"TO INTEGRATE OR TO DIFFERENTIATE?" – TOWARDS RESOLVING A MULTI-CHANNEL DILEMMA INVESTIGATION OF THE EFFECTS OF CHANNEL INTEGRATION STRATEGIES ON CONSUMERS' EVALUATIONS OF MULTI-CHANNEL UTILITY AND THEIR ADOPTION OF MULTI-CHANNEL SHOPPING

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DEDICATION

This has been a long and challenging journey, which I would not have completed without the love and support of my family. With all my heart I dedicate this dissertation:

To My Beloved Husband: for being my biggest fan – for lifting my spirits when I felt frustrated and hopeless – for your unwavering support and willingness to do whatever it takes to help me succeed.

To My Beautiful Sophie: for bringing so much joy and happiness into my life.

To Mom and Dad: for always believing in me – for helping me to stay on track when life got a bit crazy – for being the best parents a daughter could have.

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ABSTRACT

Multi-channel retailers have been adopting different multi-channel formats that range from complete channel separation (e.g., Victoria's Secret) to close integration (e.g., Bed, Bath and Beyond). The purpose of this dissertation is to determine which multi-channel strategy offers the most value to multi-channel shoppers.

The success of a multi-channel retailing strategy is believed to depend on the degree of channel complementarity as perceived by the retailer's customers. Channel complementarity is defined as the degree to which multiple retail channels work synergistically to create value. Complementary channels give customers integrated solutions that create more value than the sum of the parts. It is proposed that channel complementarity arises from two distinct value creating factors – fulfillment integration and merchandising similarity. Integrated fulfillment refers to consumer perceptions about the existence of logistical links between the channels, which create purchasing process benefits that enable a customer to use the two channels interchangeably. Merchandising similarity is defined as consumer perceptions about the degree of correspondence between the channels in terms of product variety and assortment, pricing, and promotion.

Using choice-based conjoint analysis, this dissertation shows that consumers prefer greater fulfillment integration and moderate levels of merchandising similarity between the store and the website of a multi-channel retailer. Website is perceived more favorably than the store in facilitating merchandising diversity in the multi-channel distribution system. The results also suggest that shoppers' evaluations of channel complementarity vary across their shopping motivations, technology factors and perceived risks.

CHAPTER 1

INTRODUCTION

At the end of the 1990s, academics and industry observers alike prophesied the rise of the "cyberconsumer" and the emergence of the "Internet marketing" (Wind, Mahajan, and Gunther 2002). The business model created for this new consumer breed was the "pure play" Internet company, which was either a separate dot-com or a stand-alone division of a larger company. The early predictions of the success of pure plays were based on economic logic, generally linked to a theory of transaction costs (Steinfield, Bouwman, and Adelaar 2002). Ironically, the same economic logic has been used to explain the virtual companies' demise (Barsh, Crawford, and Grosso 2000).

The advocates of the pure play model argued that web-based companies enjoyed many operational, cost and scale advantages over traditional retailers including: access to wider markets; lower inventory and building costs; flexibility in sourcing inputs; improved transaction automation and data-mining capabilities; ability to bypass intermediaries; lower menu costs enabling more rapid response to market changes; ease of bundling complementary products; ease of offering 24/7 access and no limitation on depth of information provided to potential customers (Steinfield et al. 2002). The general expectation was that the economies achieved would enable Web-based retailers to undercut the prices of physical retailers, thus driving the latter out of business. A plethora of enthusiastic investors poured money in e-commerce start-ups, and a multitude of new dot-coms popped up on the Internet scene, cluttering the competitive landscape and confusing consumers. The e-commerce boom quickly turned into e-commerce bust in the spring of 2000, leading to "broken dreams for thousands of start-up companies and countless investors" (Fram 2002, p. 15). With the exception of a few Internet retailers that succeeded in

developing a niche market for their products, many if not most pure plays have struggled to become profitable.

After the dramatic downturn of e-tailing, however, it became apparent that the "traditional" retailing channel might still play a significant role for many consumers. Interest began to build for a multi-channel business model, which seemed to address many of the challenges faced by the pure play e-tailing, such as high customer acquisition costs, transactional inefficiencies arising from high fulfillment costs, inexperience, and lack of scale.

