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DESIGN RESEARCH IN THE DIGITAL ERA

Opportunities and implications
Notes on Doctoral Research in Design 2020



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Human-centered Design Practice

Design For Intercultural Experience: A Design Framework within User Experience Approach

Shushu He

Department of Design, Politecnico di Milano

Abstract

The multicultural society has become a widespread phenomenon nowadays in which foreign people often offer services to locals. The services provided by foreigners can be stereotyped or rejected due to people's mental frames formed by different cultures that call for designers' contributions to service experience in the multicultural environment. This research aims at helping UX designers to gain a comprehension of values in cultural diversity to improve the cross-cultural experience through their designerly expertise. Through the study of cultural models in sociology and anthropology and the study of the investigation tools in experience design, the research adopted an ethnographic approach within UX tools. The fieldwork takes place in the Chinese catering services in Milan and consists of three phases: snapshotting the context, identifying the diversity, and representing the cultural value. The research developed the Framework of Designing for Intercultural Experience which can be regarded as a reference for cross-cultural designers to refine design questions, to plan the design ethnographic practices, and to identify appropriate research tools in the field.

Introduction: Challenges and Opportunities for Designing in a Multicultural Context

In this more and more physically and digitally connected modern world, people gain more and more opportunities to be exposed to different cultures. Design practice cannot be separated from cultural contexts, and designers inevitably have to design in a multicultural environment. Designers who are

short of knowledge about the targeted multicultural context, may experience many challenges in their design processes, or even mislead these design processes. Meanwhile, the intercultural experience calls for UX designers' contributions. The interactions among different cultural groups, such as foreigners providing services to locals, may result in stereotypes or rejections due to people's mental frames formed by their home cultures that call for designers' contributions to help different cultural groups to better present the cultural value attached in the service experience.

As a Chinese sojourning in the city of Milan, I personally experienced the complexity of multicultural environment firsthand. It grants me a dual role as a multicultural observer and as a cross-cultural designer. The cultural differences and similarities have always been a hot topic which brings opportunities to create pleasant conversations that allow people to share their experiences through similar or strange instances. The stereotypes usually played a significant role in initiating the topics. Such as when I mentioned that the fortune cookies are not traditional Chinese food, it immediately caught people's interest, and the conversation expanded to the fortune cookie's origin, the adaptation, cultural features, and differences in diets. Such a personal experience led me to think that if the designers could identify the meaningful features in cultural diversities, they would be able to raise empathy with people from different cultures, or, attract their curiosities.

Culture is such a classic theme that it is widely studied by numbers of disciplines. The culture considered in this research refers not only to a set of manifestations that are developed and shared by groups of people such as artifacts, languages, and behaviors (Geertz, 1973b; Kroeber Kluckhohn, 1952), but also to intangible manifestations like perceptions of value, mental models, and ways of communication (Barber and Badre, 1998; Straub *et al.*, 2002). Many design practices in multicultural environments are considered as cross-cultural design in this as these design activities usually stand by a dominant culture and try to bridge with other cultures through design (Choi, Lee, Kim and Jeon, 2005; A. Marcus, 2006; Rau, Plocher and Choong, 2012). The advanced stage of the cross-cultural design would result in the intercultural dialogue that fosters multifold and equal interactions among cultural groups.

Research Objectives and Methodology

Main and specific research objectives

The cross-cultural design capability has become increasingly important for developing and launching products and services in multicultural environments. Like all humans, designers are members of cultural groups, so they are constrained by their own cultural backgrounds. Especially when designing in the multi-cultural context, designers usually are from one of the cultures involved, or may not belong to any, meaning no one can have an omniscient understanding of all the cultures involved. However, designers have discipline-specific ways of knowing, thinking, and acting that are distinct from other disciplines (Cross, 1982, 2001). The UX designerly way to study a multicultural environment revolves around focusing on the experience. The multicultural environment can also be regarded as a context, but more complex than many other design contexts. UX tools should be suitable to investigate within such a context.

