

## **Cultura**

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# Cultura: A communication toolkit for designers to gain empathic insights across cultural boundaries

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## **Abstract**

Designing successful products and services that people like, requires an understanding of the context and the aspirations of those people. Over the past decade, a range of methods has been developed to help designers gain such empathy. These have worked well when designer and target user share a cultural context. However, designers often find it difficult to empathize with the user insights of individuals from a culture beyond their first-hand experience. To help designers step beyond this limitation, those user insights need to be placed in a larger understanding of the cultural context. In this paper, we present Cultura: a toolkit that uses nine cultural aspects based on cultural models, informing designers about user insights in a broader cultural context. The toolkit was evaluated in design sessions with four design teams. The findings indicate that Cultura provides inspiration and motivation for designers to gain empathic insights into users beyond their own cultural boundaries and to make effective designs for people.

*Keywords: Cultura, communication, user research, generative techniques, design tools, persona*

Products and services are sold increasingly in the global market. Over the past decade, the value of trade in products as well as in commercial services has nearly doubled (WTO, 2016). Until recently, designing for people in other cultures was mostly done by international companies from developed countries. But increasingly, companies from developing countries are also designing products and services for overseas markets and users/customers. One example of this is Huawei, a Chinese networking and telecommunications equipment and services company, whose products can be found in more than 140 countries worldwide, such as in Europe, the Middle East, and Africa (Huawei, 2015). This global trend has made the designer's job more challenging than ever. These companies and designers want their products to provide users/customers a fulfilling experience. To do that, they need to see their offerings 'from the users' side' (Fulton Suri, 2003), where more and more, that user comes from a different culture than the designer.

Understanding user experiences and gaining empathy with users has been the goal of much research in the past two decades (Bruseberg & McDonagh-Philp, 2001; Fulton Suri, 2003; Mattelmäki, 2006). Many companies have adopted empathic communication techniques, such as using personas (Pruitt & Grudin, 2003) to

represent their users/customers as people, and empathic research techniques such as contextmapping (Sleeswijk Visser, Stappers, van der Lugt, & Sanders, 2005) to obtain data for the personas. In most reported work, designers and users/customers have been from the same culture, so this understanding could build on a tacit shared basis. But when designing for (and trying to understand) customers from very different cultures, design teams can fail to recognize the importance of the empathic triggers these techniques bring. For example, in a cross-cultural design project the first author conducted about bathroom products, Chinese user insights were obtained and communicated to a Dutch/German design team. One user was quoted as, ‘I used my first salary to buy my parents a premium bathroom product to show them my love and devotion.’ This anecdote was not appealing to the design team at first, until they learned about *filial piety*, a core cultural value that explains the close and affectionate ties between children and parents in China. This example shows that such user insights need to be viewed in a larger cultural context.

The goal of this research is to develop structured tools for designers that augment techniques such as personas, adding a larger social-cultural background to the often individual and anecdotal perspective of user insights. We first reviewed the literature on empathic design methods to select tool formats, and culture theories to select nine aspects of culture. These were included in a communication toolkit called *Cultura*, similar to the goals of *persona* but anchored in cultural context. Next, the toolkit was evaluated in two sessions where design teams used the *Cultura* toolkit to generate informed design proposals. Finally, we discuss how the toolkit and approach can contribute to achieving cross-cultural empathy in design projects.

## **Literature review**

Design literature has shown that a growing attention has emerged to develop Human Centred Design (HCD) methods and techniques that uncover the life situations, needs, and values of people from other cultural contexts (Christiaans & Diehl, 2007; Lee, 2012; van Boeijen, 2015). On the basis of psychology of empathy, Kouprie & Sleeswijk Visser (2009) proposed that empathy is best achieved through a process in which the ‘empathizer’ (read: designer) not only studies the perspective of the ‘empathee’ (read: user), but also reflects on his or her own experiences in the area studied.

