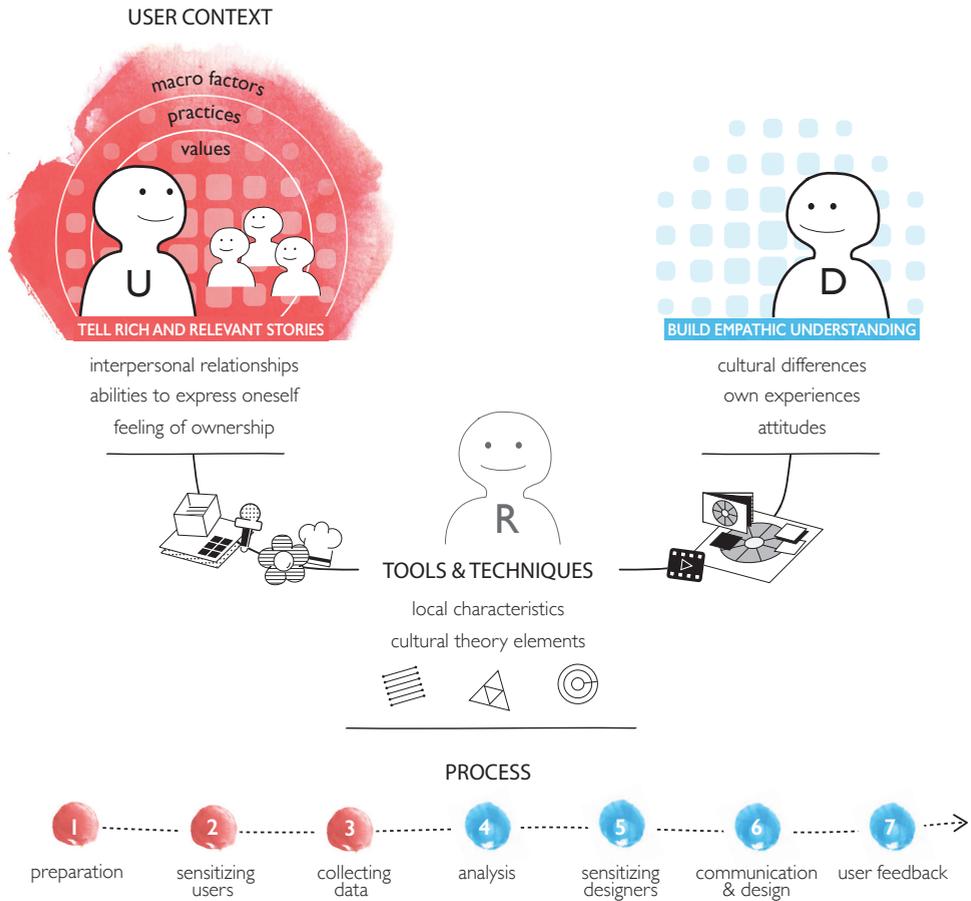


Figure 6.1 The elaborated framework

them and the researcher. The best way in which to support this was found to be incorporating cultural values about interpersonal relationships into interactions, tools, and techniques. In most cases, this helped to improve user facilitation and yield more useful insights. For example, as illustrated in Case 1, the users shared more and richer stories when their interpersonal relationships were well facilitated, whereas users dropped out during sessions when their interpersonal relationships were poorly built. Moreover, within a user session, establishing strong interpersonal relationships among the users and with the researcher involves paying attention to sub-cultural differences such as gender, generational, or regional differences (e.g. Case 3). Using tools and techniques to facilitate appropriate interpersonal relationships worked well in all situations; however, it should be noted that there was a difference between group sessions and one-on-one interviews. In the group sessions (e.g. Case 1), the Chinese cultural values related to interpersonal relationships helped the researcher to anticipate possible interactions and design tools

that could encourage expression in the session. Incorporating the local cultural values further supported the facilitation of a sensitive topic in Case 3. When the tools and techniques were not tailored to the local cultural values, or if they did not help to build strong relations among the users, fewer and less relevant stories were shared, as in the co-design session reported in Case 4. However, this issue did not occur in the one-to-one interviews: as reported in Case 4, the interactions only occurred between the user and the researcher, where maintaining a solid relationship is less complicated. As a result, facilitation was not needed in this setting, unlike in a group session.

(2) Abilities to express oneself

Two approaches were trialled to help users express themselves: first, helping users to overcome their barriers to self-expression and, second, accentuating their strengths. In the case studies, the ways in which users expressed their creativity or demonstrated their autonomy were different, depending on the cultures from which they came. For instance, in Case 2, a barrier was that Eastern Asian participants expressed themselves less and adapted to the session format much more slowly than their Western counterparts. A strength, however, was that their stories were richer in context. As a result of this, several tools and techniques were developed to minimise the threshold for expressing creativity (Case 3) and autonomy (Case 1), which supported the users in overcoming the aspects with which they had displayed difficulties during the user session. Towards the latter approach, for example in Case 2, the sensitivity of Eastern Asian users contributed to richer stories. Both ways contributed to greater participation and richer expressions.

When the users were assisted in focusing on their strengths, they were more expressive and engaged in the user session. For instance, most of the Chinese users provided more elaborate stories when they used words to express their personal experiences (Case 1). On the other hand, when the tools and techniques did not allow room for things that the users were skilled at, they were less involved in the user session.

(3) Feelings of ownership

The interactions in phase 1 require much more effort from the users than conventional user research methods such as interviews and questionnaires, thus facilitating users' feelings of ownership is essential. The ways in which users expressed their ownership differed, perhaps because of their cultural backgrounds. In Case 2, a strong willingness to complete tasks, regardless of the effort required, was noticeable in the East Asian group. For instance, they took more time than their Western counterparts to think carefully and organised their thoughts before conveying them in the form of collages, which reflected their feelings of ownership.

Throughout the case studies, we found that it is important for users to feel a sense of ownership of, and to identify with, the things that they bring, make, and say. The effort involved in stimulating the users' feelings of ownership helped them to dream about their future experiences and express more explicitly the underlying reasons. In a user session, feelings of ownership built on the previously established interpersonal relationships. When asked to imagine future experiences in the session, the users had already become acquainted with one another and with the researcher. A light-start generative task worked well in helping users to develop a sense of ownership. When they felt that the tasks were easy enough, they became motivated and felt more confident about 'designing' something. Moreover, when the users could see their own design process and the accumulated results, they talked more about their design ideas and explained the reasoning behind those designs more explicitly. However, when the starting activities were difficult for the users, they completed the task in a more passive manner. It consequently became more difficult for them to establish a feeling of ownership and to imagine the future. According to several users, they did not feel that they were able to design anything or that they owned the credits to the design outcome (Case 4). In contrast, tools such as *Dare to Draw* – used in Case 3 – helped to overcome this problem, lowering the threshold for expressing creativity and helping the users to become more involved in the design activities.

Inspiring designers to build empathic understanding

When communicating user insights to the designers in phase 2 (see the activities marked with blue dots in the right-hand section of Figure 6.1), three factors were found to inspire and help designers in building empathic understanding: (1) the cultural differences between the users and the designers, (2) the designers' own experiences, and (3) their attitudes.

(1) Cultural differences

The designers were inspired by the cultural differences and similarities between the users and themselves. However, the differences appeared to be more prominent than the similarities in the designers' thinking. This was observed frequently in their learning about users, as well as in their ideations and discussions.

These differences offered designers a suitable starting point from which to begin learning about the unfamiliar culture and life situations of the users. The designers could easily generate relevant ideas from the cultural differences they saw. However, they sometimes underestimated or misjudged the cultural differences, overlooking the things they had in common that were actually quite meaningful to their users. For example, the designers in

Case 3 recognised that one of the users wanted to take care of her parents. However, they were not aware of the extent to which the user's culture emphasised this, until the value of filial piety was explained. As was observed in Case 5, designers found it challenging to relate to such experiences when the difference from their own common cultural practices was too large.

The differences between the users and designers also served as a main source of inspiration for ideation. All the designers considered both the differences and similarities to be helpful in finding design opportunities and triggering discussions. However, when generating ideas, most designers attached more importance to the differences. This was demonstrated in their ideas and their discussions. A designer explained, *'I expected there would be lots of differences [between China and the Netherlands]. But even when we zoomed in to this small context [of university students], it still surprised me that there were so many [more] differences than what I had in mind.'*

Furthermore, the differences triggered the designers' curiosity and helped them to formulate questions about the everyday life and context of the users. For example, in Case 4, the differences between the Chinese personas (the unknown users) and the Western personas (the existing users) led to most of the discussions during the communication workshop. The questions based on those differences enabled ongoing dialogues among the designers and with the researcher. Another example was in Case 5, where the differences prompted the designers to ask one another questions during the communication workshop, such as what caused the differences and how they would feel if they were in the situation of the user themselves.

(2) Designers' own experiences

In Case 5, the designers were guided to reflect on their own experiences and those of the users. This was found to encourage more empathic discussions about the users, and it led to more and richer design outcomes.

When the designers were sensitised through their own experiences, they could easily identify many differences as well as commonalities between the users' and their own cultural contexts. By drawing comparisons, the designers were more easily able to make sense of the unfamiliar socio-cultural situations of the users. For instance, to imagine what it would feel like to live in a shared dormitory room in a Chinese university, a German designer recalled his experiences of living in a shared bedroom in a hostel. However, not every designer was able to recall comparable experiences of their own. Sometimes this was because the difference was too substantial, and for others, it was because of different personal backgrounds or life courses. However, even for those who did not have their own related memories, listening to other

designers' experiences was helpful in imagining a different situation: '*I had difficulties to imagine living in a place without cooking appliances. Her experience helped me to imagine it*', explained a designer.

The *Cultura Sensitising Workbook* used in Case 5 demonstrated the effect of connecting designers to their own experiences. When the designers were only connected to their own experiences without considering the users' experiences, it was difficult to achieve empathy. On the other hand, when they were only informed by the user insights, it took more time for them to think of a comparable experience and to draw on the different cultural elements. In combination with the user insights, however, the *Cultura Sensitising Workbook* served as a strong catalyst. Together, they helped the designers to compare their own experiences more easily to those of the users and to familiarise themselves with the design topic and the various cultural elements prior to the communication workshop. However, the above-mentioned purpose of reflecting on their own experiences needed to be explicitly explained to the designers. In Case 5, for example, it was not clear enough to the designers why they were asked to do 'homework' assignments, because most of them considered this to be a task for the users.

(3) Designers' attitudes

The designers' open attitudes towards both human-centred design and cultural diversity played a positive role in building empathic understanding. First, the designers in most case studies were familiar with learning from users and their context as starting points for designing, which largely supported their engagement in phase 2. If the designers were unfamiliar with this way of working (as reported in Chapter 2), then the communication process became less effective, which caused difficulties in building empathic understanding. Apart from this, the designers' attitudes towards cultural diversity also matter. As mentioned in Chapter 3, a lack of cultural sensitivity could negatively influence the level of empathy that people are able to, or want to, achieve. If a designer was not open to cultural differences or similarities, then he or she was less likely to be willing to take the time to study the cultural elements provided in the *Cultura Communication Toolkit* in Case 5. As a result, the design outcomes could be unsatisfying to the needs of the users. The designers who participated in the workshops were self-motivated to work on a cross-cultural design project. In Cases 3 and 4, the companies' project initiators and the involved designers were already willing to assume that they were designing for people whose culture and life were substantially different from their own, and they were aware of the importance of understanding the values and beliefs of users from other cultures. In all these case studies, the designers were motivated to invest in understanding the users' lives in order to create better designs.

6.2.2 Area 2: user context to be studied

In each contextual user research study, the scope was demarcated, for example the part of the context of use that would be addressed in the study. The findings in the case studies suggested that, for cross-cultural situations, it is better to take a wider scope into view and to examine it in more fine-grained detail because more factors are likely to be unfamiliar to the designers.

Designers could achieve a wider scope in two ways. One is to study the user context from both the individual and the social perspectives, as suggested in Chapter 3. We found that this can be carried out by looking at either personal and shared values or individual and collective practices. The second method involves zooming out from the users' experiences of everyday life to a macro level. This is because the macro factors containing background information about the user context, such as social changes, geographical conditions, or policies, shape a user's behaviours and beliefs. If designers are not aware of the macro factors of a specific cultural setting, then they are less likely to make sense of a user's individual or group interactions.

Figure 6.2 illustrates the scope of a user context to be studied in a cultural setting. The values are at the centre of the user context, surrounded by the practices, because the designers found it challenging to address the topic of cultural values by themselves while they elaborated more on the practices. The macro factors form the outer layer, which is new to the framework.

This section discusses how the three areas of information (values, practices, and macro factors) help designers to learn about the user context. In addition, it explains how insights into user experiences can be achieved from both the individual and the social perspectives within a cultural context.



Figure 6.2
The three areas of information help to set the scope of the user context to be studied.

Shared cultural values and personal values

Both the shared cultural values and the users' personal values were found to be relevant to designers in gaining insights into the user context. The former supported the designers in generating a rough overview of the social standards of the user context, while the latter helped them to forge connections affectively with the users.

When the designers were informed about shared local cultural values, they used them as check points to evaluate whether the developed ideas complied with the local social standards. However, unpacking the topic of cultural values themselves presented difficulties for the designers (e.g. Case 7). If designers are not fully informed about those values, then they might overlook relevant user information, as was illustrated in Case 3. The designers in general appreciated the descriptions of the shared cultural values that were provided in the communication and design workshops. They felt more knowledgeable about what behaviours or interactions might or might not be accepted in the context they were designing for. However, these descriptions did not help them to build an affective connection with the users, as the information was too abstract for them to directly associate with people's feelings and emotions.

In preparing the case studies, the focus was on users' shared values rather than their personal ones. However, much information on personal values was found to be embedded in the user quotes. It was observed that several designers noted some of the information regarding the users' personal values and compared them to the shared cultural values. This seemed to help designers to make emotional connections with the users. For example, in Case 5, a designer commented, *'This girl preferred going to the library or taking a walk by herself. But she still went together with her roommates, as it's more appreciated. Is it having to do with "harmony"? I can imagine this must be hard for her.'* We observed that designers related the user's individual value (striving for individual space) to the shared value (seeking *harmony*) as a way to help them build empathic understanding.

