Cultural Effects on Information Organization and Presentation-A Case Study of American and Chinese On-Line Shopping Portals

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Abstract. This study endeavors to discern if web interface design reflects cultural differences among countries from a cultural cognition perspective. A content analysis of the home pages of sample American and Chinese on-line shopping portals was conducted to understand how the organization and presentation of information in a web interface could be influenced by the "time system" of a particular culture. It was observed that American web interfaces looked plain and established whereas Chinese web interfaces gave the impression of sophistication and provided excitement. When presenting information, American designers are encouraged to give shoppers details of products, provide proficient search facilities, and focus on the manifestation of products. Chinese designers can use more graphics, present wide-ranging products, and emphasize on the establishment of human relations.

Keywords: web interface, design, culture, on-line shopping.

1. Introduction

The advocating of globalization seems likely to promote a universal culture. When it comes to the web interface design of multinational companies', a high level of standardization across borders is expected as the web site is accessible to customers globally [1]. However, in his research of building a culturally-competent corporate web site, Sun [2] concluded that web site localization was critical for transnational corporations. The localization of transnational corporate web sites requires a strategy for designing usable web interfaces that can be easily accessed and understood by international audiences. Prior research has concentrated on how culture conveys and creates its meanings through signs and words in web interface design (e.g., [3]). Developing successful cross-cultural web interface, however, calls for the recognition of inherited cultural cognition patterns [4].

We adopt the perspective of cultural cognition to understand how to design a preferable web interface for American and Chinese customers [4], anchored on the "high-context/low context" information preference [5] and the "time system" concept rooted in polychromic and monochronic cultures [6]. Findings from this study will provide further understanding of the cultural effects on web interface design and human information processing behaviors. This study will give implications for Web interface design improvements that suit the information needs of Chinese or English speaking customers.

2. Literature Review

2.1. Culture cognition and information processing

There is evidence suggesting that the process during human cognitive style may be emic, or culturally specific, rather than etic, or universal [7]. Faiola and Matei [4] proposed a broader model referred to as "cultural cognition theory" which argues that Web design is likely shaped by cultural cognitive processes that influence the designers' cognitive style and impact user responses. Their experiment involving American and Chinese designers and users reveals that users perform information-seeking tasks faster when using Web content created by designers from their own cultures. They suggested that developing cross-cultural Web sites calls for the recognition of inherited cultural cognition patterns. High-context/low-context

information need and monochronic and polychornic time systems have been proposed as relatively imperative cultural divergences [5][6].

2.2. High-context/low-context

Hall [5] proposes that people of low-context cultures require detailed and explicit communication. Communication requires lots of formal and direct information, often by way of written texts. For people of high-context cultures who often have a closer and more familiar contacts with each other, informal and indirect communication, often based on symbols or pictures, is preferred as much information is already shared among them. Vague language relies on the receiver's ability and experience to grasp the meaning from the context and interpret the message. Choe [8] outlines the main differences between the thought patterns of high-context cultures and low-context cultures. High-context cultures often highlight logic and rationality based on the belief that truth can be reached through linear processes of discovery, whereas low-context cultures believe that truth will manifest itself through non-linear discovery processes. An individual of low-context culture only needs to know relevant information so that he/she is not distracted by excessive information. They focus on details of information specific to them.

2.3. Time systems

From the perspective of the rhythms that regulate the tempo of human behavior in terms of the biological clocks, Hall and Hall [6] gave a summary of key associated behaviors with monochronic time systems and polychronic time systems. Monochronic people do a thing at a time, concentrate on the job, are time commitments (deadlines, schedules) seriously, are committed to the job, are low-context and need information, adhere religiously to plans, follow rules of privacy and consideration, are concerned about not disturbing others emphasize promptness, and are accustomed to short-term relationships. Polychronic people do many things at once, are highly distractible and subject to interruptions, consider time commitments an objective to be achieved, if possible, are high-context and already have information, are committed to people and human relationships, and change plans often and easily.

3. Methodology

3.1. Research model and hypotheses

This study focused on the perspective of "time systems" and high-context/low-context information need [5][6] as an analytical framework to study the information organization and presentation in on-line shopping portals. Two constructs are influential: organization of information and presentation of information. Each construct and associated hypotheses are discussed in the following sections.

