Internet Business Implementation Guidelines for Retailing Using Product Classification Framework

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Abstract

The exponential growth of the Internet usage has motivated the launching of many commercial business web sites. Internet as a purchasing medium shows several unique characteristics because of its customer-driven technologies and absence of physical products. Thus, new commercial medium provokes a reclassification of products. Twenty five types of commercial products are empirically tested in the Internet retailing and found to be grouped into four categories. This classification framework is investigated in the view of involvement and web technology. Furthermore, this paper proposes four business web implementation strategies - impressive, simple, sensory, and semantic - based on the product classification. Proposed guidelines on business web might increase customer satisfaction.

1. Introduction

The exponential growth of the Internet has motivated the launching of many business web sites and made the electronic transaction a familiar phenomenon.

Buying on the web is not equivalent to the experience of physically interacting with the product(Liang & Huang, 1998; Nour & Fadlalla, 2000). The physical absence of the products makes it impossible for buyers to see and touch products. Therefore, business webs should compensate for this deficiency to be successful(Jahng et al., 2000). It requires a firm understanding of consumer behavior and how new technologies can sharpen the conventional commerce(Limayem et al., 2000).

The appropriateness of the WWW as a new commercial medium for a given product may be assessed on the basis of the "information content" of the product or its attributes and the medium's potential to alter the communicability of this information(Klein, 1999; Calfee and Ford 1988; Smith and Swasy 1988; Nelson 1981).

To understand retailing web implementation strategies, this study proposes the product classification framework according to involvement and web technology. This classification is tested empirically. In addition, this study proposes web implementation strategies based on the new product classification.

2. Literature Review

Product classification will significantly influence the consumer choice(Phau and Poon, 2000). The Internet is user-driven(Tilson et al, 1998). Consumers can't endure low loading speed or large volume of information if the product provides little value.

Involvement is one of the most important factors when consumers purchase products. In marketing area, involvement has been viewed in terms of product meaning and consumer-product relationship(Martin,1998). Bloch(1982) defined product involvement as a unique relationship between consumers and products. Vaughn(1980) proposed the Foote, Cone and Belding(FCB) grid by the use of the degree of involvement and Think/Feel. Martin(1998) categorized products according to the level of involvement.

Another major factor is web technology. On line consumers choose among the list of products that meet only their prespecified criteria, selecting the information presentation format that offers the most value for them individually(Klein, 1998). In the Electronic commerce literature, many product classification schemes have been discussed. Figueiredo(2000) suggested four product types, such as commodity, quasi commodity, look and feel goods, and look and feel goods with variables quality. For each product type, he also proposed strategies to select markets and leverage competitive advantage. Klein(1998) categorized products into search and experience goods. She suggested the experience goods should be transformed into

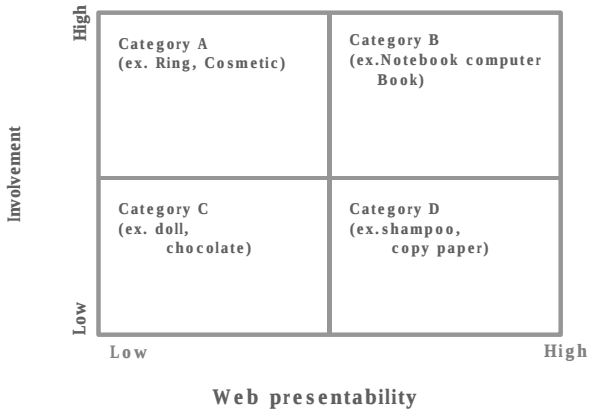
search goods and Internet help this transformation. Peterson et al.(1997) proposed 8 product categories according to the degree of frequency, value proposition, and potential differentiation. Jahng et al.(2000) proposed four product categories(simple, experiential, social, and complex) on the basis of product and social presence requirements. They emphasized the fitness among customers, products, and system. The summary of previous research yields an important observation. Most studies focus on either customer behavior or fitness of web technology. Despite the dual importance of customers and web technology, integrating the two is rare. An integrative view is beneficial to help business web sites attract more customers with enhanced customer satisfaction (Jahng et al., 2000).

3. Product classification framework

Business web sites should be designed to ameliorate the deficiency due to the absence of physical product. To compensate this gap, this paper proposes a product classification framework.

Web presentability refers to the extent to which customers perceive the product information as being appropriate to be satisfied with their information needs. Web presentability implies how product presents its product characteristic via internet. Web presentability may increase when the quality of product can be judged easily by using the web. Web presentability varies depending on particular products. For example, paper clips may have higher web presentability than works of art.

Involvement refers to the degree of the psychological identification or emotional ties consumers have with a particular product or its brand (Martin, 1998). This paper proposes four product categories as shown in Figure 1.



