

Categorising Interface Features for Cross-Cultural e-Commerce

Kyeong S. Kang
Jim Underwood
University of Technology, Sydney

Department of Information Systems
University of Technology, Sydney
Sydney, Australia
Email: kyeong@it.uts.edu.au
Email: Jim.Underwood@uts.edu.au

Abstract

Keywords

INTRODUCTION - E-COMMERCE, LANGUAGE AND CULTURE

After a decade of rapid and sometimes exponential growth global internet usage has reached a plateau, with leading internet adopters such as the USA arguably reaching saturation point. While the serious adoption of e-commerce has been much more recent, there is some evidence that in the traditional markets growth is slowing. In the immediate future, e-commerce providers will need to diversify to developing markets, initially Asia and Latin America, later Africa and the Middle East. Until now the dominant language of internet sites has been English, but success in new markets will require consideration of other languages and cultures. This paper proposes a taxonomy of web page features that can be evaluated for use in different user communities.

The research reported here is part of a project studying the design and adoption of e-commerce services for non-traditional (i.e. non-USA) user communities. The issues faced by the designers of such e-commerce services depend, among other things, on the history of the seller (e.g. is this their first attempt at e-commerce), their cultural relationship with the target community, and the size and structure of the seller's organisation. Table 1, while not exhaustive, shows a variety of typical situations.

In the wider project we are looking for sources of influence on the cultural aspects e-commerce site design, with the eventual aim of giving guidelines for site designers. How much are potential users consulted? How influential are the experiences and business model of the owners? How influential are the experiences and cultural background of the designers?

The success of e-commerce sites depends on a wide variety of factors: unmet needs within the target market, trust of electronic transactions within the target culture, trust of the sellers within the target market, previous knowledge and standardisation of the product, availability of returns and complaints processes, modes of propagation of awareness within the target culture, and usability of the e-commerce business process. While our research covers most of these factors, we concentrate mainly on the business process and site design.

To investigate influences on site design we proceed in two ways. We interview owners, designers and users on how they understand and react to e-commerce sites, and what features they notice; we also ask owners and designers how they account for the cultural preferences of their target users. Secondly, to have a more structured understanding of the influence of culture on site design, we have produced a taxonomy of web site features that can be correlated with our knowledge of owners, designers and users. This taxonomy is the subject of this paper.

Situation	History	Market Culture/Relationship	Organisation Structure
amazon.com	market pioneer site design continually evolving	initially users seeking site specific purchasing requirements cosmopolitan users recently more push marketing	centralised single site
in country sites (e.g. Korea - Cultureland)	independent development based loosely on foreign models	owners, developers, users share culture word-of-mouth marketing	centralised single site
multi-national sites (e.g. eBay, airlines)	adapted from original central site	central company selling into diverse international markets	divisionalised but sites may be controlled centrally or locally
migrant community sites	independent development or adaption from home culture sites	owners, developers, users from migrant community OR market extension from home country	small simple structure OR minor extension of centralised site

Table 1: Cultural relationships in various e-commerce situations

While our main research project focuses on migrant community sites (see table 1) it is difficult to use such sites for feature analysis, since they vary widely in other factors such as history, product type and target market. We therefore decided to conduct our initial analysis on airline sites. International airlines operate from and have their main markets in one country, but have quite significant markets in other countries. For marketing and regulatory reasons sales are usually completed in the customer's country, so selling follows a divisionalised structure. Online enquiries are often directed to a country or region specific site depending on the enquirer's IP address, or the first page offers the enquirer a choice of regional sites. We wished to see how these regional or country sites adapted to the target cultures.

In the following section we review previous research on web site features. Then we develop and explain our initial taxonomy. Section four applies this taxonomy to international airline sites, and identifies features which display noticeable cultural variation. The final section proposes further ways in which this taxonomy may be tested and used.

ANALYSING THE USER INTERFACE

A range of design principles have been proposed to assist designers of interactive systems and web designers who wish to maximise the usability of a web site. These include usability guidelines (Kellog and Nielson, 1997, Keeker, 1997, Shneiderman, 1997b) and human factor principles. The goals of HCI are to develop or improve the safety, utility, effectiveness, efficiency, and usability of systems that include computers (Shneiderman, 1997a, Nielson, 2000, Keeker, 1997). HCI researchers attempt to understand factors such as psychological, ergonomic, organizational and social.

