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ABSTRACT

This study extends our current knowledge in the area of online consumer behaviors by examining how business models could influence consumer's sales channel preferences. It argues that business models could play an important role in consumer sales channels preference development. When a business offers multiple sales channels (a hybrid model), its customers could compare sales channels either within or outside the same corporate business. Such a freedom is however diminished when a business adopts the pure Internet store business model. MANOVA and structural equation model were performed on 435 survey respondents. Four factors were tested, including product price, product variety, perceived risk to credit card, and perceived social interaction. Results reveal that consumers employ different set of factors when comparing different set of sales channels. Such results were used to draw a new set of online business strategies that could be used more effectively in this dynamically changing electronic market.

Keywords

Internet, Business Models, Customer Segmentation, MANOVA, LISREL

INTRODUCTION

It was reported that, for the third quarter of 2002, total sales generated from online retailers is made up to be only 1.3 percent of total retail sales values in the U.S. (U.S. Census Bureau, 2003). Such statistics reveal that consumers remain loyal to traditional sales channels (e.g. brick-and-mortar, catalog, etc.) and it implies that our current online business strategies may not be effective enough to change consumer sales channel selections.

Research in the area of customer relationship management has been an on-going topic for IS researchers since the emergence of the Internet. A group of researchers applied intention theories to investigate Internet adoptions (e.g. Chen, Gillenson, and Sherrell 2002; Gefen and Straub, 2000; Ranganathan and Banapathy; 2002). Some investigated website characteristics that render a higher quality Internet store (e.g. Aladwani and Palvia, 2002; Ranganathan and Banapathy; 2002; Liang and Lai, 2002). Many were interested in studying types of Internet usage (e.g. Kraut et al., 1999). Many others are investigating individual characteristics of consumers that effect online purchasing decisions (e.g. Bellman, Loshe, and Johnson, 1999; Donthu and Garcia, 1999). In addition to these topics, some researchers have devoted their attentions to categorizing products that can be sold on the Internet (e.g. Kunz, 1997; Peterson et al, 1997; Lasch, 1998) while others have investigated how shoppers transform themselves from non-innovators to innovators (e.g. Reisenwitz and Cutler, 1998). Despite this large number of studies and research topics, there has been very little theoretical development to explain online consumer behaviors (Romano and Fjermestad, 2001).

This study uses the preferential choice decision as its theoretical framework to investigate how online consumers make comparison of sales channels. A stream of research provides empirical evidence that sales channels comparisons could significantly influence consumer's decisions to purchase online (e.g. Devaraj et al. 2002; Degeratu et al. 2000; Vijayasarathy and Jones 2000). This study however argues that there is no empirical evidence, a least known to this study, that demonstrates how business models could influence consumer's sales channels comparison. Hence, this study strives to extend our knowledge in this area by examining two major business models, Pure Internet Store and Hybrid models, and empirically tests how they could influence sales channels comparison.

LITERATURE REVIEW: PREFERENTIAL CHOICE DECISION

Using preferential choice decision as theoretical framework, this study attempts to investigate different pattern that online consumers could employ to compare sales channel alternatives. Preferential choice decision is the underlying concept that provides a theoretical framework to this study. Preferential choice is a well-developed research area in marketing discipline. There are several approaches in preferential choice studies. One of which is the multi-attribute modeling approach. This approach has gained an increasing significance in the last three decades (Jacoby 1976; Kassarjian 1982). Within the domain of multi-attribute modeling approach, two concepts of preference development have emerged. They are Attribute-Based Preference and Attitude-Based Preference. First approach suggests that preference formation involves comparing specific attributes (Attribute-Based Preference), while the second approach signifies the overall evaluation of alternatives (Attitude-Based Preference) (Mantel and Kardes 1999).

When Attribute-Based Preference is used, individuals compare their alternative in detail. For instance, a consumer, who is engaged in an automobile selection, might want to compare colors, transmission systems, number of seats, size, etc. When Attitude-Based Preference is used, individuals employ their general feeling to develop their preference. Such general feeling might be derived from brand, past experience, etc (Wyer and Srull 1989).