A critical examination of the multi-channel retailing model requires both company and consumer perspectives. In doing so, support may be found for proposed tactical advantages such as reduced customer acquisition costs, opportunities for synergies, cross-channel spillover effects, and enhanced customer relationship management efforts. Other strategic benefits of multi-channel retailing might include lower costs, differentiation through value-added services, improved trust, geographic and product market extension, and long-term profitability of multi-channel customers (i.e., consumers who routinely make purchases from all available channels of the same retailer).

From a consumer perspective, multi-channel retailing offers valuable shopping process and product acquisition benefits, enhancing a customer's overall experience by making shopping easy, convenient, and fun. Such shopping naturally adapts to a consumer's lifestyle and increases his/her shopping efficiency. In addition, multi-channel retailing minimizes the negative effects of merchandise stock-outs, provides timely price information, minimizes consumer perceptions of purchase risk, and promotes a relationship between the company and its customers.

The object of the present research is to focus on identifying the multi-channel retail model creating the most value for a multi-channel customer and consequently, stimulating multi-

channel shopping behavior. Theoretically, the success of a multi-channel retail strategy is proposed to largely depend on the degree of **channel complementarity** as perceived by the retailer's customers. Channel complementarity is defined as the degree to which multiple retail channels work synergistically to create an aggregate value, referred to as **convergence value**. Complementarity gives customers integrated solutions that create more value than would be possible if the two or more channels of the same retailer operated as independent entities. The basic premise is that a multi-channel retail strategy adopted by a retailer impacts consumer perceptions of channel complementarity, which in turn may (or may not) encourage multi-channel shopping behavior. Hence, when designing a multi-channel distribution system, a retailer must decide on the degree of complementarity among channels in the system.

The present research will demonstrate that channel complementarity arises from two distinct value creating dimensions – fulfillment integration and merchandising similarity. By choosing a certain configuration of fulfillment integration and merchandising similarity as the basis of the multi-channel distribution system, the retailer determines what and how many customer benefits the system will offer.

The following sections describe in more detail the proposed benefits of multi-channel retailing for both the company and the consumer. Particular attention is focused on the concept of complementarity, which is proposed as the unifying value component between channels. It has elements related to both the product and process of exchange as manifested in each channel separately and then collectively.

1.1 Company Benefits of Multi-Channel Retailing

1.1.1 Challenges of Pure Play E-Tailing

The critics of purely Web-based operations assert that the model is fundamentally flawed, making it almost impossible for a virtual company to realize a profit. The underlying economics

and competitive dynamics of Web retailing put pure play e-tailers at a disadvantage relative to larger, highly skilled traditional retailers also using the Web to extend their already strong physical presence (Barsh et al. 2000). For instance, pure plays have been plagued with high customer acquisition costs, ranging from $50 to $100 a customer, due to the difficulty of building virtual brands without stores or catalogs (Barsh et al. 2000). Furthermore, online retailers struggle to increase transactional efficiency to minimize impact on the bottom line.

Several merchandising and organizational weaknesses lie at the core of this problem. First, certain product categories – toys for example – have high fulfillment costs due to small orders and shipping difficulties (i.e., picking, packing, and shipping). Second, lack of experience and scale further inflate fulfillment costs to as much as $12 to $16 per order. Finally, inexperienced merchandising and sourcing, intense price competition, and problems with inventory management and product returns yield pure plays particularly poor profit margins. Thus, to become profitable Web-based e-tailers need efficient order fulfillment, an average order size of at least $100, and a minimum gross margin of 25 percent (Barsh et al. 2000).