The research objective proposed in this research is therefore: ***How can UX designers gain a comprehension of values in cultural diversity and improve the cross-cultural experience through their design expertise?***

To answer this main research question, there are several specific questions that require answers. These are as follows.

The cross-cultural study is well-developed in some other disciplines such as sociology and anthropology, and scholars have defined some models to compare cultural differences across different cultures (cf. Geertz, 1973a; Gillham, 2005; Gudykunst, 2003; Hall and Hall, 1990; Hofstede, 1984). These studies provide constructive references to cross-cultural design activities; however, there are some gaps in applying the generic cultural models to specific design practices. This leads to the first specific research question: *How can we make better use of cultural studies from other disciplines in design practice?*

Different from traditional ethnographic research which requires months and even years of fieldwork, design projects usually have more limited budgets, schedules and shortages of researchers. The second research question thus: *How can we provide a snapshot of the complexity of the multicultural environment to identify the values in cultural diversity?*

While conducting fieldwork, the designer has dual roles as both a member of a cultural group and an observer, often leading to biased perspectives. Thus, the third research question is: *How can we prevent perspective biases while conducting UX tools?*

The designers have known various UX tools, but the multicultural environment is more complex than the usual design contexts, so the last research question is: *How do we identify the appropriate tools for applying cultural inquiry?*

Research methodology

Field setting

Fig. 1 illustrates the current study's research methodology and fieldwork phases. The fieldwork is the necessary part of ethnographic research and the field of this research is set on the Chinese catering experience in Milan. The Chinese in Milan have reached a considerable business scale and developed a socio-economic enclave (Cologna and Mauri, 2004) that calls for communication across the ethnicities to update the stereotypes and better the acceptance of each other. The catering business is one of the Chinese community's traditional strengths in Milan, and the stereotypes and prejudices align with cultural values, which is a vivid microcosm of the multicultural situation in Milan. Customers' experience is especially important for catering service. The increasing competition makes the restaurateurs to will to have a conversation with UX designers. It grants the designers easier access to the field than the other businesses. Therefore, I consider it as an ideal field to study and to experiment designing for the intercultural experience.

Methods

The research method is accordingly under the guidance of ethnographic approaches and UX tools are field research instruments.

The ethnographic research is widely employed in anthropology to understand a community or a culture (cf. Crabtree, Rouncefield and Tolmie, 2012; Geertz, 1973a; Hammersley and Atkinson, 1983; Malinowski, 1922). Such an approach inspires the design research which is known as design ethnography (Button, 2000; Crabtree *et al.*, 2012). Compared with traditional ethnography, design ethnography has a specific focus which is predefined by the design project, and the data sources are not limited in the natural settings but also the design interventions. Other than UX research, design ethnography regards individuals as "people" but not simply as "users" (Nova, 2014). Through design ethnography allows design researchers to intertwine the observation, the analysis, and the design-to-change (Salvador, Bell and

Anderson, 1999). The delivery of design ethnography has various forms as to outline design hints and/or reinterpretation and scale-up of one design to multiple contexts (Baskerville and Myers, 2015). The design ethnography is taken as the most significant research approach in this article. Its ethnographic core guides the cross-cultural study, and its designerly mindset leads the fieldwork to the designable findings.

Numerous definitions of User Experience can be categorized into two perspectives, the reductionist and the holist (Blythe, Hassenzahl, Law and Vermeeren, 2007; Karapanos, 2010). Concretely related to the specific context of this research, designing for intercultural experience, the holistic view benefits the investigation of individuals' experiences in the past and now as to envision the experience in the near future (Sanders and Stappers, 2014), and, to understand how individuals' experiences are associated with cultural contexts (A. Marcus, 2006). Designing for experience requires understanding about not only the end-user but also the other individuals who are involved in the experience of co-creation of a product/service and share the same societal needs (Battarbee and Koskinen, 2005; Forlizzi and Battarbee, 2004; Forlizzi and Ford, 2000; Hassenzahl, 2010). The designerly expertise falls on the strategy of selecting and/or combining the research instruments according to various design contexts. Experience also matters a lot for the services due to its intangibility, inseparability, heterogeneity and perishability (Zeithaml, Parasuraman and Berry, 1985). The notion of designing for services encourages to adopt different approaches to improve the service experience which provides an inspirational insight (Kimbell, 2011; Meroni and Sangiorgi, 2016; Zomerdijk and Voss, 2010). Hence, I propose that designing for experience and designing for services can mutually compensate for investigating the individuals involved in a cross-cultural service by the human-centered perspective and creating meaningful connections in the net of stakeholders of the service (Forlizzi and Zimmerman, 2013; Zomerdijk and Voss, 2010). The research combines different ethnographic approaches with different UX research tools in each phase of fieldwork.

