

Business Practices on the World Wide Web: A Comparison of Japanese and U.S. Web Sites

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Abstract:

Rapid developments in the area of telecommunications and information technologies have brought about dramatic changes in the way organizations conduct business and have influenced the way organizations seek to gain competitive advantages in their industries. Among the most prominent of these developments is the World Wide Web (WWW or "web '7 and its impact on how business - in this case, electronic commerce (EC) - is conducted. One question that arises is: "Is the web S impact on electronic commerce uniform around the world?" This paper reports on a research study that sought insight into this question by comparing the web-based business practices of both Japanese and the US. The results of content analysis and statistical data analysis provide support for country differences between Japan and the U.S. on several web site characteristics.

Keywords: Electronic Commerce | World Wide Web | Web Characteristics | Cross-Cultural Studies | Japan

Article:

INTRODUCTION

With the continuous advancement of computer-hardware capabilities, network applications, and communication media, organizations that wish to stay competitive are forced to change the way they conduct business. One of the most prominent technological advancements in recent history is the World Wide Web (WWW or web). Viewed as a strategic information technology with the potential to dramatically change the rules by which organizations conduct business, the web serves as a revolutionary vehicle for advertisement, sales, customer service, supply chain management and logistics, and business communications (Jarvenpaa and Todd, 1996- 97; Nath, Akranligil, Hjelm, Sakaguchi, and Schultz, 1998; Rayport and Sviokla, 1995; Wigand, 1997). A closely related phenomenon is electronic commerce (EC): "...the sharing of business information,

maintaining business relationships, and conducting business transactions by means of telecommunications networks" (Zwass, 1996, p. 3).

World exports have increased from 11 to 18 percent of world GDP over the past 20 years. One out of seven equity trades worldwide involves a foreign counterpart. Global sales of foreign affiliates of multinational corporations now well exceed the world's total exports (Dadush, 1998). As businesses become increasingly global, EC becomes one of the major drivers in global information technology (IT) usage and management (Palvia and Palvia, 1996). However unlike television, radio, or print communication, where geographic coverage is to some extent limited to local regions, web-based EC will likely face different issues due to cultural, economic, political, and technical differences (e.g., telecommunications standards and infrastructure). The possibility that these global differences relate to the web and EC begs the question, "What is the extent and nature of the global differences related to web usage and related EC practices?" This paper reports on a study that sought to illuminate our understanding of these differences by focusing on the following researchable questions:

- (1) What are the key web site characteristics in Japan and the U.S.?
- (2) Are web site characteristics different between Japan and the U.S.? If so, how?

BACKGROUND

In general, EC includes many business activities, including advertising and sales, accounting, finance, and procurement or purchasing. In short, what we refer to as EC is an umbrella concept that encompasses a wide range of new and old business applications, such as electronic document interchange (EDI and EFT), electronic messaging (e-mail), electronic publishing (marketing, advertising, sales, and customer support), corporate digital libraries (information sharing and collaborative work), and supply chain management (Hoffman, Novak, & Chatterjee, 1996).

Although not the largest part of EC on the Internet, perhaps the most visible and recognizable part of EC on the Internet is in the business-to-consumer (B2C) or consumer-oriented EC arena. Consumer-oriented EC can be defined as a type of marketplace transaction. As such, consumers learn about products through electronic publishing (advertising), purchase them using electronic cash and secure payment systems (sales), and have them delivered and receive follow-on support (customer service) (Kalakota and Whinston, 1996). In traditional areas of these disciplines, there have been many studies about the importance of the cultural context and how it impacts consumer behavior (e.g., Hong, Muderrisoglu, and Zinkhan, 1987; Mueller, 1987; 1992; Petison, Ariga, and Wang, 1994; Ramaprasad and Hasegawa, 1990; 1992). Typically, a positive relationship is found, and prescriptions are offered, e.g., advertisements should adapt to the local culture. However, at the present time there is a dearth of studies that focus on the cultural impact of business activities on the Internet. This served as the focus for the research reported here.

The applications and operations of consumer-oriented EC are diverse in terms of products (e.g., automotive, clothing, food and beverages, computer hardware, and software) and services (e.g., retailing, investment/financial services, and travel/transportation). While some companies offer

on-line interactive transactions such as on-line ordering and search engines to find the products, others provide advertisement and product information. Regardless of these offerings, all of these organizations utilize a web site as the point of contact with the consumer.