<Figure1> Product classification Framework and Example

Products under the category A have the low web presentability with high involvement.

Customers tend to find difficulties in articulating this type of products clearly via the Internet. Because customers need to touch or feel these products, they may be reluctant to buy them only by using the web. Information provided on the web may not be sufficient.

Products under the category B have the high web presentability with high involvement. It is easy for consumers to understand product characteristics by the web in isolation. Because of their high involvement, most customers want comprehensive product informations that can explain various aspects of the product. Online customers who want to buy products in this category would repeat the clicks until they get the satisfactory information.

Products under the category C have the low web presentability with low involvement. Characteristics of these products cannot be easily determined by their description on the web. In addition, because of their low involvement, an instant impression or feeling is important. For example, customers are likely to buy chocolate according to their instant feeling because most customers do not prefer any particular brand and its quality like sweetness is difficult to judge on the web.

Products under the category D have the high web presentability with low involvement. It is easy for customers to understand these product characteristics by the web customers can buy these products at the first glance. Typically, products in this category include commodity goods in daily use(Fiqueruedo, 2000; Jahng et al., 2000).

4.Research Method

Two objectives of our empirical investigation are (i) to validate the product classification framework proposed in Figure 1, and (ii) to suggest web implementation strategies based on this framework. Twenty five types of commercial products are surveyed.

4.1 Sample

The unit of analysis in our research is the individual. Questionnaires have been collected from graduate students, majoring in management. Out of 120 questionnaires that were distributed, 111 usable questionnaires were received and used for analysis. About seventy five percent of respondents are male, and 48.65 percent of them use the Internet more than 5 hours in a day.

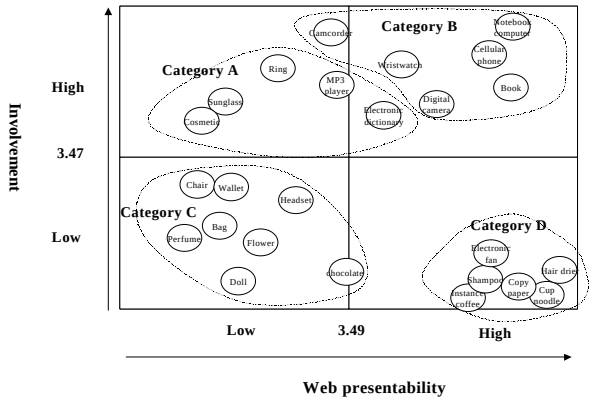
4.2 Measures

Research constructs are operationalized

based on pretest and related studies. For the Questionnaires, a multiple items method was used and each item was based on a 6 point Likert scale from very low to very high except for buying experience. Six point Likert scales are likely to prevent respondents from a neutral default option (Amabile et al., 1996).

Web presentability measure has been adopted from the relevant literature. Web presentability measures the degree of consideration of a particular brand or maker, quality of presented information on the web, sufficiency of presented information, completeness of presented information, and product presence.

Measures for involvement are validated and used by Ratchford(1987). Involvement measures the importance, usefulness, value, required time, and benefits of buying decisions. The results of the validity and reliability test are satisfied with criteria. Cluster analysis is performed for product classification according to web presentability and involvement. Based on the product classification proposed in this paper and the percentage change in agglomeration coefficients , the appropriate number of clusters is determined to be four. Either Wards or the K-Means method may be used. For the sake of convenience, the result by Wards technique is adopted. Group 1 includes products in the category B, group 2 in the category C, group 3 in the category D, and group 4 in the category A. Figure 2 shows product classification results.



<Figure 2> Product Classification Results

4.3 Results Summary

The empirical test results suggest that products differ in web presentability and involvement. As expected, products are categorized into four groups. For example, digital camera needs detailed information and its quality can be clearly conveyed online. Digital camera classified into category B reflects this characteristic. Two products are categorized contrary to our expectation. It would be expected that MP3 players and electronic dictionaries be under category B. However, they are found to be in the category A. This unexpected result may be related to buying experience of our respondents. Buying experience might determine the category to which commercial products belong(Klein, 1998; Liang & Huang, 1998). In our case, most of respondents have no purchasing experience for MP3 players (84%) or electronic dictionaries(82%). It is noted that experienced group show high web presentability in the case of these two products. We note statistically significant differences between the experienced and non-experienced groups ($p < 0.08$). This result may imply that buying experience plays a key role for more robust product classification in web environment.

