

# The Impact of Culture on Usability: Designing Usable Products for the International User

Carol Lodge

Human Interactive Technologies, Inc.  
Jamaica, West Indies  
clodge@gmail.com

**Abstract.** The purpose of this paper is to examine the impact of culture on the usability and design of global applications. Specifically, this paper will serve to address the theoretical implications of Hofstede's cultural dimensions and the impact of these cultural models on designing usable global products. The paper concludes with a discussion regarding best practices for designing international products.

**Keywords:** Culture, usability, International User.

## 1 Introduction

The impact of culture in designing global applications such as websites and cell phones can be regarded as one of the most overlooked aspects of the technology product development cycle as companies try to save costs by developing a generic to serve all users. Frequently, companies are inundated with the marketing vision of a product without considering the importance of integrating culture in the development and use of global applications.

What is culture? How does culture impact the development and design of a global application? Culture by definition is often reported within the Human Computer Interaction body of literature as having values and behaviours shared by a group of individuals. Each culture can have its own values, behaviours which may be defined by certain elements such as language, colours, symbols, or icons. The influence of childhood, education and society can also affect the way individuals interact with other groups. Each particular culture will share similar attitudes as well as think and act similarly in certain situations. Cultures can also be defined by boundaries or regions within a country where various languages are spoken. A culture grouped according to cultural conventions may also exist within an organization or company. For example, employees in a company may belong to a culture as they share a common bond or group that resides in their company.

With the recent emergence of companies marketing products globally, the increasing interest in culture by manufacturers and developers is evidenced by the fact that culture and its impact on usability is an important factor in the product development process which directly influences international users who use these applications.

Depending on the cultural environment of a user, the user may focus on aspects concerning the usability and satisfaction of global applications. As a result, it is important that user interface design elements such as date and time formats, navigational structures, colours, symbols, icons and instructional direction are addressed before global applications are marketed internationally.

## 2 Cultural Dimensions and Usable Product Design

One of the most often quoted and influential researchers within the field of cross-cultural research is Geert Hofstede [2], who published a landmark cultural study of hundreds of IBM employees in 53 countries over a six-year period, also confirms how cultures perceive things differently. In his cross-cultural studies, Hofstede analyzed how patterns of acting, feeling and thinking are often ingrained in people by late childhood, and any differences in these cultural patterns are displayed in the choice of symbols, rituals and values by a culture. He created five dimensions of culture and the 53 countries surveyed were rated for each dimension on a scale of 1 to 100. These dimensions of culture included power-distance, individualism/collectivism, masculinity/femininity, uncertainty avoidance and short-term/long-term orientation.

1. Power Distance dimension involves the extent to which less powerful members expect and accept unequal distribution of power within a society. This dimension is measured by the Power Distance Index (PDI). Cultures with a high PDI tend to be attracted to leaders with a certain level of dictatorship, and teachers as well as parents are highly respected. Conversely, cultures with low PDI expect more equality, supervisors and subordinates are closer, and organisations have flatter structures.
2. Individualism vs. Collectivism dimension refers to cultures with loose ties where everyone is expected to look after themselves and their immediate family. Collectivism believes in strong group relationship where loyalty is dominant.
3. Masculinity vs. Femininity dimension refers to gender roles within a culture. Masculine cultures exhibit qualities that are assertive, tough, and competitive while feminine cultures exhibit family oriented and tenderness roles.
4. Uncertainty Avoidance dimension involves cultures that behave differently with regards to uncertainty. Cultures with low uncertainty avoidance are more comfortable with uncertainty. On the other hand, cultures with high uncertainty avoidance prefer rules, can be resistant to change and uncertainty may result in high anxiety.
5. Short-term vs. Long-term Orientation dimension examines the degree to which a culture embraces traditional values to new age values or way of life.

