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# Understanding of User Preferences in Global Electronic Commerce Sites

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## Abstract

*This paper addresses issues of user preferences in web design of global e-commerce. Increasing attention to global e-commerce sites are not only global companies' concerns but also an issue for users. This research is an attempt to identify issues of global web design and user preferences particularly from different culture backgrounds. An exploratory study relating to user preferences for design features in popular global sites is presented, and through it identifies a number of factors related to design in the B2C context and proposes a framework based on understanding of users' preferences of these factors. Results indicate that users are more likely to use global web sites if they find their favorite features in it. Users form different culture groups and their preferences are likely to influence different levels of design content in a web site. Furthermore, a user with his/her favorite design features that promote user's attention and lead to purchase of goods through the global sites.*

**Keywords:** web design, culture, user preference and e-commerce

## 1. Introduction

Increasing numbers of global web sites are being required to serve users from different cultural backgrounds. Generally, a good web design increases users' interests and interactivity. Web design and web interactivity are increasingly important for e-commerce for information presentation to the user. However global web design is only on a small part of information presentation service function provided to the user. Most likely, cultural differences are reflected in user-service provider relationships, communication channels and user expectation levels of information service functions. E-commerce service providers including web designers are stepping up their use of new technology to achieve their goals, i.e. users get products and services that they desire and the providers provide these with efficiency. The web developers have realized the importance of providing localized information so that businesses expand their markets beyond their home countries. There are great opportunities in different countries for niche products and services to become a part of the global e-commerce. 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. The issues of suitable web design for multinational users are significant factors in global business implementation. This paper describes issues in dealing with international users in global sites and their preferences.

## **2. Web design for global sites**

Web design for international users is one of the intensifying issues in web-based e-commerce. This research focused on issues in the users' preferences in global sites, particularly in B2C e-commerce, including an understanding of current global web sites design. This investigation attempts to search for an understanding of the user preferences in global e-commerce sites.

It was found in earlier studies, that web design elements such as navigation, images and color can provide different reactions from people in different cultures, resulting in different responses (Kang et al. 2002). Presentations of business information and services offered through the web are not only conveyed with developers' ideas but are also with users' perception of choices. Information on the web relies on both groups forming a common perception. In a global context, most web interfaces do not support effective usage due to use of unsuitable tools for conveying information in a global context, as most of the information is presented on the web by icons, metaphors, shapes, colors of text and background, frame/text locations on screen, etc. which may be relevant to the culture of origin but may be misinterpreted by the global audience. Generally, web design features are directly translated into different languages and distributed to users internationally. In an international context, the web content features employed makes a somewhat lesser impact in the variety of contexts it is supposed to be effective in, although they may be clear to a minor proportion of the population. Thus a consideration of human factors in the design of the web for an international user base is an important factor in promoting effective usage of information presentation.

## **3. Understanding of international Users**

The issue for Information Technology professionals, researchers, and business developers is to develop sufficient theories and models to describe behavior of humans who use information systems, with the aim of designing systems more effectively. International web interface guidelines for designers need to be implemented broadly. Designers need to resolve users' cultural issues during the web development process. Ineffective web design leads to restrictions in international increase of users, so future investigations needs to focus on effective web design. Several researchers have investigated this through studies on cultural value and how different cultures affect usability by several researchers (Bourges-Waldegg et al. 2000; Cynthia 2001; Dormann et al. 2002). So far, some of the identified issues that prevent the best use of web sites are slow response time, low usability and difficult navigation to target users and design sites leading to ineffective use. Particularly, web design is concerned with what a web site will look like and how it will communicate with the user (Nielsen 1996). Moreover cultural factors in information systems are likely to impact on effectiveness through web design.

Apparently, a good web interface provides user satisfaction and conveys trust, such that a user can easily find general bearings of the information presentation scheme and retrieve the information they need. Design of web sites for effective performance is a complex and highly creative process. Nielsen (2000) suggested that design of web sites combines intuition, experience, and careful consideration of numerous technical issues and investigations. Most web interfaces have been designed for relevance to a particular culture. Even filling in the appropriate colours, flow and objects in an existing metaphor might not be enough to ensure intuitive use for users involved from other cultures (Evers et al. 1997). So web interfaces are an important factor to consider in e-commerce development. Moreover without proper considerations of users' cultural backgrounds in design, the impact of culture is undermined and certainly does not position as an important issue. Users and their culture influence certain

methods of performing tasks, even common tasks. Practices result from life long training of human and set rules and circumstances. Hence, localized web sites deal 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 promoters have substantial claims made for the web effectiveness as a tool in the sales process to users. However, little real research has addressed these factors that will make users buy, when in electronic shopping malls. Findings from preferences of international users' research for e-commerce could be beneficial for web developers catering for a domestic user base, as well as for an international market with the specific understanding of their culture and the human behavior it promotes. Particularly, understanding of users' aspects from different countries through this study may add more value to web design in e-commerce sites for the benefit of providers as well as designers.

