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# Cultural Versioning of Mobile User Experience

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## **Abstract**

Most current user interfaces and services are based on psychological and social models drawn from European and American research traditions. After identifying preferences and value orientations in different cultures from a series of user studies, this research tries to form a theoretical base for understanding local cultures and designing different user experiences for people from different cultures. The goal of this research is to explore cost-effective strategies for developing multiple versions of user interfaces and services for different cultures, perhaps through cultural templates or through special versioning tools.

## **Keywords**

Cultural differences, User experience, Interaction design, Cultural model, Cultural template, Versioning tool, Cultural repository, Cross-cultural design

## **ACM Classification Keywords**

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

## **General Terms**

Design, Measurement, Theory

## **Originality of the work with respect to current concepts and techniques**

Many theories and models of cultural differences have been presented by sociologists, social psychologists,

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*CHI 2010*, April 10-15, 2010, Atlanta, Georgia, USA  
ACM 978- 1-60558-930-5/10/04.

and intercultural communication educators (e.g. Hofstede, Hall, etc. since 1960s'. [1, 2, 3] Some researchers are keeping records for each culture and their preferences, and providing supporting documentations and guidelines, in order to help developers in designing user interface rather than performing analyses each time a new interaction system is developed [4,5]. Constructing an updating international cultural repository in the internet has also been tested [6].

The motivation for this research originates from our mobile service localization and internationalization projects in Europe and China. It is found that localization is far beyond language translation. In many cases, the whole service ideas need to be reconstructed. For example, when we introduced MobilEdu, a mobile learning service to China, we found that the results of the market and user studies done in Europe were not applicable because of local learning culture and education policies. The service architecture needed to be redesigned from the very beginning [7].

My research tries to bridge the gaps between existing cultural difference theories and the needs of mobile service design practices. The basis of this work is comparative research on different cultures through qualitative methods (e.g. cross-cultural service design projects) and quantitative methods (e.g. remote mobile usage data collection and data mining) in order to develop cultural models and provide templates and versioning tools for cross-cultural user experience design that go beyond surface changes and address the underlying cultural issues associated with particular cultures. Cultural versioning tools for service user experience have not been studied before and I plan to discuss them comprehensively in my dissertation.

### **Importance of the work with respect to fundamental issues and themes in HCI**

Cultural diversity makes it unrealistic for designers to rely on intuition or personal experiences of design. Practices result from life long training of human and set rules and circumstances. Hence, this research deals with how differences between people from different cultures impact their interaction manners in specific circumstances. History and values can also impact on user's perception.

The percentage of the service sector is growing rapidly over the product sector in the world's economy. The same thing is happening in the mobile industry. It seems that mobile service design could be even more culture dependent than physical mobile phone design, because different language variants of a single phone model can be popular in all countries, but it is rare that a mobile service with just a translated user interface is appealing to local users of different cultures. As the mobile service continues to develop globally, answering these questions, and exploring, then exploiting, these dimensions of culture, and cross-cultural user modeling methodologies, will become a necessity for successful cross-cultural user experience design.

### **Results to date and their validity**

Several papers have been written based on the following research projects so far:

*1. Remote mobile testing and interview based on Smartphone360 tool.* This research tool can be regarded as a spyware tracking all mobile phone usage data in real life with good privacy control. We have done a series of such remote studies on more than 5000 users in the US, Europe and China. The following cultural differences were found: (a) the reason why

research results of objective observation and subjective evaluation correlated poorly in China is not only “Face” issue. More important is that the “Doctrine of the Mean” way of thinking is so popular in Confucian cultures, because the same phenomenon was found in both the face-to-face interview and the remote anonymous questionnaire. The goal of “Doctrine of the Mean” is to maintain balance and harmony from directing the mind to a state of constant equilibrium. The person who follows the mean is on a path of duty and must never leave it [8]. (b) Cultural differences in mobile personal networks are also found in this research. Comparing to Chinese mobile personal networks, European personal mobile social networks are a bit broader and top contacts are less concentrated; (c) People from different cultures tend to learn mobile phone interaction tips in different ways. US users prefer searching in the internet, European like to check the manual, while Chinese tend to ask other users for helps due to their culture of “enjoying teaching others” [9].

### *3. Mobile internet content consumption data mining.*

Based on the content consumption statistics for the English and the Chinese websites of a mobile widget content service with 20 million registered users, it was found that Chinese speakers are quite different from English speakers in term of content creation, selection and consumption preference in mobile internet. (a) Chinese speakers created less content in average but the categories were more diverse, while English speakers’ content selection is more focused even though there are more options for them. (b) English speakers tend to use widgets for individual purposes but Chinese speakers would like to use them as community tools. (c) Weather widgets make a lot of sense for English speakers, while Chinese speakers like

the text and visual content more. (d) Cool interactions and features add more value for English speakers but the widgets with strong visual impact and high quality text content get more favor from Chinese users [10].

### *4. Practices and user studies in a Chinese style keypad design and a hybrid text input method design.*

Traditionally, only speed, error rate, and fatigue etc. parameters are considered in input method design evaluation. Actually, unlike Latin text input, shape based Chinese character input is more like a block building game and there are many more possibilities in interaction design. We assume that pleasure is also an important aspect in input user experience and try to develop a pleasurable input method according to the theory of pleasurable interaction design proposed by previous researchers. The fundamental differences between symbolic language input and Latin language input are discussed and some successful adaptation solutions for Chinese character input are described. This research proves that the pleasure driven and culture-centric interaction design can significantly improve Chinese text input user experience [11, 12].

*5. Future plan and next step.* My previous research projects generated lots of assumptions that need to be validated. My next step is to focus on validating the assumptions of content preferences, interaction habits and service value perceptions through larger scale user research and cross-cultural mobile service development practice. My goal is to form a systematic theory and create algorithms for a cultural versioning tool. A typical user experience topic and certain cultures will be chosen for the versioning tool prototyping and testing. And the feasibility and efficiency of the cultural versioning tool will be discussed in the later stage.

### Contribution of the work to HCI

Information products have become a worldwide commodity. In the intelligent user interface design community, over the years, fueled by the recognition that different types of users are motivated by different needs and goals, attention has been given to the development of adaptive user interfaces. However, this kind of research has given little consideration to the influence that culture plays in shaping what users want out of the computational experience and little thought is given to how interface should be designed to maintain a high level of multi-cultural usability and playability. In order to create user experiences that accommodate different ways of thinking, therefore, how this issue should be addressed in the user interface through an understanding of the world's cultural differences is very important, since, in many cases, a user will react to interfaces on the basis of cultural background. For example, computer graphical user interfaces have stressed the use of "real world" objects in the hopes of making the experience of using a computer a familiar one. In fact, different cultures use different schemes for representing information. This research develops cultural knowledge and tries to form a methodology that enables user experience designers to build that knowledge into their designs. Another expected result of this research is to suggest an efficient and sustainable strategy for developing multiple versions of user experiences for different cultures. Obviously, if applicable, cultural templates and special versioning tools will be a cost-effective and feasible way to do that. A culture-sensitive user interface may be also an answer. The minimal goal is to provide practical guidelines for quickly understanding local users and designing cross-cultural mobile services.

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