Website Design and Culture:
An Empirical Investigation[1]

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Abstract

Understanding website preferences across cultures is imperative to the development of customer loyalty in online environments. Based on an exploratory four nation study, this paper addresses differences in preference and perception of website design across cultures. Consideration is given to levels of trust and satisfaction that result from web design elements. In many instances the results are counterintuitive. The findings are evaluated concerning design and culture, as well the evolving role of "culture" in Web based environments.

1   Introduction

Online purchasing is steadily increasing. It is estimated e-commerce in the United States will grow from $72 billion in 2002 to an estimated $217 billion by 2007 (Johnson et al., 2002) Building and maintaining customer loyalty in electronic marketplaces is an increasing imperative (Gommans et al. 2001; Grewal et al. 2003; Jarvenpaa et al. 1999; Jones, 2000; McKnight et al. 2002; Yoon, 2002). According to Anderson and Srinivasan (2003:124),"[C]ompeting business are only a mouse click away in e-commerce settings, so it is critical that companies understand how to build customer loyalty in online markets." Design is central to the development of e-loyalty on the Web. As Chen and Dhillon (2003:310) note:

In the case of an Internet vendor, the website is perhaps the only way a firm communicates with its customers. Therefore its appearance and structure encourage or discourage a consumer's purchase intentions. In the marketing literature website features such as layout, appeal, graphics, readability, and ease-of-use have been considered to affect consumers' clicking frequency.

With the growing diversity of Web consumers, the importance of understanding difference preferences for design elements across cultures is underscored. Other researchers have done work in this area (Barber and Badre, 2001; Del Galdo and Nielson, 1996; Marcus and Gould, 2000), but results have been either inconclusive or without consideration of design related to trust, satisfaction, and ultimately to e-loyalty.

This paper will present the results of a four nation study which examines design preferences across cultures. A brief review of the literature related to e-loyalty, design and culture is followed by the methodology used in the study. The paper concludes with an interpretation of the results and directions for future research.

2   E-loyalty on the Web

Superior design elements on the Internet attract and engage customers (Fogg et al 1999; 2002, Hoffman and Novak, 1996), and create positive cognitive and sensory user experiences (Nielsen, 2000). Effective website design is considered central to trust development and e-loyalty (Cheskin,, 2000; Egger, 2001). Winn and Beck (2002) described the "persuasive power of design elements on and e-commerce web site", and offer guidelines to Web designers that appeal to user's logic, emotions and credibility. Fogg et al (2002) found 46 percent of consumers responding to a survey assessed the credibility of sites based on overall visual design, suggesting a possible link with e-loyalty. However, with some exceptions much of the research related to design lacks empirical grounding, and challenges researchers to systematically identify key components of design that contribute to trustworthy sites. Most recently, models are beginning to probe how design elements such as presentation of the website or technical superiority (Yoon, 2002), and navigation or personalized website features (Gommans et al., 2001) might impact e-loyalty. However, it

should be noted few studies systematically examine design related to e-loyalty, and few if any researchers examine design and e-loyalty across cultures.[2]

3   Culture and Design

Building trust on the Web requires user interface characteristics appropriate for culturally diverse audiences (Evers and Day, 1997; Hillier, 2003; Marcus and Gould, 2000; Robbins and Stylianou, 2002). According to Gommans (2001: 51), "[A] website has to be designed for a targeted customer segment…Local adaptation should be based on a complete understanding of a customer group's culture". Del Galdo and Nielsen (1996) demonstrated color and screen design directions have various psychological and social associations in different cultures, and that diverse users have different concepts of screen usage. Cyr and Trevor-Smith (2004) found statistically significant web design characteristics for municipal websites across cultures.

A successfully designed site appears to have been developed within the local culture. Barber and Badre (2001) refer to the merging of culture and usability as "culturability' when cultural elements are considered in website design, and are expected to directly affect the way a user interacts with the site. An underlying premise is site visitors who are comfortable with design and usability features are more likely to experience satisfaction and revisit the site. Badre (2000) tested Italian participants using Italian designs and found preferences for navigation, but not for color. In the same study, there are no significant differences as a result of varying cultural characteristics for Americans. Further, Simon (2001) examined cultural differences related to website satisfaction among residents of Asia, Europe, Latin and South America, and North America based on Hofstede's model and found different preferences for colors and navigation. While these studies are interesting, they present some inconsistency of results regionally, and do not consider trust and e-loyalty across cultures. Relevant to the current research, it would be expected design preferences will differ across cultures. Further it is expected the design of a local website would be more culturally appropriate and therefore preferred over the design of a foreign website for the same vendor.