#### **4. Research background**

There have been a number of investigations of the role of culture in the design of user interfaces, and the cross-cultural elements in web design. Marcus and Gould (2000) explored the work of Hofstede (1980 and 1991) on cultures and organizations and how they can be applied to web design. These elements include text, images, symbols, colors, information flow and functionality. Also the study measured aspects of user background and user experiences of the web interface. A questionnaire was developed to study the range of cross-cultural elements that need to be considered in each web site by Russo and Boor (1993). It was further extended, to measure user satisfaction in view of ease of use that was based on usability study of Nielsen (1997). Russo and Boor (1993) laid emphasis on the cross-cultural elements in web design that must be considered in designing web sites for international users. The cross-cultural elements include text, number formats, images, symbols, colors, flow and functionality. These elements can be translated to a new form of information presentation for users of different cultural background, and can then be related to support better understandings of user experiences in e-commerce. The interview technique was then used to specify what users feel about the web sites they were using. Focused on the objective of the study, it was developed to identify user backgrounds and how it can be utilized for their preferences from the global sites. Hofstede (1991) anticipated that language is the most clearly recognizable part of culture. The language was used as a basis of understanding of users' cultural backgrounds. Hence the study included questions for identifying user's first language.

The objective of our research was to identify design features of web based e-commerce that are important for user interaction due to cultural background which affect user satisfaction. With this intention, the first step of our study was to identify popular design features that could be related to a particular culture group. For this study, subjects were categorized into English and non-English speaking groups. This exploratory study was also intended to determine the cultural boundaries for further investigations.

#### **5. Research questions and methodology**

The data collection and research methods are similar to many studies (Evans et al. 1989; Huberman 1994; Ives et al. 1991). The exploratory research method was used to answer questions about the people's behavior towards effective web design. We collected secondary data from a questionnaire and primary data through an exploratory study, which involved the use of interviews and user observation to understand the social and cultural phenomena. This

approach was found to be beneficial to confirm generalizations made in relation to users' behavior and to test the impact of cultural differences on web design. This research then attempted to formulate more precise objectives for further research.

This research was conducted on pre-selected global e-commerce sites, which are based in Australia and the USA. For the study, two research questions were explored through questionnaire, interviews and observations. This study put questions to users about "how do users from different country origin feel in using e-commerce sites?" and "what are popular design features for different background users?" As both research questions are related to identification of user background information and design, the questionnaire attempted to find out the user backgrounds and the favorite design features from their experiences. Interviews and observations were then conducted to determine the factors that make users feel that there is ease of use. Consequently, sub-findings from a questionnaire were investigated in interviews and observations relating to user experiences were made for features supporting ease of use, reasons for visiting the sites (e.g. reputation, recommendation, etc) and design effects and features such as color, images, menu, etc. From the interviews, it was possible to identify popular web sites and user groups (e.g. by country origin) in much more detail.

We approached the users individually. Each user spent time for completing the questionnaire for collecting secondary data, and then browsed pre-selected global sites. Observations relating to user actions and feelings were made while users browsed the sites. After this an interview was conducted. Users were not required to have experience with purchase of goods from the web-based e-commerce prior to participating in the study. However the users needed to be familiar with the Internet.

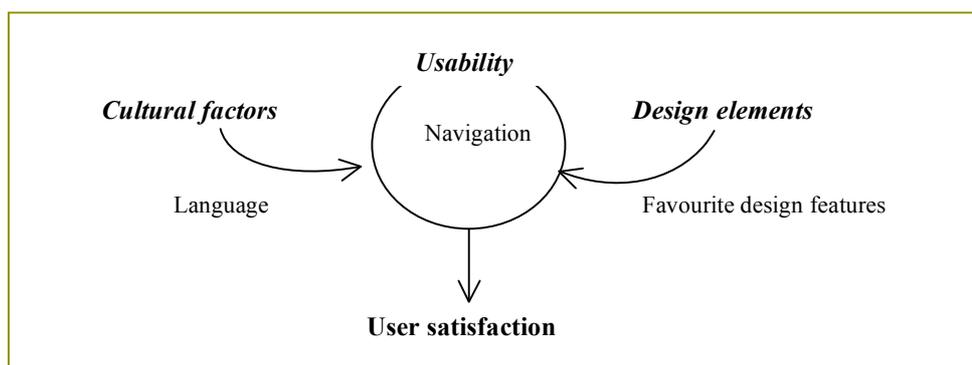


Figure 1 Conceptual framework for to identify user preferences of design features

