

# User Interface Design for the Web Based E-Commerce Sites and Cultural Issues

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**Abstract**— This document addresses user interface design and cultural issues for the web based e-commerce sites. Considering the cultural issues of web design in implementing web-based e-commerce will make available guidelines for the global use of electronic business. This paper summarizes recent work on implementation issues for the improvement of graphic and text usage in different system environments and web interface design issues, which should be designed to suit users on a global level, and discusses examples of effective popular business web site interfaces currently in use.

**Index Terms**— Culture, Web Design and E-Commerce

## I. INTRODUCTION

THIS documentation is about an investigation of cultural issues of web design in E-Commerce, and information presentation issues in the global E-Commerce web sites. This investigation will search for understanding of the barriers in implementing E-Commerce on a global level. This paper begins with the overview of business implementation on the World Wide Web. It also describes cultural issues in E-Commerce and graphical information in the global E-Commerce web site development, and describes some current approaches in dealing with cultural issues and attitudes of web designers in Australia. It focuses on web usage for the users and developers who are engaged in business-to-customer (B2C) E-Commerce.

Web design and web design interactivity have become increasingly important in recent years. Cultural differences may be reflected in user-service provider relationships, communication channels and user expectation levels of information service functions. Internet users and business developers are stepping up the use of new technology to achieve their goals. Business developers have realized the importance of web-based business and are attempting to expand their markets beyond their home countries. There are great opportunities for different countries to be a part of the global market through the Internet. It is expected that such an

expansion in electronic business will support the economy of several nations and create new opportunities in and around their physical locations. Web interface design and user issues are significant factors in systems implementation.

Business implementation on the World Wide Web is not only concerned with developers' ideas but also with consumers' choices. Information on the web relies on both groups. In a global context, most web interfaces do not support effective usage due to use of unsuitable images in a global context. Most of the information is presented on the web by icons, metaphors, shapes, colors of text and background, frame/text locations on screen, etc. These may be relevant to their culture of origin but may not be understood by the global audience.

Most of the time these applications are directly translated into different languages at most and distributed to users internationally. In an international context, the image features employed in interface development makes a somewhat lesser impact in the variety of contexts it is concerned with, although it will be very clear to a minor proportion of the population. This provides an indication that consideration of human factors in the design of web for an international user base is an important factor in promoting effective usage of information systems.

## II. THE WEB INTERFACE DESIGN AND CULTURE

The web design is concerned with what a system will look like and how it will communicate with the user [1]. The issue for Information Technology professionals, human-factor researchers, business developers and computer scientists is to develop sufficient theories and models to describe behavior of humans who use information systems, with the aim of designing systems more effectively. Cultural factors in information systems are likely to impact on effectiveness through web design.

A good interface provides user satisfactions, such that a user can easily find general directions when users need it. The

design of web sites for effective performance is a complex and highly creative process. It combines intuition, experience, and careful consideration of numerous technical issues and investigations [2]. Without proper considerations of cultural factors in design, the impact of culture is undermined and certainly does not position as an important issue. Culture influences certain methods of performing tasks, even common tasks in certain ways. Practices result from life long training of human and set rules and circumstances. Hence, cultural localization deals with how differences between people from different cultures impact their behavior in specific circumstances. History and values can also impact on user's perception. E-Commerce advocates have substantial claims made for the web's effectiveness as a tool in the sales process to consumers. However, little real research has addressed these factors that will make people buy, when in electronic shopping malls. Findings from cultural factors research could be beneficial for IS developers catering for a domestic consumer base, as well as for an international market with the specific understanding of their culture and the human behavior it produces.

### III. INFORMATION STYLE

Consumers are interested in information, representing style and interaction with web usage, depending on the amount of graphical components. Graphical information on the web are increasingly important to support information as well as interaction between consumers and business providers. Graphical components support users' understanding and determination to purchase products from the web. In global markets, users are sensitive to interaction with product information on the web.

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del Galdo and Nielson [3] demonstrated that color and screen design directions have different psychological and social associations in different cultures. More importantly, different users have different concepts of screen usage. Because of the right-to left writing direction of the Arabic language, the common way to design the screen is to start reading from the top right-hand to the left-hand side. Designing screens normally need to consider that Latin-based screen design starts from the top left-hand corner, and Chinese language can start from top right-hand to bottom left-hand or adopt the Latin-based style. However, it is very difficult to provide localized screen designs if they are not included in the original design of the application.

As a result Graphic Web applications need to be considered in localized interface design with globalized information. Currently there are many different approaches to dealing with cultural issues, as applied to the problem of how to support vendor and purchaser goals using the Internet, and how to design web applications to help users from different culture backgrounds in global market to achieve their goals efficiently.