1.1.2 Tactical Benefits of Multi-Channel Retailing

By contrast to their purely online competitors, the retailers with established brands can leverage their traditional marketing mix to acquire online customers more cheaply. For instance, in highly brand-sensitive categories like apparel, multi-channel retailers may spend only one-third or even one-fourth of what the pure plays spend on customer acquisition (Barsh et al. 2000). Also, integration of e-commerce and physical channels provides opportunities for synergies allowing companies to offer different services via different channels, thus creating greater customer value (Friedman and Furey 1999). Also, an online channel may produce spillover effects resulting in increased purchases in the offline channels (Ward 2001). In terms of relationship marketing, a multi-channel retail strategy is likely to enhance the company's

relationship development efforts because it offers multiple points of contact for the company's customers, thus increasing the frequency of customer interactions with the retailer (Perry 2005).

1.1.3 Strategic Benefits of Multi-Channel Retailing

Steinfield et al. (2002) have proposed and empirically tested a framework describing how the integrating physical and virtual channels yields a competitive advantage. Grounded in existing theories in competitive strategy, marketing, information systems, and transaction cost economics, this framework proposes four fundamental synergy benefits – lower costs, differentiation through value-added services, improved trust, and geographic and product market extension.

Furthermore, industry research findings have consistently pointed to long-term profitability of multi-channel customers, generally defined as a consumer who routinely makes purchases from all available channels of the same retailer. The "Multi-channel Retail Report 2001," a study conducted by the National Retail Federation's Shop.org (2001) with J. C. Williams Group and bizrate.com, was the first analysis of the state of retailing combining consumer measures of cross-channel shopping with in-depth executive interviews (Koontz and Gibson 2002). The study's results, based on more than 48,000 interviews with shoppers from catalogs, stores and website channels, indicate that store shoppers who also buy online from the same retailer spend an average of $600 more annually in the store than typical store shoppers of that retailer. As Computer Weekly (2002) reports, the National Retail Federation estimates that multi-channel shoppers spend up to 36 percent more than single-channel customers. Likewise, the Microsoft Network's e-Shop study examining customer behavior in store, catalog, and online shopping, using a sample of seventeen retailers, showed considerable cross-traffic among channels, suggesting that multi-channel customers are the best customers for a retailer because they buy more and provide retailers with incremental gains over their lifetime (Cleary 2000).

Recognizing the benefits of integration, retailers are becoming increasingly concerned with implementing a multi-channel retail strategy. For instance, a survey of 375 retailers in the United States and Europe conducted by Gartner Consulting (a unit of Gartner, Inc.) from September to December 2001 showed that 33 percent of retailers already implemented a multi-channel retail strategy, 27 percent were in the internal-discussion phase, and 14 percent initiated discussions with technology vendors (Electronic Commerce News 2002). Some online retailers have also begun multi-channel restructuring by creating partnerships with traditional retailers (e.g., Etrade and Target) or by setting up their own stores (e.g., Levenger Co., an online seller of stationery products and J. Jill, fashion retailer).

1.2 Customer Benefits of Multi-Channel Retailing

1.2.1 Emergence of a Hybrid Consumer

Industry research on consumer patronage behavior suggests that many consumers favor multi-channel retailers over the pure plays. From the figures published in its December issue, the Wall Street Journal predicted 2003 online sales to be 4.5 percent of total retail spending (Wingfield 2003), with the expected sales, however, not divided equally between multi-channel and pure play Internet retailers, which had been the case in 2000 when the dot-com collapse began. This time, multi-channel retailers were expected to account for 75 percent of online sales.

Theoretically, these findings may be explained by notable changes in consumer beliefs and attitudes, spurred by continuous technological advances in retailing. The turbulent history of e-commerce has shown that consumers do not change – they adapt. The emergence of a hybrid consumer who combines the characteristics of a traditional and an online shopper proves that the pure forms of store and cyber consumers are not a realistic description of the modern shopper (Wind et al. 2002). It appears that the majority of consumers do not favor the idea of giving up the traditional store shopping experience, regardless of how time-consuming and frustrating it

can be at times, for a more efficient and information-rich Internet alternative. Instead of making a trade-off, they adapt the Internet technology to their existing lifestyles, thus taking advantage of the added benefits of mass connectivity, unlimited accessibility of companies, efficient information search, and transactional capabilities afforded by the Internet. In sum, the needs of the modern consumer have grown beyond social interaction, product experience, and service, which could be successfully fulfilled by the traditional retailer. In addition, the new consumer demands larger assortment, competitive pricing, accurate and timely information, greater flexibility, unlimited accessibility to products and information, transactional efficiency, and unrestricted autonomy (Hamel and Sampler 1998). These growing consumer demands make the pure forms of online and offline retailing obsolete because the single-channel model can deliver only partial consumer benefits.

