Cultural Preference Identification for Cross-cultural Website Design

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Keywords: Cross-cultural design, Website, Usability.

Abstract: In this article analysis of available cross-cultural website design model methods for cultural preference identification is performed. Users from various cultures not only speak different languages, but also think and act differently. These differences impact process of how users perceive and use information systems, including websites. Therefore there is emerging need for models, methods and technologies for design of usable cross-cultural websites. One of the main tasks relating to usable cross-cultural website design is to gather data about cultural preferences for a selected culture. We propose to extend the existing methods for cultural preference identification with additional cultural dimension theories and methods for extraction of data from culture preferred products.

1 CROSS-CULTURAL WEBSITE DESIGN

Since the introduction of the Internet, various services have been created and become available for users around the world. World Wide Web and websites became a widespread communication tool.

Initially, Internet services, including websites, were developed mainly in English language typically for users from western countries. However only 8-10% of world population and 35% of website users use English as their primary communication language (Takasaki & Mori, 2007).

It is concluded by various authors that such cultural differences as language, thinking patterns and communication style can significantly impact website usability (Rau et al., 2011). Because of such conclusions there are increased demands for research about cross-culturally usable website design models, methods and technologies.

Though, as Jasem Alostath with co-authors (Alostath et al., 2009) admit, for website designers there is almost no unified models, methods and tools, that would support cross-cultural website design. Alostath also admits that there are no sets of published guidelines that would gurantee cross-cultural usability.

One of main challanges for website designers is to aquire detailed data about cultural preferences of certain culture in a website design requirements stage (Kondratova et al., 2007; Rau et al., 2011). Such cultural preferences include for example websites colour, layout and information density preferences.

The aim of this article is to summarize and analyse the existing methods for cultural preference identification for cross-cultural website design and develop an improved methods. To reach this aim the following tasks are brought forward:

1. Analyse previous researches that relate to cross-cultural website design and summarize methods for cultural preference identification.

2. Based on analysis and synthesis of literature propose improved methods for cultural preference identification for cross-cultural website design.

2 CULTURAL PREFERENCE IDENTIFICATION METHODS

From analysis of literature (Hsieh et al., 2009; Kondratova et al., 2007; Rau et al., 2011), it can be concluded that there are two main approaches which can be used for usable cross-cultural website design. One is to use existing theoretical studies about cultures and the other is to involve directly into life of culture with testing and observing users. The latter approach usually requires long-term involvement, which is often not affordable for

website designers.

Instead, most cross-cultural design methods recommend using data from cultural theories combined with published empirical studies.

Some authors, including Gevorgyan and Manucharova (Gevorgyan & Manucharova, 2009) successfully applied cultural dimension theories from psychology, sociology and communication science for cultural preference identification in process of cross-cultural website design.

Well known studies that are used for cross-cultural information system design are published by authors Geert Hofstede (Hofstede et al., 2010) and Edward Hall (Hall, 1976; Hall & Hall, 1990). These authors propose certain dimensions for culture examination and classification, such as time perception, power distance, uncertainty avoidance and other.

Zahedi with co-authors (Zahedi et al., 2001) in their web design conceptual model for cultural preference identification recommend to use theoretical studies such as Hall's time orientation dimension and all Hofstede's dimensions.

Jagne with co-authors (Jagne et al., 2004) in their cross-cultural interface design strategy for cultural preference identification recommend designers to involve into target cultures with website audits and interviews with usability experts from those target cultures. Some authors also propose to investigate existing empirical researches, such as published by Barber and Badre (Barber & Badre, 1998).

Smith with co-authors (Smith et al., 2004) in their process model for usable cross-cultural website development, propose to audit target culture websites, investigate Hofstede's culture dimensions and observe local users.

Hsieh et al., (2009) in their theoretical model for cross-cultural website design, for cultural preference identification propose to audit target culture websites, investigate existing empirical studies and use Hall's context dimension and all Hofstede's dimensions.

Many similarities can be seen in methods for cultural preference identification by previously mentioned authors.

Most of published methods agree on such steps as target culture website audit and use of cultural dimensions by either Hofstede or Hall or combined.

3 IMPROVED CULTURAL PREFERENCE IDENTIFICATION PROCESS

We would like to offer expand existing cultural preference identification process by adding a few factors that emerge from literature reviews.

First of all, agreement can be found that Hall and Hofstede cultural dimensions are successfully used in cross cultural website design. However, recent studies, such as performed by Ying and Lee (Ying & Lee, 2008) show that there is one more culture dimension that should be considered as important for website designers. Ying and Lee empirical study showed that Nishbett's (Nishbett, 2003) proposed culture division based on style of thinking have an impact on how users from various cultures scan information on websites. Based on whether thinking style in culture is holistic or analytic, website designers should consider how to organize website layout.