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[2] A definition of culture is complex, and a thorough discussion of culture is beyond the scope of this paper. Various researchers such as Hofstede (1980) have used nation state as a categorization for culture, although it is expected this designation no longer readily applies (Doney et al, 1998). As used here, a definition of national culture is more closely aligned to Matsumoto (1994) who characterizes culture as the degree to which people share attributes, values, beliefs and behaviors.

In other work, Jordan (2000) addresses the complex segmentation of preferences *within* a national culture concerning the aesthetics of designing for experience. For example, within Canada not only would design be considered for cultural subgroups of English, French or Asian, but by age or customer values as well. Evolving research in "activity-design" (Whitney and Kumar, 2003) or "creativity based research" Sanders and William (2001) suggest a growing requirement to explore consumer groups represented by a common set of attributes, values, or behaviors rather than by a prescribed national identity. This research raises questions for how companies can best identify and incorporate national preferences of consumers for website design.

4   Methodology

A survey instrument and interview questions were developed to test a variety of topics including design, trust, satisfaction and e-loyalty. Design items relate to work by Marcus and Gould (1999), Egger (2001), Badre (2000), and Cheskin (2000). Items on trust, satisfaction and e-loyalty are drawn from Yoon (2002) and others. Survey items were measured on a five-point Likert scale. Once the survey was finalized, it was pre-tested with 62 undergraduate students. Categories were evaluated for item validity and reliability and several items were revised for better fit and comprehension. The survey items appear in Appendix 1. Final versions of the survey were created in two versions (one with the foreign website experience first; the other with the local website experience first). In each country, one-half the respondents received each version. The survey was translated and back translated for each required language.

For the research task, participants responded to a local version of the Samsung website, and a foreign version (which was the Hong Kong site in each case).[3] Initially participants viewed the home page, and then were requested to navigate the site to choose a cell phone they would hypothetically purchase. Once participants completed the survey questions within a category, each was asked parallel interview questions to obtain further information about the website experience. Interviews were digitally recorded. An interpreter was used when necessary. Data collection was on site in the U.S., Canada,

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[3] The local sites are: Canada (http://www.samsung.ca/cgi-bin/nasecabc/init_seca.jsp), USA (http://www.samsungusa.com/cgi-bin/nabc/home/b2c_home_samsungusa.jsp), Germany (http://www.samsung.de/), and Japan (http://www.samsung.co.jp/).   The Hong Kong site can be found at http://www.samsungelectronics.com.hk/ .

Germany, and Japan. Participants were a stratified sample of employees from different levels in a multinational high technology company. Respondents included 41.5% females and 58.5% males, with an average age of 35.

Analysis of results as presented in this paper consists of mean scores and t-tests based on each item response on the survey to determine significant between country differences. Mean scores are aggregated by country. For analysis of the interviews, established theory was used for the categorization of data. Key participant responses were recorded by category and relevant quotes were produced verbatim. Once all individual responses had been extracted, a within-group analysis was carried out for each country. At the country level of analysis, responses were likewise coded and categorized. As the analysis proceeded, further segmentation was required for emerging codes, themes, and categories. The final stage of the analysis consisted of a between-group analysis for all countries. This part of the process used the codes, themes, and categories developed in the previous stage. Once content analysis was completed, an independent reviewer considered the data from a different perspective in order to validate the findings. The second reviewer's examination of the data revealed virtually identical results.

5   Results

5.1 Local and Foreign Website Comparisons

Table 1 reports mean values by country for each item on the survey related to participant preferences for design elements for the local and foreign Samsung sites. No clear preferences for the local site over the foreign website were found for Americans, Canadians or Germans. However, the percentage of respondents in these countries who would purchase from the local website is higher than the percentage of respondents who would purchase from the foreign website. Counter to expectations, Japanese have a strong preference for the foreign website. Sentiments about the Japanese site are captured by this Japanese respondent, " I say…use more pictures, more drawings to appeal to Japanese people…Japanese people like the emotional approach". Japanese seemed to prefer the brighter colors and animation present on the Hong Kong site. Results show the Japanese are less likely to purchase from the local site than the foreign site.

