CULTURAL ISSUES OF USER INTERFACE DESIGN IN IMPLEMENTING WEB BASED ELECTRONIC BUSINESS

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ABSTRACT
This paper explores cultural issues with respect to web-based business systems and web design in electronic business over web sites. Studying the cultural issues of user interface design in implementing web-based electronic business will provide guidelines for the global use of electronic business. This paper summarises recent work on implementation issues for the improvement of graphic and text usage in a variety of 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.

KEYWORDS: Culture Issues, User Interface Design, Web Interface Design and Web Based Business Systems

1. INTRODUCTION
This paper is about an investigation of cultural issues of user interface design, and implementation issues in the globalized Electronic Commerce web sites. This investigation will search for understanding of the barriers in implementing Electronic 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-market and graphical information in the globalized Electronic 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) Electronic Commerce.

User interface design and web design interactivity have become increasingly important in recent years (Nielsen, 1996 and Head, 1999). Cultural differences may be reflected in user-service provider relationships, communication channels and user expectation levels of information service functions (Kettinger, Lee and Lee, 1995). Internet users and business developers are stepping up the use of new technology to achieve their goals. Business developers have realised 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 (Johnston and Johal, 1999). Most of the information is presented on the web by icons, metaphors, shapes, colours 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 user interface for an international user base is an important factor in promoting effective usage of information systems.

2. SIGNIFICANCE OF CULTURAL ISSUES IN THE WEB INTERFACE DESIGN

The user interface design is concerned with what a system will look like and how it will communicate with the user (Cooper, 1995). The issue for Information Technology professionals, human-factor researchers, business professionals and computer scientists is to develop sufficient theories and models to describe behaviour 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 user interface design.

A good interface design provides ‘self-teaching’, such that a user can readily find inclusive instructions when users need them (Raskin, 2000 and Norman, 1998). The design of web sites for effective performance is a complex and highly creative process. It blends intuition, experience, and careful consideration of numerous technical issues and investigations (Nielsen, 2000; Sharma and Sharma, 2000; Sklar, 2000, Niererst, 1999). 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 localisation deals with how differences between people from different cultures impact their behaviour in specific circumstances. History and values can also impact on user's perception. (Fernandes, 1995). Electronic 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 behaviour it produces.

3. BUSINESS IMPLEMENTATION ISSUES ON THE WEB

Guttman, Moukas and Maes (1998) suggest six stages in a model incorporating consumer behaviour: identification; product brokering; merchant brokering; negotiation; purchase and decision processes; information search; evaluation; purchase; and after purchase evaluation. O'Keefe and McEachern (1998) on the other hand argue that Electronic Commerce information systems need to be designed to support these process. Graphical features on the web are increasingly important to support information as well as interaction between consumers and business providers. Consumers are interested in information, representing style and interaction with web usage, depending on the amount of graphical components. 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.

Del Galdo and Nielson (1996) demonstrated that colour 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 (Del Galdo and Nielson, 1996). 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 User Interface (GUI) 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 maximise the usability of a web site including usability guidelines (Keeker, 1997; Vorburger, 1998; Wilson, 1998). Collections of human factor references, web sites intended as a gateway to human factors resources and companies offering web-focused human factors consultancy (Davies, 2000). 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 (Forysthe et al., 1998; Kellogg and Nielson, 1997; Schneiderman, 1997).

4. COLLECTIVISM VS INDIVIDUALISM

Del Galdo and Nielson (1996) studied the impact of the Hofstede dimensions of collectivism and individualism on web design, comparing Japan and the United States. They concluded that collectivist-type users would like to have common behaviour 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 (WBE). Japan and Singapore are collectivist societies as identified by Hofstede, while Australia has an individualistic culture (Hofstede, 1997). In this research 10 cases were reviewed with 10 web designers/developers from 5 different companies in Australia and Singapore. These studies were conducted through a combination of face-to-face interview, email and on-line interview.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Web developers’ attitudes</th>
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<tbody>
<tr>
<td></td>
<td>Singapore (Singaporean)</td>
</tr>
<tr>
<td>Use of display colors</td>
<td>Use particular color scheme (depends on companies preference)</td>
</tr>
<tr>
<td>Image represented</td>
<td>Company logo is important</td>
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<tr>
<td>Use of symbols</td>
<td>No particular scheme</td>
</tr>
<tr>
<td>Use of animations</td>
<td>Important part</td>
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<tr>
<td>Use of pictures</td>
<td>Heavily used</td>
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<td>Functionality of the web site</td>
<td>Customers are not main consideration (Display only)</td>
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</tbody>
</table>

Table 1. Web developers’ attitudes in Australia and Singapore

During this research graphical components were divided into attributes of display colours, 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 were found among web designers in Australia (Table 1). For instance, web designers and companies had no particular preference of colours, animations, pictures and symbols. However company prestige was considered to be more important than image, and mainly used text based information. 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. These 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.

5. ACCEPTANCE OF CULTURAL ISSUES IN BUSINESS WEB SITES

The current research at University of Technology, Sydney investigated and observed 10 Information Technology company web sites included Apple, Compaq, Dell, Gateway, IBM, Intel, Microsoft, Oracle, SAP and SUN based in USA, Australia and Singapore. All of these companies provide the same graphical design for overseas users as for home-based users. It indicates that international market providers (mainly USA based) use the same pattern of colours, symbols, and images on the web in different countries (Singapore and Australia). Apparently there were no different web design approaches for different countries in global Electronic Business. According to Yeo (1996), Turk and Trees (1999) global Information Systems on the web should be developed in such way as to localize information and design for different culture background users. Yeo (1996) recommended that applications could be adopted for local users rather than be internationalised to produce a cultural relevant user interface. Cultural aspects’ impact on globalisation of user interface design in web-based Electronic Commerce is essential.

The developers need to consider that the users are in different places and culture backgrounds. The significance of user interface design is usually directed to the management (Raskin, 2000) while leaving out the user. Turk and Trees (1999) also demonstrated that there is increasing consideration to investigate ways to develop designs suitable for different culture backgrounds.

6. 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 into consideration in designing the functionality of web sites in global business companies. Apparently Australian web designers are more customer-oriented in web design, in 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 interface 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 localised web interface design is becoming increasingly important in transmission of meaning to a concept on web sites. Moreover, graphical components are better suited to be used in certain ways to improve WWEB. Not surprisingly graphic images are being used excessively to attract customers and increase company’s presence in the global Electronic Market.

REFERENCES


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