Fieldwork

Fieldwork unfolded in three phases. The first phase is mapping the overall multicultural context in Milan. I adopted a digital ethnographic approach that enabled me to gather as much online data as possible within a short period. Such an approach helped me to overcome the problem of gaining field access at the beginning and planning stages of the ethnography. I used two tools in

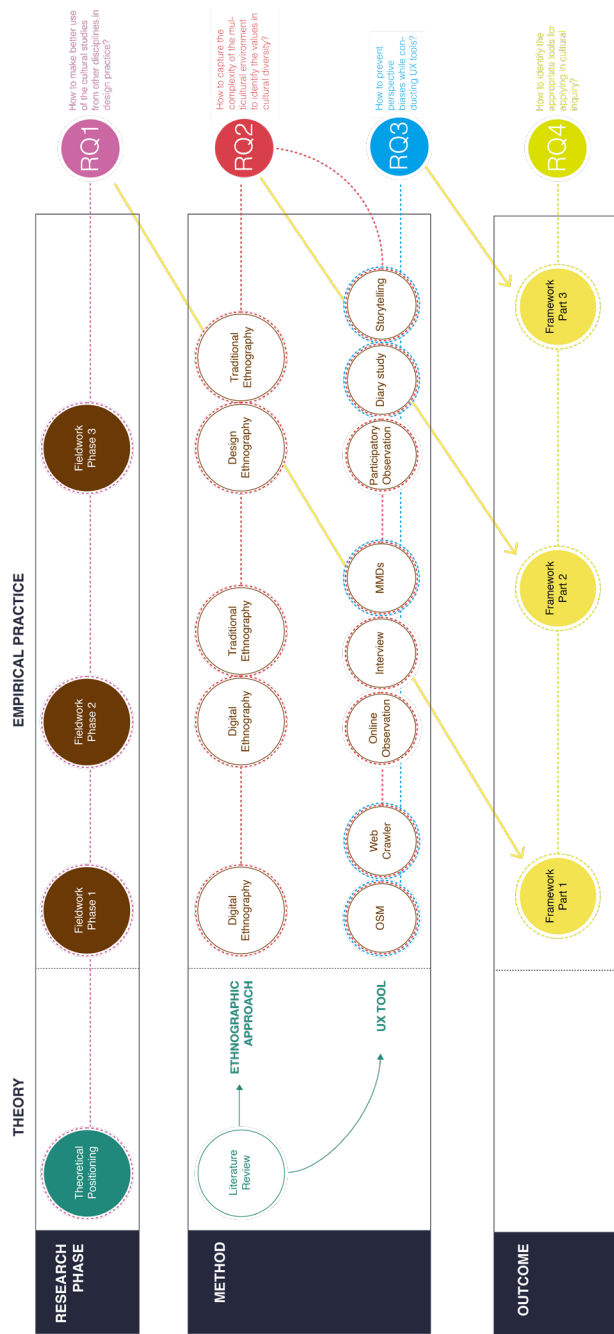


Fig. 1 – Research method.

this phase: OpenStreetMaps (OSM) was used to map Chinese-owned restaurants in Milan, while Web Crawler was for extracting the most frequent words in TripAdvisor's comments.