Figure 1 shows the framework used in the study it identifies user preferences of web design features from the pre-selected global sites. For this study, 25 volunteers who were researchers and academic staff in Sydney participated. Two styles of web sites were used to investigate the effects of culture; a travel site based in Australia 'STA Travel' and a computer-shopping site based in the USA, 'Dell'. Each site selected for this study was characterized by web structure that was very hierarchical and had reasonably well organized information structure with horizontal and vertical menu arrangement. It looked very much like a typical shopping site. The two sites selected for the investigation had different styles of presentation of images with or without animations, and had similar theme colors. Since the aim of the study was the identification of favorite design features of global e-commerce sites, the questionnaire was designed for help the researcher to understand how the user felt when using the web-based e-commerce site. It contained questions to gather the user's background information, and related questions on design features, user satisfaction, information flow, and user comments.

There was a mixture of English speaking users, and users speaking other languages that participated in the study.

## 6. Results

Satisfaction and ease of use are defined in usability studies as the test for “ease of use” (Eason et al. 1997; Nielson 1996; Shneiderman 1997; Smith 1997). Integration of the satisfaction and ease of use aspects of user experience to the cultural factors contributing to the intention of use of a web-based e-commerce site usage feed into the research questions. The study and interviews confirmed that many users experienced e-commerce through simple tasks like booking airline tickets or purchasing goods through web sites, indicating their satisfaction in tasks that are indirectly related to money transactions.

### 6.1 User experience

All participants responded that they were familiar with e-commerce sites, and most of them had purchasing experience with e-commerce, in the past. Some of them were even familiar with both ‘STA Travel’ and ‘Dell’ global sites, but the majority of people were not. The popular items for them were computing products, books, electronic items and airline tickets through different e-commerce sites. More than half of the users were in the age group of 30 years and over. Others were between the ages of 20 and 30 years. More than half of the users were female. Three quarters of users were born overseas and were primarily non-English speakers, and a quarter of the users were Australian residents and primarily English speakers. The users came from various cultures. The first languages for users were English, Indonesian, Spanish, Chinese (Mandarin), Hindi, Korean, Burmese, Vietnamese, German and Newari. As mentioned previously the language was used as a basis of understanding the users’ cultural backgrounds. Therefore, the users were grouped together into two demographic groups of English speaking and non-English speaking or born overseas for the analysis of data. From the interviews and the questionnaire, we found the reasons for visiting global sites were user interest, social, purchase of goods and others. It shows that user interests and social reasons are most quoted reasons for visiting sites, rather than use of sites for purchases and finding information from e-commerce sites (see table 1).

Reason to visit	Rank
social	2
e-commerce (purchase)	3
Interest	1
other	4

Table 1 reason to visit global sites

According to consumer behavior literature, the user goes through two sequential stages of information search. In the first stage, users perform an internal search to retrieve product information. If the user is not satisfied due to insufficient information, the user looks for additional information from external sources such as other vendor sites, advertisement, etc (Desarbo 1999). From the interview, some of the users commented that when users were not serious about purchasing goods from sites then navigation and other factors are justifiable. If they had a purchase in mind, then the navigation didn’t promote the use of the sites. That means user perception changes positively or negatively when some other factors, even design factors, promote difficulty of use. Therefore, the information presentation and service quality

are also important for making decisions about purchasing products as well to achieve a revisit for the site.

## **6.2 Design features**

### **Navigation**

We have found that most of the users were confused about information presented through multiple windows, menu options and navigation features from the two global sites selected for this study. Also users had negative feelings about the accuracy of information from two sites, presented in this fashion. In contrast, users had positive feelings about some other types of features, such as provision of relevant links related with purchasing goods and other follow up information.

### **Image and color**

From the first global site 'Dell', two demographic groups of users had different feelings about design features. Non-English speakers preferred to have stationary images rather than moving images, text based information presentation on pages and more information through links. Most of users in two groups felt reasonable about the theme color "blue" on the sites and menu frames, but they were sensitive about location of frames. Non-English speakers were serious about finding relevant images and information. In contrast English speakers were interested in looking at moving images and new information.

The main theme of color on both 'STA Travel' and 'Dell' global sites were "blue", however the theme color "blue" was differently presented on each site. 'STA Travel' had more moving images and "blue" colored images, and different images contained "blue" but different tones on each image. In contrast on the site 'Dell', there was the same "blue" tone all over the site. Somehow both English and non-English speakers preferred animations on the 'Dell' site rather than 'STA Travel' site. However, English speakers preferred to use a site like 'STA Travel' rather than 'Dell', and 'Dell' was preferred by non-English speakers. Overall, non-English speakers spent less time to complete a task than English speakers. Also non-English speakers liked stationary images most, and found text information useful. English speakers were attracted to different images, but they focused more on the structure of the sites and their activities. Both group of users disliked animations.