Seven themes of study practices

In the case studies, we simplified the practices into seven themes (see Table 5.5.1 in Case 5) and presented them through the *Cultura Communication Toolkit*. All of these themes helped designers to develop empathy towards the users, but each of them contributed in a different way. For example, *Rituals in Everyday Lives* was a familiar topic to the designers. Most of the designers had used such information before, and it was generally considered to be indispensable for studying a user context. Some of the themes, such as

Division of Roles, were considered in the design process, but often in an implicit manner. Making such topics explicit themes was considered to be valuable by the designers. Other themes, such as *Knowing the Rules* and *Angels vs. Devils*, were new to the designers and, with the user insights presented within the themes, aided in generating many design ideas. Moreover, each theme presented user insights containing anecdotes of individual users, as well as collective ones. This presentation method was found to help designers in addressing not only the users' individual but also their shared social practices.

Overall, addressing the practices people shared helped designers to become aware of how the users' social relationships varied from one culture to another. In Case 3, for example, the designers received a user's story about her shower toilet, which illustrated concerns about its usage by different family members and home visitors. Based on this, the designers were able to become familiar with the users' family structures and the members' social relationships. This made them aware of how different the situation was, compared to a German or a Dutch family. An understanding of the users' social relationships further helped the designers to see more design opportunities. For instance, when they recognised that their design was supposed to meet the needs of up to three different generations of a Chinese family, they devised more ideas concerning the children and elderly family members. Moreover, the designers were able to utilise the user insights addressing collective practices as concrete examples to make sense of the relatively abstract shared cultural values (Cases 3 and 5).

To collect rich stories about users' individual and shared practices, it was necessary for the users to be properly sensitised to these topics. Users' stories regarding their shared practices were poorly gathered when the topics were not structured in the sensitising assignments (Cases 1, 3, and 4), whereas richer stories were gathered when users were well instructed (Case 6).

Macro factors

It was sometimes difficult for designers to generate empathic insights based on anecdotal and personal user stories (e.g. Cases 3 and 4) because of a lack of familiarity with the local culture embedded in the user context. Providing the designers with background information about matters such as public infrastructure, climate, demography, societal developments, and mega trends of the user context helped them to make sense of the anecdotal user stories. For instance, in Case 3, the designers did not understand why most of the Shanghai users wished to incorporate a seat heating feature into the shower toilet to increase the comfort, whereas the majority of the Beijing users did not. After being informed of the differences in the distribution of public

heating infrastructure between North and South China, the designers could understand the situation better, and they even imagined how the users would feel in that situation: *'(In Shanghai) they must feel cold and clammy at home, especially in the toilet.'*

Designers needed a familiar frame of reference to make use of the macro factors. For example, in Case 5, the designers compared the population density and the size of Shanghai to that of Delft (where they were located), which helped them to relate an unfamiliar circumstance to a situation with which they were familiar:

6.2.3 Area 3: tools and techniques

The middle part of the framework in Figure 6.1 illustrates the selection of the cultural theory elements (in Chapter 3) that were used to develop tools and techniques for facilitation and communication. The author will explain which of the tools and techniques worked well and how these helped to overcome cultural barriers during the process of contextual studies.

Tools and techniques for facilitation

Most of the facilitation tools and techniques used in the case studies have proven to be useful in creating a culturally bonding atmosphere among the users and with the researcher. When the tools were aligned with the local cultural values, taking the users' interpersonal relationships into account, the users felt more at ease in sharing their rich personal stories. In the case studies, Hofstede's cultural dimensions (2010) helped to provide a rough indication of cultural values between the Netherlands (where generative tools have been widely applied) and China (where new tools were needed) for designing tools and techniques, whereas Fan's classification of Chinese cultural values (2000) helped to deepen the researcher's understanding of the local situation and the various forms of social interaction. More specifically, it helped the researcher to anticipate what interactions and situations could be expected in the field, as well as to prepare tools and techniques accordingly and on time (e.g. Cases 1 and 3).

In addition, designing tools and techniques requires the local characteristics (e.g. preferred forms of creative expression, customs, and etiquette) to be taken into account, since the cultural mismatches in the tools and techniques could negatively influence the users' sense of ownership and hinder their creativity. For example, the white collage sheets did not work as expected – they were perceived as exam sheets (Case 1), and the users found it difficult to use the provided tools to design a future experience (Case 4).

In most of the cases, the preparation of tools and techniques began before

the field work took place, and the development thereof continued during the user sessions. Based on the lessons learned from the previous session, tools were fine-tuned, omitted, or created in between user sessions in order to optimise their use (e.g. Case 1).

Tools and techniques for communication

The elements of Hofstede's onion model (2010) and Engeström's model of an activity system (2001) were combined, simplified, and transformed into the *Backbone*, which was used to develop the *Cultura Communication Toolkit*. The selected elements (such as the composition of cultural groups, their shared values, and how these values are expressed in daily practice) have proven to be useful for designers in developing empathic insights into users. Moreover, the selected elements that needed to be tailored to the 'language' with which designers feel affiliated were simplified and rephrased. However, the designers still considered those elements to be 'a bit too much', although they appreciated the comprehensive information, which enabled them to choose for themselves what elements to elaborate on. The *Cultura Communication Toolkit* was an example of how the cultural elements could be turned into a set of communication tools, and it is suggested that other forms of tools be developed, following on from it.

The designers appreciated the different formats of tools used for sharing user insights. For instance, documentary video clips and insight cards were considered to convey the 'realness' and 'richness' of those insights (Case 5). However, in most cases, visual elements, such as photos and videos collected in the field, appealed to the designers more than the text descriptions did. For example, in Case 3, users' photos of their bathrooms triggered the most discussions. According to the designers, the visual materials (e.g. a user's documentary video) helped them to directly observe the behaviours of the users, including expressions and gestures, and were helpful in developing empathy. The designers felt almost as if they were present in the situation, when confronted with the ways in which users express themselves using their own language, gestures, and behaviours. For instance, in Case 5, an Italian designer commented, '*The Chinese students were more standing still when expressing themselves instead of bla, bla, bla, as what usually Italians do. Their behaviours are very helpful in understanding the needs of people when facing a new culture.*'

6.2.4 Area 4: process

The process in the framework described in Chapter 4 presented five contextual research activities, namely *preparation*, *sensitising*, *user session*, *analysis*, and *communication and design*, which are divided into two phases.

The findings reported in the above sub-sections have addressed the issues mainly in the *user session* and *communication and design* activities. In this sub-section, the focus will be on the remaining activities of the process, where room for improvement is identified in the cross-cultural setting.

The findings of the case studies revealed opportunities for adjusting the activities of *sensitising users* and *analysis*. In addition, two new activities were added to the elaborated framework: *sensitising designers* and *user feedback*. The following sub-section discusses the reasons for revising the activities, and the details of how each activity can be practiced in cross-cultural situations are described in section 6.4.

Before the *user session* activity: sensitising users to their own cultural context

If users take for granted aspects (such as customs, rituals, and rules) that are common in their own culture, then it is less likely that they will share relevant stories. For example, the users indicated that they would not talk about the different roles or the rules in the dormitory building if they were not asked about them in the sensitising workbook, because they thought the answers were 'common sense' and had no special points worth mentioning (see Case 6). In fact, such information turned out to be an 'eye opener' to many of the designers in Case 5 who were not even aware of the concept of a shared student dormitory. Using the *Backbone* to help formulate sensitising tasks was found to be helpful in overcoming this barrier. Allowing users to reflect on and recall their memories of topics such as rules, divisions of roles, or role models, helped to make them more culturally conscious about their own contexts.

After the *user session* activity: analysing user data through a socio-cultural lens

The *Backbone* was used by the designers (as well as the researchers in this case) as a *Cultura Analysis Canvas* for analysing user data in Case 7. This helped them to be attentive to culturally specific user information and to cluster the user data through a socio-cultural lens. The style of a 'canvas' also supported a group of designers and researchers in working on the analysis in teams. The *Backbone* can therefore be used as a supplement to other methods of data analysis.

Before the *communication and design* activity: sensitising designers to their own experiences

As discussed above, sensitising designers to their own experiences yielded several benefits to phase 2. This activity helped the designers to compare the

users' cultural context to their own. As a result, the designers referred more to the users and were better able to resonate with them (see Case 5).

Designers need to be well informed about the purpose of reflecting on their own experiences, so that they are more likely to put time and effort into this activity.

After the communication and design activity: gathering user feedback

Gathering feedback from users can be helpful in evaluating whether design ideas are culturally appropriate. This is particularly important in cross-cultural projects, as the designers sometimes under- or over-estimate the cultural differences and generate certain design ideas based on that. If they further build on these misleading ideas, it might lead to unsatisfying results. Gathering feedback from users also aids in retaining their feelings of ownership – the users were impressed that the stories they shared earlier were taken seriously and reflected in the design concepts (see Case 5).

6.3 Answering the main research questions

The findings of the case studies have been gathered in line with the main design goal of this thesis: to support users in telling rich and relevant stories and to enable designers to build empathic understanding under the constraints of cross-cultural contextual user research. Two main research questions, RQ1 and RQ2, which were derived from the design goal, are answered in this section.

RQ1: What are the barriers to, and enablers of, conducting contextual user research in a cross-cultural setting?

We identified two major barriers to and one enabler of the collecting phase, and a major barrier to the communication phase of contextual user research. While answering RQ1, we also suggest methods to overcome those barriers.

For phase I, a major barrier is the mismatch between the tools and the users' cultural inclinations. The original generative tools and techniques failed to facilitate the expressions and social interactions of non-western users. This barrier had been reported in the literature in Chapter 2, and similar problems were observed in the case studies. In tuning the tools and techniques, several modifications were found for situations where the techniques did not fit the users, for example by making it easier to express an opinion in a group. Another major barrier in this phase is that users often take aspects of their own culture for granted. This hinders the process of gathering user stories that

are helpful for the designers in studying the cultural context of users because most users considered 'cultural-specific information' (for the designers) to be 'nothing worth mentioning' (for the users themselves). We found a refinement for sensitising users that has proven to be helpful in overcoming this obstacle. When asked to reflect on a specific aspect of the cultural context, such as (un)spoken rules or the division of roles (see details in step 2 of section 6.4), the users were guided to become more culturally sensitive about their everyday lives and were able to articulate culture-specific information. This helped to enhance the relevant data gathered from the field. Our studies also identified an enabler, namely accentuating the particular strengths of users according to their cultural backgrounds. For instance, most East Asian users were found to be adept at including rich context in their stories, which connects to the high-context factor in Asian cultures (Hall, 1976). Such a strength is promising in contributing to richer and relevant user stories.

With regard to phase 2, the lack of a shared common cultural basis with the users was found to hinder the designers' recognition of the cultural cues embedded in the user stories. A negative consequence is that designers fail to resonate with the users' situations. This barrier is new to us and had not emerged from the initial literature review. To step beyond this limitation, we found that designers require not only the individual and anecdotal aspects of user insights but also the social aspects, such as people's shared practices and values. Moreover, macro factors (e.g. information about public infrastructure, population, and geography) enable designers to generate a comprehensive view of the user context. In addition, we found that the (cultural) differences between users and designers afforded the latter a starting point to learn about an unfamiliar cultural context and inspire design ideas. Connecting the designers to their own experiences was found to help them to identify the differences and similarities more effectively. This has proven to bring several benefits, such as increasing empathic discussions and leading to richer design outcomes.

RQ 2: What lenses can be of support in achieving the design goal of this thesis?

The author used the following lenses in the research: examining design research methods, empathy literature, and cultural theories. These lenses allowed for the exploration of how users express their everyday experiences and how this can be carried through to designers under the constraint of cross-cultural contextual user research.

By examining the design research methods, the author took the perspective of generative techniques, focusing on the tools and techniques that actively involve users by allowing them to 'make' and 'say' for expressing personal

experiences. Studying literature on empathic design that closely links to psychology provided the author with insights into the designers' empathic process and helped to set a direction for investigating intercultural empathy. Examining cultural theories mainly served two purposes: the first was to find useful elements to better understand people's cultural contexts, and the second was to turn those useful elements into tools and techniques for facilitation and communication. Specifically, cultural theories, namely the cultural dimensions of Hofstede, Fan's classification, and Nisbett's observations, were used in the cases studies, and they successfully helped to foresee and prepare for the challenges in collecting user insights in a different cultural context. Furthermore, Hofstede's onion model and Engeström's model of an activity system were used to study the user context. They were useful in illustrating cultural values and the ways in which these values are practiced in people's day-to-day encounters.

During the research, the author became aware of other fields of knowledge, for example intercultural communication and information design, which could be relevant lenses. However, a decision was made to explore the chosen lenses, as they demonstrated promise in connecting to the design goal. Moreover, the author found that they largely worked well.

6.4 *Cultura* process

The insights and literature from the previous chapters yielded a range of experiences that are valuable for design practice and that are consolidated in *Cultura*, which is a process that has evolved from the case studies, offering guidance for conducting contextual user research in cross-cultural settings. *Cultura* aims to support design practitioners – user researchers and designers – in gaining rich insights into people's cultural contexts and in building intercultural empathic understanding in the early stages of new product/ service development.

Seven activities in *Cultura*

Cultura involves a sequence of activities: (1) preparing culturally appropriate tools and techniques, (2) sensitising users to their own cultural context, (3) collecting user data in the field, (4) preparing the data for sharing, (5) sensitising designers to their own experiences, (6) facilitating an insight session(s) for communication and design, and (7) gathering feedback from users. Figure 6.3 illustrates these activities.

This sub-section introduces each activity, with a focus on its operation in the *Cultura* process. Then, advice is offered for practitioners of each activity in

the developed process. This advice is drawn from experiences in the case studies and is therefore tailored to work under the constraints of cross-cultural situations.