In the second phase, mapping the current Chinese catering service experience, I identified four Chinese restaurants in Milan according to the findings of the previous study. I gathered data from the Chinese and Italian customers' online comments, as well as interviews with service providers who own or owned the Chinese restaurants. There is a need for user group triangulation for comparing the data from different sources. I regard the UX tool, Mental Model Diagrams (MMDs) as an ideal instrument. I verified MMDs' use in the cultural inquiry through the UX course of Politecnico di Milano and refined it for triangulation purposes. This let me outline any deficiencies and design opportunities of the cross-cultural experience of Chinese catering services.

The last phase is the co-design with a new Chinese restaurant in Milan. The fieldwork was led by participatory observation within my roles as both a group member and a designer. The diary inquiry was the tool for self-reporting the observation under the guidance of Participatory Action Research. I also employed storytelling as a 'soft tool'. Other than the common use of storytelling tools in UX (i.e., Empath Maps, Persona, Storyboard) there are three ways to use stories in this research phase: to facilitate communication in co-design, to identify the opportunities of intercultural communication, and to analyze fieldnotes. Through co-design, the restaurant owner is able to better present cultural values in the service. The restaurant started to play the role of refreshing customers' stereotypes of Chinese catering business in Milan.

The design framework of designing for intercultural experience

The layers of designing for intercultural experience

Cultural models in anthropology provide cross-cultural designers with references for identifying cultural diversities across cultures, as well as for exploring cultural values hidden in the societies (cf. Hall, 1976; Hofstede, Hofstede and Minkov, 2010; Trompenaars and Hampden-Turner, 2012; Tudor *et al.*, 1997). However, these models see the culture at the national level which is too generic to be applied to cross-cultural design practices.

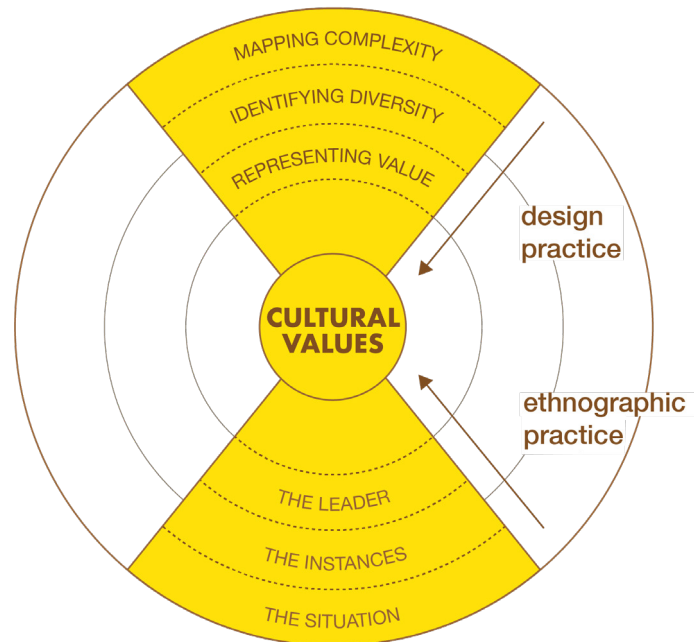


Fig. 2 – Approaching cultural values through layers of ethnographic and design practices.

The layers of designing for intercultural experience are proposed on the basis of Hofstede’s cultural onion model (Hofstede *et al.*, 2010), and the reflection of the models of cross-cultural design (Leong and Clark, 2003; Lin, 2007; Norman, 2005). As shown in fig. 2, three layers are between the layers of symbol and hero of Hofstede’s cultural onion model. Hofstede (2010) points out that the layers implied outsiders could observe cultural meanings through practices, and in this research sees the practice specifically as the ethnographic practice and the design practice. Designers can refine the design questions of their design practices according to the aim of different layers. By the ethnographic practice viewpoint, the layers are identified as:

1. the situation – the multicultural context wherein the cross-cultural design takes place. Design projects usually have limited time, and designers need to understand the context as much as they can within such a short time. In order to keep the richness of the materials collected from the field, the thin description is suggested for turning designers’ critical attention to the various influences at play in the realization of richness.
2. the instances – the typical examples of the multicultural context. For instance, this research takes Chinese catering service in Milan as the

field understudy, and four restaurants are selected as instances. The thick description is encouraged for further understanding the cultural values hidden beneath the stereotypes in respect of a focused area. When merging the instances, the overlapped features can be the re-confirmation, and the distinct ones are the compensation. Designers' expertise draws on employing the appropriate research instruments for observation and analysis so to highlight the design opportunities in respect to values of cultural diversity.