Literature also suggests taking cultural diversity into account when applying design tools and methods. Lee (2012) suggests that any method is ‘culturally bounded’ in the HCD field, so that design researchers should not fail to recognize the local situation where a method is applied. Techniques such as personas (Pruitt & Grudin, 2003), scenarios (Nielsen, 2004), and contextmapping (Sleeswijk Visser *et al.*, 2005) have been tailored to support designers to gain empathy with users from other cultural contexts (Hao, van Boeijen, Sonneveld, & Stappers, 2017; Vestergaard, Hauge, & Hansen, 2016; Walsh, Petrie, & Zhang, 2015). These techniques are mostly used to communicate user’s needs, emotions, and values from the individual perspective. However, Lee (2012) argues that a cultural context not only contain the traits or behaviours of the individuals, it is collectively formed by people in and through their everyday activities. Techniques that place the individual at the centre can cause the relatively invisible social and cultural values to be overlooked, leaving the designers ill informed.

To go beyond the limitations of approaching user context from an individual perspective, techniques for a broader understanding of the social (Postma, 2012) and the cultural (van Boeijen, 2015) aspects have evolved for gaining empathic understanding of the intended users. Postma (2012) created Sociona, a technique triggering designers to focus on person-to-person social interactions. Sociona tackles the social aspects of 3 to 4 people (e.g., parents taking care of children), but it does not address the larger scale of cultural aspects (e.g., how respect for the elderly is a more fundamental value in some cultures than others). Likewise, van Boeijen (2015) applied cultural models to explain practices, behaviours, as well as tangible manifestations, such as artifacts that a group of people have developed over time, to help designers towards creative solutions. One of her findings is that these theoretical cultural models need to be tailored to the ‘language’ that designers can recognize.

Designers need a practical support to deal with the complexity of gaining empathy with people who are physically and culturally distant. However, concrete tools that communicate from individual user experience (UX) to a broader cultural understanding are missing. In this study we develop and evaluate such a toolkit.

## **Research Methods**

To create the toolkit, we followed three steps: (1) Analyzing cultural models, (2) designing the toolkit, and (3) evaluating the toolkit in the field with designers. Each of the steps is described below.

### **(1) Analyzing cultural models**

To provide designers with a cultural basis, our experience suggested that components would be needed such as composition of cultural groups, their shared values, and how these values are expressed in daily practice. We reviewed the cultural models mentioned in van Boeijen (2015) and Postma (2012), because they have been successfully used in design practice. From these, we selected components that were promising for inclusion in a hands-on design toolkit. Selection criteria were that they could be illustrated with appealing examples, and did not require elaborate introductions.

### **(2) Designing the toolkit**

The toolkit was designed for use in a design workshop setting, informing and inspiring designers and encouraging discussions. To make it practical, it was scaled for use in a one-day workshop, by a design team whose members are not trained in cultural theory. Such a toolkit for communication should be flexible, and easy for designers to access, sort and share (Sleeswijk Visser, 2009). Following Rodriguez, Diehl, & Christiaans (2006) we decided to include both descriptive (e.g., background information) and experiential (e.g., scenario, video) user information. The cultural aspects selected in step (1) were given the form of a *cultural wheel* (explained in the results section).

### **(3) Evaluating the toolkit**

The toolkit was evaluated with user data gathered in China. This data was analysed, and the resulting UX insights were communicated to design teams with the help of the *Cultura* toolkit (shown in Figure 1). The design brief was ‘to design products and services enhancing university students’ social relationships in China’. The *Cultura*

toolkit includes two sets of data: (1) user data gathered specifically from the target group for the design topic at hand;(2) cultural information selected from theories to contextualize the user data.



Figure 1. Overview of the tools in the *Cultura* toolkit (details in Figures 3 and 4)

### *Gathering user data for the toolkit in China*

The user data were gathered from 26 Chinese students from a university in Shanghai using the contextmapping technique (Sleeswijk Visser *et al*, 2005). Participating students worked through a sensitizing workbook on the theme of ‘me and my university life’ during one week. Also, each of the students recorded a 1 to 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. Then, the students took part in a focus group interview with one of the researchers. Each of the three focus groups lasted about 2 ½ hours. All focus groups were video recorded and transcribed. Two of the three researchers analyzed the user data and translated them into UX insight examples, using an on-the-wall card-sorting technique (Sanders & Stappers, 2012). The insights were described in the form of cards and video clips (the second and third tools in Figure 1).