Categorizing these myriad, residing-all-over-the-world, web sites into a generic framework will help us understand the phenomena surrounding EC on the WWW. In this study, the framework is largely grouped into four dimensions: the business purpose of the web site; the value that the web site provides to prospective customers; types of payment accepted; and the language used on the web site.

METHODOLOGY

In order to see the differences between Japanese web sites and U.S. web sites, this study employed content-analytic techniques for gathering data. Content analysis is the systematic and reliable coding of communication content (Aikat, 1995) in the body of communication (in this case, a web page). For this research, the unit of analysis is a "web site," which may consist of multiple web pages, of a company. By using content analysis, the content (information) in the web pages (communication) was coded in order to identify the characteristics of EC employed by the organization. In the following sections, variable measurements that were coded are specified and the coding schema is briefly explained. Following this, the selection of web sites and sampling techniques are described.

Dependent Variables: Purposes and Values of Web Sites

The first set of variables used here is based on a framework developed by Ho (1997). In his 1997 study, the business purposes of a commercial Web site are classified into three categories: promotion of product and services; provision of data and information; and processing of business transactions. "Promotion" is specific to the products and services that a business offers to customers. "Provision" pertains to the supply of information to gain good will, exposure, credibility, or to expedite communication. For example, "promotion" occurs if an oil company provides information on its gasoline and fleet fueling services on its web site, whereas "provision" exists if information such as data on explorations and reserves, financial reports for investors, and its environmental policies are provided." Similarly, new product information is "promotional," but job postings are "provisional."

"Processing" refers to those business transactions that are beyond the generation of sales leads by promotion. For example, requesting a catalog is "promotional," but online ordering is "processing." To accommodate the web site development theory espoused by Quelch and Klein (1996), an additional purpose - "customer service" - was included in the framework. "Customer service" applies to web sites with functions to support customers regarding the company's products but not necessarily generating sales leads. This includes such things as technical support information, troubleshooting, FAQ, on-line customer services, or delivery and job status tracking.

In addition to the business purpose of web sites, a dimension that seeks to capture the nature of how a web site might create value for the customer was included. For this research, four types of

value creation are identified: timely; custom; logistic; and sensational. "Timely" value applies to time-sensitive information, and not to the speed of its delivery. This category includes time-limited special offers, news, and product announcements. "Custom" value is predicated on predisposed preferences of the visitor. Searching a database of real estate listings based on preferred price range, location, size, and style of home, is a custom value. This category also includes customized product reports, custom orders, and interactive consulting. "Logistics" value is created when the site offers a preprogrammed function of the site. Quoting the rate for shipping can be preprogrammed, so it is logistic, but not a customized service. In other words, a custom value-adding feature generates a profile of the customer whereas a logistic value-adding feature generates a profile of the business of the web site. This category includes rates and fare quotes, facility/dealer locators, financial reports, research/survey results, customer service and delivery or job tracking. "Sensational" value is subjective in nature, and a web site is classified in this category if the contents of the site are above the expectation of the coders as frequent visitors of web sites. Examples include contests, sweepstakes, giveaways, freeware, games/puzzles, downloadable multimedia, surprise discounts, and outstanding web designs. This yielded a 4x4 matrix with sixteen cells with four purposes and four types of value (Figure 1).

Figure 1: Revised Purpose-Value Matrix

	Promotion	Provision	Customer-Service	Processing
Timely				
Custom				
Logistic				
Sensational				

To capture the richest data from web sites, three instances of functions per cell (a combination of purpose and value variables) were generated (for a list of example characteristics, refer to Table 1). In this way, 48 instances were chosen based on literature and pilot testing. Coders made decisions for each site as to whether the site had that function or not. If a site had a certain function (e.g., new product announcement), it was regarded as having the value in that given function. By coding three instances of features per each cell, this coding schema provided a richer set of data than just coding one dichotomous variable for each cell. It can be suggested that there are certain degrees in each variable. For example; if a site has two features the Promotion-Timely cell, it indicates that the site has more promotion-timely values than a site that has only one feature.

