INFORMATION PRESENTATION AND DESIGN FOR MULTILINGUAL GLOBAL E-COMMERCE SITES – A CULTURAL ASPECT

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ABSTRACT

This paper addresses the design of web sites for companies engaged in global e-commerce. Different language groups and different cultures prefer different styled of web pages. In this paper we performed a comparative feature analysis on airline web sites which may be targeted at specific national or regional audiences.

KEYWORDS

E-commerce, Web design and Culture

1. INTRODUCTION

With the scope of businesses spreading globally, there are increasing numbers of global e-commerce sites that provide links to different country sites, however most of the sites are in English and not all sites provide languages other than English for web users from different countries. It was found in earlier studies, that the presentation of information through different languages and web design elements such as navigation, images and color can provide diverse reactions from people in different cultures (Kang and Corbitt, 2002, Fernandes, 1995, Lerner, 1999). Usually, presentation of business information and services offered through the web is not only conveyed with developers' ideas but are also possible with web users' perception of choices. In short, 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.

Chen (2004) proposed an e-commerce model that contains different categories of retailers. One of the categories consists of retailers that replace their physical stores entirely with online operations (Chen et al., 2004) and so this area of research gains more relevance. This paper presents issues related to information presentation, web design, site structure and cultural aspects on the global site. Hence a particular business category of large global retailer sites, international airline companies, were selected and investigated. International airline companies are increasing their business operations on web sites, though they do not intend replacing their bricks and mortar facilities, web services provide a vehicle for improving their customer services and increase convenience for their customers. Benefits for the business are manifold, web based services can significantly cut operating costs, expand market by promoting global exposure, increase customer services, and overall deliver better product value. By examining different global airline sites, the

researchers hoped to find answers to research questions such as "what are design characteristics in different country web sites?" and "what are popular design features in West and East country sites?"

2. FEATURE CATEGORIZATIONS OF E-COMMERCE WEB SITE

The categories of design features that were investigated in this research are site links, page structure, menu frame, images and color, text density, high-tech features, and content. The categories and their characteristics are summarized in see table 1.

These issues were investigated through different country sites in two different culture groups. The purpose of this investigation was to find the design characteristics and information presentation styles that are distinct to a culture. An exploratory approach was taken to examine multi-linguistic sites. This enabled understanding of typical design styles in different language sites.

Table 1. Categories of design feature and information presentation

	Categories	Details
Design feature	Page structure	Linear, hierarchical, network or multiple access links to product info
	Menu frame	Horizontal, vertical, or both
	Image	Image map, cartoon, moving or stationary, country logo, or picture with person/people
	Density of text	Low, medium or large on the home page
	High tech feature	Number, size, location
	Content	News, search or links for promotion
	Form	Search engine, booking from
	Global Links	Country, language options,
Information presentation	Style of presentation	Introduction, tailored information in different countries

3. EC WEB SITES AND CULTURE

Around 600 million people are expected to access Internet in 2005 compared to 633 million people in 2004 (Statistics, 2000). The internet users' primary language was English (35.8%), and Non-English content was 64.2% in 2005(Statistics, 2000). Lerner (Lerner, 1999) suggested localization web sites into six languages other than English, namely, Japanese, German, Spanish, Portuguese and Swedish, e-commerce to cover up to 90% of the online population. The argument for localized information with local languages is that it is likely to increase transactions in e-commerce business. Hence it is important conceive what constitutes the quality of site for different country users as well as for e-commerce providers.

Web site structure is the organization of information on a site. Site structure is the groundwork of design, navigation and organization of documents at a site (Smart et al., 2000). Sometimes attractive design features such as animations, video clips, or graphics may attract web user's attention, but the static information on the web can be provide ease of navigation to the users (Lynch and Horton, 1999, Nielson, 2000, Norman, 1994, Shneiderman, 1980, Raskin, 2000, Preece, 1993). A combination of these features result in an effective good quality website. Aspects of web interface usability need to be considered at the design stage to make content easy to understand for global web users.