3.1.1 Information Organization

From the perspective of the rhythms that regulate the tempo of human behavior in terms of the biological clocks, Hall and Hall [6] postulated that for people growing up in a monochronic system, compartmentalization of information helps them concentrate on one thing at a time. Monochronic people will break a job into many simple pieces for easy processing. Order and classification systems set priorities of doing things. Simplicity is a merit whereas interruption is a nuisance to people who grows up in monochronic culture. Clarity is achieved by allowing more space among compartmentalized information. In contrast, people growing up in a polychronic system are used to handle many things simultaneously. Many pieces of information are put together in a pool or embedded in a long message. Information is overlaid. This gives: H1: compared with Chinese web sites, compartmentalized information rather than an overlay of information is preferred in American web sites.

Lead time refers to how much time to allow for the preparation of a meeting. For American web sites, that the more structured information is given about a subject suggests a giving of more lead time to a customer for understanding a subject. For Chinese web sites, unstructured information suggests the importance of extra information or a hustle and bustle picture, urging customers to go along for the mirthful ride. It was hypothesized that: H2: compared with Chinese web sites, structured rather than unstructured information is preferred in American web sites.

3.1.2 Information Presentation

Clarity helps a monochronic person to receive information. It is preferable that a small amount of information appears in a single boundary of area or phase of time. Monochronic persons are accustomed to search information based on their needs. They focus on details of information specific to them. Opening to a mass of broad information helps a polychronic person to receive information. They are easily attracted by a crowd as they like to open up the information channels. For people grow up in a high-context culture, they need to be sophisticated enough to pick up important messages from a broad range of information. Pictures or graphics are frequently used to convey information. It was hypothesized that: H3: compared with Chinese web sites, clarity of information rather than a mass of broad information is preferred in American web sites.

Tempo refers to how slow or fast a person acts or reaches a decision. Monochronic people move and act rapidly, emphasizing promptness and a quick relationship. Straightforwardness is a virtue as it "saves" time. They care about facts of a product or service. Comments and reviews from a third-party person or report are important source of facts. Polychronic people move slowly. Establishing a friendly relationship often comes before talking a business or conducting a transaction. O'Keefe et al. [9], in their research of global consumer interface, found that American subjects often use the Internet for information search purposes whereas the Hong Kong subjects tend to use the Internet for social communication purposes. It was hypothesized that: H4: compared with Chinese web sites, American web sites focus more on the manifestation of products rather than on the establishment of human relations.

3.2. Research Sample and Design

The samples for this study were American *Yahoo! Shopping* (http://shopping.yahoo.com/) looking after American customers and Chinese *Yahoo! Shopping* (http://buy.yahoo.com.tw/) looking after Chinese customers. This study adopted a combination of qualitative and quantitative methods to address research questions related to exploratory search [10]. Participants were allowed to give comments on each question to gain extra information.

3.3. Participants

Fifty Chinese bilingual web designers, 27 males and 23 females, participated in this study. They ranged in age from 22 to 35 years, with a median age of 29. All reported at least three years of web site design experience for private Chinese companies or schools. Twelve of them indicated that they had participated in designing web sites of English version.

3.4. Procedures

In this study, a comparative approach was applied to ascertain if the cultural factor of time systems was represented in the web interface design of selected sample web sites. Participants were held together in a laboratory to answer all questions derived from the research hypotheses in related to the research samples. The questions were first verified by 3 professional web designers in a focused group that involved a content analysis [11] on the research samples. Questions include, for example, each information block focuses on an object; home page layout looks plain rather than sophisticated; more words than graphics are used to describe an object; straightforward rather than impressive phrasing is used to describe a product; object comments are based more on practicality rather than popularity. The quantitative data were analyzed using the null hypothesis that there was no difference between the two samples in terms of each question in the questionnaire. A p-value of 0.01 was used to reject the hypothesis. This study concentrated on the difference between the two samples by using the same participants for rating the two samples. Statistically, the extraneous variation was removed. The paired-observation t test was used as the standard deviations were unknown, but the sample standard deviations were known (all participants were Chinese of similar age and grow up in the same city) and the sample size 50 was considered relatively small [12]. A follow-up group discussion with 12 participants was conducted to verified and clarified results from the quantitative data.

4. Results and Discussion

The results of the paired-observation t test are shown in Table 1. Hypothesis 1 is rejected whereas Hypotheses 2, 3, and 4 are supported. Though typically Americans and Chinese have different time systems

and modes of handling information, the results of this study showed that when giving information, compartmentalized information was preferred in both American and Chinese web sites, i.e., hypothesis 1 was rejected. However, a few participants noted that on the home page of Chinese Yahoo! Shopping, some big blocks were not given a clear title. In terms of the difference in the page layout between our samples, this study found that page layout, page look, and page style were all significantly different. American Yahoo! Shopping home page looked plain, tranquil, and classical whereas Chinese Yahoo! Shopping home page looked sophisticated, hustle and bustle, and brisk. The results reflect the difference in the concept of lead time between two cultures. Americans like structured and regular web interface design while Chinese allow interruption, surprise, and flexibility in their web interface design. Hypothesis 2 was supported as structured information was preferred in American web sites but unstructured information was preferred on Chinese web sites.