Table 1: Examples of Web Site Features that Fit the Purpose-Value Combinations

	Promotion	Provision	Customer-Service	Processing
Timely	New product announcements. A time-limited, special offer, such as year-end clearance. Extraordinary offer, such as one-day only 50% off	Employment opportunities Stock info (daily or weekly) Press releases	FAQ Prompt response (Indication on the web) Up-date report on service	On-line format ordering Credit card / smart card transactions Report on delivery status
Custom	Unique products (not available elsewhere) Customized product reports (e.g., consumer reports on the product) Search by feature (e.g., laptop 1 lb. or less)	General database searches (e.g., Customized Yahoo search) Customized news reports (e.g., consumer reports on the company) Search by topics	Customized report on bugs, recall, etc. Interactive troubleshooting (in person) Targeting specific consumer groups	Customized order (choosing from list) Customized order (can put requests) Loans (including 30 / 5 or similar payments)
Logistic	Product prices Dealer locator Quality assurance (research/survey data on products)	Financial data Research/survey results other than products Commitment to quality (not specific to a product)	Delivery or job status tracking Link to other related stores Company policies on returns	Total cost calculation Alternative payment methods Secure transaction
Sensational	Promotional contests / sweepstakes Free stuff (related to the products) Outstanding web design about products	Downloadable multi-media Free stuff (not related to the company's products) Outstanding web design on company info	BBS on products Chat with stuff Can request some service on chat	Instant winners Surprise discounts Bonus on transaction

Adapted from "Evaluating the World Wide Web: A global study of commercial sites." by Ho, J. (1997). *Journal of Computer-Mediated Communication*, 3, (1), para. 6.

Other Dependent Variables: Methods of Payment and Language Used

Methods of payment a web site may offer for its transactions is a categorical variable. Whether the site allows payment by credit cards, personal checks, postal or money order, bank transfer, cash on delivery, cyber cash, or other methods, was coded dichotomously. In almost the same way, language used was coded-whether the site offers English only, Japanese only, two languages (bilingual), or 3 or more languages (multilingual).

Sampling (Selection of the Web Sites for Analysis)

The sample for analysis was drawn from a population of Japanese and U.S. commercial sites in the computer and automobile industries. For this research, a master list of web sites was compiled from two sources: Yahoo! and Yahoo! Japan's "Companies/Computers" and "Companies/Automobile" lists. This process of selection resulted in approximately 30,000 URLs (as of January 19, 1999; Table 2). The U.S. list had almost three times as many sites as did the Japanese list. Yahoo! and Yahoo! Japan's "Company/Computers" lists have subcategories of businesses, such as accessories, multimedia, and games. These subcategories were grouped into two categories: hardware and software. "Company/Automobile" lists also have subcategories of businesses, such as makers, parts, and dealers. From this list, a random sample of 200 sites were chosen for analysis (Table 3). The sampling was done by proportionate stratified sampling and systematic sampling so that each sample represented the respective population.

Table 2: Compilation of the Web Site Frame

	Yahoo! directories (examples)		U.S.	%	Japan	%
Computer	Hardware	PC, components	5,363	32.2%	1,106	19.8%
	Software	Custom programming	11,293	67.8%	4,468	80.2%
	Total		16,656	100.0%	5,574	100.0%
Automobile	Manuf.	Maker	389	5.9%	238	17.0%
	Parts	Parts retailer	1,595	24.1%	449	32.0%
	Dealers	Used car dealer	4,621	70.0%	715	51.0%
	Total		6,605	100.0%	1,402	100.0%

Note: The numbers of web sites were retrieved on January 19, 1999 from the World Wide Web (WWW): <http://www.yahoo.co/> and <http://www.yahoo.co.jp>.

Table 3: Compilation of the Sample Web Sites

		U.S.	%	Japan	%
Computer	Hardware	16	16.0%	10	10.0%
	Software	34	34.0%	40	40.0%
	Subtotal	50	50.0%	50	50.0%
Automobile	Maker	3	3.0%	9	9.0%
	Parts	12	12.0%	16	16.0%
	Dealer	35	35.0%	25	25.0%
	Subtotal	50	50.0%	50	50.0%
Total		100	100.0%	100	100.0%