3. the leader – the positive example fostered by design that stands for meaningful cultural characteristics. Designers first need to identify a target with some potentials, such as the preconditions of the cultural characteristics, the service people's will to collaborate, the feasibilities of conducting fieldwork and so on. The service providers and the designers have different knowledge; thus, they usually hold distinct perspectives of the service. It is important for them to figure out how to share knowledge and communicate about cultural values equally. Since the communication is not only between designers and service providers, but also between the service people and their customers, designers also need to consider how to enable the service providers to communicate the cultural values with their audience and customers. In this layer, the designers' significant role is both as a participant and as an observer, so that they all employ tools that help communicate the design insights with non-designers and record the change process.

The circle of observation-analysis-improvement

The cultural inquiry is one of the most common means of conducting cultural studies in which the ethnography is considered as an effective approach. The traditional ethnographic approach shows some limits to apply to the design projects directly, three of which are pointed out in this research: 1) the field limit, 2) time limit, and 3) access limit. In the case of this research, digital ethnography can be considered as one of the complementary approaches. Making use of digital sources, such as big data and small data, is time/labor-saving and access-opening (Masten and Plowman, 2003) (Kozinets, 2010) (Ferguson *et al.*, 2014). The other complementary approach, the design ethnography, which derived from traditional ethnography, broadened the traditional ethnographic implementation in the design context (Crabtree *et al.*, 2012; Nova, 2014; Van Dijk, 2010). Design ethnography does not necessarily require the thick description of the observation and analysis in the

field; rather, it embraces various feasibilities which seemed unconventional approaches in traditional ethnographic practice, such as digital sources, thin description, design interventions and design artefacts (Baskerville and Myers, 2015).

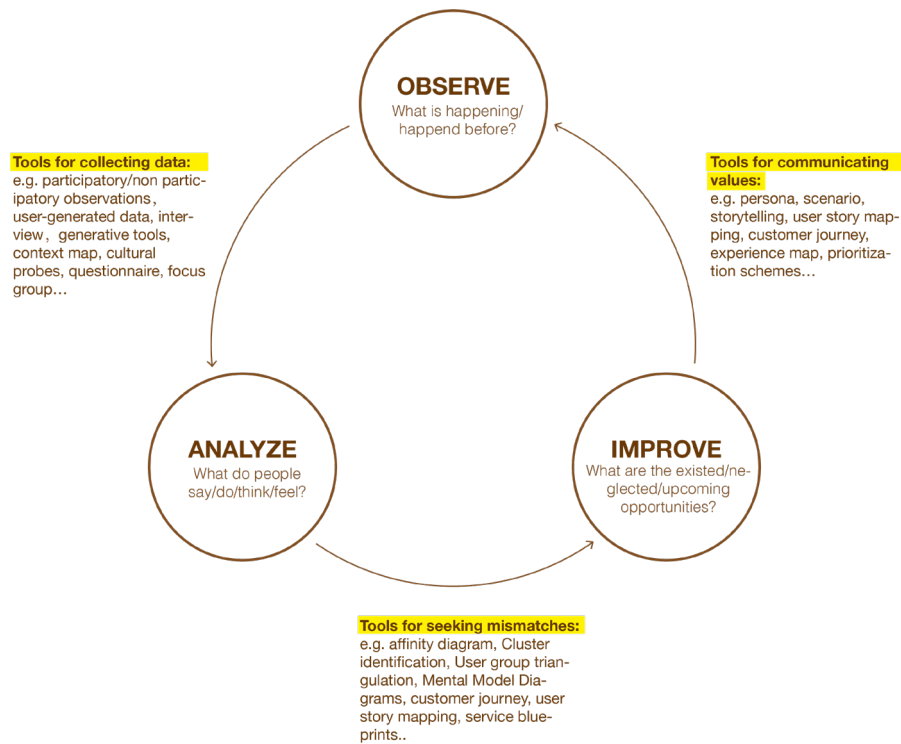


Fig. 3 – The circle of observation-analysis-improvement.