4. APPROACH

As Yin (1994) suggested, evidence of case studies may come from six sources such as documents, archival records, interviews, direct observation, participant observation and physical artifacts (Yin, 1994). In this study, observations and documents were used in process of conducting the case study. Firstly, the researchers focused on design features and information presentation differences in large global corporation web sites. Understanding how color, image presentations and facilities for data entry in different sites, and how the page included different regions. The researchers also considered complexity of a page including text density, site structure, frame and global links. This approach sought to confirm the generalizations and to test the impact of cultural differences on web design. This exploratory investigation attempted to formulate more precise objectives for further research.

Firstly, we selected airline sites, and identified information web design styles; page layout, visual design elements and language options. Secondary, this research was conducted on pre-selected global sites, which are based in Australian, UK, Korea and Japan. The research questions were "what are design characteristics in different country web sites?" and "what are popular design features in West and East country sites?". The study attempted to find out the characteristics of design features. For the second research question, observations were conducted to determine the different design categories in four different countries. Also we investigated design features, where some design effects were taking into consideration, such as color, images, menu layout, etc. Both, culture differences and design features. The data collection and research methods are similar to many studies, were exploratory research method was used to examine about the web design sites (Ives and Jarvenpaa, 1991, Huberman, 1994, Evans and Tigre, 1989). This approach was found to be beneficial to confirm generalizations made in relation to test the impact of cultural differences on web design. This research then attempted to formulate more precisely objectives for further research.

5. RESULTS AND DISCUSSION

In this section, results are presented on general views from over 23 airline sites on design. Results relate to the design categories of colors, image, text density, high-tech features, particular features and common features from four different countries.

5.1 Feature analysis on airline sites

Most of airline sites (20 out of 23) provided same page designs for different countries as the main home page. Some of the sites had same design with different color and pictures for different countries, but theme color and image were same. Though, some Asian country's sites did not follow this norm. Asian sites generally had more moving images and bigger pictures than Western country's sites. Sixty one percent of the airline sites investigated provided connections to global sites through links. Furthermore, 9 sites had different design features than home sites. 8 airline sites had different design pages for different countries compared to the home site. Rest of the sites presented cover pages with different photos or menu frames compared to the main home site, with the same information contents as the main home page. Most of airline sites presented the same type of cover pages with links to other languages/ countries as the main home site. 13 sites provided different menu frame and colors on local pages. Twenty six percent of sites had multiple access links to product information. Overall images were not a major feature of the site and mainly contained stationary images. Most of sites contained more than three images per page. Cartoons and moving images were not popular, and only one airline site had some cartoon images on the site. They also had the company logo with just one exception, and were mainly located on the top-left corner of the cover page. Some of the sites had more prominent use of images such as on Asian country sites, where images of people and big welcome signs were used to promote friendliness. The prominent color on airline sites was found to be 'blue' images on a 'white' background. The text density was also found not to be very high with 'black' text delivering information mainly through the functional form and menus. Generally, each site contained between three to five different colors for each site including text and images.

Overall hierarchical structure was most the popular information presentation structure. Twenty one out of twenty three sites provided a hierarchical structure. Generally, a flat hierarchy of information is important for

a successful web site design (Sklar, 2000, Shneiderman, 1997). Hierarchical presentation of information facilitates the user to understand information on each page easily. The user can also control navigation easily and recognize selection points readily. Most of the sites investigated provided information at the top and second levels in the hierarchic information format for a selected product group and brought up to the index or a text box for the search engine. The horizontal layout was observed on 19 out of 23 sites, and 4 sites were found to be with the vertical layout. Over 16 sites had top-down and left to right arrangement for the menu layout. Unlike other popular e-commerce sites, none of airline sites investigated used pop up windows; 8 sites contained rollover features, and 11 sites had moving images

Out of the 23 airline sites examined, 19 sites provided English sites only, and they focused on English speaking users mainly based in the USA including 7 airlines from USA. For providing global links and sites for users from other countries, almost all airline companies provided links to other country or regional sites, and only one company provided local sites for each country separately. Fourteen out of twenty three global sites provided links to multilingual sites or other country sites from the main page. Though web users including designers use their own language for day to day business activities, most of the airline sites presented information in English on the cover page, except sites in Dutch, Japanese and Chinese languages. These country sites focused only on local users rather than other country users. Apparently, 14 out of 23 sites provided links for different country users, but not all airline sites provided local language sites for different country users.