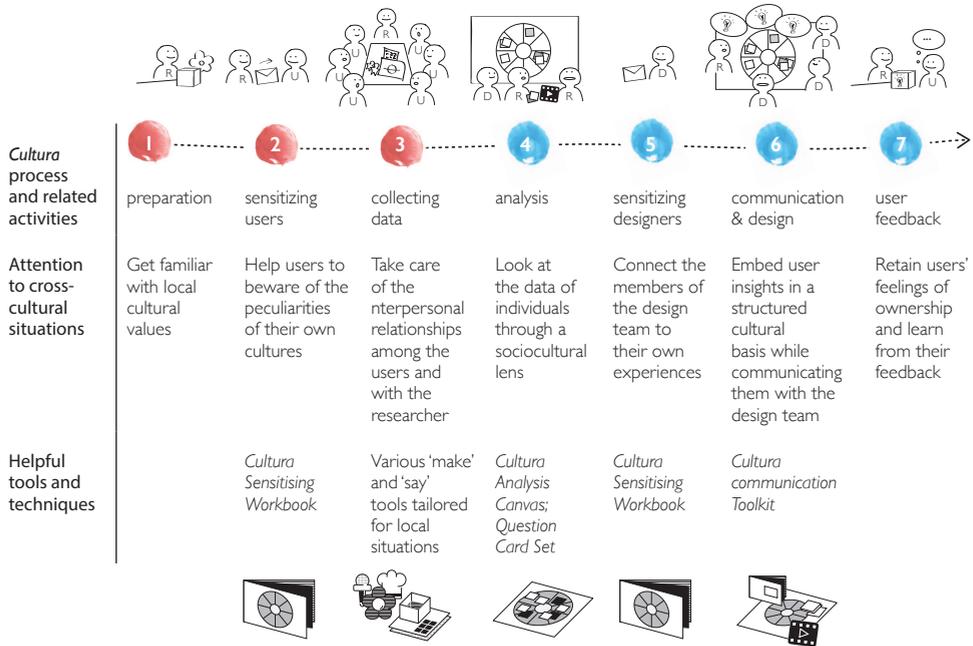


Figure 6.3 The process of *Cultura* and related tools and techniques for each activity

Cultura activity I: preparing culturally appropriate tools and techniques

A certain amount of preparation is required before field research begins. This includes the formulation of research goals and questions, planning, recruitment, and the design of techniques and tools. Cultural barriers (such as the handling of local social interactions in a user session) can be expected; therefore, extra attention must be paid to preparing tools and techniques. In this regard, preliminary literature research on local cultural values is highly recommended. A set of well-defined local cultural values (particularly addressing people's interpersonal relationships) lends the researcher a helping hand – it can be useful for him or her in anticipating possible social interactions that could occur during user research activities in the field, thereby ensuring the appropriateness of the research questions, the formats of tools, and the types of techniques.

Tips for practitioners

Schedule more time for preparation. Ensure that the materials, such as tools and techniques, interview questions, recording devices, and informed consent forms, are well prepared. Be aware that the preparation for cross-cultural projects usually takes more time and effort than for a local project, since it involves, for example, finding users via local recruiters, tailor-making and pilot-testing the tools, and long-distance commuting.

- **Keep in mind the below questions about local cultural values.** When identifying cultural values in preparing tools and techniques for local users, the researcher should evaluate the relevancy of the chosen values. To keep the selection manageable, the following is a sample of the types of questions that might be considered:
 - What local cultural value(s) explain a social occasion that is less formal, yet still organised?
 - What local cultural value(s) deal with local interpersonal relationships?
 - Is this value associable with the situation of a user session?
 - Is the number of chosen values manageable, so that they can effectively offer guidance to design tools and techniques?

Useful sources of information about cultural-value are as follows:

- Hofstede's six cultural dimensions, also available in APPs (e.g. Culture Compass)
 - The culture map, including eight cultural-value scales, by Meyer (2014)
 - A set of socio-cultural dimensions (cards and a website) for designers to deal with culture issues in design, developed by van Boeijen (2015)
 - A classification of Chinese culture values by Fan (2000)
 - Categorisations of national culture values: high/low-culture context by Hall (1976)
- **Take the local characteristics into account when creating tools.** For example, in China, a white assignment sheet with linear questions can easily be mistaken for a typical school exam paper, which could mislead the users to complete the assignment in an 'exam style'. To help evaluate the appropriateness of tools, a pilot study is highly recommended before the field work.
 - **Weaknesses and strengths are two perspectives to consider.** Tools and techniques can be designed to overcome tasks that the users are not skilled at or

that they are not accustomed to (e.g. helping less socially comfortable users to express themselves and put themselves at ease), and they help the users to make the best use of their strengths (e.g. making use of the sensitivity of users who are from a 'high-context culture').

Cultura activity 2: sensitising users to their own cultural context

Sensitising is the first step in gathering user data, and it prepares users for group sessions or individual interviews. This step is usually performed in the week prior to the session or interview, with the use of a package of sensitising tasks. As observed in previous chapters, users are usually less conscious about their own cultural contexts, since people tend to take for granted the way things are in their everyday life. To prepare users to explore and reflect on their own cultural contexts, the various themes of the *Backbone* can be used to formulate the questions for, and to form the content of, the sensitising tasks.

Taking the topics of 'elderly' and 'food' as examples, an elderly user could be sensitised to her own cultural context by, for instance, listing a few spoken and unspoken rules about how her family members deal with cooking and/or doing grocery shopping (based on *Knowing the Rules*) or describing what roles she and her family members play in terms of food preparation (based on *Division of Roles*). She could also be invited to take photos of a few important objects that she feels proud of in her kitchen (based on *The Material World*), to dream about an ideal dining experience with a favourite person or persons (based on *Angels vs. Devils*), or to reflect on her personal values and compare them with those of her family and society (based on *Socio-Cultural Values*).

Tips for practitioners

- **Help the users to become aware of their own culture.** The themes of the *Backbone* can be used to aid in formulating questions for the sensitising tasks. They can be used entirely or selectively, according to the topic and the scope of the project.
- **Meet the users in person if possible.** Delivering the sensitising packages to the users in person helps to establish rapport and build trust between the researcher and users. However, be aware of the workload involved in commuting in large cities.

- **Beware of shock, and handle users' reactions with care.** Users may react to the sensitising tasks differently than expected. For example, in China, when issuing sensitising tasks to the users, many of them tended to deny their expertise at first, which was found to be an expression of humility.

Cultura activity 3: collecting user experience data in the field

The next step in collecting user data is to invite the users to participate in a group session or one-on-one interview, in which they are asked to work on generative tasks. When their strengths are empowered and they are given a sense of ownership, users are more likely to share rich and relevant stories. Tools and techniques, which are tailored for the local situation, are applied during the user session to facilitate appropriate social interactions among the users. Such tools are generally less necessary during a one-on-one interview because the interpersonal relationship is simpler, compared to a group session. The basic procedure of a user session or a one-on-one interview is the same as the ones reported in contextmapping (Sleeswijk Visser et al., 2005) or generative research (Sanders & Stappers, 2012). Some suggestions for conducting user sessions that have a cross-cultural dimension are provided below.

Tips for practitioners

- **Healthy interpersonal relationships are the key to success.** Facilitating appropriate social interactions among the users and between them and the researcher may determine the success of the user session and the richness of the user stories.
- **Make a light start.** Ensure that the assignments in the session are easy for the users to begin with. A light-start task helps the users to develop a sense of ownership, which will lead them to the imagined future experiences.
- **Tune the communication style.** Take sub-cultural differences into account when facilitating a mixed group session. For instance, the communication styles between the young and the old vary more in some cultures than in a 'flat' society.
- **Maintain a respectful distance in the user session.** Be aware of your body language. Do not stand behind or too close to the users when they are working on the assignments. Our experience with Chinese users, for example, indicates that they may interpret this as being under supervision by the facilitator.

- **Be open to improvisations.** Be ready to apply the tools and techniques spontaneously, and feel free to improvise during the session if you encounter unexpected situations.
- **A cosy and creative environment is important for putting the users at ease.** A comfortable and inspiring session room can be useful for breaking the ice and empowering users' creativity.
- **Use the same language.** If possible, find a researcher who speaks the local language or even has a similar background (e.g. age or gender) to that of the users when it comes to a sensitive topic. The similarity between the researcher and users helps to establish an equal communication.
- **Be prepared for participants being late.** Different cultures have different ways of dealing with time. It is possible that this may result in users being late for the session: from our experience in China and Iran, this may range from 15 minutes to an hour. Take care of other users who are waiting, and provide them with warm hospitality. Once the session has begun, the users who join later will find it difficult to become involved and can thus hardly be well engaged. If this occurs, you may need – insofar as is possible – to put more effort into involving them during the session.

Cultura activity 4: analysing and preparing the data for sharing

The data collected from the sessions or interviews are qualitative. They are rich, diverse, and often anecdotal. Methods such as 'on the wall' (Sanders & Stappers, 2012) are helpful for generating an overview of the diverse qualitative data. In our experience, it is recommended that the researchers are provided with an additional socio-cultural lens to the method they use. The *Cultura Analysis Canvas* (in Case 7) can be a useful tool in this regard because it highlights the key components of a social and cultural context that researchers need to pay attention to. The *Cultura Question Card Set* (Figure 6.4 on the next page, see details in Appendix) identifies a list of research questions (see Box 1), which is an addition to the *Cultura Analysis Canvas*.

During the analysis, the emerged user insights can be clustered according to the nine themes of the *Cultura Analysis Canvas*. They can be communicated in the form of cards, which can be studied individually, placed together, or shared among members in a design team (Beck, Obrist, Bernhaupt, & Tscheligi, 2008). As mentioned earlier, designers require both elaborated insights and raw user data to build an empathic understanding of user experiences. Various methods of presenting raw user experience data can be found in design

literature, such as a personal card set (Sleeswijk Visser et al., 2007) and user documentary videos (Raijmakers et al., 2006).



Figure 6.4
Cultura Analysis Canvas and Cultura Question Card Set. Each card represents one theme of the Backbone, which consists of two to three research questions. The cards aim to help practitioners identify and cluster related data (top). An example of a small team using the *Cultura Analysis Canvas* and the *Card Set* to analyse the cultural context of Kish island in Iran (bottom).

Box 1. *Cultura* Questions

- Socio-cultural Values**
- What social standards do people share in the intended context?
 - What personal values can be identified that differ from those shared values?
 - What dilemmas do you observe?
- The Material World**
- What artefacts (products, services, or things that have been designed) do people typically use in the intended context?
 - What symbolic meaning or social significance do these artefacts have in people's everyday lives?
- Community**
- What concern(s), relevant for the project, do people share in the intended communities?
 - What characterises the community (e.g. who, what, where)?
- Division of Roles**
- What roles do people have in the intended communities?
 - How are duties distributed among community members?
 - What characterises the division of roles (e.g. gender differences, individual/collective interests, or hierarchy)?
- Rituals in Everyday Lives**
- What sequences of activities do people participate in?
 - What daily routines do individuals follow?
 - What special events do people share?
- Knowing the Rules**
- What rules do people have in dealing with their social relationships?
 - What explicit (spoken, written) and/or 'hidden' (unspoken, not written) rules do people practice?
- Angels vs. Devils**
- Who is highly esteemed in the community, e.g. a superhero or celebrity? Why?
 - Who holds low esteem in the community, e.g. an enemy or anti-hero? Why?
- Goals of End Users**
- What short-term goals do people have (individually or as a community)?
 - What long-term goals do people want to achieve (individually or as a community)?
- Macro Developments**
- If you look at the broader picture, what relevant contextual factors do you see (e.g. demography, economy, infrastructure, composition of the population, geographical characteristics, or politics)?
 - What developments are expected for the near future?

Tips for practitioners

- **Customise your format.** The *Backbone* can be used in any preferred format, such as an analysis canvas or a checklist to support data analysis.
- **Allow the users to make a documentary video by themselves.** This serves both to increase the authenticity of the research and to let the users feel that they are the 'experts of their own experiences'.
- **Include insights into macro factors.** Contextual factors (e.g. demography, economy, infrastructure, composition of the population, geographical characteristics, or politics) can be useful for looking at the broader picture of the intended context. The national handbooks, which are published yearly (e.g. The Holland Handbook and the Statistical Handbook of Japan), could be useful places to start searching for relevant information. However, be sure to keep the information within the scope of the project.

Cultura activity 5: sensitising the design team

The best way to build empathic understanding is to inform designers about the user insights while connecting them with their own experiences (Kouprie & Sleeswijk Visser, 2009). A possible method for achieving this is to prepare designers prior to the insight sharing session (the next activity) through the use of tools such as a *Cultura Sensitising Workbook*.

The means of sensitising the designers and the users are similar, and the sensitising topics are almost the same. However, there are nuances to be mentioned. Since the designers are more familiar with creative expression, the aim is to motivate and facilitate them rather than direct them. Moreover, instead of gathering data from the designers, the aim is to familiarise them with the topic explored and the different themes of the *Backbone*, which they will work with in the next activity. If the designers do not have similar experiences to those explored in the topic (e.g. living in a dormitory), then they are encouraged to reflect on other comparable experiences.

Tips for practitioners

- **Explain to designers why they need to do ‘homework’.** In our experience, most designers consider sensitising tasks to be made for users, but not for themselves. Explain to the design team the purpose of sensitising in detail so that they are more likely to take time to recall their own experiences and see the value in doing so.
- **Be aware of the nuances between sensitising users and designers.** When sensitising non-design users, we usually ensure that they have more safeguards because we bring them into the design world to do and make things. Since the designers are already familiar with that world, the aim with them is to facilitate, rather than to direct.

Cultura activity 6: facilitating an insight session(s) for communication and design

After sensitising the design team, one or more insight session(s) is facilitated. The aim of such a session is twofold: first, to share user insights with the design team and immerse the designers in the insights so as to build empathic understanding; second, to translate that understanding into design opportunities and strategies.

The session can be a half-day or a one-day workshop that proceeds in three parts. The first part begins with an introduction to the *Backbone*. Then, the designers are divided into groups, preferably comprised of three to five people. The groups receive information on the *Cultural Wheel* (see Figure 6.5) and are allowed time to familiarise themselves with it.



Figure 6.5
Cultural Wheel - a large, printed world map, illustrating the nine themes of the *Backbone* in the middle and providing explanations of each theme.