Thereafter, fig. 3 illustrates the second part of the design framework which is a circular process composed by three elements: observation, analysis, and improvement. This circle plays a role for guiding designers' practices in each layer of the first part of the design framework. The observation refers to the activities of data collection as to understand what is happening and/or what happened before. Usually, the oral accounts, physical resources (e.g. written documents and physical artefacts), and digital resources (e.g. user generated data) are considered as significant channels for collecting data from the field (Hammersley and Atkinson, 1983; Wang, 2016; Wittel, 2000). The analysis is the step of extracting meanings from the raw materials collected from the field, always along with the observation in traditional

ethnographic practice. Social researchers produce the thick description for explaining cultural phenomena or cultural groups according to their knowledge of society and culture (Geertz, 1973a; G. E. Marcus, 1998). The focus of analysis in design ethnography differs from traditional ethnography. Designers can benefit from the traditional ethnographic analysis approaches as to grasp meanings and processes are under the guidance of the ethnographic approach but with variations.¹

The matrix of designer's perspectives

One of the most debated topics in traditional ethnography is the researcher's perspective as an insider or outsider. The insider's perspective refers to the informant's view within a specific culture, which provides insights into cultural nuances and complexities; and the outsider's perspective refers to the researcher-relevant view by observing the culture in a general, non-structural, and objective way (Berry, 1989; Headland, Pike and Harris, 1990; Morris, Leung, Ames and Lickel, 1999; Pike, 1967). Researchers may adopt different approaches according to the insider/outsider's perspective, which may lead to distinct results. Thus, choosing the appropriate angle is significant for carrying out the fieldwork, and both the perspectives have pros and cons.

Researchers hold distinct views of user experience that also lead to different research approaches and results. Roller and Lavrakas (2015) pointed out that designer's role in design ethnography can vary from nonparticipant observation to participant observation. Blythe *et al.* (2007) carried out a grid analysis on five dimensions (reductive-holistic, evaluation-development, quantitative-qualitative, work-leisure based, personal-social) in respect of HCI study. When it comes to the cross-cultural experience study, the researchers' focuses vary from the prior.

Therefore, the research points out that designers' perspectives of what user experience is and what culture is intertwined to influence the choice of the research approach and the design tools. The third part of the design framework is proposed as the matrix of the designers' perspectives. As shown in fig. 4, the horizontal axis stands for designers' variable perspectives while carrying out the cultural inquiry that extends from the outsider's view to

¹ The dissertation elaborates the use of Mental Model Diagrams as an example of going through the circle of observation-analysis-improvement in the middle layer of the design framework. This article does not entail the example.

insider's view, and the vertical axis stands for designers' variable perspectives regarding UX as the individual experience or co-experience while doing cross-cultural design². This matrix provides a reference to cross-cultural designers to pick up the suitable tools from the "armory of UX tools".