Tversky (1969) proposed that alternatives are compared directly on each dimension (attribute), and the differences on those dimensions are summed together to reach a decision. In addition, it was proposed that human somehow combines all dimensional (attribute) value cognitively and comes to an overall evaluation (attitude) before making his or her decision (Einhorn, 1971). In other words, these propositions asserted that Attribute-Based Preference (ABP) influences Attitude-Based Preference (ADP) or ADP is function of ABP. The relationship between ADP and ADP is shown in Figure 1.
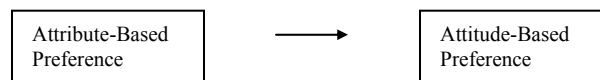

Figure 1: Relationship between Attribute-Based and Attitude-Based Preferences

In reality, consumers have to make comparisons of their alternatives on a daily basis. Not only do they compare products, they also compare stores and sales channels (McGaughey and Mason 1998). Internet store is an emerging and exponentially growing sales channel for today's consumers. The present study attempts to examine how online shoppers make comparisons across sales channels and investigate factors that could be significant in different business setting environments.

While there are many sales channels currently available to consumers, this study examine only the comparison process of Internet and brick-and-mortar stores. It was generally asserted that consumers are likely to compare Internet stores to brick-and-mortar stores, since brick-and-mortar stores are alternatives to which consumers feel most acquainted. When consumers experience a new alternative, a familiar alternative could serve as an anchor to make a comparison (Sherif et al. 1958). Results of a comparison process will in turn determine whether the new alternative will be selected. Such a result is generally called preference.

Preference choice decision has recently received a growing attention from IS researchers. A number of theoretical models have been proposed, tested, and validated in the past five years (i.e. --- 2000; ---- 2001; --- 2003). A stream of research has suggested that preferential choice decision could be employed as a stand alone model to study user/consumer behaviors (Muthitcharoen 2000) or could be considered a theoretical extension to intention models (i.e. the technology acceptance model, the theory of reasoned action) (Muthitcharoen 2001; Muthitcharoen and Palvia 2003).

The current study attempts to provide concrete examples of how consumer's preference toward online stores is developed. Attributes that online consumers generally use to make online purchasing decisions were reviewed. Early studies in this area provided insightful information regarding factors that online consumers use to make online purchasing decisions. Among several factors - product price, product variety, social interaction, and perceived risk of credit card - have been repeatedly claimed to be vital factors in electronic market (e.g. Bakos 1998; Bhatnagar et al. 2000; Degeratu et al. 2000; Devaraj et al. 2002; Jarvenpaa and Todd 1996; Torkzadeh and Dhillon 2002).
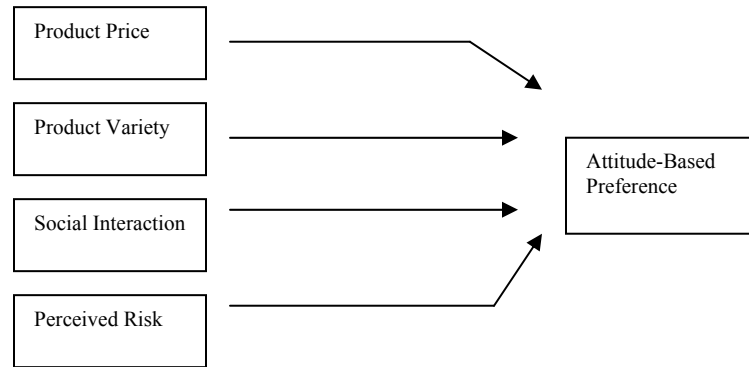
Figure 2: A Decomposed Model of ADP and ABP

The above model (Figure 2) is a part of a bigger model that has been previously tested and validated by using structural equation models (---- 2003). Its instrument was developed by following a guideline from Chruchill (1979) and Straub (1989) – See Appendix A. The current study does not attempt to provide a test of relationship between ABP and ADP. Such a result can be found in previous study (---, 2003). On the other hands, the current study strives to provide a richer understanding in consumer online behavior. It hypothesizes that the above attributes could be compared differently in different business settings. In other words, it strives to examine how business model could influence consumer's comparison of sales channels. Two major business models, Pure Internet Store and Hybrid model are investigated. Pure Internet store, in this study, is defined as a business model that adopts the Internet as its only transaction medium. Amazon.com, CDW.com are examples of businesses that adopt this model. Hybrid model, on the other hands, is defined as a business model that provides two sales channels to its prospective customers, including Internet and brick-and-mortar stores. Wal-Mart, Target, Barnes and Nobles are few examples of businesses in this category.

To provide a through examination of sales channels comparison pattern, the current study argues that not only could consumers compare sales channel alternatives in the same corporate business (e.g. Wal-Mart Vs walmart.com), they could compare sales channels across businesses as well (e.g. Delias.com Vs Gap's brick-and-mortar). Based on different ways to compare alternative sales channels, the below matrix was developed.