Most of airline sites required the user login to access service features. The login form was located on the top for the cover page for 8 sites and bottom of the cover page for 3 sites. All airline sites provided multiple text boxes and drop-down selections for the booking forms. These were located in the middle of the page for 39% of the sites, on the right side of the page on 2 sites and on the left side of the page on 3 sites.

Out of 23 sites, 14 sites provided global options, and only 4 sites offered links to other language options. This means that majority of the airline companies prefer to have home sites in English rather than local languages in different country site.

5.2 Feature comparison – Australia/UK vs. Korea/Japan sites

With these results in mind, a detailed study was conducted for four country sites; that of Australia, UK, Korea and Japan for each airline. No cartoon and/or moving images were found in these sites. There are many design features that are different from each country site for the same airline company such as image links, overlapped images, number of people in the picture, dominant page/text color and high tech features. Overall, table 2 shows the categories of design clustered in three selected groups.

Most of the airline home sites provided more search tools and links. Korean/Japanese sites provided more than two languages including Native English and their own language. Most of the Korean/Japanese sites provided alternative designs for local users. However Australian/UK site rarely provided different features (e.g. menu bar, links, etc), other those on their home site. From these observations, use of text, images, color and new high tech features in design for Korean/Japan and Australian/UK were found to be different. Australian/UK users were considered as equal to Native English site users on their home site. Some Korean/Japanese sites provided different design for Native English and non-Native English users, and provided different favorites for different language background users.

From the study, the Australian sites were found to be identical to a typical western global site in comparison to Korea/Japan and Home sites. The western sites usually have an introduction page which provides information about the company and their market and the product information is accessed through links. In comparison Korea/Japan sites provide no introduction and take the user directly to links for the selection of services and products. By looking at different design features, there was a clear connection between design features and pages aimed at or originating from certain cultures. Further investigations are necessary in this aspect of web design.

Table 2 Characteristics of design feature

categories	Country site		
	Home	Korea /Japan	Australia /UK
Image	Image links are popular but no cartoon images.	Company logo and images are large. Mostly, the human faces on the picture are female. More images and links for same information.	Smaller images are popular
Color	Dominant color is blue in text and image. More than three colors of text.	More multiple colored images and backgrounds	Limited colors of text and images
Density of text	More text on the page	Low text	Low text
High tech feature	More rollover features and search tools available than other country sites	Pop up windows are popular. The animations are larger and located in the middle or top. The animations are mainly for other companies' advertisements	Animation is small, and located on the right
Particular feature	High density text on the page	The black text color was traditional	The animation is small and own company's advertisement.
Common feature	Company logo was the strongest image on the cover page. Overall, blue color was commonly used. Multiple frames are in vogue.		

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From the study, the Australian sites are more likely to be identical to a western global site in comparison to Korea/Japan and Home sites. The western sites have an introduction page which provides information about the company and their market and the product information is accessed through links, in comparison to Korea/Japan sites, which provide no introduction and take the user directly to links for the selection of services and products. By looking at different design features, there was a clear connection between design features and pages aimed at or originating from certain cultures. Further investigation is necessary and will be performed in future studies.

6. CONCLUSION AND LIMITATIONS OF THE STUDY

This study confirms Lerner's (1999) suggestions that there are certain ways to localize web sites. These suggestions are to plan ahead as all languages are not created equal and have their own nuances, to be aware of cultural differences, present a clear choice, know the target users, avoid slang, and keep information current on the site. However not many airline sites seemed to be aware of how cultural difference impact on local users' preferences. Even though a global site provided links to another country site, the site was in English and only three sites provided languages other than English for different country users.

This paper presented a framework to evaluate characteristics of web design in the main section, and identified some design features that will help improve ease of use and satisfaction for international users. It was observed in the study that global airline sites mainly focused on English web users rather than on other language users. The limitations of this research are that it did not go through with usability evaluations, usage of software, quality assurance testing and post-analysis, however further investigations are necessary and will be performed in future studies.

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