5.Implementation Guidelines for Business Web

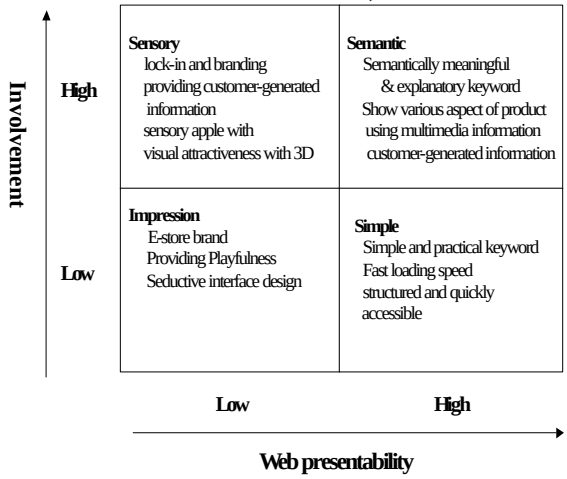
Information about quality and characteristics of the products leads to higher online customer's satisfaction(Ho & Wo, 1999). A virtual shopping directory that categorizes the retailers according to product characteristics will make it easier for the buyers(Phau & Poon, 2000). To provide proper product information, most business webs attempt to display products in a variety of ways. Some use text with picture and others use 3D or virtual reality techniques.

However, most companies adopt the same implementations for all products in their webs. They miss the opportunity to correspond to needs of different customers. Customer needs can change depending on what products they need to buy. Business webs need different strategies because products possess different attributes.

This paper suggests four strategies according to the proposed product classification. Strategies pursuing this web opportunities can use the four segment approach. The product category may determine the preferred strategy. Four business web strategies are investigated (i) impressive, (ii) simple (iii) sensory, and (iv) semantic. Our framework implies that there is no single optimal strategy, because the characteristics of product differ across product categories. Figure 5 identified simply as the product classification scheme shows the strategies and the corresponding guidelines for each product category. Detailed guidelines for each category are further explored as follows.

Attributes of products in category A are very difficult to assess online. Customers need strong credibility about products. Therefore, lock-in and branding are effective to increase customers attractiveness. Another useful means would be customer-generated information such as the comments after using products. Other consumers experience can help enhance the

credibility of the products (Stanoevska - slabeva & Schmid, 2000; Lincke, 1998).



<Figure 3>. Web Implementation Strategies

3D or visual attractive design may be able to compensate for the absence of sensory appeal mechanisms(Mackay & Fesenmaier, 1997). These guidelines may be grouped under a sensory strategy. Semantically meaningful and explanatory keyword can help investigate products characteristics in category B. They enable customers to search for products quickly (Stanoevska - slabeva & Schmid, 2000). Online demonstration using 3D is also useful. It allows customers to test - drive products online and thus efficient to show various aspects of products(Gogan, 1997). Because these products are relatively important to customer , they highly value opinions by other customer i.e.,customer - generated information is valuable. These guidelines may be implemented under the name of semantic strategy.

Products under the category C are strongly linked to impressive appeals of the products. In this sense, these products are handled by an impressive strategy. Customers have difficulties in judging their quality on the web and are thus redundant to spend a lot of time for purchase. Therefore, enhancing brand power is more important for the category C(Martin,1998; Klien,1998). Sharpening playfulness is also effective strategy. Playfulness attracts customers and helps them enjoy the visit of the business web(Liu & Arnett, 2000). Similarly, seductive or fun interface is useful it tends to make customers enjoyable than a descriptive explanation(Helander & Khalid, 2000).

Many studies have suggested low - cost strategy for the products in category D (Dewan et al., 2000; Figuerido, 2000; Peterson et al., 1997). For example, simple keyword can help customers get right informations without wasting of their search cost(Stanoevska - slabeva & Schmid, 2000). Therefore, structured and quick access using simple keyword is very useful. Fast loading is also important. Because products in this category are perceived to be relatively unimportant and their quality can be judged easily, speed is one of the most important concerns(Limayem et al., 2000 Gehrke & Turban, 1999).

6. Conclusion and Future Study

This paper investigates a new product classification framework based on customers involvement and web presentability. Products are grouped into four categories. Furthermore, it proposes four business web strategies; impressive, simple, sensory, and semantic. Proposed strategies may help manage Internet businesses for customers.

On the basis of this research, the following future studies are suggested. First, the current study does not show the relationship between web implementation strategies and organizational outcomes such as organizational performance or customer satisfaction. A further study is of interest to confirm that companies which follow the proposed strategies are more profitable than companies which do not. Second, this paper investigates the web strategies from an implementation perspective only. Jarvenpaa and Tiller(1999) proposed an integrated strategy for e - business. This integrated approach attempts to sharpen the strategy from marketing or policy as well as implementation perspective. Market and policy strategies need to be further addressed.

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