Resources are currently available for web designers who wish to maximize the usability of a web site including usability

guidelines. Collections of human factor references, web sites intended as a gateway to human factors resources and companies offering web-focused human factors consultancy. Also Human Computer Interaction (HCI) theories, methods, techniques and tools may be applied to the study of computer-mediated communication (CMC) in general, and web sites in particular [1] [4].

### IV. WEB DEVELOPERS' ATTITUDES

There was a study based on the Hofstede's dimensions [5] of collectivism and individualism on web design by del Galdo and Nielson [3], comparing Japan and the United States. They concluded that collectivist-type users would like to have common behavior as a group at an organizational level, and under individualism users want to have control over their surrounding environment. Hence these characteristics can be reflected in typical attitudes used in Web Based Electronic Business (WBEB). Japan and Singapore are collectivist societies as identified by Hofstede [5], while Australia has an individualistic culture. In this research 8 cases were reviewed with 10 web designers from 8 different companies in Australia and Singapore. These studies were conducted through a combination of face-to-face interview, email and on-line interview.

The research method that was used in this study was exploratory case study [6]. The process involved interviewing participants and also studying the web sites developed by the participants. This meant that more than one research method had to be used for data collection. However this approach was beneficial to confirm the generalizations and to test the impact of cultural differences on interface design. This study attempted to formulate more precise ideas for further research.

TABLE I  
Web developers' attitudes in Australia and Singapore

Characteristic	Web developers' attitudes	
	Singapore (Singaporean)	Australia (Australian)
Use of display colors	Use particular color scheme (depends on companies preference)	No color preference from companies
Image representation	Company logo is important	Company prestige is more important than image
Use of symbols	No particular scheme	No particular scheme
Use of animations	Important part	Less important
Use of pictures	Heavily used	Mainly used text
Functionality of the web site	Customers are not main consideration (Display only)	Customer reactions are major influence on design

The data were used from selected participants to draw conclusions about the impact of cultural differences on the interface design. During this research graphical components were divided into attributes of display colors, image representations, symbols, animations, pictures and functionality. Then web designers' preferences and attitudes were observed in creating new web page designs. Some of the key attributes that were found among web developers in Australia are summarized in Table I. For instance, web developers and companies had no particular preference of colors, animations, pictures and symbols. However company prestige was considered to be more important than image, and mainly used text based information. Designers feel that they have right to contribute own opinions to build up a web site. Also customer reaction was considered as the major influence on design, so that, web developers provided information with images, animations and company logos as per companies' requirements. Australian companies did not perceive signs and symbols to convey meaning. Australians believe in doing things to build trust. Those interviewed Australian web designers mentioned that web sites could be created not only depending on clients' requirements but also generating their own ideas. Web designers emphasized that web design was a collaborative processes between clients and designers. Clients were a part of the web design team. A new application was used only when it integrated into the design and they felt comfortable with using the concept.

To consider the impact of individualism and collectivism, collectivist characteristic was confirmed in Singaporean designers' considerations that they choose to set up a web site because they are under public pressure of peers to keep up to date with technology. Most of Singaporean designers believed that building up relationship is to guarantee customer trust and business success, and included the customer's culture in business transactions and negotiation on the web. Also they more carefully considered public and global information to avoid going against public interests including nudity, sexuality, racial and gambling issues compared with Australian designers. Individualist characteristic was confirmed in most of the Australian designers that their individuals' rights are reflected on web design. In case of web site maintenance and changes, not only designers were able to manage or easily update public information from designers desire but also observed public information. Australian designers applied more individual opinions, and were less sensitive to the use of graphic images from public demand on web sites compared with Singaporean designers.

According to Turk and Trees [7] global Information Systems on the web should be developed in such way as to localize information and design for different culture background users. Web applications could be adopted for local users rather than be internationalized to produce a cultural relevant user interface. Cultural aspects' impact on globalization of web design in web-based E-Commerce is essential.

The developers need to consider that the users are in different places and culture backgrounds. The significance of web design is usually directed to the management while leaving out the user. There is increasing consideration to investigate ways to develop designs suitable for different culture backgrounds.

## V. CONCLUSION

In light of the case studies as described in the previous sections, although the cultural background of consumers is very important for interface design, current design practice takes minor account of cultural issues. Many global business web sites have been designed and developed with absence of understanding of users and their cultural differences on the global scale. Users' expectations are not taken in consideration in designing the functionality of web sites for global business companies. Apparently Australian web designers are more customer-oriented in web design, comparison to general global business web designers though they appear to be less sensitive to the use of graphics on the web. The web sites of leading Information Technology companies studied in this research did not have their interfaces to account for different user cultures.

Future Electronic Business technologies will definitely introduce more attractive and convenient tools for the local customers. This research found that localized web interfaces

design is becoming increasingly important in transmission of meaning to a concept on web sites. Moreover, web image components are better suited to be used in certain ways to improve web based E-Commerce. Not surprisingly web images are being used excessively to attract customers and increase company's presence in the global Electronic Market.

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