### *Design sessions with the toolkit in the Netherlands*

The design sessions were conducted in the Netherlands with 14 master design students or recent graduates who had similar levels of design experience. The students had grown up and received their education in European countries: The Netherlands (10), Germany (1), Turkey (2) and Italy (1). They formed 4 design teams and each team was with three to four design students to enable in-depth discussions. Each design session lasted approximately three hours.

In order to find out whether reflecting on their own experience would aid the design process (as suggested by Kouprrie & Sleeswijk Visser), two design teams in session B received a sensitizing workbook a week before the session. In it, they were asked to reflect on their own experiences in the area of ‘student life’.

Each session began with a half hour introduction about the toolkit. The design teams received and studied the printed *cultural wheel* (the first tool in Figure 1, for details see next section). For the rest of the first half hour, they were shown a set of 4 video clips from step (1). They had been asked to write down observations about the user context shown in the videos. After the video clips, the design team clustered their first observations as groups. In the next hour of the session, the team received the set of 72

insight cards, clustered according to the *cultural wheel*. 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 idea generation, the design teams presented some of their ideas and were asked to indicate which insight cards and cultural aspects they had used to generate their concepts. At the end, all designers were interviewed about how they experienced the overall process, and about their experience of using the toolkit (see Figure 2).

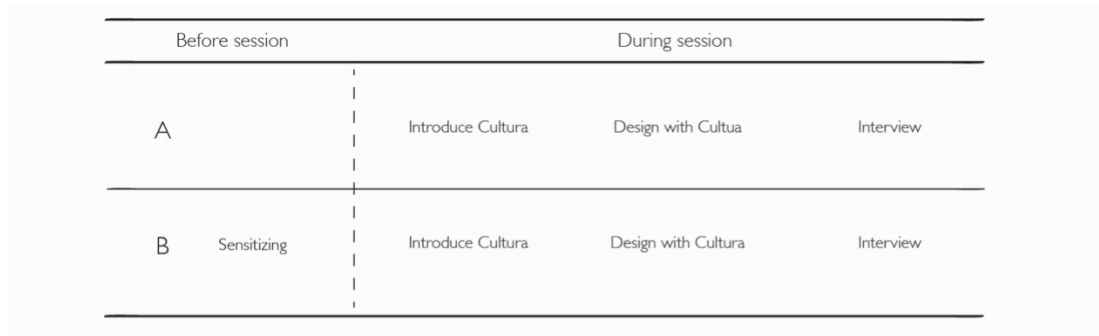


Figure 2.

In the evaluation, two design teams A only used the *Cultura* toolkit, two other teams B prepared with a sensitizing workbook.

All sessions were video and audio recorded, and transcribed. The first and second authors conducted the analysis by using the on-the-wall card-sorting technique (Sanders & Stappers, 2012).

## Results and Discussion

In this section, we first report the findings of cultural model analysis, followed by the results of toolkit design, and then evaluate the toolkit.

### (1) Results of analyzing cultural models

As mentioned above, we needed elements from theories that could be translated to design tools for the *Cultura* toolkit. Out of several models and approaches mentioned by van Boeijen (2015) and Postma (2012), we selected two that appeared to have these qualities: Engeström's model of an activity system (AS) (2001) and Hofstede's onion model (OM) (2005, p.7).

Activity Theory is a cultural framework that explicates the structure, development, and social-cultural context of people's activities (Kuutti, 1996). Engeström (2001) models an activity system as six components that explain the what, how, and why of people's behaviours in their social-cultural context: *subject*, *object*, *artifacts*, *rules*, *community*, and *division of labor*. 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 the performance towards these *objects*. The AS indicates that a cultural context consists of *rules* (written and unwritten), the *community* (a group of people who share values and meanings), and the *division of labor* (how roles of the group members are divided). Activity Theory argues that one needs to take all these components into account to develop a meaningful understanding of the human psyche.

Hofstede's OM (2005) illustrates that *values* are the core but invisible part of culture manifested through cultural practices. It explains that in discovering the *values* of a culture, one needs to first peel off the outer layers of *rituals*, *heroes*, and *symbol*.