In the second part of the session, each group receives user insights – in the form of a set of short documentary video clips made by the users – and/or a set of cards that consist of user insights depicted by photos, quotes, and anecdotes. The designers are asked to write down observations about the user context shown in the videos and to cluster their first observations according to the *Cultural Wheel*. They study the insight cards and, at the same time, share their own experiences with other designers who are in the same group. They are encouraged to make new small clusters by selecting interesting insight cards, making observations from the videos, and creating possible connections to their own experiences. This process allows the designers to generate new insights. Links between the insight cards are preserved as the clusters are created, so that other designers are able to understand how the new insights have emerged.

The last part of the session involves identifying design opportunities and generating ideas for products and services. Following idea generation, the designers present some of their ideas, indicating which insight cards and/or observations from the video were used to inspire their concepts. They are encouraged to explain why they think the ideas are culturally appropriate and to discuss follow-up actions.

Tips for practitioners

- **Be available for questions and support.** The researcher (or designer) involved in the fieldwork stands by and facilitates open discussions with the design team, because he or she often has a more nuanced understanding of people's lives, stories, and artefacts collected from the field.
- **Focus on relevant differences and similarities.** The rich details of the user insights make it easier for the designers to focus on the cultural differences/similarities that are relevant to the project and meaningful to the users. Based on our experience, a tendency exists for designers to focus on cultural differences when generating ideas. While this is a useful part of the process, they should also be reminded to take similarities into account as well.
- **Place emphasis on inspiration instead of validation.** Insights generated from this type of study are presented mainly for the purpose of inspiration rather than rigid validation. It is important to support the design team in working with the user insights and opening up the design space.

Cultura activity 7: gathering feedback from end users

The product and service design ideas generated in the previous activity need to be evaluated by the users. This activity is particularly important in cross-cultural situations, as the designers' understanding is often not complete after the previous activity. Therefore, feedback from the users can help designers to achieve a more comprehensive understanding of how their design ideas would fit into the intended cultural context. It is recommended that this be done with users who have participated in the user research in the field.

Based on the experience of these studies, the product and service design ideas generated from the communication and design workshops are often open ended, which allows room for users to add their own thoughts. The users can imagine how a product or service is used, reflecting on how it can fit appropriately into their own cultural contexts. This type of information will help designers to shape and consolidate their ideas further. However, when an idea is not concrete enough, there is a risk that users will not be able to see its value and potential.

Tips for practitioners

- **Keep users informed about their contributions.** Users often feel honoured to be invited back to offer their thoughts on the design outcome. Granting them an opportunity to provide feedback on the design ideas also helps to increase their feelings of ownership.
- **Let the users know that the designers are not local.** When users are aware that the foreign designers put effort into understanding their culture, they are more likely to put effort into offering full and informative feedback in return.
- **Further elaborate on the design ideas after the insight session.** The design ideas generated from the insight session are usually still rough and diverse in terms of visual styles and levels of completeness. A further alignment of the design ideas is recommended, as this can help the users to pay equal attention to each of them.



7

General discussion and future work

7.1 Introduction

This chapter discusses the value of the research results: its contribution to the field of contextual user research in design. Furthermore, it reflects on the approach used in the research and on the development of the tools and techniques utilised. Finally, reflections on the elaborated framework and on the generalisability of the findings from this thesis are presented, with a discussion of the contribution made to design practice and design education, along with recommendations for future research.

7.2 Contributions to contextual user research

Contextual user research is a broad term. In this thesis, we focused on the aspects of generative techniques that empower users' expressions and encourage them to observe their own lives, reflect on their values, and share these with designers. Contextmapping was applied as a way of conducting such studies. Looking back to Chapters 2 and 3, the research of this thesis advances the previous literature on contextual user research in the following ways.

Extending the application of contextmapping

First, the research contributes to knowledge gained from previous attempts to apply contextmapping in non-western cultures (Hsu, 2007; Lee & Lee, 2009; van Rijn et al., 2006). Building on this, a series of tools and techniques was tailored to Chinese situations, and as a result, contextmapping can now be better used to serve the needs of Chinese users. Moreover, the previous research focused mainly on the first phase of contextmapping, with first-hand experience from the involvement of professional designers not being reported. In contrast, in this thesis, designers were actively involved in the case studies, and their activities helped to advance research on the second phase of contextmapping. Most importantly, their participation allowed us to understand the types of barriers that designers encounter in attempting to build empathic understanding with culturally distanced users. This further enabled us to tailor generative tools and techniques to situations in which substantial cultural differences existed between users and designers. Embedding insights about individual users into a structured cultural basis and communicating them to the design team were found to be helpful for designers in achieving intercultural empathy. Without such a cultural basis, designers would have difficulties in recognising the importance of user insights.

Tuning cultural theories effectively for contextual user research

People have appreciated the importance of understanding culture in design for a long time. However, until recently, most design research focused either on supporting designers in dealing with the notion of culture in product design processes (e.g. van Boeijen 2015) or on developing culturally appropriate design solutions (e.g. Alostath et al., 2011; Aykin, 2016; Moalosi et al., 2010). A major contribution of this thesis is that it takes notions from cultural theories and makes them usable for contextual user research. For the collection phase, theories that explain local cultural values were used to tune the tools and techniques. Compared to the previous research (Hsu, 2007; Lee & Lee, 2009; van Rijn et al., 2006), focusing on local theories (e.g. Fan, 2000) allowed for a closer look at local situations, and it resulted in tools that are better able to engage with users' cultural inclinations. For the communication phase, the models of Engeström and Hofstede were simplified and transformed into a structure (see the *Backbone* in Chapter 5), describing nine cultural aspects of a user context. Knowing that designers often find cultural theories elusive to learn and put into practice, such a structure fits the 'language' to which designers are accustomed. Observations in the case studies revealed that designers were able to understand the simplified elements of cultural models and subsequently benefit from them. This contribution makes it possible for designers to work with the elements from the cultural theories in generating design concepts.

A new perspective for designers to work with user insights

The development of *Cultura* builds on research that addresses similar issues in empathic design (e.g. Postma, 2012; Sustar & Mattelmäki, 2017), encouraging designers to achieve intercultural empathy. This research resulted in a set of structured tools to achieve that goal. For instance, tools such as the *Cultura Communication Toolkit* and the *Cultura Analysis Canvas* offered designers a new way in which to work with user insights, namely by embedding individual aspects of user insights into a structured cultural basis. It was observed that these tools helped to yield richer and more relevant insights into the sociocultural aspects of the user context, in comparison to focusing only on the individual aspects of user insights. The outcome aids practitioners in practicing empathic design approaches in intercultural design projects.

7.3 Reflections on the research approach

The research in this thesis was explorative in nature and included seven case studies in commercial and educational settings. Qualitative data was

collected from small groups of participants in project-based case studies. These involved users and designers from different continents, while the author took multiple roles during the research. This section reflects on the research setting, discusses the influence of the author's roles, and illustrates some of the lessons learned from the chosen approach.

7.3.1 The research setting

The case studies in this dissertation took place in the contexts of design practice and design education. Most of the tools and techniques were applied and evaluated in the field within a commercial design context (e.g. Cases 1, 3, and 4), while being designed and utilised in an academic setting. The educational setting provided a structured environment to control conditions and made it possible to conduct comparative studies (e.g. Cases 2 and 5). Such a setting provided sufficient time to enable designers to explore tools and techniques iteratively and to reflect on the progress made. At the same time, the experience of conducting the case studies in commercial contexts helped to make the tools and techniques applicable for design practice in the short term. After each case study, the author kept in contact with the participating companies, who offered feedback on the implementation of the research results, thereby providing a longitudinal aspect to the research. From both settings, much knowledge was gained, with each setting enriching the other and increasing the usefulness of the tools and techniques.

However, mixing two different contexts in this way also created tensions. We had to simultaneously deal with the expectations of the companies and ensure the validity of the data gathered for academic purposes. User research activities are often fast-paced in commercial environments, while academic research requires a precise, monitored, and well-documented process. For example, to gather sufficient data for the thesis research, all the sessions were audio and video taped, fully transcribed, and coded for analysis, and the tools were pilot-tested and tailored. We had anticipated that this type of preparation would be difficult to fulfil in the design practice. Moreover, some of the participating companies were unfamiliar with design research in general, and extra effort was required to engage them in the research process and to help them to understand the values of developing those tools and techniques. This made it all the more challenging to conduct research. If the participating companies had already been familiar with contextual research, it would have been easier to focus on the areas that related to the goals of this research. However, once the companies were well informed about the purpose of the research, they appreciated the effort undertaken and were more willing to invest time in the process.

Although the cross-cultural setting was a focus of the thesis, it also created certain complications in conducting the case studies. Most of these case studies crossed from one continent to another, involving companies and universities overseas. With this in mind, it was necessary to consider various aspects that were not, strictly speaking, part of the research scope, such as handling logistics and travelling, recruiting participants at a distance, and engaging different stakeholders for each case study. On the other hand, these issues have provided valuable lessons to share with design practitioners to assist them in being more prepared for their own practices. For that, we included our experiences in a set of tips described in Chapter 6. In addition, the complex real-world setting enabled the author to gain first-hand experience in understanding the barriers encountered when conducting this type of research and to develop various tools and techniques to help manage them.

7.3.2 One researcher in multiple roles

The author played a central part in conducting most of the case studies; this not only produced some limitations, but also had certain benefits. On the one hand, the author took on multiple roles – a thesis researcher, a user researcher, and a tool designer – which enabled her to identify opportunities from multiple perspectives and to be responsive to different situations in the field. On the other hand, she was the only person to occupy a central position, and there was always the possibility that her particular cultural background might influence the interpretation of the insights and results. To avoid falling into assumptions based on her own cultural lens, the author engaged with other user researchers to conduct the case studies and triangulate findings. Each study involved at least two researchers of different nationalities, the selection of quotes from the transcripts individually, a comparison thereof, and a discussion of the analysis of the results. Another role the author assumed was that of translator (in most of the studies, the raw user data or emerged user insights were translated from Chinese into English). Either the researcher(s) involved in the projects or the author herself translated the work. There is always the possibility that the translators' personal points of view and translation skills may have influenced the quality and accuracy of the translated user data. We prepared additional explanations (e.g. photos from the field research to convey the meaning of what was said) to increase the level of accuracy and to ensure that the language concepts that were commonly understood in English matched with Chinese language and culture, or vice versa.

Despite the limitations mentioned above, the author's cultural background enabled her to situate herself more appropriately in the Chinese-located

case studies of this thesis, where the participating users considered the author to be both an 'indigenous insider' and an 'indigenous outsider' (Banks, 1998). See the definitions in Table 7.1 below.

Table 7.1 Definition of *indigenous outsider* and *indigenous insider* by Banks (1998)

An indigenous insider	'The individual who endorses the unique values, perspectives, behaviours, beliefs, and knowledge of his or her indigenous community and culture and is perceived by people within the community as a legitimate community member who can speak with authority about it.' (p.8)
An indigenous outsider	'The individual was socialised within his or her indigenous community but has experienced high levels of cultural assimilation into an outside or oppositional culture. The values, beliefs, perspectives, and knowledge of this individual are identical to those of the outside community. The indigenous-outsider is perceived by indigenous people in the community as an outsider.' (p.8)

The author's status as an *indigenous insider* derived from her background: she was born, raised, and educated in China. The participating Chinese users felt at ease when communicating with her in the user sessions. Since she shared an ethnic and cultural background with them, she was able to ensure that appropriate communication styles were adopted and increase the relevance of the research questions to the users. If non-Chinese researchers are to conduct research such as this, a certain working level of knowledge about the sociocultural dynamic within the field situation is required (Pelzang & Hutchinson, 2018). In addition, the author's status as an *indigenous outsider* was derived from her position as an industrial design student and design researcher in the Netherlands. At the beginning of the user session, the author explained to the users that their stories would help foreign designers to develop products or services and that the study was a part of her PhD research at a Dutch university. Accordingly, they considered her to be an 'outsider' and were more willing to invest time in participating in the research than they might have been for a commercial study. Furthermore, the experience of living abroad enabled the author to better recognise the peculiarities in her own culture, as well as those of the Dutch and Western European cultures. This enabled her to collect data with complete insight into the values, beliefs, and social life of the users and the designers from both sides. In line with Pelzang and Hutchinson (2018), taking both positions contributes to the cultural integrity and rigour of cross-cultural research.

7.3.3 Lessons learned from the chosen approach

The above sub-sections illustrate both the advantages and the disadvantages of conducting research in a complex setting. This approach supported the author in (1) gathering findings that consist of rich stories, reflections, and examples of both failures and success from real people in the real world – something that a quantitative study or a controlled setting cannot fulfil – and (2) making the research outcome usable in design practice as soon as possible, by maintaining close collaboration with industrial partners. At the same time, the author reflected critically on the following aspects of applying this approach.

Combining experiences of the author and other researchers

The author conducted most of the case studies in which she played multiple roles. It was sometimes difficult to keep the main role in focus. For example, in Case 6 and Case 7, the role of a workshop coach might sometimes overrule that of the thesis researcher. This may have influenced the participants' behaviours or thoughts because it was likely that the participants did not ask themselves 'why did I do certain tasks in the way that I did', but simply followed what the coach said. In Case 4, the author was not involved in the research process, and this provided her with an 'outsider' view to evaluate the research findings. A case study conducted by a different researcher minimised this personal influence and produced useful findings. However, Case 4 was a fortuitous and unanticipated opportunity, and we could not have arranged more cases such as this beforehand. This was a learning lesson. The author considers combining the experiences of the thesis researcher and those of other researchers to be a positive option when planning research projects in the future.

Translation matters

Qualitative research often results in rich narratives. The cross-cultural setting made the process of translating arduous but essential. In the case studies, we noticed that there were differences depending on the stage in which the translation took place. Translating the raw transcripts and materials had two advantages: (1) it helped to engage the companies, by involving their non-Chinese researchers or designers in joint analysis, and (2) it helped to increase the understandability of the quotes and culturally specific concepts, based on the context of the conversations being provided. However, this is time consuming because the required time for translation can be tripled when compared to that of transcribing a user session (Case 1). Carrying out translations after the analysis is a more efficient process, but is limited in the variety of inputs gathered during the analysis. The author is now more

aware of the importance of translation when doing qualitative research in cross-cultural settings. In future studies, translation issues will be carefully considered in advance.

