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CHINESE PERCEPTIONS ON WEBSITE DESIGN QUALITY

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Abstract

As internet is rapidly growing and globalizing, it is crucial for internet companies to know preferential differences of regional customers to their websites. China is one of the fastest growing countries in the world and internet in China is very promising. This study investigates Chinese perceptions of website design quality by examining Chinese websites of four different industries. Website design quality factors developed by Zhang and her colleagues are adopted and used as criteria for ranking Chinese perceptions. A pilot study is performed and the initial findings are reported.

Keywords: Website design quality, cultural difference, Internet

Introduction

During the past few years, internet has been rapidly growing and globalizing. At the beginning of internet, the majority of internet users were from the US and a few western countries, and websites were developed to meet their preference and needs. However, internet has dispersed rapidly throughout the world and a study indicated that by 2003, the US's share of e-revenues will decrease to 39% because customers in other regions have expended their online purchases (Simon 2001). Therefore, the previous way of conducting online business by operating a single universally appealing website will not be effective given the difference between some cultures/customers. Thus, the creation of customized websites to fit into regional internet users' values and cultures is recommended as an alternative way of conducting successful global internet application.

In order to develop customized websites, it is a prerequisite to understand regional users' preference and behavior regarding online purchasing, but very little research has been conducted. A few cross-cultural studies have been performed (Chai and Pavlou 2002), but it is still at an early stage.

China, which is one country of the fastest growing countries and has one-fifth of the world's population, is also experiencing dramatic growth of internet. A survey conducted by China's State Economic and Trade Commission reported that 87% of Chinese enterprises implemented websites by 2000 (Tan and Ouyang 2002). A few studies have been performed related to internet in China, but they have mainly focused on macro-level issues such as national policy, government issues, and infrastructure (Stylianou et al. 2003). Therefore, little knowledge of Chinese internet users' attitudes, preferences, and satisfaction toward internet has been accumulated.

In an effort to reveal global users' internet perceptions, this study examines Chinese perceptions of internet focusing on website design. We focus on website design because a well-designed website is critical for successful internet application. Online customers touch, communicate, interact and feel with online products (or services) only through the website, and well-designed websites are directly associated with positive attitude, usage increase, loyalty and revisit intention (Agarwal and Venkatesh 2002).

This study adopts the website design quality factors of Zhang and her colleagues (e.g. Zhang and von Dran 2002) and investigates Chinese perceptions of these design factors. We selected websites of four industries such as government, academic, e-commerce, and finance, and investigate the perceptual differences in website design factors across industries. A pilot study has been conducted and subjects ranked website design factors based on their preference.

Previous Studies

Internet in China

There have been previous studies about internet application in China. For example, Stylianou et al. (2003) examines economic, environmental, and organizational barriers of internet application in China. They find the knowledgeable and supportive business climate is a critical success factor and current IT infrastructure is the barrier that should be first overcome. Chen et al. (2002) conduct a field study of Chinese managers and administrators to discover the barriers and success factors of Chinese e-commerce. They find that Chinese online customers are concerned about lack of trust in online transactions and a lack of effective and secure online payment methods. Finally, Chai and Pavlou (2002) conduct a cross-cultural study on internet adoption in an online customer relationship management (e-CRM) context. The study found significant cultural differences between China and the US. That is, e-CRM intention of the Chinese is strongly influenced by a positive attitude towards the transaction, significant others' perception, perceived behavioral control, and image. Meanwhile, that of the US was only strongly associated with perceived behavioral control, not attitude and subjective norm. However, trust is a significant factor that affects attitude and perceived behavioral control for both countries.

In sum, while there have been several studies that examine internet application in China, they mainly focus on macro-level investigation. Therefore, little knowledge has been accumulated at micro-level (or individual-level) and thus further studies are needed for narrowing down the scope to reveal details of Chinese internet users' perceptions and their behavior.

Website Design

Developing a well-designed website (so called 'usable website') is pivotal for successful internet application because it is known that even brief exposure to a website builds an evident attitude towards the entire website, increases stickiness, revisit rates, satisfaction, improves performance, and motivates online purchases. A usable website design is also known to provide several benefits to web developers and internet companies by reducing website development, support, documentation, and maintenance costs.

Web usability has been a key theme in human-computer interaction (HCI). Studies in HCI have focused on development of better design approach (e.g. cognitive walkthrough) and performance evaluation of different design features. As a result, there is evidence that usable website is strongly associated with a reduction of error rate, time, and cognitive load (Nielson 2000).

