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The Role of Pricing in the Internet Market Strategies, Implementation Tactics, and Web Design

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Key words: Internet market strategy; implementation tactics; discount pricing strategy; Web-design factors; information contents; design contents; price perceptions; attention.

Introduction

The growth of the Internet market has been extraordinary, strategically changing the nature of business interactions (Jarvenpaa and Todd, 1996/97). Many Internet retailers have adopted competitive pricing strategy, such as discount pricing strategy to increase sales and to obtain competitive advantage (Spiller and Lohse, 1997/98; Higinbotham, 2000). Web-sites are used as a communication medium for providing business information, such as corporate, price and product information. Despite of the popularity of the Internet, there are few studies to guide a company's decisions about the extent of its involvement in the Internet market and to identify effective Web-design factors for encouraging customers' positive decisions.

In this research, we identify factors that determine the choice of the Internet market strategy and explore critical factors for effective Web design. Major research questions to be addressed in this study include: (1) what market factors should a firm takes into account in deciding whether to sell its product solely on the Internet or make it also available in traditional market? (2) what are the factors that influence a firm's decision to have just a Web presence as opposed to engage in e-commerce and customer service? and (3) how do the Web-design factors for discount pricing impact customers' price perception and attention, and consequently their willingness to buy? We posit that pricing strategies would be an important factor that can have significant influences on the choice of Internet market strategy, implementation tactics, and customers' price perception and attention.

Internet Market Strategies and Implementation Tactics

In this study, we differentiate between the Internet and traditional markets as: market access, competition, and price information, and define two fundamental strategies for operating in the Internet market as: *replacement* (operating solely in the Internet market) and *complementary* (operating both in the Internet and traditional markets). We also identify the Web-site tactics for implementing the selected strategy as *pre-transaction*, *transaction*, and *post-transaction* tactics.

The literature on microeconomics points to the firms' behavior in the market, such as Cournot model, Bertrand model, and Bertrand-Edgeworth model (Maskin and Tirole, 1982; Davidson and Deneckere, 1986; Kreps and Scheinkman, 1983; Brock and Schinkman, 1985). Based on this literature, we observe that (1) prices decline and move toward competitive prices as competition increases, (2) capacity and technological resources influence competition, (3) firms in more competitive markets must make their consumers aware of their current prices, and (4) consumers with higher knowledge of prices have higher levels of demand elasticity and are more price conscious.

Drawing from theories in economics, we formulate a firm's preference/utility for an Internet market strategy in terms of its pricing strategies (x_p), extent of competition (x_e), and capacity (x_c), including the level of its technology, and derive the probability of the choice of the Internet market as (Song and Zahedi, 2000):

$$p_k(s) = \frac{e^{u_k(s)}}{\sum_{j=1}^2 e^{u_k(j)}} \quad \text{for } s=1,2 \quad (1)$$

where $u_k = \beta_p x_{pk} + \beta_e x_{ek} + \beta_c x_{ck} + \epsilon_k$ is the random utility of the firm k , s is the binary choice of strategy, $p_k(s)$ is the probability that firm k selects strategy s . We hypothesize non-zero values for β parameters.

The same forces that make one strategy more preferred over another should be in force in pushing a firm to implement the strategy. We therefore hypothesize that the same factors play a significant role in the extent of implementation tactics of a firm's Internet market strategy. In other words,

$$I_k = \delta_p x_{pk} + \delta_e x_{ek} + \delta_v x_{ck} + \xi_k, \quad (2)$$

where I_k is the extent of implementation of a selected Internet market strategy by firm k and ξ_k is the error term.

Based on the literature in economics, organization, strategy, and IS, we have identified the measures for pricing strategies as discounting, bundling, and auction. The extent of competition is measured by the number of competitors and industry types. Capacity is measured by size, age, IT use, and employee productivity. In

performing empirical analysis, we have collected 208 observations from primary and secondary data sources. The methodologies employed this analysis include correlation analysis, binary logistics, multivariate multiple regression, simultaneous robust weighted least squares, and classification and regression trees (CART). The results of the empirical analysis show that, controlling for the firm's age, pricing strategies, extent of competition and to a lesser degree, capacity (characterized by the interaction of IT use with size and age) are associated with the Internet market strategies. The extent of Web-site implementation tactics is also associated with pricing strategies and the extent of competition faced by the firm. Based on the CART analysis, we have developed eight rules that are the predictors of market strategy choices. These rules show that for companies established since 1993, pricing strategies (discount or auction) and industry type are the primary predictors of strategy choice. In the absence of the competitive pricing strategies, their capital investment (represented by the interaction of age and IT use as well as size and IT use) are the predictors of the strategy choice (Song and Zahedi, 2000). Since our findings show that the discount pricing strategy is one of the most important factors, the next step is to identify the effective Web-design factors for implementing this pricing strategy.