Our selection from these theories had to form a practical tool for designers. This meant we needed to adjust and simplify the language and the complexity of the models. For example, where Engeström talks of 'artifacts', designers are more familiar with 'things and products'; instead of 'subjects striving for objectives', designers are more likely to speak of 'users trying to achieve their goals'. Regarding complexity, both of the theories not only explicitly explain each component mentioned above, but also discuss the relationship between the components. For our toolkit, we decided not to elaborate on the relationship, but the toolkit should invite its users to address such combinations if they thought them appropriate.

As a result, a structure consisting of 9 cultural aspects was built based on these models. Table 1 below presents these aspects, indicating from which model(s) /component(s) each aspect was derived. We added a final aspect, *Macro developments*, even though it was not in the models, because the designers not only need to understand the importance of the current culture, but also those of the trends and developments that influence people's everyday lives.

Table 1: The descriptions of the nine cultural aspects and their related models

	<b>Cultural aspects</b>	<b>Descriptions</b>	<b>Related Components and Models</b>
1	<b>Socio-cultural values</b>	Values are the social standards concerning what is acceptable and what is unacceptable, important or unimportant, right or wrong, workable or unworkable, in a cultural context. Individual values may differ from those of groups.	<i>Value</i> (OM)
2	<b>The Material World</b>	The 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.	<i>Symbol</i> (OM) and <i>Artifacts</i> (AS)
3	<b>Community</b>	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 (set the border) for each project.	<i>Community</i> (AS)

4	<b>Division of Roles</b>	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; and division of roles by gender.	<i>Division of labors</i> (AS)
5	<b>Rituals in everyday lives</b>	Rituals are sequences of collective activities to reach desired ends, which are considered as socially essential. This also includes daily routines, special events, and activities in people's spare time.	<i>Rituals</i> (OM)
6	<b>Knowing the rules</b>	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.	<i>Rules</i> (AS)
7	<b>Angels vs. Devils</b>	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.	<i>Hero</i> (OM)
8	<b>Goals of end users</b>	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).	<i>Objects</i> (AS)
9	<b>Macro developments</b>	Macro developments describe contextual factors such as developments in demography, economy, and politics, including the composition of the population, geographical characteristics, development of infrastructure, and so on.	

## (2) The results of toolkit design

The final design of the communication toolkit includes 3 tools already indicated in Figure 1 above: a visualized *cultural wheel*, a set of insight cards, and a series of videos.

The *cultural wheel* shows the aspects of Table 1 on a large printed sheet of a visualized wheel (See Figure 3). The form of a wheel was chosen to make the information accessible to a design team, and to give each aspect equal weight. The aspect *socio-cultural values* is positioned in the middle of the wheel because it is the core that binds all other aspects.





Figure 3. The insight cards are distributed on the Cultural wheel according to the 9 cultural aspects

The 72 UX insight examples were communicated in the format of cards, since they can be used flexible, spread out, studied individually, placed together, and shared among members in a design team (Beck, Obrist, Bernhaupt, & Tscheligi, 2008). Each example was categorized according to the nine cultural aspects (see the bottom-left corner of the cards in figure 4). Most of the insight cards included raw user experience data such as user quotes, images from the field as suggested by Sleeswijk Visser (2009). The other cards consisted of information from literature and desk research, especially for the aspects *socio-cultural values* and *macro developments*. Figures 3 illustrates how the insight cards were presented on the *cultural wheel* and Figure 4 gives examples of the cards. In addition, four video clips from participants in the data gathering study were selected.