7.4 Reflections on the tools and techniques

The tools and techniques form a central component of the framework. This section first reflects on the selected cultural models for developing them. Then, it discusses how the tools influence designers' views towards culture, and finally the forms that the tools and techniques took.

Reflections on the selection of the cultural models

Several cultural models were used for the development of tools and techniques. These models were selected for two main reasons: credibility and applicability. First, the models had been cited often and validated thoroughly, which resulted in their gaining popularity in various applied domains. For example, Hofstede's set of cultural dimensions has been widely used in different fields, such as international training, communication, and pedagogy, as well as in design. Second, most of the models had been successfully used in design practice. Taking Engeström's model of an activity system as an example, it has gained popularity in the field of design. Moreover, its applicability has been demonstrated by its flexibility in being able to combine with other models, as discussed in Chapter 3. In addition to the reasons listed above, there were considerations to bear in mind for the facilitation tools and the communication tools.

For the development of the facilitation tools, we selected the models that focused most on cultural values. They either draw comparisons between different cultural values (e.g. Hofstede & Hofstede, 2005) or focus on specific local cultural values (Fan, 2000). We acknowledge that the generalisation about national cultural values might cause an oversimplified and fixed image of people, as the problem of stereotypes has been discussed extensively (e.g. Sanderson 2007; Lee 2012; van Boeijen 2015). However, for our case, the chosen models were intended to help the user researcher to create a general prediction of what social interactions might occur in the user sessions, so as to be able to adjust tools and techniques promptly. These served as 'eye openers' (acknowledging the differences between cultural groups), instead of providing fixed definitions of individuals from different cultural groups. For that reason, when using the six dimensions of Hofstede, we only compared the different cultures by using a simplified indication instead of the numeric index scores. Hofstede himself argues that 'the valid part of a stereotype is a statistical statement about a group, not a prediction of the properties

of particular individuals. Stereotypes are at best half-truths (Hofstede 2001, p.14)'. For the models on local cultural values, we could only find one theory that could be applied, namely Fan's classification (2000). When studying other targeted cultural contexts, it is advisable to employ an appropriate local cultural theory.

For the communication tools, we took Engeström's model of an activity system and Hofstede's onion model, which extensively describe the structure of the socio-cultural context of people, illustrating cultural compositions, values, and practices. Both models offer different levels of descriptions and explanations. However, we did not emphasise the relationships between each element when implementing them into tools (e.g. *Cultura Communication Toolkit*) for the designers, because Engeström's model is often perceived as being somewhat challenging for designers to learn, as well as difficult to put into design practice (Postma, 2012). Although the designers in the case studies did not always take all the elements or their different levels of explanations into account in the way that activity theory defines them (e.g. the three mutual relationships among *subjects, objects, and community*; see section 3.3.2 in Chapter 3), we observed that the designers were enthusiastic about the cultural elements and were able to deduce some of the relationships among those elements themselves. This is prime evidence that our attempts to translate cultural theories into tools for designers have been of value.

Supporting designers in approaching cultures with a generative view

While developing tools and techniques for communication, one goal was to encourage the designers to step into different levels of the users' cultures. This is in line with the thinking of Irani et al. (2010) and Lee (2012), who exhort researchers and designers to take a 'generative view of culture', embracing it as something that is 'dynamic [and] collectively produced', rather than 'static [and] nationally bound (Irani et al., 2010, p.1313)'. If we follow their reasoning, then any individual user is a part of multiple cultures at any one time, including ethnicity, nationality, region, profession, family, gender, and hobby. The various aspects of culture shape users' behaviours and their experiences of everyday life. If designers only approach culture by talking about national or geographic differences and looking for general patterns of a particular group, the result may be a cultural stereotype or generalisation, as mentioned earlier. One contribution of the *Cultura Communication Toolkit* is that it not only helps to illustrate a general tendency shared by a group, but also concretely illustrates the subjective aspects – the individuals' characteristics, experiences, and emotions. Although the designers had some form of pre-assumptions when creating designs for an unfamiliar cultural context, the process of using the

Cultura Communication Toolkit enabled them to realise, reflect on, and take actions with knowledge about their presumptions (see Case 5 in Chapter 5).

The forms of tools and techniques

The cross-cultural contextual user research tools and techniques are used as a means to assist in developing the framework in the context of this dissertation. The ones presented in this thesis are not fixed standards. For example, using a chef's hat to encourage users' expressions (the *Master Of tool*) was chosen for our case. In another situation, a police cap might be more appropriate, while still serving the same purpose. A different researcher or designer may have pursued the same goal by designing different forms of the tools and techniques. They have been presented as examples of how tools could be tailored, developed, and utilised for different cross-cultural design projects. As the development of these tools and techniques is ongoing, we recommend that they be tailored to their audience, adjusting the form for the purpose of the study, in order to gain a richer repertoire.

7.5 Reflections on the framework

Looking back on the four chosen areas of focus of the framework (users and designers, the user context to be studied, tools and techniques, and process), it can be seen that they guided the conducting of the case studies. The chosen areas were manageable in terms of quantity. During the case studies, we did not discover new areas that were beyond the scope of the chosen ones. In that sense, the chosen areas were comprehensive in that they covered the key aspects of contextual research.

Findings from seven case studies were placed into the four areas and formed the elaborated framework that demonstrates relevant elements for achieving intercultural empathy. When placing the findings into the framework, we noticed that the four areas were not stand-alone, but were intertwined. For example, not only were 'interpersonal relationships' concerned with the area of 'users', but they also informed the development of 'tools and techniques'. For reasons of simplicity, we positioned each finding in the most relevant area and did not deem it necessary to illustrate the relationships between the findings in the elaborated framework. However, it should be noted that such relationships did and do exist.

The framework illustrates a symmetrical view of the users and designers (see Figure 7.1). In this research, most of the emphasis is on the users' side. When trying to determine the cultural significance of user insights, we took the user's culture and knowledge thereof, and we wove it not only into phase 1, but

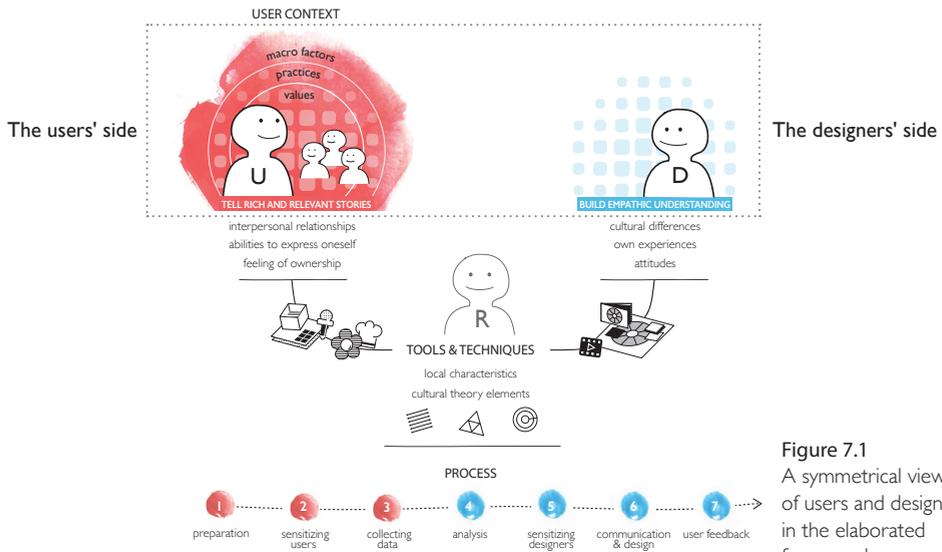


Figure 7.1
A symmetrical view
of users and designers
in the elaborated
framework

also into the phase 2. In particular; we studied the user’s cultural context and used this knowledge to sensitise users to their own cultural consciousness. While it was noticeable that connecting designers to their own experiences helped them to achieve empathy with users, we did not intend to apply tools to formally structure the way in which the designers discovered their own culture, or at least not at the same level as we did on the users’ side. This resulted in a rather ‘empty’ background on the designers’ side. During the research, there were a few moments when we asked ourselves whether it would be valuable to improve the symmetry by allowing designers to study their own cultural grounding in more detail. Most tools and methods on cultural variations seemed to focus on the users (van Boeijen, Sonneveld, & Hao, 2017), whereas less explorations have been undertaken regarding the designers’ own culture and how it influences the user context for which they design. This could be an interesting direction for further investigation in future research.

7.6 Reflections on knowledge generalisation

Most of the case studies in this thesis were conducted by crossing between continents, where the cultural differences between the users and designers was deemed to be substantial. Such an extreme setting served as a magnifying glass that enlarged issues which, in the local application, were often too subtle to recognise. For instance, findings such as making users aware of their own (cultural) context are of considerable value, not only for studies with a cross-cultural dimension, but also for all user research in general. Moreover, the

extreme nature of such a setting allowed us to discover pertinent facts, for example learning that most Chinese users were better at finding relationships between things and objects than their Dutch counterparts. This type of information can be used to improve tools for Dutch users, for example developing a new collage tool that helps them to better connect different words or images and turn them into rich narratives.

The cross-cultural setting should not be limited only in an intercontinental or international situation, because culture variation exists on different tiers: continental, national, regional, organisational, occupational, family, and individual. Being sensitive to the differences or similarities and being able to draw meaningful insights from them is useful to all designers, even if their work is on a local level. Moreover, the framework for designers to gain intercultural empathy applies not only to understanding vastly different or foreign cultural contexts, but also to mapping local ones (e.g. a regional or an organisational cultural context).

Finally, the insights drawn from this research are helpful not only for using generative tools and techniques, but also in the broader area of conducting contextual research in general. For example, the tips we offer to practitioners – such as how to interact with users by keeping cultural sensitivity in mind, and when and where to do so – are also useful for conducting a semi-structured interview or observational study.

7.7 Added value for design practice and design education

In addition to the contribution discussed in section 7.1, there are also other forms of contribution. One is the application of the tools and techniques in design practice, and another is the infusion of findings and knowledge regarding cross-cultural contextual research in design education.

Added value for design practice

In general, the participating companies and design agencies provided positive feedback on the process, tools, and techniques used during the studies, and they saw great potential for implementing the tools and techniques in design practice. In addition to the involved parties, several companies (in China, the Netherlands, and the UK) have asked for advice on applying *Cultura* to gain insights into users from different markets. These businesses cover wide areas, including consumer products, the yacht industry, and healthcare. This indicates that the need to understand people's cultural contexts has become increasingly important in a number of industries.

During the research of this thesis, three companies informed us that they had been using these insights to develop their new product lines. Two products, based on the insights from Case 1 and Case 3, have been launched into the market. In general, the participating companies considered the user research to be an indispensable step towards meaningful products and services. At first, most of them had viewed it as a method for validating ideas, rather than for gaining inspiration for new opportunities. However, after having been involved in the process of the studies, the companies and designers began to recognise the value of studying the cultural context. The insights gathered from the studies, especially those involving local cultures, inspired their research and development teams. However, these insights did not always have a strong impact on the final products, because of other factors that influence product development. Moreover, the participating design agencies found the quality of the research results to be richer in cases where the entire research process was well structured. These agencies have displayed interest in making use of the tools and techniques in their projects and have also suggested ways in which to improve the efficiency thereof for their design practice.

Added value for design education

Sharing tools and techniques, presenting the case studies in lectures, and meeting with students have all led to positive feedback. The knowledge regarding cross-cultural contextual user research and some of the tools were applied successfully, and they benefitted five MSc students and two bachelor students at the Faculty of Industrial Design Engineering in their graduation or research projects. The students and teaching staff from other international design schools were also interested in tools and techniques for cross-cultural contextual user research. The author has delivered six design workshops (see Table 7.2) in different design schools in China, the Netherlands, and Iran, where the students and teaching staff learned and practiced various tools (e.g., *Cultura Sensitising Workbooks*, the *Cultura Communication Toolkit*, and the *Cultura Analysis Canvas*). The students were inspired by the *Cultura Communication Toolkit* and by how the insights that emerged contributed to their design solutions: *'It helped us to uncover the sensitive yet relevant topics around people's cultures, their interpersonal relationship, and feelings. These insights have enriched our design outcomes'*, a student commented after one of the workshops. One school (Donghua University) has implemented some of the tools and techniques in its curriculum. According to the teaching staff, the tools have helped to enhance students' cultural awareness and have increased their motivation to conduct contextual user research.

In addition, conducting these cross-cultural design workshops has broadened the author's view of what culture sensitivity means in the context of design

education. Together with two other design educators who co-organised some of the workshops, we experienced that working with people (students and educators) who share different cultural backgrounds helped to raise awareness of the uniqueness of one's own culture. Such an awareness can serve as a foundation to develop sensitivity for other cultures, and vice versa. With regard to having a positive view on cultural sensitivity in design education, we believe that 'cultural diversity is not a problem to be tackled, but a rich source of inspiration in education, to be enjoyed by students as well as teachers (van Boeijen et al., 2017)'.

Table 7.2 An overview of the design workshops

Workshop	Participating design school and company	Place
Five-day design event	Department of Industrial Design, Donghua University (DHU)	Shanghai, China
Five-day design event	School of Design, Jiangnan University, and Midea Group	Wuxi, China
Five-day design event	DHU and SAIC Motor	Shanghai, China
Half-day lecture and workshop	The Hague University of Applied Sciences	Den Haag, the Netherlands
Five-day design event	DHU and the Senior Citizens Activity Centre, Songjiang district	Shanghai, China
Six-day design event	International campus of the University of Tehran	Kish Island, Iran

In summary, this thesis makes four practical contributions to the field of contextual user research in design:

1. A summary of the barriers and enablers for cross-cultural settings (section 6.3 in Chapter 6).
2. An elaborate framework to aid in achieving intercultural empathy in contextual user research (in Chapter 6).
3. Case studies that illustrate the setting and process of cross-cultural contextual research projects and that demonstrate how cultural models were utilised for the execution (in Chapter 5).
4. A set of validated tools and techniques, a step-by-step process, and a set of tips (section 6.4 in Chapter 6) for practitioners who wish to carry out cross-cultural contextual research.