Table 1 Paired Samples Test

		Paired differences					t	df	Sig. (2-tailed)
		Mean	Std. deviation	Std. error mean	99% Confidence interval of the difference				
					Lower	Upper			
		Information form							
Pair 1	A* vs C*Q1	.1000	.86307	.12206	-.2271	.4271	.819	49	.417
Pair 2	A* vs C*Q2	.1400	1.01035	.14289	-.2429	.5229	.980	49	.332
Pair 3	A* vs C*Q3	.1400	.88086	.12457	-.1938	.4738	1.124	49	.267
		Page structure							
Pair 4	A* vs C*Q4	3.0000	.72843	.10302	2.7239	3.2761	29.122	49	.000
Pair 5	A* vs C*Q5	2.9800	.74203	.10494	2.6988	3.2612	28.397	49	.000
Pair 6	A* vs C*Q6	2.9400	.79308	.11216	2.6394	3.2406	26.213	49	.000
Pair 7	A* vs C*Q7	3.0200	.89191	.12614	2.6820	3.3580	23.942	49	.000
		Information acquisition							
Pair 8	A* vs C*Q8	3.0600	.84298	.11922	2.7405	3.3795	25.668	49	.000
Pair 9	A* vs C*Q9	3.1400	.75620	.10694	2.8534	3.4266	29.362	49	.000
Pair 10	A* vs C*Q10	3.0200	.97917	.13848	2.6489	3.3911	21.809	49	.000
		Trade focus							
Pair 11	A* vs C*Q11	2.5400	.90824	.12844	2.1958	2.8842	19.775	49	.000
Pair 12	A* vs C*Q12	2.4000	.98974	.13997	2.0249	2.7751	17.146	49	.000
Pair 13	A* vs C*Q13	2.3600	.92051	.13018	2.0111	2.7089	18.129	49	.000

Note: A*: *American Yahoo! Shopping*; C*: *Chinese Yahoo! Shopping*.

On the sample American home page, objects were placed sparsely with the use of blank buffer. On our sample Chinese home page, objects were stacked compactly without much use of blank buffer. The "search for" function was emphasized on our sample American home page as theoretically Americans prefer to search the most relevant information according to their needs. For Chinese who grow up in a high-context polychronic culture that typically emphasizes sophistication and network extension would consider our sample Chinese home page that offered lots of relevant, up-to-date information, and non-pertinent information more helpful [13]. Hypothesis 3 was accepted as clarity of information was preferred on American web sites but a mass of broad information was preferred on Chinese web sites.

In terms of the tempo of making decisions, the results showed a difference in trade focus. The sample American home page focused more on the manifestation of products but the sample Chinese home page focused more on the establishment of people relationships. Consequently, hypothesis 4 was supported. The finding confirms with Hall and Hall's proposition [6] in that monochronic people are committed to the job (selling the products or services) whereas polychronic people are committed to people and human relationships.

The follow-up discussion with the participants confirmed that, compared with the sample American home page, they found the sample Chinese home page presented more diverse broad information that might allow online customers to easily pick up the most relevant information among many others, saving their time and effort to navigate through the site, particularly when they were not sure what exactly they were looking for. As one participant pointed out, "In an offline sale, a vendor needs to show Chinese customers a variety of products from which the customers can gradually identify exactly what they want with the help of the vendors acting as a sincere friend. Such strategy should also work in an online sale."

5. Conclusion

Conclusions from previous studies suggest that content may be localized while web site context, that is, the organization and presentation of information, can be standardized across countries [1][2][14][15]. The similarities found in the design of web interfaces between our samples reaffirm that a standardized way of giving information has emerged across web sites from ostensibly widely differing cultures—notably America and China. However, this study disclosed that the time systems, monochronic or polychronic, and high-context/low-context information needs did affect the web interface design of on-line shopping portals in some ways. It was observed that American web interfaces looked plain and established whereas Chinese web interfaces gave the impression of sophistication and provided excitement. When presenting information, American designers are encouraged to give shoppers details of products, provide proficient search facilities, and focus on the manifestation of products. Chinese designers can use more graphics, present wide-ranging products, and emphasize on the establishment of human relations. Future research may compare more samples originating from different cultures. Samples may also include non product-based web sites. More participants from different countries may be involved in the future in order to conduct a more significant hypothesis testing.

6. Acknowledgements

7. References

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