1.2.2 Shopping Process Benefits of Multi-Channel Retailing

Although product acquisition is the ultimate goal of shopping, the process describing a shopping activity is an equally important predictor of consumer patronage behavior. Simply put, **where** consumers make their purchases depends not only on **what** they buy but also on **how** they buy it. Multi-channel retailing offers consumers several important shopping process benefits that independently neither brick-and-mortar nor online pure play retail formats can successfully match. For instance, a well-designed multi-channel retail model can enhance a customer's overall shopping experience by making shopping easy, convenient and fun (Armitt 2005). The customer can take charge of designing his/her shopping experience, demonstrating greater adaptability to the customer's lifestyle. Furthermore, the customer can minimize the time spent in searching for and learning about various products, thus increasing his/her shopping efficiency.

1.2.3 Product Acquisition Benefits of Multi-Channel Retailing

Additionally, multi-channel retailing may offer consumer benefits that are directly related to product acquisition. For instance, a well-executed multi-channel retail strategy enables customers to find the desired product (e.g., style, size, color) across channels, thus minimizing the negative effects of merchandise stock-outs. Furthermore, a multi-channel retailer may enhance a customer's ability to find better value by providing accurate and timely price information on its website.

Multi-channel retailing may also minimize consumer perceptions of purchase risk. Some products (experiential, expensive) increase shoppers' perceptions of purchase risk because they require tactile input and/or product testing. In a multi-channel retail format, consumers have an opportunity to experience the desired product in a store and then purchase it later online. Finally, multi-channel retailing may offer benefits that promote a relationship between the company and its customers. These benefits include promotional notifications, information about new trends, assortment and pricing updates, and the like.

1.3 Key Concept: Channel Complementarity

In sum, multi-channel retailing has become an important strategic alternative that has gained its legitimacy through the overwhelming acceptance by such retail giants as J. C. Penney, Victoria's Secret, Office Depot, Banana Republic, Pier One, and Bed, Bath and Beyond, among others. Even e-tailers like Dell are recognizing the opportunities of multi-channel retailing. Dell has placed kiosks in shopping malls to increase customer contact and is currently prototyping two "retail" stores, which carry Dell products for customers to view and try out. Although customer orders still have to be placed on the website (or by phone), Dell's efforts to establish "physical" presence in the market can be seen as first steps toward multi-channel retailing.

Yet, a close examination of the multi-channel retail formats adopted by these companies reveals significant differences. For instance, Victoria's Secret stores and victoriasecret.com have no fulfillment links in place that would make it easier for customers to shop both channels interchangeably. In fact, each channel is treated as an independent business entity with its own assortment, pricing, promotion, and fulfillment. At the other extreme is Bed, Bath and Beyond, with its substantial duplication in assortment, pricing, and promotion as well as closely intertwined fulfillment processes across physical and online channels. Given such diversity in multi-channel retail formats, the interesting question is: which model creates the most value for a multi-channel customer and, consequently, stimulates multi-channel shopping behavior?

This dissertation proposes that the answer to this question lies in how much complementarity customers perceive between the channels. Complementarity is reflected in how well the store and the website are integrated in terms of fulfillment and merchandising. Truly complementary channels make it easier for customers to move across channels at any stage of their purchasing process. In addition, complementarity increases consumers' economic value by creating moderate diversity between the channels in terms of product mix (variety and assortment) and promotions (e.g., discounts and rebates).