Therefore we suggest using Hofstede, Hall and Nishbett dimensions for cultural preference identification. In addition to target culture website audit, we would like to suggest methods for target cultural preference identification. Based on culture preference identification results of previous studies (Braun & Rose, 2007), we would like to suggest applying methods from *Quick and Dirty User Profiling Technique* (*QDUPT*) introduced by Chavan (Chavan, 1999).

Most cultural dimensions can be divided in two groups: subjective and objective. This division is well known and used in cross-cultural researches (Gould, 2005). Objective dimensions are those that can be easily identified, such as language in which target culture speaks. Subjective dimensions are more complicated to identify and include, for example, target culture information scanning preferences.

As a result, in order to identify cultural preferences we propose to execute following methods:

- Culture life style data collection.
- Identification of objective dimensions.
- Identification of subjective dimensions.
- Target culture website examination.

3.1 Culture Life Style Data Collection

To gather data about target culture life style and certain cultural preferences, there is a need to analyse data about target culture success products,

movies and music videos from past 5 years (Braun & Rose, 2007; Chavan, 1999). Analysis of collected data need to be performed to extract attributes that relate to website design. For example, find anwers about mobile device success or what are the colour preferences.

We suggest to perform manual content analysis of gathered data with combination of tool that allow to extract colour preferences from videos. Such tool prototype has been developed for this research in programming language *Processing*.

3.2 Identification of Objective Dimensions

After reviewing literature on objective dimensions (Gould, 2005; Kondratova et al., 2007; Rau et al., 2011), we found that most common objective dimension classification for website design is: language, format, graphics, colour and layout.

Partly data about objective dimensions can be acquired when performing culture life style data collection and analyse literature about target culture. For example Marcus and Baumgartner (Marcus & Baumgartner, 2004) advice for this purpose to use *The World Fact Book* published and maintained by the *Central Intelligence Agency*.

3.3 Identification of Subjective Dimensions

To identify subjective culture dimensions we propose to analyse Hofstede's, Nishbett's and Hall's published researches. Also, other author theoretical and empirical studies can be used to confirm target culture subjective dimensions. For example, if we analyse Japanese culture subjective dimensions, we find that Japanese culture, for example, is high power distance, high context, holistic thinking and masculine culture.

After investigating characterictics gathered from analysis of subjective dimensions, guidelines for website designers can be determined. Certain such guidelines exist and are published (Ahmed et al., 2009). However, there is no central repository for such guidelines available.

3.4 Target Culture Website Examination

Tipically target culture website examination or audit is performed by or with expert from target culture (A. Smith et al., 2004). For this process usually certain group of websites is selected. Usually those websites are most popular in target culture or popular in certain field, such as, for example, most popular target culture restaurant websites. For data gathering we suggest using website statistics services provided by companies such as *Google* or *Amazon*, which has been succesfully applied in previous researches (Kondratova et al., 2007; Vitols et al., 2011). Content analysis usually is chosen as a method for evaluation and extraction of data. Extracted data usually help to identify target culture objective dimensions, such as website font or character encoding preferences.

Kondratova and Goldfarb (Kondratova et al., 2007) for extraction of colour and font preferences advise to use a tool allowing to scan target culture websites based on website country domain and analyse HTML and CSS codes for colour codes and fonts. However, as those authors admit, this tool cannot read colour from images and only approximately can determine colour distribution in websites. For example, if the website background is white and there is one letter in black, that tool will output same colour distribution in ratio 50% black and 50% white. So for our method we suggest to use such tool only as a reference information, but main evaluation has to be performed manually. More detailed target culture website examination process is described in our previous paper (Vitols et al., 2011).

4 CONCLUSIONS

From summarization of methods for cultural preference identification, there is a seen similarity that most authors propose to use cultural theories by researchers such as Hofstede and Hall, combined with target culture website examination.

Our method, besides evaluation of Hofstede and Hall dimensions, include additional analysis of research results by Nishbett on culture thinking style, which is proven to be an important cultural dimension that relates to how users scan information in websites.

Our added method from Chavan's *QDAPT* technique can help website developers to gather additional data such as colour preferences.

As further steps we suggest evaluating those collected data with usability experts from a target culture.

Developed method will be applied for Japanese cultural preference identification. To execute the method, we will gather data about Japanese success products from Japan's main advertisement company

Dentsu and magazine's *Nikkey Trendy* annual reports. To gather data about successful movies, and top target culture websites, we will use statistics provided by company *Amazon*.

ACKNOWLEDGEMENTS

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