Table 1: Mean Values for Design Elements (Local and Foreign)

	US	CAN	GER	JPN
Menu layout	3.48*	3.30	3.93	2.28
	3.48	3.67	4.03	3.82
Access to product information	3.79	3.70	4.07	2.39
	3.41	3.89	4.10	4.03
Professional design	4.03	3.85	3.80	2.82
	4.03	3.78	3.83	3.50
Logical presentation of product info	3.45	3.48	3.87	2.75
	3.55	3.33	4.10	3.42
Screen design	3.51	3.67	3.63	3.10
	3.86	3.48	3.57	3.57
Navigation	3.55	3.33	3.90	2.32
	3.45	3.59	3.93	3.61
Sequencing	3.21	3.63	3.87	2.29
	3.48	3.59	3.90	3.64
Presentation of product attributes	3.24	3.37	3.77	2.54
	3.21	3.07	3.83	3.71
Product availability	3.00	2.89	3.13	2.61
	3.03	2.78	2.67	3.11

* Unshaded values represent local website data

  Shaded values represent foreign website data

Table 2 indicates participant assessments of the local site. Using a means test to compare mean differences on each survey item between two countries at a time, no differences are found between the U.S. and Canada, who each view their native websites similarly. Few differences exist between the U.S. or Canada and Germany. The majority of significant differences are between Japan and the other three countries in the study. Largest differences are between Germany and Japan concerning menu layout, access to product information, navigation and sequencing of the websites. The item not significant in any of the cases addresses descriptions of product availability and variety.

Table 2: Mean Differences between Countries – Local Websites

	C/US	C/G	C/J	US/G	US/J	G/J
Menu layout	-	.64**	1.01***	-.45*	1.20***	1.65***
Access to product info	-	-	1.31***	-	1.40***	1.67***
Professional design	-	-	1.03***	-	1.21***	0.98***
Logical info presentation	-	-	.73***	-	.70**	1.12***
Screen design	-	-	.56**	-	-	.53*
Navigation	-	-.57**	1.01***	-	1.23***	1.58***
Sequencing	-	-	1.34***	-.66**	.92***	1.58***
Product attributes	-	-	.83***	.52*	.71**	1.23***
Product availability	-	-	-	-	-	-

* significant at 0.1, ** significant at 0.05, ***significant at 0.01 (2-tailed)

Table 3: Mean Differences between Countries – Foreign Websites

	C/US	C/G	C/J	US/G	US/J	G/J
Menu layout	-	-	-	-.55**	-	-
Access to product info	-.48*	-	-	-.69**	-.62**	-
Professional design	-	-	-	-	.53**	-
Logical info presentation	-	-.77***	-	-.55**	-	.67***
Screen design	-	-	-	-	-	-
Navigation	-	-	-	-.48*	-	-
Sequencing	-	-	-	-	-	-
Product attributes	-	-.76***	-.64***	-.63*	-.51*	-

Product availability	-	-	-	-	-	-

* significant at 0.1, ** significant at 0.05, ***significant at 0.01 (2-tailed)

Some of the broad perceptions of the local websites are captured in the following quotations. These sentiments by respondents address the values and attitudes that would result in a satisfying web experience in each case.

> I would say, it [the website] doesn't have to be exciting. I just want to buy a handy item, I don't want to go on an exciting shopping tour…I just search the site where I can buy it, so I don't have to look at impressive animations, sounds, and multimedia". (German respondent)

> There are two different kinds of home pages. There is the one with every possible link like the Yahoo home page…it turns me off. So this one I find a little simpler in the sense that it is broken into a few sections, there are pictures to break things off…It does a fairly good job. (Canadian respondent)

> …[B]anners drive me crazy, they are very distracting actually, when I got deeper into the site, there was a flashy think over here, it is very distracting. (U.S. respondent)

> It [the local website] should have menu of the product on top of the page (Japanese respondent)

In Table 3 (previous page) participants in each country provide perceptions of the Hong Kong site. Again, statistically significant between country mean differences are reported. In 4 of 6 instances, presentation of product attributes (i.e. product options, product attributes, and product information are well designed and presented) is significant, followed by the logical and consistent presentation of product information, and then the ability to recognize and find product information. Of interest, Canadians and Americans have different preferences for access to product information. Greatest differences in perception of the Hong Kong site were found in comparisons between Americans and Germans. No differences between the countries were observed for screen design, sequencing of information or product availability and variety.

5.2 Trust, Satisfaction and E-loyalty

Also investigated is whether within a cultural group participants who view the local website will have more trust, more satisfaction, and more e-loyalty to that site than to the foreign (Hong Kong) site. No statistically significant

differences were found related to trust level of the local website versus the foreign website in any of the four countries in our sample.