On the vertical side of the matrix, two common business models are presented: the pure Internet store and the hybrid model. Figure 3 additionally manifests how business models could influence cross channel comparison. When a business adopts the hybrid model, its customers could compare the Internet store to its corporate brick-and-mortar (cell 1: Internal Rivalry) or to its competitor's brick-and-mortar stores (cell 2: External Rivalry). Unlike customers in hybrid model, pure Internet store's customers are enforced to compare the Internet store to its competitors' brick-and-mortar stores (cell 3: Enforced External Rivalry). There is no corporate brick-and-mortar to which its customers can compare (cell 4: N/A). Based on these different settings, a question of how consumers make comparisons across sales channels is raised in this study.

Whose brick-and-mortar store is being compared to Internet store?

	Corporate brick-and-mortar store	Competitor's brick-and-mortar store
Hybrid Model	**(1)** **Internal Rivalry Model** (e.g. Sears.com is compared to Sear's brick-and-mortar)	**(2)** **External Rivalry** (e.g. Delias.com is being compared to Gap's brick-and-mortar store)
Pure Internet Store	**(4)** **N/A**	**(3)** **Enforced External Rivalry** (e.g. Amarzon.com is compared to Border book store)

*(left label: **Business Models**)*

Figure 3: Online Business Models and Consumer's Cross Channels Comparison

RESEARCH METHOD AND DATA ANALYSIS

This study extends our knowledge in this area by examining how the four attributes (product price, product variety, perceived risk of their credit card, and social interaction) are ranked in different comparison settings. It examines how consumers compare the attributes when facing the choice of Internet Versus brick-and-mortar stores. Online survey is the underlying methodology of this study and a survey website was made available at http://www.surveyeasy.com . A sample of 491 was collected. It consists of 353 consumers. To expedite the process of data collection, a number of student subjects at the University of Memphis were invited to participate. One hundred and thirty eight students participated in the study. Four hundred and thirty-five (435) respondents completed the questionnaires, and their data were used to conduct the analysis. The sample group contains 263 males (60.46 percent) and 172 females (39.54 percent).None of the participants were older than 49 years of age. A majority of the subjects reported income levels in the range of $30,001 - $40,000. The respondent profiles generally match those of the typical web users (U.S. Department of Commerce 2002).

The survey questions allowed the respondent to select one Internet store. Respondents were then asked to provide a brick-and-mortar store's name that they could use to compare to their selected Internet stores. The respondents then compared their selected Internet and brick-and-mortar stores based on the four attributes and also on the ADP. The scale ranges from 1 to 7 was used to measure preference level. Based on the scale, 1 indicates that the brick-and-mortar store is highly more favorable, 4 indicates the neutral point where respondents do not perceive difference between the two sales channels, and 7 indicates that the selected Internet store is highly more favorable. ADP and store's attributes are multi-itemed variables. ADP, Product price, Product Variety, Perceived Risk, and Social Interaction are made of 3, 2, 3, 5, and 3 question items respectively (See Appendix A). Previous result of the measurement model and structural model testing can be found at (-----, 2003).

DATA ANALYSIS

Based on the above matrix (Figure 3), 82 respondents were categorized into the group of internal rivalry model, where their selected Internet store and brick-and-mortar store are in the same corporate business (i.e. BarnesAndNobles.com and Barnes and Nobles). Fifty five (55) respondents were categorized into the group of external rivalry (i.e. WalMart.com and Target's brick-and-mortar store). Two hundred and ninety eight (298) respondents were categorized into the group of enforced external rivalry.