Web-Design Factors for Implementing Discount Pricing Strategy

The contents of a Web site could be categorized into information and design for creating the desirable customers' perception and attract their attention. Based on the literature in marketing, we have categorized information contents into semantic cues, price comparison cues, and image-related cues. Design contents relate to the positioning and accentuation of the information contents on a Web page (Figure 1).

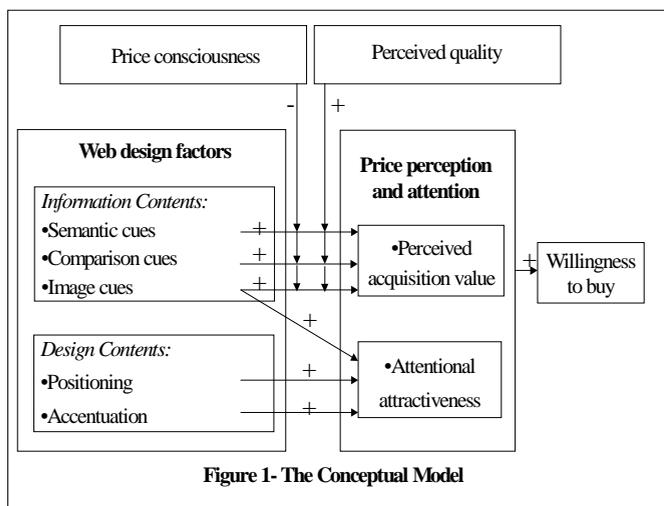


Figure 1- The Conceptual Model

Information contents

Comparison and semantic cues. Sellers can increase the impact of the discount price information by enhancing buyer's perception of it (Zeithaml, 1988; Grewal et al., 1998). Discount price information has two components: *price comparison cues* and *semantic cues*. The price comparison cue, in turn, has two components: the discount price and the external reference price (e.g., \$9.99 compared to \$19.99). The comparison identifies the magnitude of savings for the customer (Berkowitz and Walton, 1980). The semantic cues, on the other hand, are the contextual cues, identifying the source of the external reference price (e.g., words such as 'regular price/sales price') (Berkowitz and Walton, 1980; Biswas et al., 1999).

It is important to discuss the theories that explain how design factors may impact customers' price perceptions. The *internal reference price* plays a central role in this process. It is argued that each customer has an internal reference price that is developed from memories of past purchases and comparisons of actual prices (Monroe, 1973; Monroe et al., 1991). The *adaptation-level* and *assimilation-contrast* theories are used to explain how various factors influence the internal reference price.

In the adaptation-level theory (Helson, 1964), the internal price represents adaptation to three types of cues: focal (the focus of attention), contextual (other behavior cues), and organic (inner physiological and psychological processes) (Lichtenstein et al., 1991). Based on the adaptation-level theory, the external reference price (\$19.99) is used to influence the internal reference price. The assimilation-contrast theory (Sherif and Hovland, 1961) brings the believability of the external reference to bear on the process of change in the internal reference price (Berkowitz and Walton, 1980; Urbany et al., 1988; Lichtenstein et al., 1991; Janiszewski and Liechtenstein, 1999). That is, the customer must believe in the validity of the external reference price for his internal reference price to be influenced.

Berkowitz and Walton (1980) found that comparison cues influence all price perception constructs for all products they tested, whereas semantic cues are only significant for a given product. Lichtenstein et al. (1991) have formulated the semantic cues as low consistency (our price was \$__ and is now \$__) and high distinctiveness (our price is \$ __ and elsewhere is \$ __). They did not find semantic cues to be significant. However, we argue that since Web customers can check competing prices easily, the semantic cue of high distinctiveness may have a positive effect on price perceptions.