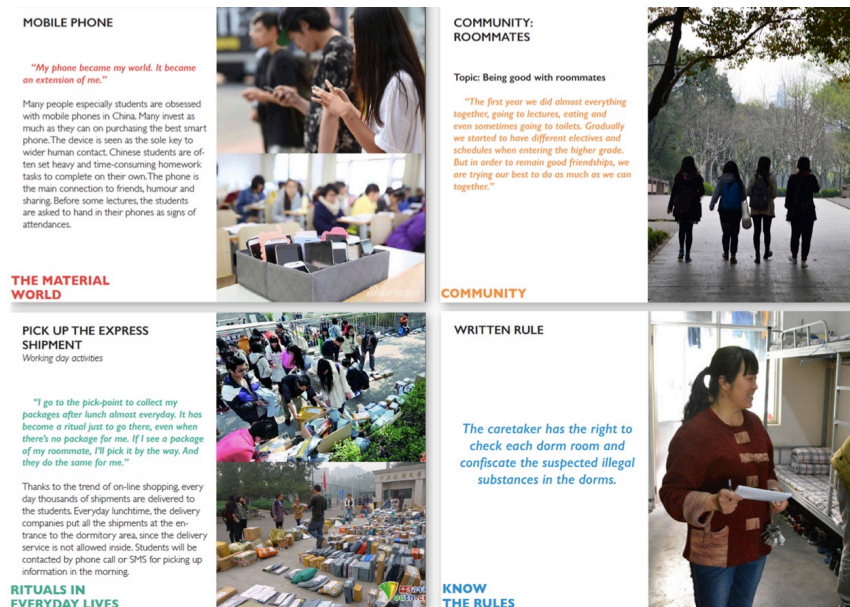


Figure 4. Example of insight cards categorized according to 9 cultural aspects

### (3) The results of evaluating the toolkit

Generally, all the designers in the sessions considered *Cultura* as an inspiring toolkit in helping them understand user insights in a different cultural context and lead

towards creative design ideas. Moreover, most designers said the design format of *Cultura* 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. The groups of designers who got sensitized with their own experiences, turned out to have more design ideas (7 and 8), compared with the groups who did not (4 and 6).

In the remainder of this section, we will first discuss our findings on how each tool of the toolkit was used; then we report other issues during the sessions. Our findings are structured based on two main sources: the designers' reflections on the *Cultura* toolkit, and the observations during the design sessions.

#### *The use of the tools*

**Cultural wheel** provided designers a clear overview of what aspects can 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 aspects 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-its (notes) and to arrange the filtered insight cards (Figure 5). 'It helped us to make connections among all the aspects and based on the connections we develop an understanding about their situation,' explained a designer. Next to that, the designers were asked to reflect on the 9 cultural aspects specifically. Each of the aspects and their related cards were found to contribute to generate an overview of the intended cultural context: 'The connection between those aspects 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.



Figure 5. The designers using the toolkit in the design sessions

More specifically, the aspect *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, this aspect and the corresponding cards could not inspire design ideas, but were used to check the values to confirm or to select ideas. The aspects *the material world* and *rituals in every day 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 aspects *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 aspects did not contribute to generating ideas directly, but they supported designers to generate a holistic view on the users’ situation. For example, *angels vs. devils* helped designers to find out who the users wish to become, so that they could understand what social pressures they were struggling with in their lives. Moreover, some designers found that some aspects of behavior-related insights were missing in the structure of *cultural wheel*. They observed a number of interactions in the video clips, which they could not assign to any of current cultural aspects, such as expressions and behaviors.

**The insight cards and video clips** provide static and dynamic ways, respectively, to communicate UX insights. 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.’ To be more precise, we found the information conveyed by video clips not only mentioned most of the aspects in the *cultural wheel*, such as *the material world*, *angels vs. devils*, *rituals in everyday lives*, but also showed the behaviors of the intended users such as the ways of expression, gestures and so on. These behaviors seemed to help the designers feel almost as if they were there. Additionally, it gave the designers a direct impression of the cultural distance between themselves and the intended users. According to a designer: ‘These behaviors (in the videos) are very helpful in understanding the needs of people when facing a new culture.’ Each of the cards consisted of either user quotes or narratives, and a picture from the local context, which gave a more in-depth explanation to what designers sensed from the video. Moreover, the insight cards covered each aspect of the *cultural wheel*, giving more elaborate information than the video could offer.

**The sensitizing workbooks** for designers served as the ‘accelerator’ for the design 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 groups in session B had more discussions and ended up with more ideas compared to those in session A. There could be two reasons: one is that the workbook helped them to easily spot differences between their own situation and that of the users; another is that the topics of the excises in the workbook covered many aspects of the *cultural wheel*, which helped prepare the designers in advance.

#### *Other observations*

As expected, the designers’ own memories of student life played a positive role during the sessions. It helped designers gain empathy with the unfamiliar context. By comparing it to their own experience, they could relate the unfamiliar situation to their own context. On the other hand, it helped trigger design ideas. During the sessions we found that designers kept switching viewpoints from an ‘outsider’ to an ‘insider’, and vice versa. In this way, they found many differences and things in common between the familiar and unfamiliar contexts. All the designers considered those 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.