Descriptive statistics showed that the average of ADP for all three groups is less than 4.00, which is the neutral point of comparison. This reveals that the majority of respondents prefer their selected brick-and-mortar to Internet stores. Such a finding explains the minute online sales revenue when compared to the national GDP (U.S. Census Bureau 2003). Other descriptive statistics were additionally manifested in Figure 4.
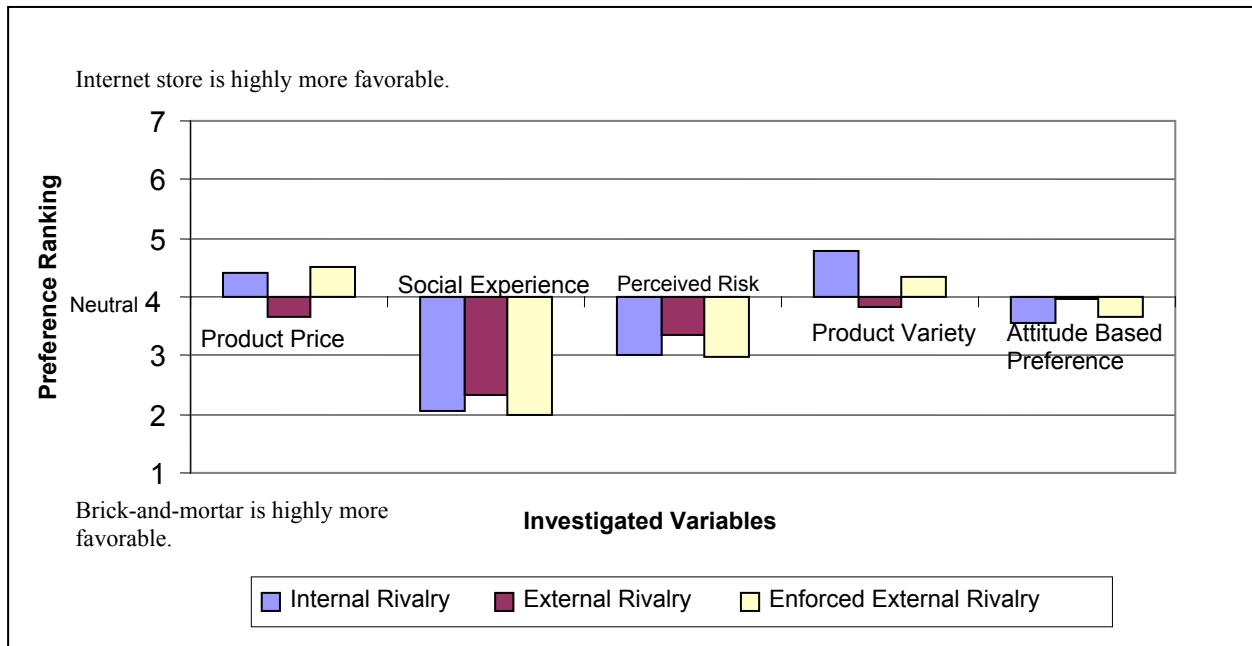
Figure 4: Cross Channels Comparison (Internet Store Vs Brick-and-mortar)

Figure 4 summarizes how each group of respondents compared their selected sales channels. For the purpose of presentation, each bar chart represents the average values of the items that belong to the different attributes. Based on Figure 4, it could be said that all three groups of respondents have similar opinions in terms of social experience attribute, perceived risk to their credit card, and ADP. Not only do they have overall preference toward brick-and-mortar stores, they also perceive that there are more social interactions and less risk to their credit card from brick-and-mortar stores. MANOVA test was conducted and it serves to confirm this interpretation. The test statistics include Pillai's Trace, Wilk's Lambda, Hotelling's Trace, and Roy's Largest Root. The p-values of these statistics are found to be insignificant (p-values > 0.10) across three groups of respondents. In addition, all items from ADP, social interactions, and perceived risk have reported insignificant p-values (p-values > 0.10), rendering a support to the aforementioned statement. Based on these findings, it could be asserted that the three groups of respondents share some common preferences in the areas of ADP, social experience, and perceived risk.

Despite few commonalities, the three groups of respondents reported different levels of preference for product price and product variety attributes. While respondents in the groups of internal and enforced external rivalry perceived that their selected Internet stores offer more competitive product prices, respondents in the group external rivalry reported that the

product price at their selected brick-and-mortar stores are more favorable. Similar result was also found for the product variety attribute. MANOVA test was performed and it confirmed this interpretation. P-values of Pillai's Trace, Wilk's Lambda, Hotelling's Trace, and Roy's Largest Root were found significant (p-values < 0.05) across three groups of respondents. In addition, all p-values of items that belong to product variety and product price attributes are found significant at p- values < 0.05.

In addition to the above findings, this study conducted structural equation modeling test for each group of respondents to validate the relationships between attribute variables to ADP. Before testing the structural model, measurement models of three groups of consumers were tested. Using correlation matrix as the input, a test of the measurement model generated a strong measure of fitness between the data and the proposed model (Figure 2). For example, CFI, NFI, GFI were found to be between 0.86 and 0.92 and RMSEA value is less than 0.08 (Browne and Cudeck 1993; Hu and Bentler 1995; Segars and Grover 1993).

Then, a structural model test was performed for each group to find differences in comparison patterns. GFI, NFI, NNFI, and CFI for all three groups were reported in the range of 0.84 – 0.91. RMSEA values were found to be lower than 0.10, indicating the goodness of fit. The standardized correlations of the relationship between attribute variables and ADP are reported in Table 1.