7.8 Future work

The case studies in this thesis took only Chinese users and European designers as examples to instantiate the process of cross-cultural contextual user research. We cannot claim evidence for other combinations of cultural contexts. Nevertheless, based on our experiences from the case studies, we are confident that the approach would work for other projects involving an intercultural dimension. The tools and techniques can be further explored in more diverse contexts, from serving the needs of cross-cultural situations to understanding a local cultural situation. This would result in designers being able to obtain a rich understanding of any group of users and their cultural frame of reference – be it a group of Iranian designers gaining insights into a Dutch context or Dutch designers mapping the cultural context of a local residential community in Amsterdam. Some of the tools (e.g. *Cultura Communication Toolkit*) were evaluated by designers in the case studies, but not in a commercial setting. To further develop tools for informing design teams about culture, a suitable next step would be to apply the tools in the more demanding scenario of commercial design practice in order to increase their efficiency in terms of time, costs, and execution for practitioners.

On the one hand, this research demonstrates that users need to be more aware of their own cultures in order to share rich stories that are relevant for design. The method of sensitising users to their own culture, which we proposed in the case study, is promising. On the other hand, less attention was paid to the designers' side. Most research in design addresses the importance of designers learning about different users and their cultures. What is often neglected, however, is the equal importance of designers' knowledge and awareness of their own culture and how it relates to the context for which they are designing. This highlights an avenue of future research in the development of tools and techniques for discovering and reflecting on people's own culture (both users and designers) in the process of contextual research.

Finally, further research should not be limited to the field of design. The knowledge gained about conducting cross-cultural contextual research, along with the associated tools and techniques, can be further applied to other professions. For instance, an international humanitarian, medical, non-governmental organisation has shown interest in using the *Cultura Communication Toolkit* to help its doctors understand patients from different cultures. We recommend that the tools and techniques resulting from this research be used to further contribute to other professions, such as healthcare, municipalities, and pedagogy, where cultural sensitivity is essential. The outcome of this research will hopefully enable various companies to put

7 General discussion and future work

people at the heart of their businesses, developing intercultural empathy and creating innovative design solutions that take into account not only individual needs and dreams, but also the cultural context in which the individuals interact.

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SUMMARY

In today's globalizing world an increasing number of companies design products and services for overseas markets and users. Designers face the challenge of creating solutions that fulfil users' needs, and this becomes more important as the cultural distance between them continues to grow. Unsuccessful international endeavours which resulted in market disasters have already been noted. For example, the Italian fashion company Dolce & Gabana recently made an advertisement that featured a Chinese model struggling to eat 'the great traditional Margherita Pizza', by using 'this kind of small stick-shaped tableware'- chopsticks, and many Chinese customers took cultural offense at being depicted in the caricature (Ng, Lam & Jane, 2018). As can be imagined, if designers do not carefully consider the local cultural context for which they hope to create designs, their solutions are likely to be mismatched, or perhaps even harmful to their users.

To avoid such situations, rich stories about everyday experiences, shared by users, are valuable resources to help designers to develop empathic understanding of users. Contextual user research, using generative techniques, has been demonstrated to be an effective way of collecting insightful user stories and communicating them to designers in order to create meaningful solutions, and has become a recognizable part of design practice. However, most of the reported work has been with users and designers with a shared a cultural background, so that empathic understanding can be built on a tacit shared cultural basis. When conducting contextual studies with a cross-cultural dimension, we found the problem to be twofold: first, these tools and techniques, when employed in user research, sometimes failed to facilitate social interactions or bring out expressions of users, due to mismatches with cultural inclinations. Second, designers found it difficult to empathise with the individual aspects of user insights (such as quotes and anecdotes) from a culture they had little experience with.

This thesis focuses on conducting contextual user research in a cross-cultural setting. It investigates ways of supporting users in telling rich and relevant stories, and designers in building empathic understanding (the design goal of this thesis). By investigating the issues mentioned above – a framework will be proposed, various tools and techniques to support users and designers will be created. A new and rewarding process for conducting intercultural contextual user research, called *Cultura*, will be developed at the end of the research.

After introducing the background and goal of this dissertation in Chapter

I, two main research questions are composed: RQ1: What are the barriers to, and enablers of, conducting contextual user research in a cross-cultural setting? RQ2: What lenses can be of support in achieving the design goal mentioned above?

Chapter 2 introduces the status quo of methods, tools and techniques for learning about user experiences. Then, a hands-on field experience with a cross-cultural dimension, using an established contextual user research method (contextmapping) is presented. This field experience enables the author to discover the following barriers first-hand when applying design methods to intercultural situations:

- Appropriate interactions among the users and between them and the researcher required additional effort to establish. We found that the challenge could be such simple issues as local people dealing with appointment times differently, or people being modest in expressing themselves. It is important to note that these practical issues are highly affected by local culture.
- Designers' involvement was rather limited, resulting in them not being able to communicate directly with the users or having difficulties in comprehending the user quotes.

Chapter 3 begins by identifying the limitations of the frameworks, tools and techniques which have been used to develop empathy in cross-cultural situations. It argues that designers should achieve not just interpersonal, but also intercultural, empathy. Most of the current solutions for achieving empathy focus on the individual aspects of user insights, while the broader socio-cultural context is often overlooked. Following this, the chapter summarises the requirements for cultural understanding. In order to develop intercultural empathy for individual users, designers should also seek insights into their cultural contexts (e.g. how users interact within the socio-cultural group they are part of). The literature suggests that achieving intercultural empathy requires a sensitivity: being aware of cultural differences and understand other culture's values. Three models – the Hofstede's set of cultural dimensions, the onion model (2010) and Engeström's model of an activity system (2001) – articulate cultural values and practices, which are expected to be key elements in helping designers to recognize and understand differences between cultural groups.

In Chapter 4, the findings of Chapter 2 and Chapter 3 form the basis of the framework; an initial vision of building empathic understanding when crossing cultures (see Figure 1. left) This framework highlights four areas where attention is required in cross-cultural situations:

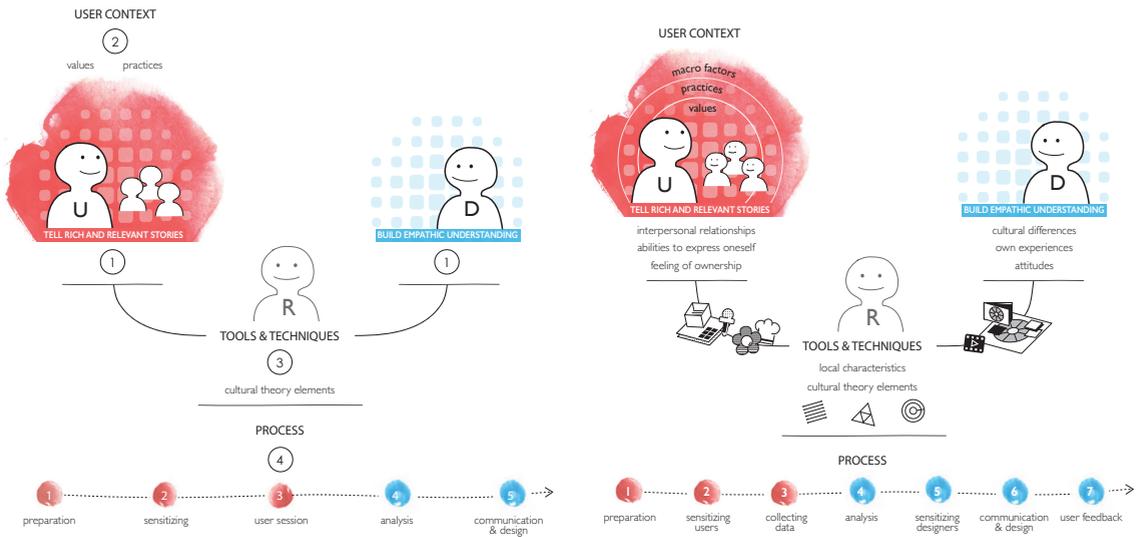


Figure 1

Left: the initial framework in Chapter 4 highlights four areas; right: the elaborated framework (Chapter 6) visualizes the findings from the field studies in Chapter 5.

1. Users (U) and designers (D),
2. The user context to be studied,
3. Tools and techniques employed by the researcher (R)
4. The process of contextual user research.

This initial framework guided a series of case studies in Chapter 5, most of which involved users from East Asia (mostly from China) and designers from Europe. The substantial differences in cultural backgrounds between the users and the designers were expected to provide insights into conducting contextual user research in cross-cultural settings. Moreover, various new tools and techniques were designed, to be evaluated throughout the case studies. Each study investigated one or more parts of the framework introduced in Chapter 4, building on the knowledge gained and exploring it further, following a framework-guided research through design approach. The case studies were conducted in collaboration with commercial or educational partners, which helped gain insights in to conditions relevant for design practice. In some case studies (1, 2, 3, and 4), the research focused on supporting user involvement (the left-hand 'U' side of Figure 1. right) In other case studies (3, 4, 5, 6, and 7), it focused on enriching designers' empathic understanding (the right-hand 'D' side).

In Chapter 6, the findings of the case studies are brought together in order to elaborate the framework and answer the main research questions (Figure 1. right) The results, corresponding to the four areas of attention, are summarized below. Each area begins with a brief explanation to clarify what we mean by the key terms used (in *italics*), and then presents the findings.

I. Engaging users and inspiring designers

Contextual user research usually involves a number of people, such as users, user researchers, designers, marketers, engineers and other stakeholders related to the project. In this thesis, the results came mostly from the users and designers.

Users were found who could express their thoughts freely, and to share rich personal stories when they were able to take an active part in the user research activities. These users also felt at ease in sharing personal stories and gave rich responses when their interpersonal relationships, abilities to express themselves and feelings of ownership were facilitated in ways that were in accordance with their cultural inclinations. When communicating cross-cultural user insights to the designers, three factors were found to inspire and help designers in building empathic understanding: (1) The cultural differences between the users and the designers, (2) the designers' own experiences, and (3) the designers' attitudes.

2. A wide scope and a fine-grained, detailed view of the user context

User contexts consist of all facets (e.g. people, places, activities, situations, or time) that influence the users' experiences. A scope of the user context (how broad the study will be) is determined, in order to promote coherent research results when executing contextual user research in the field.

Our findings showed that, in trying to understand the context of culturally distanced users, it is useful to take both a wide scope into view, and to look at it with a fine-grained detail, because many factors are likely to be unfamiliar to the designers. The red background behind the user in Figure 1(right), illustrates the scope of a user context to be studied in a cultural setting in more detail: the macro factors are in the outer layer; and we found the related information necessary for enriching designers' cultural understanding and added it to the framework after the case studies. The practices are in the middle layer: In the contrary, the values are hidden at the centre of the user context because it was found to be difficult for designers to uncover.

Designers could achieve a wide scope in two ways. One way was to study the user context from both individual and social perspectives. This can be carried out by looking at personal and shared values, or individual and collective practices, in order to view the wide scope in more detail. Another way was to zoom out from the users' experiences of everyday lives to a macro level. Because the macro factors contained background information of the user context, such as developments in the society, geographical conditions, population density or policies that 'shape' the users' behaviours and beliefs. Designers were found to have difficulties in making sense of users' individual or group interactions when the information about macro factors of the

intended user context were lacking.

3. Developing tools and techniques using cultural theories

Usually two sets of tools and techniques are employed in the process of contextual user research. One set is for facilitation, helping users to share their experiences. Another set is for communication, helping designers to view rich user stories and to develop empathic insights in an inspiring and informative way.

Useful elements of cultural theories have been used to develop new tools and techniques for cross-cultural situations. The case studies in Chapter 5 included users in China, and so the facilitation tools and techniques were tailored to Chinese situations. Specifically, Hofstede's cultural dimensions (2010) were expected to give the researcher a rough overview of the different cultural values between the country where generative tools had been widely applied and the country where the new tools were needed, and Fan's classification of Chinese cultural values (2000) was expected to deepen the researcher's understanding of the local social interaction forms. The findings showed that most of the tools (e.g. a chef hat, or a microphone) and techniques (e.g. inviting the users to speak with the microphone tool when it was their speaking turn) were helpful in creating a cultural bonding atmosphere among the users and with the researcher. In addition, local characteristics (e.g. preferred ways of creative expressions, customs, etiquette) turned out to be essential for designing tools and techniques, because the cultural mismatches in the tools and techniques could negatively influence the users' feelings of ownership and hinder their creativity. For example, pieces of white collage paper did not work as expected in China because they had the unpleasant connotations of making users think of exam sheets.

In the development of the communication tools and techniques, elements of Hofstede's onion model (2010) and Engeström's model of an activity system (2001) were combined, simplified and used to create a structure (*Backbone*) that describes a user context with nine cultural aspects. These elements (e.g. the composition of cultural groups, their shared values, and how these values are expressed in daily practice) have proven useful for designers seeking to gain insights into the cultural context of users. The *Backbone* was further conveyed through different tools, among which the *Cultura Communication Toolkit* was promising for designers, as it helped to build empathic understanding towards culturally distant users. While developing the tools, our goal was to encourage the designers to pay attention to different levels of cultures in which the individual users participate, e.g. ethnicity, nationality, region, profession, family, gender, hobby, and so on. *Cultura Communication Toolkit* not only helped to show general tendencies shared by a group, but also clearly illustrated the subjective aspects – the individuals' characteristics,

experiences and emotions. In addition, the nine cultural aspects of the *Backbone* were also found to be useful for sensitising users to becoming more conscious of their own cultures.

4.The process: from Contextmapping to *Cultura*

The initial framework in Chapter 4 describes a standard process of contextual user research based on contextmapping, which includes five basic activities: preparation, sensitizing, user session, analysis and communication & design.

The findings from the case studies revealed opportunities for adjusting the activities sensitizing users and analysis. In addition, two new activities, sensitizing designers and user feedback, were added to the elaborated framework. A seven-step-process called *Cultura*- a way of conducting contextual user research in a cross-cultural setting – has evolved from the case studies. To leverage the useful lessons learned from the case studies, the results were consolidated into a set of tips for design practitioners.