In addition, we noticed that most designers were more attached to the differences when generating ideas: ‘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. However, the downside was that they could overlook things many had in common that actually were very meaningful to the intended context. Especially when the difference was too large, designers found it hard to relate to their own experience.

## **General Discussion and Conclusion**

This study developed *Cultura* and explored how it can be used as a communication toolkit to augment a cultural basis to the individual user experiences. We summarize the benefits of *Cultura* as follows: *Cultura* categorizes user insights into 9 cultural aspects. It provides a structured cultural basis, which helped designers understand and build connections among the UX information they received. This cultural basis helped to guide designers through the design session, from user insights to the first design idea. In addition, the UX insight examples, after receiving a basis of the broader cultural context, appealed to the designers, and triggered their curiosity. More importantly, the combination of the structured cultural basis and UX insights enabled the designers to think beyond stereotypes. During the interviews we learned that most of them had had more or less stereotyped impressions of the target users in their mind when they entered the sessions. Most of the designers indicated that *Cultura* helped them to broaden their mindset.

The combination of tools enriched the understanding of the intended user/context: video clips brought the narratives to life, whereas the insight cards gave in-depth explanations to the video clips. The *cultural wheel* served as a primary tool categorizing and communicating the UX insights to the designers. The current format did not emphasise the relationships between cultural aspects explicitly, but it was interesting to observe that the designers started making these connections themselves during the sessions. Moreover, we found that the *cultural wheel* supported the designers to organize and manage the UX insight cards effectively during the sessions. Inspired by this, we believe there is room to extend this to a research tool, which can serve as a lens for designers to collect relevant data if they conduct user research by themselves. Meanwhile, we also noticed room for improving the divisions of the cultural aspects. For example, some designers observed interesting user behaviors in the video clips, which could not be clustered according to the current cultural aspects. There should be a way to fit these behavioral related aspects to the *cultural wheel*.

Finally, when developing *Cultura*, 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 UX insight examples represent the Chinese students’ lives. This shows the necessity that we need to prevent designers from interpreting *Cultura* (or any user insights) as a statistically, absolutely complete and true representation of a cultural context. Instead, *Cultura* at its best is an authentic

toolkit that invites designers to engage with relevant cultural aspects by giving them both structured cultural basis and UX insights.

*Cultura* worked effectively with design students. To further develop this toolkit to inform design teams about cultural insights, a next step would be to apply the toolkit in the more demanding contexts of commercial design practice. Although we did not test the design ideas coming out of the sessions beyond our own general judgments, this initial study is promising. *Cultura* can be an inspiring motivation for designers, giving them a broader view of the cultural context in order to build an empathic understanding of the intended users, and to make effective designs for people.

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## Author Biographies

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She is a Ph.D. candidate in the Faculty of Industrial Design Engineering at Delft University of Technology (TU Delft), and founder of HAO Design Lab. She graduated with distinction (Cum Laude) with an MSc. Design for Interaction at TU Delft in 2013. Currently she is a member at ID-Studio Lab, TU Delft, developing contextual user research tools and techniques for designers to cross cultural boundaries in international design projects.

### Annemiek van Boeijen

She is an assistant professor in the section Design Aesthetics, Faculty of Industrial Design Engineering, Delft University of Technology. Her research focuses on the role of culture in design processes. The aim is to develop knowledge and design methods and tools that support designers with a culture-sensitive approach to design. She is initiator and coordinator of the Delft Design Guide, moderator of the awarded Massive Open Online Course Product Design: The Delft Design Approach, and

established the blended online-offline course for design practitioners and students Culture Sensitive Design.

### Pieter Jan Stappers

He is a full professor of Design Techniques in the Faculty of Industrial Design Engineering (IDE), Delft University of Technology (TU Delft). After an education in experimental physics (MSc 1984), he made the switch to IDE at TU Delft, and followed a research path that led from human perception, spatial imagery, and Virtual Reality (PhD in 1992), to design tools and participatory design techniques. His current activities include director of the Graduate School and Research of IDE, a design research program with 110 PhD candidates. Key elements in his work are 'research through design', 'experiential prototyping', and 'contextmapping', which can be found on his webpage <http://studiolab.io.tudelft.nl/stappers/>.