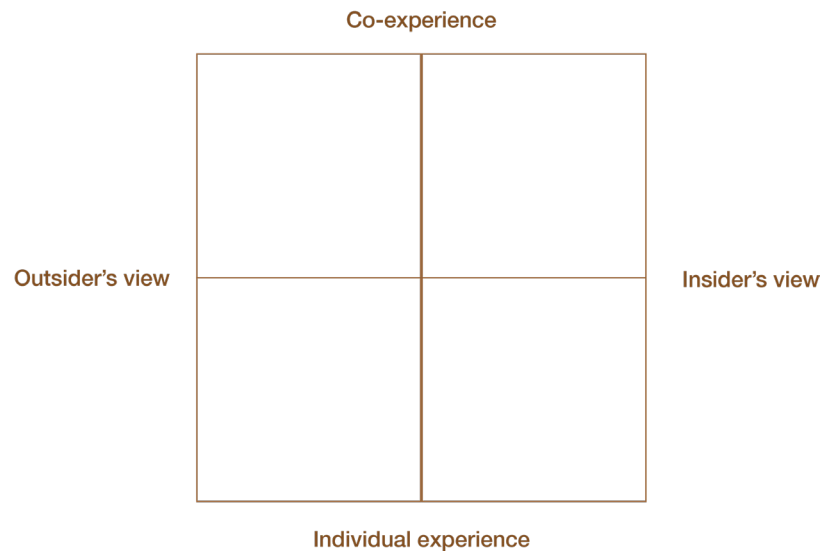


Fig. 4 – The Matrix of Designer's Perspectives.

Conclusions

This research developed the framework of designing for intercultural experience through the ethnographic approach within UX tools. Fig. 5 summarizes how this research takes benefit from this design framework to identify design tool in different phases of the fieldwork. The fieldwork shows an example of how this research attempts to foster the intercultural dialogue in the context of Chinese catering service through UX design.

As pointed out earlier, one of the challenges of cross-cultural design is that the designers have dual roles in the fieldwork, both as a designer and as a group member, which prompted designers to gain a comprehension of the field under study.

² The dissertation gives four examples reflecting the four quadrants for spelling out how to choose the research instruments in different phases of the fieldwork. This article does not entail the examples.



Fig. 5 – The panorama of the framework of designing for intercultural experience.

The design framework plays the roles as following:

- a. **Study an unfamiliar context.** Our identity as a group member defines our mental frame for perceiving the situations, and it makes us familiar with our own groups but not necessarily with the others. Thus, the multicultural context always remains unfamiliar for cross-cultural designers since there are different cultural groups coexisting and designers usually belong to one of them or even to none. It is important to study an unfamiliar context while doing cross-cultural design. The design framework developed in this research provides a general structure of investigating in a multicultural situation. Within our design framework, designers are able to identify what to investigate according to the specific position of the design process within the multicultural situation. They can also identify the appropriate UX tools according to the specific design questions and certain research steps.
- b. **Think out of the mental frames.** As a member of a cultural group, no matter it is one of the groups in the multicultural environment or not, the designer has his/her mental frame shaped by the cultural background. The designer's mental frame may lead to some preconceptions while doing fieldwork. We discussed the risks of perspective bias of doing design ethnography in this research. The design framework enables cross-cultural designers to take different perspectives into consideration while designing for intercultural experience as to prevent the limits of their mental frames.
- c. **Share with non-designers.** The other advantage the design framework brings to designing for intercultural experience is that designers can share their design expertise with non-designers, as well as within the design team. The UX design tools enable us to work efficiently in designing for the intercultural experience. These tools seem to be handy for designers but not readable for people who lack knowledge of design. The design framework helps designers to keep their design activities clearly in mind, and when they need to communicate with non-designers, they know which part of activities they shall wrap-up and interpret to their audience. For instance, the MMDs is a convenient tool for mapping the mismatches and alignments of a product/service, and we used it to identify the design opportunities for the Chinese catering service in Milan. We introduced this tool in the UX course and the students in the class did not report any difficulty in use. However, when we brought this diagram to the restaurant owner and waiters, they found out it was difficult to read. We had to communicate the findings gathered through storytelling.

- d. Share with design team.** Designers from different subjects have their special expertise and making use of their designerly expertise for improving the intercultural experience is significant. The design framework provides a theoretical structure of how to refine design questions and identify appropriate design tools while doing cross-cultural design. Such a structure embraces the variation of the specific design activities. In this research, we elaborated the use of UX tools in the fieldwork, however, we do not exclude the possibility of adopting tools from other design disciplines to conduct fieldwork. The design framework can play the role of leading designers to investigate in the field according to their different expertise and share the process and findings within the same structure.

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