Looking back to the main research questions (RQ1 and RQ2) set out in Chapter 1, we identified the barriers and enablers, and reflected on the lenses the author used, which are summarised below:

When gathering stories from users, one major barrier is the mismatch between the tools and the users' cultural inclinations. Another is that users are often not aware of the peculiarity of their own cultures, which hinders gathering user stories that are helpful for the designers to study the cultural context of users. When communicating user insights with designers, lacking of a shared common cultural basis with the users was found to hinder the designers from recognising the cultural cues embedded in the user stories. A negative consequence was that designers were less able to resonate to the situations of the users who were culturally distant from them.

In the meantime, our studies also identified an enabler, namely accentuating the particular strengths of users according to their cultural backgrounds. For instance, most East Asian users were found to be good at including rich contexts in their stories. Such a strength is promising in contributing to richer and more relevant user stories.

To achieve the design goal, the author used the following lenses in research, looking at design research methodology, literature on empathy, and particularly at cultural theories that explain the cultural contexts of users. The chosen lenses worked well for achieving a clear view of the phenomenon – of how users express their everyday experiences and how this can be carried through to designers under the constraints of cross-cultural contextual user research.

In Chapter 7, the selection of cultural theories, the research approach and the framework are examined, and the contributions to design practice and education are discussed. To summarise, the research of this thesis has yielded valuable new information, including:

- A summary of barriers and enablers of conducting cross-cultural contextual user research
- An elaborate framework for achieving intercultural empathy in design
- Case studies illustrating the setting and the process of cross-cultural contextual research projects, showing how cultural models were utilized for the execution
- A series of validated tools and techniques, a step-by-step process called *Cultura*, and a set of tips for practitioners who wish to run cross-cultural contextual research.

SAMENVATTING

In de huidige globaliserende wereld ontwerpt een toenemend aantal bedrijven producten en diensten voor de internationale markt en haar gebruikers. De uitdaging voor ontwerpers is om oplossingen te bedenken die aan de behoeften van gebruikers voldoen en deze uitdaging wordt steeds groter naarmate de culturele afstand tussen ontwerpers en gebruikers groeit. Er bestaan reeds voorbeelden van desastreus verlopen internationale marktintroductions. Zo lanceerde het Italiaanse modemerkt Dolce & Gabbana onlangs een advertentie met een Chinees model dat moeite had om 'de geweldige traditionele Margherita Pizza' te eten met 'een soort stokvormig bestek' (eetstokjes). Veel Chinese klanten namen aanstoot aan deze karikatuur (Ng, Lam & Jane, 2018). Het is aannemelijk dat ontwerpers, die zich niet inleven in de lokale culturele context waarvoor zij hopen te ontwerpen, het risico lopen dat hun oplossingen niet passen bij de beoogde gebruikers, of dat deze zelfs schadelijk zijn voor de beoogde gebruikers.

Dergelijke situaties kunnen worden voorkomen. Rijke verhalen over alledaagse ervaringen van gebruikers zijn waardevolle hulpmiddelen waarmee ontwerpers empathie kunnen ontwikkelen voor de gebruikers. Er is aangetoond dat contextueel gebruikersonderzoek, waarbij gebruik wordt gemaakt van generatieve technieken, een effectieve methode is voor het verzamelen van rijke verhalen en voor het communiceren van de daarin besloten inzichten. De methode stelt ontwerpers in staat om betekenisvolle oplossingen te bedenken en is inmiddels een herkenbaar onderdeel geworden van de ontwerppraktijk. Echter, in de meeste studies naar contextueel gebruikersonderzoek deelden de ontwerpers en gebruikers eenzelfde culturele achtergrond. Deze gemeenschappelijke culturele basis heeft de ontwerpers mogelijk geholpen bij het creëren van empathie voor de gebruikers. Bij interculturele studies, waarbij de ontwerpers en gebruikers géén culturele achtergrond deelden, kwamen twee typen problemen aan het licht. Ten eerste bleken de generatieve technieken in gebruikersonderzoek soms niet effectief te zijn bij het faciliteren van sociale interacties en bij het bespreekbaar maken van ervaringen. Dit kwam doordat de onderzoeksgereedschappen en –technieken niet aansloten bij de culturele voorkeuren van de gebruikers. Ten tweede bleken ontwerpers moeite te hebben met het ontwikkelen van empathie voor de individuele gebruikers (bijvoorbeeld op basis van citaten en anekdotes), wanneer de ontwerpers weinig ervaring hadden met de cultuur van de gebruikers.

Dit proefschrift richt zich op het uitvoeren van contextueel gebruikersonderzoek in een interculturele setting. Er is onderzoek gedaan

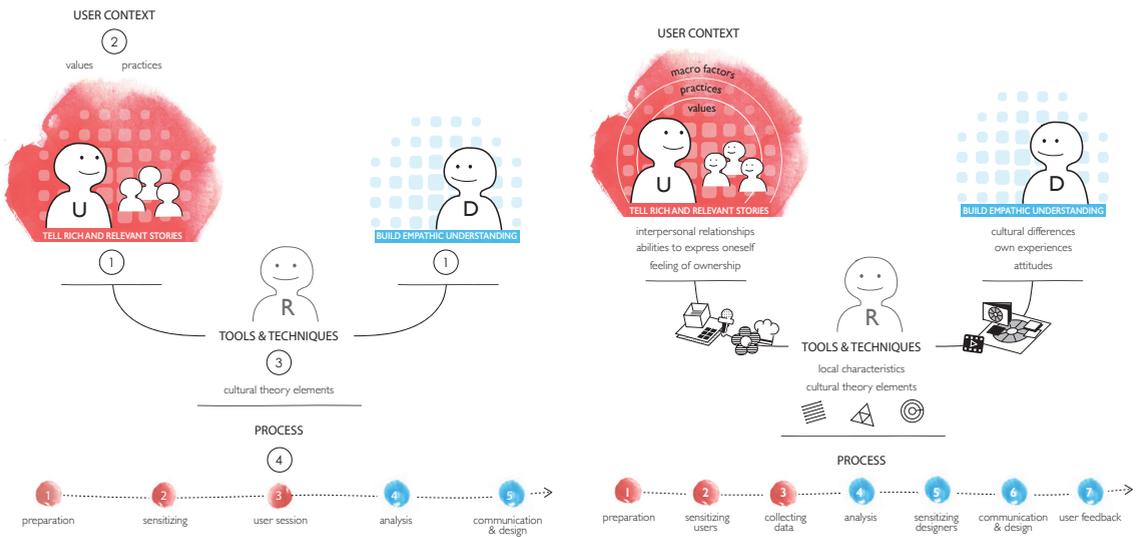
naar de manier waarop ondersteuning kan worden geboden aan gebruikers bij het vertellen van rijke en relevante verhalen en aan ontwerpers bij het ontwikkelen van empathie naar aanleiding van deze verhalen (ontwerpdoel van dit proefschrift). Door voornoemde problemen te onderzoeken is een raamwerk geponeerd, waarbinnen verscheidene gereedschappen en technieken zijn ontwikkeld voor het ondersteunen van gebruikers en ontwerpers.

In Hoofdstuk 1 wordt de achtergrond en het doel van dit proefschrift nader toegelicht, waarna er twee onderzoeksvragen worden gesteld. Onderzoeksvraag 1: Welke barrières en katalysatoren bestaan er bij het uitvoeren van contextueel gebruikersonderzoek in een interculturele setting? Onderzoeksvraag 2: Welke perspectieven zijn behulpzaam om voornoemd ontwerpdoel te bereiken?

Hoofdstuk 2 beschrijft de status quo omtrent methodes, gereedschappen en technieken voor het achterhalen van gebruikerservaringen. Vervolgens wordt praktijkervaring met 'contextmapping' (een gevestigde onderzoeksmethode) in een interculturele setting gepresenteerd. Met behulp van deze praktijkervaring zijn de volgende barrières geïdentificeerd bij het gebruik van bestaande ontwerpmethodes in een interculturele setting:

- Het kostte moeite om gepaste interacties te vinden binnen de groep gebruikers enerzijds en tussen de groep gebruikers en de onderzoeker anderzijds. Een voorbeeld van een uitdaging is dat men er verschillende interpretaties op nahield met betrekking tot het op tijd komen voor een afspraak. Ook zijn er verschillen gevonden in de bescheidenheid waarmee men zich uitdrukt ten overstaan van anderen. Het is belangrijk om te benadrukken dat deze verschillen in hoge mate beïnvloed worden door de lokale cultuur.
- De betrokkenheid van ontwerpers was gering, waardoor zij niet goed instaat waren om direct met de gebruikers te communiceren en waardoor zij moeite hadden met het interpreteren van de citaten van de gebruikers.

Hoofdstuk 3 start met het identificeren van beperkingen van raamwerken, gereedschappen en technieken wanneer deze worden toegepast voor het bereiken van empathie in een interculturele setting. Er wordt betoogd dat ontwerpers niet alleen interpersoonlijke empathie moeten ontwikkelen, maar ook interculturele empathie. De meeste hulpmiddelen voor het ontwikkelen van empathie richten zich op individuele gebruikersinzichten, terwijl de overkoepelende socioculturele context over het hoofd wordt gezien. Daartoe wordt een lijst opgesteld met voorwaarden voor het



Figuur 1

Links: Het initiële raamwerk ontwikkeld in Hoofdstuk 4 definieert vier aandachtsgebieden. Rechts: het gerevisieerde raamwerk van Hoofdstuk 6 illustreert de bevindingen van de veldstudies beschreven in Hoofdstuk 5.

begrijpen van een cultuur. Bij het ontwikkelen van interculturele empathie voor individuele gebruikers dienen ontwerpers ook inzichten te vergaren in de culturele context, bijvoorbeeld hoe gebruikers met elkaar omgaan binnen de socioculturele groep waarvan zij deel uitmaken. Onderzoek toont aan dat men voor het ontwikkelen van interculturele empathie gevoelig moet zijn voor culturele verschillen en voor het begrijpen van de waarden van een cultuur. Drie modellen beschrijven culturele waarden en gebruiken: Hofstede's culturele dimensies, het uenschillenmodel (2010) en Engeström's Activity Theory (2001). Er wordt verwacht dat deze modellen een sleutelrol zullen spelen bij het ondersteunen van ontwerpers om culturele verschillen te herkennen en begrijpen.

De bevindingen van Hoofdstuk 2 en Hoofdstuk 3 vormen de basis voor een initieel raamwerk in Hoofdstuk 4. Dit raamwerk betreft een eerste visie op het ontwikkelen van empathisch begrip van een andere culturele context (zie Figuur 1, links). Het raamwerk definieert vier aandachtsgebieden bij interculturele settings:

1. Gebruikers (U) en Ontwerpers (D);
2. The gebruikerscontext die moet worden bestudeerd;
3. Gereedschappen en technieken die worden gehanteerd door de onderzoeker (R);
4. Het proces van contextueel gebruikersonderzoek.

Het initiële raamwerk ondersteunde een serie casestudies in Hoofdstuk 5, waarvan de meeste casestudies gebruikers uit Oost-Azië (m.n. China) en ontwerpers uit Europe omvatten. Er werd verwacht dat de grote verschillen

in culturele achtergrond tussen de gebruikers en de ontwerpers inzichten zouden verschaffen in het uitvoeren van contextueel gebruikersonderzoek in een interculturele setting. Daarnaast zijn er diverse gereedschappen en technieken ontwikkeld, die vervolgens zijn geëvalueerd binnen de casestudies. In iedere studie is onderzoek gedaan naar een of meerdere elementen van het initiële raamwerk uit Hoofdstuk 4, waarbij telkens is voortgeborduurd op de kennis die werd opgedaan in voorgaande casestudies. Hierbij is gebruik gemaakt van een research through design methode. De casestudies zijn uitgevoerd in samenwerking met commerciële en educatieve partners, waardoor er inzichten konden worden opgedaan die relevant zijn voor de ontwerppraktijk. In sommige casestudies (1,2,3 en 4) richtte het onderzoek zich op het ondersteunen van de betrokkenheid van de gebruikers (de 'U'-zijde in Figuur 1). In andere casestudies (3,4,5,6 en 7) richtte het onderzoek zich op het verrijken van het empathisch begrip van de ontwerpers voor de gebruikers (de 'D'-zijde in Figuur 1).

In hoofdstuk 6 worden de bevindingen van de casestudies bij elkaar gebracht om een gereviseerd raamwerk op te stellen en daarmee de onderzoeksvragen te beantwoorden (zie Figuur 1, rechts). De resultaten, die corresponderen met de bovengenoemde vier aandachtsgebieden, zijn hieronder samengevat. Ieder aandachtsgebied wordt voorafgegaan door een korte uitleg ter verheldering van de gebruikte terminologie (schuingedrukt), gevolgd door de bevindingen.

1. Betrek gebruikers en inspireer ontwerpers

In contextueel gebruikersonderzoek worden meestal een aantal type mensen betrokken, zoals gebruikers, onderzoekers, ontwerpers, marketeers, technici en andere stakeholders van het project. In dit proefschrift komen de resultaten hoofdzakelijk van gebruikers en ontwerpers.

Gebruikers bleken vrijuit hun gedachten en rijke verhalen te delen, wanneer ze in staat waren om een actieve rol te spelen in de activiteiten van het gebruikersonderzoek. Deze gebruikers voelden zich op hun gemak bij het delen van dergelijke inzichten, wanneer de interpersoonlijke relaties, mogelijkheden tot uitdrukking en het gevoel van intellectueel eigendom werden gefaciliteerd op een manier die overeenkwam met hun culturele gebruiken. Drie factoren bleken van belang bij het communiceren van interculturele inzichten aan de ontwerpers, opdat zij een empathisch begrip van de gebruikers verkregen: 1) De culturele verschillen tussen de gebruikers en de ontwerpers, 2) de eigen ervaringen van de ontwerpers en 3) de houding en ontvankelijkheid van de ontwerpers.