Sample Characteristics

The final sample of 200 web sites included 100 from the computer industry and 100 from the automobile industry. Some companies might have had the pages in both countries, accommodating both market needs, but only the sites that reside in their home countries are considered (except for the variable - language used). Because there was a time lag between the time of sample selection and the time of actual coding, five U.S. sites and six Japanese sites were not accessible at the time of coding and were dropped from the sample, resulting in total of 189 sites. Coding was done between July 14, 1999 and July 28, 1999. Because of the time zone

differences (Coder 1 resides in the U.S., coder 2 resides in Japan, and coder 3 resides in Denmark), coding was not perfectly synchronized, but all coding was within this time period. The three coders were all bilingual in Japanese and English. This characteristic was necessary to code both Japanese sites (mostly written in Japanese) and U.S. sites (mostly written in English). It is assumed that the variance caused by individual differences would less affect the results if the same person coded both countries' sites, compared to the case in which one country's sites were coded by one person whereas the other country's sites were coded by another person. Sample companies range from very small companies (i.e., annual sales of approximately \$100,000; less than 10 employees), to very large companies (i.e., annual sales in excess of \$1 billion; more than 100,000 employees). A decision not to distinguish very small companies from very large companies in the analysis was based on the assumption that the companies were selected randomly - an assumption verified in later analyses. Only the significant differences found between small and large companies stem from their difference in development stages; web sites of large companies were well developed compared to those of small companies.

The Reliability of Research

In order to obtain a systematic, objective description of communication content, the researcher's subjectivity must be minimized. For this research, interjudge reliability was used as a measure of the reliability in the content analyses conducted.

"Interjudge reliability is the percentage of agreement between judges processing the same communications material. It is the degree of consistency between coders applying the same set of categories to the same content" (Kassarjian, 1977, p. 14). This was operationalized by calculating the ratio of the number of coding agreements to the total number of coding decisions. Since three coders-the author and other two coders-were employed, interjudge reliability was calculated as follows: First, agreements between coder 1 and coder 2, coder 2 and coder 3, and coder 1 and coder 3 were calculated. Then, overall interjudge reliability was calculated by averaging the three ratios. This is one of commonly used measures of reliability (Kassarjian, 1977). According to Kassarjian, researchers can be quite satisfied with coefficients of reliability above 85 percent. For this research, all reliability measures were greater than 85 percent with overall interjudge reliability of 89.7%.

RESULTS

In order to examine whether significant differences exist between Japanese web sites and U.S. web sites on individual functions, 36 hypotheses were formulated. Some differences were predicted based on the cultural differences, such as individualism-collectivism orientation of each of the countries; some are based on the business practices, such as use of payment methods. The business practices themselves are affected by the cultural differences, which include languages, laws and regulations, and personal values. It would be nice to have some explanations to the phenomena, either by the cultural differences or by the business practices. Therefore, hypotheses were formulated in such a way that differences are explainable using extant research literature. The following section discusses the results of the hypothesis testing.

Informational vs. Non-informational

Informational, as it is used here, is a measure of how many information cues about products/services are contained within an advertisement. Research literature in advertisement and consumer behavior suggests that American advertisements tend to be more informational than Japanese ads (e.g., Ramaprasad and Hasegawa, 1990) with more information cues per unit of ads. By increasing the amount of information, the ads are throwing more words of promotion at audience per unit of space and/or time, and then, the ads would become more "hard-sell" oriented. Therefore, it was predicted that U.S. sites had more values in promotion than Japanese sites did. Six hypotheses were formulated based on this theoretical base, yet were not supported. One possible explanation for these results is that traditional media for ads are limited in space or time, such as newspaper or magazine ad-pages, or airtime for radio or TV commercials, but web sites are not. Therefore, companies can put as much information as they want, even non-priority information, thus diminishing the differences in the amount of information in the ads between countries. In other words, for instance, a Japanese ad on a paper may contain more beautiful scenery pictures but very little information about products due to the limitation in space, while an American ad on a paper contains more information about the products. On the web, however, even Japanese ads can put product information although it is not their priority, and American ads may have as much information as on paper.