In sum, achieving the right degree of integration between physical and online operations is the key issue for e-commerce success (Gulati and Garino 2000). During the e-commerce boom, many companies with online and offline outlets failed to ensure price and product mix consistency in addition to poorly executed fulfillment integration across their sales channels. The resultant discrepancies and complexities confused and irritated customers (Hanrahan 2003). On the other hand, high degree of channel duplication offers little economic value to customers, thus discouraging multi-channel shopping. Resolving the integration dilemma has important theoretical and practical implications. From a theory perspective, understanding how consumers

ascribe value to a multi-channel distribution system may explain why some customers choose between the channels, while others spend more time and effort using both channels as part of their shopping strategy. In terms of practice, understanding the roots of consumers' multi-channel shopping preferences will aid retailers in designing integrated multi-channel distribution systems that offer their customers the most value.

It is important to note that a multi-channel retailer serves not only multi-channel customers but also single-channel store and single-channel website shoppers. The hypothesized reasons behind single-channel and multi-channel shopping preferences are discussed later in this dissertation. Although the focus of this study is on creating value for multi-channel customers, it does acknowledge that a retailer's objective is to maximize value for all of its customers. This is likely to be a challenging task because of the possible incompatibility of the needs of multi-channel and single-channel shoppers (Business Wire 2005).

The objectives of this dissertation include the following:

1) Explain how consumers form their perceptions of value of a multi-channel distribution system, and the effects these perceptions have on their decision to engage in multi-channel shopping. The focus is to understand how consumers combine channels, and what channel integration factors they use in defining the value of the resultant multi-channel system. Furthermore, the key issue is to gain understanding of how these value-defining integration factors impact consumers' evaluations of multi-channel shopping.
2) Determine the effects of consumers' individual factors such as shopping motivations, attitude toward technology and perceived risks on their preferences for single-channel (store and website) and multi-channel shopping.

Although a multi-channel distribution system may involve more than two channels (e.g., store, website and catalog), the major focus of this discussion and the empirical investigation is on a dual-channel distribution system consisting of a website and a store. The resulting simplicity of the model will allow for a better understanding of the consumer decision processes, which can then be generalized to other multi-channel distribution systems.

1.4 Organization of the Dissertation

The introductory chapter presented the purpose of this dissertation. Chapter 2 provides a detailed discussion of channel complementarity from both the retailer and the consumer perspectives, a review of the established antecedents of consumer shopping preferences, and then an integrated conceptual model of multi-channel retailing. Specifically, it first discusses complementarity in terms of the managerial issues of creating customer value through strategic integration of multiple distribution channels and the psychological processes underlying the formation of consumer perceptions of value of the multi-channel distribution system. Then a theoretical review of the antecedents of consumer shopping mode preferences is undertaken to identify potentially influential factors, including shopping motivations, technology factors and perceived risks. Finally, a proposed conceptual framework is defined with conceptual definitions and hypotheses. Chapter 3 describes the basic research design, including several pretests intended to provide insights to the proposed concepts of complementarity, fulfillment integration, and merchandising similarity, as well as to develop measures of these and other constructs used in the main study. Chapter 4 offers a detailed summary of the results of the main study supporting the proposed conceptual model. Finally, Chapter 5 concludes with a discussion of theoretical and practical implications of the findings.

CHAPTER 2

DEVELOPING A MODEL OF CONSUMER MULTI-CHANNEL SHOPPING BEHAVIOR

The purpose of this chapter is to provide a theoretical platform for the proposed conceptual model of consumer multi-channel shopping behavior. Specifically, it explains how channel integration creates customer value and describes the effects of personal variables such as shopping motivations, technology factors, and perceived risks on consumers' channel preferences. The chapter will also present a proposed conceptual model and hypotheses.

First, the chapter examines the concept of channel complementarity and its value creating dimensions – fulfillment integration and merchandising similarity. It is proposed that consumers prefer greater fulfillment integration, due to the convergence value that enhances the appeal of the multi-channel shopping strategy. Yet when it comes to merchandising, consumers' preferences are believed to be less straight-forward. On the one hand, if the store and the website of the multi-channel retailer mirror each other in all elements of merchandising (product mix and promotional offers), then shoppers experience access to a limited inventory of products and brands that are promoted through a single promotional program. At the other extreme are highly diverse channels that have very little, if any, in common. Such extreme diversity offers shoppers a larger assortment of products and many more promotional offers to take advantage of yet creates problems when shoppers see an item on the website and want to purchase it later in the store. Thus, moderate diversity between channels may balance the strengths of both integration approaches. On the one hand, it ensures adequate channel duplication in terms of products that are either best-sellers or require pre-purchase inspection and trial. On the other hand, it supplements this identical core offering with additional products, brands, and promotional offers, thus expanding the total offering of the multi-channel retailer.