The study of web usability is relatively new in the IS field, and few studies have been performed. For example, Zhang and von Dran (2001) identify 12 categories and 44 core website design features based on two-factor theory. Zhang and von Dran (2002) conduct another study and investigate the most important website design factors of websites across five different U.S. industries. They find that internet users have different weights on design factors across industries. In a recent special issue of *Information Systems Research*, both Agarwal and Venkatesh (2002) and Palmer (2002) investigate metrics of web usability. For example, Agarwal and Venkatesh (2002) develop web usability metric based on Microsoft usability guidelines such as content, ease of use, promotion, made-for-the-medium, and emotion.

In this study, to examine Chinese perceptions of website design, we adopt the website design quality factors of Zhang and her colleagues. There are several reasons to choose their factors. First, they develop the factors several years ago, and have applied and validated them through several empirical studies. Second, the factors encompass a broad spectrum of website design quality. Third, the goals and procedures of Zhang's are similar to those of our study. While the scope of this study does not include US internet users and their perceptions, the results of this study will be comparable with that of Zhang and von Dran (2002).

Research Methods

Our field study examines Chinese perceptions of website design factors. Through an advertisement at a national university in Shanghai, China, we will recruit participants. We select university students as our subjects since they are accustomed to online purchasing and will be main internet users in the near future. The subjects will be compensated a token amount for their participation. Before starting the main survey, we performed a pilot test with 26 Chinese internet users. The results reported here are based on the pilot study. As mentioned, we adopt the website design quality factors of Zhang and her colleagues. Instead of directly adopting the factors, we both extend and decompose the original factors, and have developed thirteen factors as shown in table 1.

A Likert-type scale (1: very unimportant, 7: very important) is used to measure each factor's relative importance. As Zhang and von Dran (2002) have identified different industries, this study selects four industries to examine perceptual differences across different industries. They are: education, finance, e-commerce and government.

To conduct the pilot study, we distribute a questionnaire to 32 Chinese graduate students in a large Midwest university and received 26 valid responses. During the pilot study, we ask subjects to select and visit a website of each industry that they are most familiar with. In the case that they are not familiar with an industry website, we recommend the website. For example, we recommend stockstar.com as a financial website, eachnet.com as an e-commerce website. In addition, we ask the subjects to visit, navigate, and conduct a specific task developed by researchers. The order of websites was randomized to prevent order effect. Questionnaire initially developed in English and translated into Chinese.

Table 1. Thirteen Website Design Factors and Description

Website Design Factors	Description
Timely information	Information is current, up to the moment, real-time update
Accuracy of information	Correct, exactly precise, true information
Multiple information sources	Include information from a variety of information sources
Easy navigation	Ease to move around web pages, navigation aids, quick reach to the target web page, controls order or sequence of information access
Search tool	Ease and convenient to search, provide several ways to find information
Comprehensiveness of information	Provide rich, broad, comprehensive, comparable information
Clear layout	Clearly understandable the structure of website, ease to find features or information
Security of data	Credit card security and customer privacy assurance, security seals, safety guarantee
Appropriate explanatory text	Certain explanatory text to enhance user's ability to comprehend meaning of written or printed words or symbols
Product and service price concerns	Features concerned with products/services offered/sold through Web site, price and availability of products/services
Visual design	Design the website using relevant/ attractive features (e.g., color, font, pictures, layouts, background) to fit into its business goals
Site responsiveness	System loading/responding time, always accessible to the website, interoperable across different computers/web browsers
Multimedia	Dynamic visual aids (animation/figures) sounds, movies, voices, images

Initial Findings

In the pilot study, we find the following results that are shown in table 2. The score of each design factor is calculated by summing up all 26 responses.

In general, we find that the Chinese have consistent perceptions of website design factors across different industries. Many design factors such as timely information, accuracy of information, and security of data are ranked as the top five design factors across all industries. These factors represent the effect of Confucian culture in e-commerce in China. That is, uncertainty avoidance during online transaction and information gathering and a tradition of human-based trust are deeply rooted in Chinese perceptions. This finding is consistent with previous studies (Simon, 2001) noting that cultural issues are deeply rooted in global website design. Ease navigation is also identified as one of the most common and important factors, indicating that Chinese customers are still not accustomed to the Internet and online purchasing.