Hard-sell vs. Soft-sell

Seven hypotheses referred to the nature of Japanese ads. The literature in advertisement and consumer behavior suggested that Japanese ads were more "status," "soft-sell," and "emotional" (Belk & Pollay, 1985; Hong, Muderrisoglu, and Zinkhan, 1987; Mueller, 1987; 1992; Ramaprasad and Hasegawa, 1990). These characteristics were translated into the information-provision purpose, in which companies tried to have customers know the company, to gain goodwill, and to be a long-term partner with consumers. Features, such as employment opportunities, stock information, press releases, company financial data, research / survey results other than products, downloadable multimedia, and free material not related to the company's products, are designed not for directly gaining leads to the sales. Of these seven hypotheses, only three were supported. Japanese sites had more information about employment opportunities, company financial information (such as capital), and non-product-related free products. These features are geared toward gaining goodwill for the company, not just for driving sales. This indicates that Japanese companies are using the web not only as a sales/advertising function but also as a tool to improve their corporate image (CI). These individual differences suggested that the results agreed with the literature that Japanese ads are aimed at pleasing the customer (Mueller, 1987). The lack of support for the remaining four hypotheses (i.e., Japanese sites providing more stock information, press releases, research / survey results other than products, downloadable multimedia) can again be explained by the removal of the space/time limitations on web sites compared to traditional media outlets. Another plausible explanation is that providing real-time-stock information or downloadable multimedia requires a certain level of technology on the company's side. The level required to have those features might have been too high for the average Japanese companies, at least for now.

Further examination of individual functions revealed that U.S. web sites had more product-related free offerings, e.g., free product samples. These product-related freebies are considered

as a part of promotion of the product. This was an indication of the "hard-sell" nature of U.S. promotional styles, and is in contrast with Japanese sites - which had more non-product-related free stuff, such as free prepaid calling cards. Non-product-related freebies are considered as an example of showing goodwill to consumers, because they are not promoting certain products but images of the company: another indication of the "soft-sell" nature of Japanese ads.

Do-It-Yourself vs. "Inter-dependency"

Customer service is another dimension of the web sites coded that was based on frameworks by Quelch and Klein (1996). Most of the features in the customer service are to help consumers to solve problems by themselves, such as frequently asked questions (FAQs), and interactive troubleshooting. This relates to Hofstede's (1980, 1991) individualism-collectivism dimension of cultures described as:

Individualism pertains to societies in which the ties between individuals are loose: everyone is expected to look after himself or herself and his or her immediate family. Collectivism as its opposite pertains to societies in which people from birth onwards are integrated into strong, cohesive ingroups, which throughout people's lifetime continue to protect them in exchange for unquestioning loyalty (pp. 51).

The U.S. scored highest on the dimension, meaning that the companies of the web sites analyzed tend to presume that consumers in the U.S. are extremely individualistic or prefer individualistic approaches. The features in the customer service function are geared toward such American needs for information to help consumers do-it-yourself. Eight hypotheses were formulated based on this assumption. Most of these hypotheses (six of the eight - suggesting that U.S. sites provided more information related to FAQs, prompt responses, up-to-date reports on service, interactive trouble-shooting, job/delivery tracking, and company policies on returns) were statistically significant, supporting the underlying theory. The two hypotheses that were not supported dealt with customer reports on bugs and recalls and links to related stores. These features may support consumers in the sense that they are individualistic, but at the same time, run counter to the "hard-sell" policy. Both features tend to work against the company's sales, instead being geared toward the consumer's gain. This in effect diminishes the significant difference between the two countries created by Americans' individualistic characteristics.

American consumers' individualistic natures also helped to formulate a set of five hypotheses all related to customization of ads and order transactions. Consumers in individualistic countries tend to be independent and attempt to distinguish themselves from others by pursuing personal efficiency. Consequently, customized orders are attractive to those consumers. As a result, two of the five hypotheses relating to a site's ability to provide customizing orders were supported. The three remaining hypotheses - which related to custom values for the promotion function - were not supported. On the contrary, the unique products were found significantly more on Japanese sites than on U.S. sites. This result was not expected; and thus, it is questionable that the custom values are used to attract individualistic consumers. Rather, supported hypotheses may indicate that U.S. sites are more advanced in order transactions than Japanese sites are. As a matter of fact, U.S. sites had a greater capability to process orders on the web than Japanese sites on more advanced functions, such as on-line ordering and total-cost calculations. This finding is

consistent with relatively low usage of mail order and TV shopping in Japan (Petison, Ariga, and Wang, 1994). It is also consistent with the results of Prattipatti and Mumrnanaleri (1997), in which they found U.S. sites are more advanced in having transaction functions than Singapore sites. Although it is still too early to draw conclusions related to this issue, it may be partially due to the general behavior of Japanese consumers, who prefer daily tangible shopping to on-line shopping.