2. Een brede scope met een fijnmazige, gedetailleerde blik op de gebruikerscontext

Een gebruikerscontext bestaat uit verschillende facetten (bijvoorbeeld mensen, plaatsen, activiteiten, situaties, tijd) die allen een invloed hebben op de gebruikerservaring. In de praktijk wordt bij het uitvoeren van contextueel gebruikersonderzoek de scope van de gebruikerscontext bepaald ter bevordering van coherente onderzoeksresultaten.

De bevindingen tonen aan dat het nuttig is om zowel een brede scope als een fijnmazige, gedetailleerde blik te hanteren bij het begrijpen van de context van gebruikers van een andere cultuur, omdat veel factoren hoogstwaarschijnlijk onbekend zijn voor ontwerpers. Het rode vlak achter de gebruiker in Figuur 1 (rechts) illustreert drie schillen waarmee de scope van een gebruikerscontext in een culturele setting in meer detail kan worden bestudeerd. De buitenste schil bevat macro factoren. In de casestudies is aan de macro factoren gerelateerde informatie gevonden die noodzakelijk was voor het verrijken van het culturele begrip van de ontwerpers. De middelste schil bevat de gebruiken. Tot slot bevinden de waarden zich in de binnenste schil en daarmee het hart van de gebruikerscontext. Deze waarden bleken voor ontwerpers moeilijk om te identificeren.

Ontwerpers kunnen op twee manieren een brede scope bereiken. Ten eerste kan men de gebruikerscontext bestuderen vanuit zowel een individueel als een sociaal perspectief. Details kunnen worden ontwaard door te kijken naar persoonlijke en gedeelde waarden, of naar individuele en collectieve gebruiken. Ten tweede kan men uitzoomen van gebruikerservaringen in het alledaagse leven naar een macroniveau. Macro factoren bevatten achtergrondinformatie over de gebruikerscontext, zoals maatschappelijke ontwikkelingen, geografische condities, bevolkingsdichtheid, of beleid waarmee de gedragingen en overtuigingen van gebruikers worden beïnvloed. Ontwerpers bleken het lastig te vinden om individuele interacties en groepsinteracties te begrijpen wanneer informatie over de macro factoren van de beoogde gebruikerscontext ontbrak.

3. Ontwikkel gereedschappen en technieken met behulp van culturele theorieën

Doorgaans worden twee verzamelingen van gereedschappen en technieken gebruikt bij contextueel gebruikersonderzoek. De ene verzameling is bedoeld voor facilitering; om gebruikers te helpen bij het delen van hun ervaringen. De andere verzameling is bedoeld voor communicatie; opdat ontwerpers rijke gebruikersverhalen op een inspirerende en informatieve manier kunnen verwerken.

Er zijn nieuwe gereedschappen en technieken ontwikkeld voor een interculturele setting door gebruik te maken van elementen uit bestaande culturele theorieën. De faciliterende gereedschappen en technieken zijn

toegespitst op de Chinese setting, omdat de casestudies uit Hoofdstuk 5 veelal gebruikers uit China omvatten. Van Hofstede's culturele dimensies (2010) werd verwacht dat het de onderzoeker een breed overzicht zou geven van verschillen in culturele waarden tussen landen waar de bestaande generatieve technieken veel zijn toegepast en landen waar nieuwe technieken en gereedschappen nodig waren. Verder werd van Fan's indeling van Chinese culturele waarden (2000) verwacht dat het de onderzoeker verdiepende inzichten zou geven met betrekking tot het begrijpen van lokale sociale interacties. Er is gevonden dat de meeste gereedschappen (bijvoorbeeld een koksmuts of een microfoon) en technieken (bijvoorbeeld het uitnodigen van gebruikers om met de microfoon te spreken wanneer het hun beurt was) behulpzaam waren bij het creëren van een verbindende atmosfeer tussen de verschillende culturen van de gebruikers en de onderzoeker. Verder bleek kennis van lokale eigenschappen (dat wil zeggen, geprefereerde manieren van creatieve expressie, gebruiken, etiquette) essentieel te zijn voor het ontwerpen van gereedschappen en technieken, omdat een slechte koppeling met de cultuur kon leiden tot een negatieve beïnvloeding van het gevoel van intellectueel eigendom en tot een verhindering van het creatieve proces. Zo gaven witte vellen collagepapier voor Chinese deelnemers de onplezierige associatie met examenopdrachten.

Bij het ontwikkelen van gereedschappen en technieken voor communicatie is gebruik gemaakt van Hofstede's uitschillenmodel (2010) en Engeström's model van een systeem van activiteiten (2001). Elementen van deze modellen zijn gecombineerd, versimpeld en vervolgens gebruikt om een structuur op te stellen (de zgn. *Backbone*) waarin negen culturele aspecten van de gebruikerscontext worden beschreven. Deze elementen (de samenstelling van culturele groepen, hun gedeelde waarden, het uitdrukken van deze waarden in de dagelijkse praktijk) bleken behulpzaam te zijn voor ontwerpers die op zoek waren naar inzichten in de culturele gebruikerscontext. De *Backbone* is uitgedragen via diverse gereedschappen, waaronder de *Cultura Communication Toolkit*. Dit gereedschap was veelbelovend voor ontwerpers, omdat het hen hielp bij het bereiken van een empathisch begrip voor gebruikers uit een andere cultuur. Bij het ontwikkelen van de *Cultura Communication Toolkit* was het doel om ontwerpers aan te moedigen om aandacht te geven aan verschillende niveaus waarin gebruikers hun cultuur tot uiting laten komen, zoals etniciteit, nationaliteit, regio, beroep, familie, geslacht en hobby's. De *Cultura Communication Toolkit* hielp niet alleen om algemene tendensen die door een groep gedeeld werden bloot te leggen, maar ook om individuele karakteristieken, ervaringen en emoties te illustreren. Verder bleek de *Backbone* een bruikbaar middel om gebruikers bewuster te maken van hun eigen cultuur.

4. Het proces: van Contextmapping tot *Cultura*

Het initiële raamwerk in Hoofdstuk 4 beschrijft een standaard proces van contextueel gebruikersonderzoek gebaseerd op de vijf standaardactiviteiten binnen Contextmapping: voorbereiding, bewustwording, gebruikerssessie, analyse en communicatie & ontwerpen.

De bevindingen van de casestudies laten mogelijkheden zien voor het aanpassen van de standaardactiviteiten bewustwording en analyse. Uit de casestudies is een proces geëvolueerd, genaamd *Cultura*, waarbij in zeven stappen contextueel gebruikersonderzoek wordt uitgevoerd in een interculturele setting. De verkregen inzichten uit de casestudies zijn vertaald naar een set van tips voor ontwerpers.

Terugkijkend naar de onderzoeksvragen uit Hoofdstuk 1, kunnen we de geïdentificeerde barrières en katalysatoren (Onderzoeksvraag 1), alsmede een reflectie op de perspectieven van de auteur (Onderzoeksvraag 2) als volgt samenvatten.

Een grote barrière bij het verzamelen van verhalen van gebruikers betreft de slechte aansluiting tussen de gebruikte gereedschappen en de culturele voorkeuren van gebruikers. Een andere grotere barrière is dat gebruikers zich vaak niet bewust zijn van de eigenaardigheden van hun eigen cultuur. Dit verhindert het verzamelen van verhalen die voor ontwerpers van belang zijn voor het bestuderen van de culturele context van de gebruikers. Bij het communiceren van gebruikersinzichten met ontwerpers bleek het ontbreken van een gedeelde culturele achtergrond met de gebruikers te verhinderen dat de ontwerpers de culturele cues in de gebruikersverhalen herkenden. Hierdoor waren de ontwerpers minder goed in staat om zich te verplaatsen in de situaties van gebruikers die uit een andere cultuur kwamen.

De casestudies brachten ook een katalysator aan het licht, namelijk het benadrukken van specifieke sterktes van gebruikers gebaseerd op hun culturele achtergrond. Oost-Aziatische gebruikers bleken bijvoorbeeld goed in staat om een rijke contextbeschrijving in hun verhalen te verwerken. Een dergelijke sterkte is veelbelovend voor de bijdrage aan rijkere en relevantere gebruikersverhalen.

Om het ontwerpdoel te bereiken heeft de auteur de volgende perspectieven gebruikt: onderzoek naar ontwerpmethodologie, literatuur over empathie en culturele theorieën die verschillen tussen gebruikerscontexten verklaren. De gekozen perspectieven werkten goed om een duidelijk beeld van het fenomeen te verkrijgen – hoe gebruikers hun alledaagse ervaringen uiten en hoe deze uitingen kunnen worden vertaald voor ontwerpers binnen de beperkingen van intercultureel contextueel gebruikersonderzoek.

Hoofdstuk 7 reflecteert op de geselecteerde culturele theorieën, de onderzoekaankpak en het opgestelde raamwerk. Daarnaast wordt de bijdrage aan de ontwerppraktijk en de ontwerppopleiding besproken. Het onderzoek dat binnen dit proefschrift is uitgevoerd heeft geleid tot waardevolle nieuwe informatie, waaronder:

- Een samenvatting van barrières en katalysatoren bij het uitvoeren van intercultureel contextueel gebruikersonderzoek;
- Een uitgebreid raamwerk voor het verkrijgen van interculturele empathie binnen het ontwerpproces;
- Casestudies die de setting en het proces illustreren van intercultureel contextueel gebruikersonderzoek, waaruit tevens blijkt hoe culturele modellen gebruikt kunnen worden bij het uitvoeren van dergelijk onderzoek;
- Een reeks van gevalideerde gereedschappen en technieken, een stap-voor-stap proces genaamd *Cultura* en een verzameling tips voor ontwerpers over het uitvoeren van intercultureel contextueel gebruikersonderzoek.

APPENDIX - CULTURA QUESTION CARD SET



SOCIO-CULTURAL
VALUES

What social standards do people share in the intended context?

What personal values can be identified that differ from those shared values?

What dilemmas do you observe?

THE MATERIAL
WORLD

What artefacts (products, services, or things which have been designed) do people typically use in the intended context?

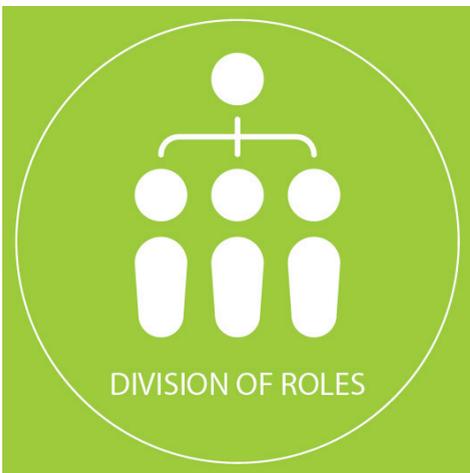
What symbolic meaning or social significance do these artefacts have in people's everyday lives?



How is the community defined for the project (e.g. who, what, where)?

Which communities do the end users belong to?

Who belong to a specific community, and who do not?



What roles do people have in the intended communities?

How are duties distributed among community members?

What characterizes the division of roles (e.g. gender differences, individual/collective interests or hierarchy)?



What sequences of activities do people participate in (when, where, and how)?

What daily routines do individuals follow (when, where, and how)?

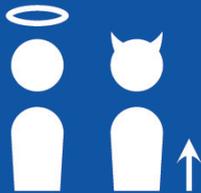
What special events do people share?



KNOWING THE RULES

What rules do people have when dealing with their social relationships?

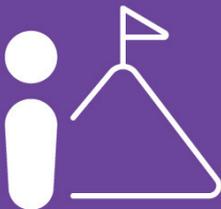
What explicit (spoken, written) and/or 'hidden' (unspoken, not written) rules do people practice?



ANGELS VS. DEVILS

Who is highly esteemed in the community, e.g. a super hero or celebrity? *Why?*

Who is low esteemed in the community, e.g. an enemy or anti-hero? *Why?*



GOALS OF END USERS

What short-term goals do people have (individually or as a community)?

What long-term goals do people want to achieve (individually or as a community)?



If you look at the bigger picture, what relevant contextual factors do you see (e.g. demography, economy, infrastructure, composition of the population, geographical characteristics or politics)?

What developments are expected for the near future?



What else do you consider important to the people in the intended context?

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Chen HAO (郝辰) was born on the 17th of July, 1988 in Taiyuan, Shanxi province, China. After graduating from high school in Beijing, she moved to Shanghai in 2007, where she completed her bachelor degree in Industrial Design Engineering at Donghua University. In 2011 she moved to the Netherlands to study master's Design for Interaction at Faculty of Industrial Design Engineering (IDE), Delft University of Technology. She received her master's degree with honors cum laude. During her master's study, she worked for half a year at Philips Design as a people research intern, where she developed a keen interest in user research. In 2014 she began her PhD thesis, following her interests in research.

Chen is both a designer and a researcher. Her research interests lie in developing design tools and techniques for optimizing the process of cross-cultural contextual user research. For her research, she collaborated closely with companies in both Europe and China. Chen is also passionate about design education and has co-organized several design workshops for students and practitioners at different international design schools. Since 2018, Chen has spent part of her time working as a lecturer (praktijkdocent in Dutch) at IDE, and part of her time on her own consultancy company, HAO design lab.

Chen lived in Delft as a child, from 1993 to 1994, and is now happy to be back. Currently, she lives with her husband Jiayi, who is an industrial designer, and their dog, Mr. Pepper. In addition to her work, she enjoys making ceramics, traveling, and discovering good food.

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Workshops and Talks

Co-organizer and coach of international design workshop Design Research and Cultural Encounters (2016, 2017, 2018, 2019) at Donghua University, Shanghai, China

Workshop leader of Culture, Context and Design organized by Midea Group at Jiangnan University (2017), Wuxi, China

Co-organizer of Pre-conference Workshop Cultural Sensitivity in Design Education (2017) for E&PDE, Oslo, Norway

Presenter at Graduate Colloquium and Conference for Re: Research IASDR2017, Cincinnati, Ohio, USA

Talk at Symposium Design for Cultures (2018), Kish International Convention Centre, Kish, Iran

Workshop leader of international design event Design for Cultures (2018), Kish International Campus, University of Tehran, Kish, Iran

Talk at The Annual Young Designers Gateway (2019), Rotterdam, The Netherlands



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