Conducting business on the Web allows customers to get external reference prices from the portals or price-reporting Web sites. Therefore, we are interested in measuring the impact of using Web external reference prices. We posit that using Web-based external reference

prices has a positive impact on the price perception because the Web renders more validity to external reference prices.

Image cues. When product images and words are interactive (integrated), advertising recall increases significantly, and pictorial representation of the product significantly influences visual attention (Lutz and Lutz 1977; Rosbergen et al. 1997). Since the inclusion of images slows down access, there is a cost associated with using images of products or services. Therefore, there should be a noticeable enhancement in the price perception to justify such a cost. We argue that if a Web site provides price information integrated with the product image, it has the appearance of being more informative especially regarding the quality of the product, adds another medium of communication (image vs. words), and makes customers feel better about the decision process. Hence, we posit that the integration of product image has a positive effect on price perception variables as well as on customers' attention.

Design contents

Positioning effect. Positioning of price information may seriously affect the customer's attention. Positioning pricing information can be explained by psychological theory, *hemispheric processing theory*. The connections between the visual systems and the brain hemispheres of human recognize the verbal or pictorial cues without a special effort [Allen 1983; Beaumont 1982]. The right hemisphere performs extracting processing information, whereas left hemisphere processes information sequentially [Janiszewski 1988, 1993]. Janiszewski (1988, 1993) evaluates the placement of verbal and pictorial cues that are positioned the left and right side of the newspaper article. He found that pictorial presentation is better positioned in left. In contrast, verbal stimulus can be viewed positively when it placed in right hand side. We posit that locating price information where the customer immediately notices the price information has a positive impact on the customer's attention.

Accentuation effect. Font, color and shape may help a buyer notice the price information. Color used in printed paper can be viewed more importantly, easily, and believably [Jones 1997]. In advertising, color has a significant effect on a buyer's attention, and bold text captures more notice than plain text (Hendon, 1973; Grunert, 1996). Winn (1991) suggests that viewers perceive color with no cognitive effort, and it can direct attention to a text. Horton (1991) suggests a general ground rule to use color, for example, ensuring lightness contrast between foreground and background color using opponent color. Thus, we posit that accentuated price information has a positive effect on attention.

Price Perception and Attention Factors

Perceived acquisition value. There is an extensive literature in conceptualizing this variable under various names (Keon, 1980; Dodds et al., 1991; Liechtenstein and Bearden, 1989; Lichtenstein et al., 1990, 1993; Monroe and Krishnan, 1985; Urbay et al., 1988; Szybillo and Jacoby, 1974; Thaler, 1985). We follow Grewal et al. definition (1998, p. 48) as "the perceived net gains associated with the products or services." Grewal et al (1998) also define an additional variable called *perceived transactional value* as the pleasure attached to obtaining favorable deals that may lead to the buyer to purchase other products or services at regular prices. Since the two variables are correlated, we do not consider the perceived transactional value separately.

Attentional attractiveness. Attention is defined here as "the momentary focusing of a consumer's cognitive capacity on a specific stimulus" (Assael 1995). Grunert et al. (1996) proposed that attention is increased when advertising cues and cognitive categories of the customer are matched. We posit that, on the Web, where customers can move quickly to the next page, attentional attractiveness of the design may improve customers' comprehension, and facilitate perception formation, hence impacting their willingness to buy.

Moderating or control variables. The relationships between Web-design factors and price perception and attention are moderated by two variables: *perceived quality* and *price consciousness*. These are non-focal cues that moderate the change process (Grewal et al., 1998; Lichtenstein et al., 1991). Customers may present sensitivity to low prices and view the price in its negative role. Lichtenstein et al. (1993) define price consciousness as "the degree to which the consumer focuses exclusively on paying low prices" and is determined by personal factors. Perceived quality can be defined as "the consumer's judgement about a product's overall excellence or superiority" (Zeithaml, 1988). In some studies it has been shown to impact perceived value (Dodds et al., 1991; Grewal et al., 1998).

Methodology

In this thesis, we will design and administer a series of controlled lab experiments in which participants will interact with created Web-sites based on actual on-line stores. Questionnaires have been modified as needed for this study based on existing instruments. Structural equations modeling will be used to analyze the data.

References

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