Moderate diversity between channels benefits both the retailer and the customer. From the retailer's perspective, it allows the generation of more sales without increasing the retail space. The website offers additional inventory, thus encouraging cross-channel shopping behavior. From the customer's perspective, moderate diversity increases shopper's chances of finding the right product at the right price without spending too much time and effort on shopping at other stores. Moderate diversity may be especially beneficial for loyal customers, who deliberately avoid making purchases from competing companies, in favor of their chosen retailer.

Then, the discussion focuses on how personal factors may influence consumers' channel preferences. In the case of shopping motivations, it is suggested that shoppers with dominant motivations of affiliation, power and authority, and sensory stimulation are more likely to prefer stores because store shopping has a better chance of satisfying these consumer needs. In contrast, dominant efficiency and cognitive stimulation motivations attract shoppers to the Internet, which is known for increased shopping efficiency and satisfying consumer needs for learning and cognitive stimulation. Multi-channel shoppers are believed to be driven by multiple shopping process motivations that preclude them from forming a preference of just one channel. In fact, multi-channel customers enjoy shopping both in the store and on the website, and their channel choice at a particular point in time is influenced by situational factors rather than a well-defined channel preference. Furthermore, product acquisition motivations of role enactment and choice-optimization are likely to have little impact on channel predisposition, because both store and website have the necessary capabilities to facilitate product search and acquisition.

Next, it is proposed that Internet technology (IT) use innovativeness and technology anxiety may influence consumers' channel preferences. Specifically, consumers with high levels of IT use innovativeness are thought to seek new applications of Internet technology to expand

their capabilities beyond electronic communication and information search. This process of discovering new website applications is likely to result in greater functional and hedonic benefits to the consumer. Thus, IT use innovativeness is hypothesized to have a positive effect on consumers' preference for online shopping.

In contrast, technology anxiety is believed to have a negative effect on consumers' desire to shop online. Specifically, it is proposed that some consumers may experience anxiety when using the Internet because of their lack of understanding of the processes underlying electronic data transfer. As a result, they are likely to limit their use of the Internet to simple activities such as browsing and e-mail, and these preferences will be seen in their evaluations of each channel alternative.

The discussion then turns to the effects of perceived online security risk and purchase risk, proposing that both have a negative effect on consumers' willingness to make online purchases. The reasoning for these propositions is grounded in the theory of perceived risk, which suggests that both online security risk and purchase risk create a psychological discomfort that consumers avoid by choosing to shop in a store rather than online.

The last part of the chapter introduces the proposed conceptual model and hypotheses, designed to test three sets of relationships. The first set refers to the relationships between attribute levels and channel utility. Specifically, store and website attributes are proposed to have a positive linear relationship with their respective channel utilities, such that more favorable attribute levels produce greater utility than their less favorable counterparts. Of the complementarity attributes, fulfillment integration and price similarity, one of the merchandising similarity attributes, are also expected to have a positive linear relationship with multi-channel utility. In contrast, the remaining four merchandising similarity attributes – product variety, brands assortment, discounts and rebates similarity – are proposed to have a positive curvilinear

relationship, where the medium level is the most preferred compared to high and low levels of similarity. The second and the third sets of hypotheses address the relationships between consumer characteristics and complementarity attributes. In particular, the second set of hypotheses examines how consumer characteristics relate to shoppers' evaluations of different levels of fulfillment integration and merchandising similarity attributes. The third set of hypotheses focuses on the relationships between select consumer characteristics (motivations and purchase risk) and perceived importance of different complementarity attributes in choosing among three shopping alternatives – store-only shopping, website-only shopping and multi-channel shopping.