We also find that there are several ranking differences across industries. In detail,

- *Security of data* is a top five factors of finance, academic, and e-commerce, but not for government. One possible interpretation of the finding is that because the main function of the government website is to release new policies and answering questions online rather than selling products or service, security of data is obviously a secondary consideration for users when judging the website quality.

Table 2 Findings of Most Important Design Factors of Each Industry Website in China

Order	Financial	Score	Order	Education	Score
1	Timely information	170	1	Accuracy of information	165
2	Accuracy of information	167	2	Search tool	149
3	Security of data	164	3	Security of data	146
4	Comprehensiveness of information	151	4	Timely information	145
5	Easy navigation	148	5	Easy navigation	142
6	Clear layout	145	6	Comprehensiveness of information	137
7	Search tool	141	7	Clear layout	136
8	Site responsiveness	141	8	Site responsiveness	130
9	Product and service price concerns	136	9	Multiple information sources	118
10	Appropriate explanatory text	128	10	Appropriate explanatory text	115
11	Multiple information sources	126	11	Visual design	112
12	Visual design	107	12	Product and service price concerns	99
13	Multimedia	94	13	Multimedia	95

Order	E-commerce	Score	Order	Government	Score
1	Accuracy of information	168	1	Accuracy of information	162
2	Security of data	162	2	Timely information	153
3	Timely information	160	3	Search tool	147
4	Search tool	157	4	Appropriate explanatory text	147
5	Product and service price concerns	157	5	Comprehensiveness of information	138
6	Easy navigation	148	6	Easy navigation	133
7	Site responsiveness	146	7	Clear layout	133
8	Comprehensiveness of information	144	8	Multiple information sources	128
9	Clear layout	138	9	Security of data	128
10	Appropriate explanatory text	135	10	Site responsiveness	121
11	Multiple information sources	131	11	Product and service price concerns	106
12	Multimedia	124	12	Visual design	99
13	Visual design	122	13	Multimedia	81

- *Comprehensiveness of information* is a top five factor of finance and government, but not for academic and e-commerce. It is interpretable in terms of Chinese's high uncertainty avoidance. That is, uncertainty avoidance may account for Chinese online customers' prudence on their financial decision and therefore, there are high needs for *comprehensiveness of information* in financial website. In the case of the government website, the high ranking of *Comprehensiveness of information* may be explained by the fact that government policy is very important in China, but it changes very fast. Therefore, the Chinese want to fully access policy change information through the government website.

- *Product and service price concern* is a unique requirement of e-commerce, but not for other industries. It is a straightforward finding in that Chinese online customers are usually sensitive to the price of products and services as are the US customers.
- *Search tool* is ranked in the top five in Education, E-commerce and Government, but not for finance. However, it does not mean that search tool is not important for online customers using financial websites. It may reflect that they are less sensitive to search since financial websites are more frequently required to move around websites. Previous experience on financial websites may affect the insensitivity.

Finally, we compare the results of this study with those of Zhang and von Dran. As shown in table 3, the results are consistent in general between the US and Chinese online customers. However, in terms of order of ranking, they are very different from each other. For example, for e-commerce industry, while the security of data is the most important factor in the US, accuracy of information is the most critical factor in China. Given that it is only a pilot study, we interpret the results with caution, as the extrapolation of results may not be conclusive. The full comparison will be reported during the presentation.

Table 3. Five Most Important Factors by the study of Zhang and von Dran

Order	Financial	Order	Education
1	Up-to-date information	1	Easy navigation
2	Accuracy of information	2	Search tool
3	Multiple information sources	3	Accuracy of information
4	Easy navigation	4	Comprehensiveness of information
5	Timely information	5	Clear layout of information
Order	E-commerce	Order	Government
1	Security of data	1	Easy navigation
2	Easy navigation	2	Clear layout of information
3	Appropriate explanatory text	3	Timely information
4	Search tool	4	Search tool
5	Product and service price concern	5	Accuracy of information

Expected Results

By adopting the website design quality factors of Zhang and her colleagues, this study examines Chinese online customers' perceptions on four different industries' websites. This study is expected to provide useful insights of which design factors are most importantly perceived by Chinese online customers. In addition, we expect to provide information about perceptual differences across different industries. Finally, this study will provide an opportunity to compare the results with those of Zhang and von Dran which examined US customers' perceptions of website design factors across different industries. Upon completing the main survey by early May, we expect to present all research findings at the conference.

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