The majority of users preferred stationary images and text information rather than moving images in the sites. Users were seeking information that was accurate, visible and reasonable, so that they could make a decision for purchasing goods form the sites. The reasonable form of information presentation could be seen as that represented on a table or as a graphical feature in text/ stationary form. Further consideration from this fact is to relate it to stages of user action from information found and leading to purchase goods.

Most users who spoke a language other than English preferred to use an English site even when other language sites were available. This fact was found to be related to reasons for visiting sites. This means that users preferred to use a particular language site for social communication or user interests. Alternatively, because the place for conducting this study was Australia, familiarity of the English language could be a strong influencing factor.

### 6.3 Comparisons

In most cases from observations, user performance related with use of the web-sites depended on their language backgrounds. The result of the user satisfaction items in the study appeared differently for each group. The result relates to investigations about relationships between different design effect/feature with the demographic group. More users in both demographic groups feel comfortable with ‘Dell’ site as being slightly better than the ‘STA Travel’ site with respect to the use of symbols, color, images and interaction. However most of them felt that finding information was easier, menu and information structure were better in the ‘STA Travel’ site. Particularly, the Australian site in ‘STA Travel’ appeared easy to the users. From observation, users felt that ‘STA Travel’ site provided more images/pictures on the cover page, and presented specific information with more text in latter pages. Users commented that the style of presentation in two global sites could appeal to users by providing comfort and have an inherent ability to support their purchasing and navigation decisions. We summarized users’ comments on their favorite and not favored features from two sites (see table 2).

	<b>Dell</b>	<b>STA Travel</b>
<b>Favored feature</b>	<ul style="list-style-type: none"> <li>- symbols</li> <li>- relevant information links</li> </ul>	<ul style="list-style-type: none"> <li>- theme color with different tones</li> <li>- relevant information with the picture</li> </ul>
<b>Not favored feature</b>	<ul style="list-style-type: none"> <li>- difficult to use menu options</li> <li>- too many animations</li> </ul>	<ul style="list-style-type: none"> <li>- too many animations</li> <li>- multiple windows</li> <li>- complicated and multiple menu options</li> </ul>
<b>Common expectation</b>	<ul style="list-style-type: none"> <li>-simple menu options</li> <li>- easy navigation</li> <li>- more text information</li> <li>- correct information</li> <li>- information relevant to local users (Australian)</li> </ul>	

Table 2 User preferences from two sites

Multi-linguistic tools were not available in all existing global sites. This meant that even if users wanted to use a web site in their language, it was not available. So an English site was the only option for these users. By looking at the person’s activity and through the interview, we explored further about favorite design features contributing to the user satisfaction for a site they had just used. From the interview, some people commented that when they were not serious about purchasing goods from sites then navigation and other factors are justifiable. If they had a purchase in mind, then the navigation didn’t promote the use of the sites. That means user perception changes positively or negatively when factors, even design factors, promote difficulty of use. Table 3 shows a comparison of user preferences.

		<b>English speaker</b>	<b>Non-English speaker</b>
<b>Favored design features</b>	Information presentation	more text than images	combination of text and images
	color	Single	multiple colors
	Link	- text based - many links on the cover page	- links on images
	Menu frame	multiple frames and unique entry	multiple entry from different frames
	Site structure	enjoy a challenging site structure	preferred simple and short as not more than two different pages/links
<b>Language preference</b>	Understand/read information	English	first language (country of origin)
	Finding information	English	Preferred to use English site to find information than their own language sites
<b>Expectation</b>		- cost benefit - ease of use - high speed - less pages to complete purchasing	- more secure sites - looking for a special design feature - wish to have supporting statements or recommendations from the government (e.g. payments) - trust depends on company's reputation

Table3 Comparisons

## 7 Conclusions

In this exploratory study, we investigated user preferences on the global e-commerce sites. Most of the users asserted that they spent time with a clear objective, and preferred comfortable features on sites based on previous experiences. Answers about use e-commerce for people from different country origin were obtained through interviews and observations. Normally non-English background users didn't pay attention to design of pages, but were serious about configured cost and reviewed pages for the confirmation of information. In contrast, English speaking users were more cautious about finding information from each different page, and were sensitive to the linked information provided by the site. Both demographic groups had a common interest from the site that was they wanted to spend less time for using the e-commerce site. However both groups had different opinions on the cover page of the site. The English speaking users were more sensitive to the cover page, and spent more time on it. In contrast other users from different countries of origin spent more time on transaction pages and not on the cover page. Overall individual opinions were accounted for in the analysis of the study results, leading to the development of some ideas that could be explored in more depth in future studies. This study provided more ideas about the relationship between meaning of design features and relationships to users from different cultures. This exploratory study leads to further investigations.

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