Relative to Hofstede's cultural dimensions Marcus and Gould [3] outlined how each of these dimensions can influence aspects of user interface and web design. These are as follows:

1. Power Distance – Information access, mental models hierarchies, value given to authoritative and official symbols.
2. Individualism vs. Collectivism - Interfaces may reflect importance given to personal achievement, sense of social morality and emphasis on change.
3. Masculinity vs. Femininity – Masculine cultures would focus on user interfaces and web design that offer such elements as gender/family/age traditional values,

and user navigation emphasizing exploration and control, whereas the blurring of gender roles and mutual cooperation would be important interface elements for feminine cultures.

4. **Uncertainty Avoidance** – High uncertainty avoidance cultures will tend to prefer such elements as using clear metaphors, navigational structures that prevents the user from being lost. Interface elements for low uncertainty avoidance cultures will include such elements as less controlling use of navigation and the use of color, typography to emphasize information.
5. **Short-term vs. Long-term Orientation** – Long-term cultures would emphasize aspects of user interface design to include elements such as the use of relationships as a basis for credibility and practice and practical value focused content. Likewise, interface elements for short-term cultures would focus on content based on truth and the use of rules as a basis for information and credibility.

Similarly, cultural markers have been used to facilitate culturability which is a term coined by Barber et al [1] used to describe the relationship between culture and usability. They proposed the development of cultural markers as elements prevalent or preferred in a particular culture should be identified and incorporated within web design. Examples of cultural markers are national symbols, colours, icons, fonts and belief systems that contribute to the design of web systems that directly affect the user's interaction with the interface.

The development of global applications should accommodate the user's cultural background and environment. Before global products are designed, companies will need to ensure that the correct information is implemented by validating the above design and influences with the users in their target cultures.

### **3 Four Strategies for Designing Usable International Products**

In marketing products internationally other strategies that would prove useful and should be considered when developing usable global applications are as follows:

#### **3.1 Know the International User**

When designing international usable products it is important to assess the user's culture, education and behaviours. As in the development of any usable product the first question should ask what users hope to achieve through the use of this product. A detailed design document should be maintained that ensures all design goals are clearly explained about user requirements, etc.

#### **3.2 Know the User's Language**

English is considered the official language of only a few countries, which is a small percent of the world's population. However, most websites and applications are in English. While many users speak English as a second language, most prefer to converse in their native language. As companies continue to conduct business globally, the need to localize applications becomes more important. For example, localising a website into languages other than English can result in the site reaching a larger part

of the global online population. However, deciding to localise an entire site depends on the viability of international market opportunities and can lead to several challenges. Before localizing a site companies should consider languages that are appropriate for the target market. For example, include multiple languages within one country. For example, consider incorporating French and English for Canadian websites. Consideration should also be given to user elements such as dates, time, etc. Different countries have different conventions for the use of date and time. For example, the date format used for the US is month/day/year, while other countries use day/month/year. Always use words for the months and use a four digit number for the year.

### **3.3 Know Cultural Implications and Use of Colour**

The integration of colour into the user interface and web design may influence the user's expectations about navigation and content. It is important to assess the use of colour and its meaning within certain cultures as the use of colours maybe perceived as being negative in one culture and positive in another. The recruitment of qualified international users and usability specialists to test the appropriate use of colour in designing international websites can prevent disasters from occurring.

### **3.4 Know Cultural Use of Symbols**

Symbols or icons used on international user interfaces can convey various meanings for different cultures. Designers should avoid references and symbols that will not be properly translated from one culture to the other.

## **4 Conclusion**

To ensure that the final design is globally usable, professionals and users within your target countries should be used to evaluate your application before going public as they can reveal problems that were not taken into account during the design phase. Additionally, the application or website should be tested regularly for improvements. As the usage of international applications increase, the challenge of enabling more people from various countries to use content and tools effectively will depend increasingly upon global usability solutions and cultural understandings. By attending to the needs of International users with the development of usable applications and websites, companies will achieve greater success and increased profitability.

## **References**

1. Barber, W., Badre, A.: *Culturability: The Merging of Culture and Usability*. Human Factors and the Web (1998)
2. Hofstede, G.: *Cultures and Organizations: Software of the Mind*. McGraw Hill, New York, NY (1997)
3. Marcus, A., Gould, E.: Cultural Dimensions and Global Web User-Interface Design. *Interactions* 7(4), 32–46 (2000)