Another possible explanation for the non-support of the three hypotheses in this area is the fact that Japanese are very "status" conscious. The distinction between superior and subordinates is very severe. In other words, while Japanese society tends to be collectivistic in nature, and people hate to be different from other members within the group, they still want to maintain their status by having or doing something different. This analysis may have worked in the design of web sites having unique products, customized product reports, and search features, resulting in the hypotheses being unsupported.

Two hypotheses were opposite of the above-mentioned features. Japanese are collectivistic people; and thus, they tend to depend on others. Consumers prefer vendors taking care of their problems rather than resolving them by themselves. Therefore, features such as online chat with staff and service requests via chat were expected to be found more in the Japanese sites. These hypotheses, however, were not supported. This might be just because of the difficulty of staffing on chat rooms or providing appropriate applications to take care of automated answering due to the lack of technology.

Don't Leave Home without It!

Four hypotheses were related to types of payment. Since the consumers in the U.S. are very accustomed to using credit cards and personal checks, it is expected that more sites would use those methods in the U.S. than in Japan. On the other hand, Japanese consumers are not accustomed to using those methods, instead being more comfortable using bank transfers and cash-on-deliveries. Three of the four hypotheses (i.e., U.S. having more "credit card-able" and "check-able" sites, Japan having more "bank transfer-able" sites) were supported as predicted. The remaining hypothesis (cash-on-delivery sites in Japan) was not supported perhaps because there were simply not many "transaction-able" sites in Japan at the time.

Mono-Lingual America?

For the number of languages used in a site, the results showed evidence of English being a de facto lingua franca in business. This is not surprising since in order to do business in a global market, the use of English is inevitable for a company whose native tongue is not English. Correspondingly, most of U.S. sites had nothing but English, while some Japanese sites had English pages in addition to the main pages written in their native Japanese, thus supporting our hypothesis that suggests Japan sites would have more language support. This result is consistent with Ho's (1997) study in which 600 of the U.S. sites he studied were all English-only pages, while other countries, such as Singapore, Hong Kong, France, and Germany had many bilingual or multilingual pages. For a U.S. company, use of other languages is not an urgent issue right now, since English is used in almost all business transactions anywhere in the world. However, a

recent study by Computer Economics predicted that by the year 2005, 198 million out of 345.5 million Internet users will be non-English native, and it will become imperative that companies offer multiple language choices on their web sites (Computer Economics, 2000). It will be interesting to see how U.S. companies adapt to this trend over the next few years.

In summary, although not all the hypotheses were supported, the detailed examination showed that country/culture was one of the factors that affected how web sites were characterized. Failing to support hypotheses relating to the idea that the U.S. had more product information, special promotions, dealer locators, customized product reports, etc., suggested that the amount of information was no longer the determinant of characteristics of promotion or information-provision purposes of ads if they were on the web. Nevertheless, differences found in other categories suggested that attention should be paid to country/culture issues, with dimensions such as individualism-versus-collectivism having an effect on the way features on the web are designed. In addition, advanced position of U.S. sites in terms of order processing function was confirmed.

Limitations

Several limitations of the current study could have possibly influenced the validity of the results. In general, threats to validity reside in the sampling methodology, selection of variables, and measurement of variables. First, samples were drawn from a limited population. The population frame was constructed from Yahoo! and Yahoo! Japan's list of companies (1997). Companies not listed on these portals were consequently not considered for sampling. The samples were limited to two industries-computer and automobile-limiting the external validity or generalizability of results. Furthermore, the sampling was conducted in mid-1999. Considering the fast changing nature of web characteristics, the findings may apply to the situation at this time only. All these threats contribute to compromise the generalizability of study results. Retrospectively considering that the data was collected almost two years ago, the maturity issues, especially those of Japanese companies, might have affected the results. The results suggested that U.S. companies had considerably higher rate of having processing functions. This result may have been the result of the difference in the size of B2C operations in both countries at that time. Nonetheless for that, this study can serve as a benchmark of phenomena at that time.

Second, only a limited number of variables were taken into consideration. Country was the only exogenous variable that was considered to influence the web characteristics. Although the influences of other variables were controlled by randomizing the sampling, it is possible that there are other exogenous factors influencing the research model. Some of the concerns about the influences that should be considered include the access technology by which consumers access the web sites. Although it is getting closer, the diffusion of home PCs is different between two countries. Some other technologies, such as cell-phones, might have changed the picture, but the phenomenon is happening in quite recent days. Other variables that might have been interesting to consider would be the other media of communication, such as TV, magazines, and direct mail, between businesses and consumers. Depending on the company's marketing strategies, the use of Web site in conjunction with other media can be different. However, this is not different from much of the research in the social sciences that also suffers from these threats.