In 1997, the American Management Association conducted a survey on business use of the Internet and identified three human interface design issues in the top six e-commerce sites. These were slow response time, lack of user friendliness and poor website design. Anders (1999) finds critical success factors in e-commerce web design to be customer loyalty, ease of navigation, updated content, fast response time, relevant information, good customer experiences and user satisfaction. Other factors to be considered are organisational, environmental, health and safety, comfort, constraints, system functionality and user productivity (Anders, 1999).

Significant usability problems have arisen in existing web-based e-commerce sites because of the length and complexity of the information delivered. The human factors involve not only the individuals carrying out specific tasks, not only the technology, but also the socio-cultural factors of the communities that operate through the net (Ganes et al., 1997). Computer-mediated communication research looks more at emotional content (Kayany, 1998), and its effect on social and interaction context, rather than the medium itself. Users are sensitive to the political, religious, and social contexts they share. Many of these issues go far beyond the design of the physical user interface, but the interface often reflects and influences attitudes related to these wider contexts.

Literature on the impact of cultural differences on IS development and the use of information demonstrates that understanding national culture is an important factor for successful IS development in the global environment (Shore and Venkatchalam, 1996). In studies of e-commerce globalisation (Day, 1998, Sudweeks and Ess, 1998), and cross-cultural studies (Henderson 1998) cultural values are reported as a significant concern for customer

services in e-commerce. A majority of studies on the cultural aspects of IS have relied on Hofstede's (1980, 1991) model of culture, particularly the dimensions of individuality/collectivism, power distance and uncertainty avoidance. A small number of researchers has investigated how culture influences the use and development of information technology (Burn et al., 1993, Hall, 1990). Cultural differences affect individual personality and behaviour. Each country has its own ways of expressing feelings, showing emotions, solving problems and constructing its society (Hall, 1990). In one world with vanishing technical barriers to communication, information transfer and cross-national IS development, developers should consider how information systems are influenced by national culture in areas such as design, development and use.

DESIGN FEATURES IN GLOBAL E-COMMERCE

We wished to produce categories for a more detailed feature analysis of e-commerce web sites. Intuitively sites from different countries looked different, but we needed explicit categories to analyse these differences. After inspecting a number of web sites and after long discussions we proposed the categories shown in Table 2. This allows researchers to apply a mixture of quantitative and qualitative evaluations to web sites with a view to comparing sites of different national origin. Since we were studying sites of transnational organisations, we also recorded what sites were provided for users of different nationality; we distinguished (organisation) home country sites, global sites (usually portals directing users to national or regional sites), and country or region specific sites. Using the categories in Table 2 enabled understanding of typical design styles in different language or national sites.

Categories	Details
Use of Images	Image map, cartoon, moving or stationary, country logo, or picture with person/people
Colours	Dominant colours, number and variety of colours
Density of text	Low, medium or large on the home page
High tech feature	Number, description, size, location
Other Features	Particular features not elsewhere classified

Table 2: Categories of design features for web sites

While some of these categories allow quantitative measures of some features (e.g. number of images, words per page) most of the data collected is descriptive. We did not attempt to pre-classify these descriptions, preserving as much detail as possible for later analysis.

DESCRIBING PAGE STRUCTURE IN GLOBAL E-COMMERCE SITES

We examined the web sites of 23 international airlines,

TESTING CULTURAL INFLUENCES ON WEB SITE DESIGN

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COMPARING GLOBAL AIRLINE SITES

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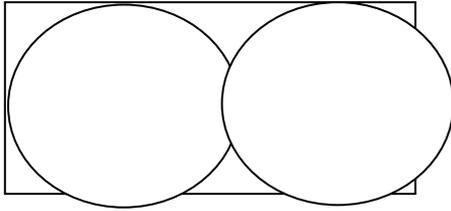


Figure 1: Two circles and a rectangle (Figure caption style)

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CONCLUSIONS

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Lewis, P.J. (1993a) Linking Soft Systems Methodology with Data-focused Information Systems Development, *Journal of Information Systems*, 3, 169-186.

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APPENDIX 1

Appendices are the last section of the paper. Do not start a new page.

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