Attributes	Internal Rivalry	External Rivalry	Enforced External Rivalry
Product Price	0.43* (2)	0.37* (2)	0.44* (1)
Social Interaction	0.20* (3)	0.52* (1)	0.32* (2)
Personal Risk	-0.51*(1)	0.08 (Not Significant)	-0.23* (3)
Product Variety	0.14 (Not Significant)	-0.06 (Not Significant)	0.15* (4)

Table 1: Standardized Correlations between Each Attributes to ADP
Note: * indicates the significant correlations at t > = 2.00
The number inside ( ) indicates the ranking of importance level of each attribute within each group.

Using correlation results to rank significance levels of variables, interesting findings were revealed. It appears that when using a different pair of Internet and brick-and-mortar stores to compare, respondents gave different rankings to each attribute factor. For instance, when Internet and brick-and-mortar stores from the same corporate business are being compared (Internal Rivalry), perceived risk to credit card is the most important factor that defines consumer overall preference. This variable however was ranked number 3 from respondents in the group of enforced external rivalry.

It is also interesting to find that some variables that are significant in one group are not significant in others. For example, product variety is important when consumers compare a pure Internet store (i.e. Amazon.com, Dell.com) to its competitor's brick-and-mortar stores, but is not significant in shaping the overall preference for internal rivalry and external rivalry groups of consumers.

DISCUSSION

According to the findings, a number of business strategies could be produced. It could be said that online consumers are generally price sensitive. For all three groups of consumers, product prices are found to be a significant factor that influences consumer's overall comparison of sales channels. Businesses that have multiple sales channels (Hybrid Model) could adopt a price discrimination strategy. A business can sell their products to online customer less expensively to enhance the popularity and acceptance of business websites. Such a strategy has been implemented by several companies, such as Comp USA, Northwest Airlines, and T-Mobile. Such pricing strategy is, however, applicable only to internal rivalry and external rivalry business setting. It could not be applied to the group of enforced external rivalry due to the absence of their corporate brick-and-mortar sales channels.

The pressure to compete by price for the enforced external rivalry group could be heightened when taking the rank of product price attribute into account. Their customers ranked product price as the most important factor when comparing sales channels. Businesses in this situation could adopt a more frontal assault strategy to compete with their competitor's brick-and-mortar stores. Such a strategy has also been implemented by highly successful Internet stores such as Amazon.com. The store is well known for its competitive price for books and cellular phone products.

Social interaction is another variable that has significant impact to the overall comparison of sales channels for all three groups of customers. Therefore, all online businesses should take an extra effort to develop a community on their websites. Chat rooms, web boards, and other social-related functionalities should be incorporated to enhance customer's social interaction. Landsend.com and many others Internet retailers offer their customers with phone assistance while shopping.

Perceived risk to credit card attribute appears to be a significant factor only for the group of internal rivalry and enforced external rivalry. Businesses in these environments should provide a secure website and a fraud-protection policy to gain confidence from their customers. Based on the findings, perceived risk attribute could not however be considered a significant factor for the external rivalry group. It could be articulated that customers in the group of external rivalry might be more risk tolerant than those in the groups of internal and enforced external rivalry.

Product variety was found to be a significant attribute only for the group of enforced external rivalry. This study therefore suggests that in order to adopt the pure Internet store business model, one should provide a wide range of product selection. This attribute is nonetheless found insignificant for internal rivalry and external rivalry business settings. Such a finding could be used to conclude that customers in the hybrid model (internal rivalry and external rivalry) are more goal-oriented. They might have a preconception of what to purchase and therefore do not need wide ranges of product variety.

The results from this study demonstrated that consumer behaviors in electronic market could be far more complex than we originally thought. Business should segment their consumer into appropriate groups so that they can manage their relationships properly. Consumers could adopt different approaches when comparing different sets of Internet and brick-and-mortar stores. Some variables that could be considered significant in a business setting may not be important in others. The guideline proposed above could also be used to better allocate business resources. For example, a business that attempts to entice their existing customers to change sales channel should acknowledge that their customers are concerned about personal risk, product price, and social interaction. The business in this category may not however have to spend as much resources to improve a wider-range of product variety. In sum, online businesses should take the consumer comparison approaches and their current business model into account when developing business strategy in this competitive market.

LIMITATIONS AND DIRECTIONS FOR FUTURE STUDIES

The generalizability of this study could be enhanced by adding more consumer respondents to the sample group. In addition, this study examined a comparison process of two sales channels only. In reality, consumers encounter more choices of sales channels, such as direct sales, Home Shopping Network, catalogs, etc. In this study, these sales channels are not included in the comparison process. Future studies could adopt a similar approach to investigate how business models influence other sales channel comparison (i.e. Internet Vs Catalog). In addition, future studies could incorporate more attributes, such as trust, into the model.

CORRELATION MATRIX AND APPENDIX A

Correlation matrix and appendix A are available upon request from the author.

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