Lastly, the measurement was limited by all the normal limitations of content analysis. Reliability of objectiveness was assessed and considered acceptable. However, in order to code the Japanese sites, all coders had to understand the Japanese language. Consequently, all coders were Japanese, and thus a systematic bias towards the measurement of variables could exist. By using a coding sheet and a coding manual, systematic and quantitative coding would not be the limitation. Besides these three tenants of contents analysis (objective, systematic, and quantitative), choice of categories and unit assignments are the threats to the validity of measurement (Kassarjian, 1977).

Implications for Future Research

The limitations and the research model suggest some possible directions for future research. First, in order to be more generalizable, the scope of study should be expanded into more industries and more countries. At the present time, the only problem with this expansion is the limitation in number of sites available for sampling. Moreover, a longitudinal research design would permit investigation of the evolution in web-based electronic commerce over time. A longitudinal approach could also address how companies develop their web sites to be more valuable to consumers. In addition, a longitudinal design would permit an analysis of development direction, as proposed by Quelch and Klein (1996) for small and large companies.

Second, measurement for the depth of cells in purpose/value matrix needs to be further refined. At present time, the common variance is too small to be fully analyzed due to the primitiveness of web sites in general. Because there were many sites with no value for each of the variables, the distribution would be highly skewed (more 1s than 5s in 5-point scale), many are difficult to be considered as normal distribution. In the future, with more fully developed web sites, the scale would permit a more accurate measurement of the purposes and values of web sites.

Third, the model should be expanded to investigate the whole picture of web-based, consumer-oriented EC. Because of the methodological limitations, the choice of variables was limited to those that lent themselves to content analytic methods. By employing different methodologies, such as case study, field study, or survey method, the model has many possibilities for expansion.

Finally, scholars in the field of management information systems and consumer behavior are beginning to recognize the importance and growth of consumer-oriented EC. Thus, although consumer-oriented EC is a new field of study, new theories are being developed continuously. Incorporating new theories into the model of web characteristics would permit researchers to understand the related phenomena more deeply.

CONCLUSION

The area of electronic commerce (EC) has received great attention from both academics and practitioners. This public attention is a result of the phenomenal growth in the Internet and WWW, and this has accelerated the growth of EC. However, because of the newness of these phenomena, little about EC on the web is known.

This study is a step forward in developing a deeper understanding in this area. In part, the current study modeled an antecedent factor that affects the web characteristics—namely country/culture. However, the current research did not construct a full model of antecedent factors. Much more research is required in order to paint a whole picture of consumer-oriented EC on the web. Country policies on technology, such as those that exist in countries like Singapore or Malaysia, economic growth, and technical competency should be considered as antecedent factors for future research models.

The study attempted to refine Ho's (1997) purpose-value matrix (cf. Figure 1) measure of web site characteristics. By considering one additional function—customer service—for the purpose dimension. The resulting matrix now has 16 cells in it. For each of the cells, three instances of functions pertain to the purpose-value combination were considered. This is not a complete depth measure per se, but at least covers more functions than just a dichotomous—yes/no—variable per cell. Further study is needed to define the depth measure of purpose/value matrix.

The results of this study will help designers who plan to launch web sites in other countries to pay attention to their consumer behavior and its effects on web commerce. For example, if a company is planning to have a web site in Japan and market its products, it is advised to have several payment methods. If the company had only credit cards and personal checks, it would give consumers in Japan a disincentive to buy from the company because the site did not have their preferred types of payment (i.e., bank transfer and cash-on-delivery).

Furthermore, the current study helps practitioners know what other companies are using for their sites and learn what the key issues to be considered are. For example, the research revealed that there is a difference between Japanese sites and U.S. sites on information-provision variables. On the average, there were more Japanese sites having employment opportunities, company financial information, and free gifts regardless of the products. It is recommended to have these features on the web if a company wants to do business in Japan. It is often better to learn from what the locals do than to try and fail. The list of specific web site characteristics in Japanese practices, which are significantly different from those in U.S. practices, may be a hint to improve the way U.S. companies do business on the web, or vice-versa.

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