Canada is the only country for which local website loyalty (mean=2.85) is higher than loyalty for the foreign website (mean=2.3). Canadian respondents indicated they did not like the "cartoony" images on the foreign (Hong Kong site), and prefer the simplicity of the Canadian site. For Japan there are statistically significant differences between satisfaction and loyalty of the foreign website versus the local website. However, as in previous analyses concerning Japan, the results are opposite to expected. The Japanese are more satisfied and more loyal to the foreign website than to the local website. In particular, the Japanese reported they liked the brighter colors of the foreign site, and found the colors on the local site "cold", and that images are badly designed.

6 Interpretation and Future Directions

The realm of culturability as termed by Barber and Badre (2001) is proposed here to be shifting in two important ways: (1) related to an underlying interpretation of design preferences for consumers, and (2) the definition and penetration of culture in an increasingly amorphous and Web based environment. A brief discussion of these points follows.

Comparisons for both foreign and local websites indicate some prevailing differences, however they are not always as expected. Table 2 represents perceptions of the local versus foreign website and suggests few significant differences with the exception of comparisons with the Japanese who prefer the foreign site rather than the local site. This finding is counter to expectations that locals would prefer their own websites, and may relate to the fact both local and foreign sites are Samsung. The reputation of the company overall is positive to respondents, thus casting a halo effect over impressions of the site. Alternately this may be an issue related to the localization of the site. In fact, Japanese respondents explicitly noted they prefer the colors and other design elements of the Hong Kong site. Or, in alignment with work by Jordan (2000) or Whitney and Kumar (2003), are there subtleties in design that must be probed in new ways to uncover deeper attitudes and values that serve to drive consumer preferences? In turn, will this be the key that unlocks trust, satisfaction and e-loyalty?

Concerning design preferences between countries, Table 2 illustrates few differences for how local sites are perceived, except in comparison with the Japanese. Results are interesting in Table 3 in which country comparisons of participant perceptions of the same Hong Kong site are noted. Of 54 possible

comparisons approximately one-fourth (13 in this case) are statistically significant, thus indicating different consumer preferences for design elements. This provides some support for earlier work on culture and usability (Cyr and Trevor-Smith, 2004; Del Galdo and Nielsen, 1996; Simon, 2001). However, it is also important to note that three-quarter of the comparisons yield no systematic differences. Keeping in mind the exploratory nature of this component of the research, it is still interesting to query why these unexpected results occur. Speculating beyond the bounds of this investigation, is it possible that designations by nation state require refinement, especially on the Web? Has some degree of Internet homogenization of Web design elements occurred?

The current work is deliberately exploratory. Collecting data on site in each country location is a strength of this investigation. A limitation of the research pertains to the relatively small sample of participants who are drawn from a technology company in developed nation states, constraining the generalizability of our findings. Additional research may alternately focus on how e-loyalty is built related to design in developing economies. Also noteworthy, all websites used in the study are Samsung sites. While one would expect this choice to provide greater consistency in website design and localization features, response biasing may occur due to participant knowledge of the company and its reputation. In future research, a larger sampling of websites might be considered to enhance generalizability of the findings.

The current research will inform other avenues for investigation such as controlled laboratory experiments. User cultural preferences can be systematically examined for differentiation of consumer group preferences using specialized eye tracking or other equipment. In this effort, our intention is to both widen the selection of websites presented, and to use eye tracking and subject's self reports to identify profiles or patterns of preference for design characteristics by national groups. Further, it is of interest to determine how design elements resulting in e-loyalty may be applied in the realm beyond PC-based electronic commerce. With the advent of M-commerce and ubiquitous computing, applications of this work may find a new home in emerging markets.

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Appendix 1: Survey (answered by each participant for both the local and the foreign Samsung site separately)

Experience Design

1 The user menus are clearly categorized and are well laid out on the screen.

2. I can easily recognize and find where product information is located.

3. The website looks professionally designed and well presented.

4. The product information provided on the website is presented consistently and logically.

5. The screen design on the website (i.e. colors, boxes, menus, navigation tools etc.) is harmonious and well presented.

6. The website can be easily navigated.

7. The organization, sequencing and overall arrangements of the site are understandable and easy to use.

8. All product options, product attributes and product information are well designed and presented.

9. Site product availability and product variety are well explained.

Trust, Satisfaction and E-loyalty

10. I can trust the online vendor.

11. The website is credible to me

12. I information presented on the website

13. The website completely fulfills my needs and expectations.

14. This website satisfies my particular needs well.

15. Using this site/service is satisfactory overall.

16. I would visit this website again.

17. I would consider purchasing from this website in the future.