2.1 The Multi-Channel Distribution System

A distribution system has been defined as "the network of people, institutions or agencies involved in the flow of a product to the customer, together with the informational, financial, promotional, and other services associated with making the product convenient and attractive to buy and rebuy" (O'Shaughnessy 1998). Thus, the role of distribution channels is to encourage and support the purchase of a product including the actual product delivery (Easingwood and Storey 1996). The characteristics of a distribution channel consist of factors affecting the purchase decision process – from selecting a product, making a payment, accessing the purchased product, to post-purchase services. Recent developments in business-to-business and business-to-consumer commerce reveal a strategic shift toward business models characterized by the reliance on a mix of multiple channels in pursing sales opportunities. In business-to-consumer sector, the term of "clicks and mortar" or "bricks and clicks" refers to companies that employ the electronic channel alongside conventional business operations in a way that best utilizes the strengths of each channel in a complementary and synergistic manner (Bahn and Fischer 2003).

2.1.1 Types of Multi-Channel Systems

Existing research on multi-channel strategies has documented different types of multi-channel business models in the business-to-consumer sector of commerce. This section will provide a brief overview of different approaches to multi-channel operations from both the company and the customer perspectives.

Gulati and Garino (2000) have identified several multi-channel strategies that vary in the degree of integration between the online and the offline retail operations of a firm. Drawing on their research, they note that the benefits of integration are almost always too great to abandon entirely, and therefore the most important question a company should ask is not whether to develop its Internet channel in-house or to launch a spin-off but rather what degree of integration between the channels would be most appropriate for the company, given its particular business situation.

Gulati and Garino have categorized multi-channel strategies along the integration-separation continuum. At the integration extreme is the **in-house division** strategy that seeks to create a "single, seamless retailing network" by tightly integrating the company's website and its physical stores. Office Depot is one example of a company that actively pursues this type of strategy. Its customers can use officedepot.com to research product information, make a purchase, and check product availability in the Office Depot stores. At the same time, the company uses its stores to promote the website by accepting product returns and exchanges, and providing access to the website's inventory through the Internet-linked kiosks. In sum, instead of cannibalizing each other, the two channels engage in active cross-promotion thus "creating a virtuous circle."

Next is **joint venture**, an integration strategy that attempts to capitalize on the expertise of the partnering companies in the creation of a new online venture. This type of strategy seeks

to capitalize on the advantages of both integration and separation, as seen from the management perspective. A prominent example of this strategy is the joint venture between KB Toys and brainplay.com that resulted in the creation of kbkids.com, where KB Toys holds an 80% stake. This joint venture draws on the strong brand name of KB Toys and the e-commerce expertise and savvy of brainplay.com, which now operates exclusively under the kbkids.com name. Organizationally, kbkids.com is independent of KB Toys – it is headquartered in BrainPlay's former offices in Denver (KB Toys' headquarters are in Massachusetts) and is run largely by the management team and technical staff that launched brainplay.com. Nonetheless, the two companies are tightly integrated in certain respects. Most obvious is the shared brand. The KB Toys name garners 80% awareness among toy buyers, giving kbkids.com an advantage that pure plays cannot match. Also, the KB Toys stores heavily promote the website through in-store advertising and displays. Another area of integration lies in customer service. Anything bought online at kbkids.com can be returned to any of the more than 1,300 KB Toys stores, thus creating a convenience benefit for online toy shoppers. A third integration advantage lies in the purchasing function, where kbkids.com has been able to fully leverage KB Toys' relationships with suppliers.

The next strategy, **strategic partnership**, tips the integration-separation balance in favor of separation. The partnership between Rite Aid and drugstore.com is a good example of this type of multi-channel strategy. Instead of spending the money and time it takes to develop, own, and manage its own website, Rite Aid bought a 25.3% equity stake in drugstore.com. Drugstore.com was an ideal partner because it brought Internet capabilities, thus limiting Rite Aid's investment risk in e-commerce. Rite Aid and drugstore.com are separately owned and managed, and although both brands are promoted in both channels, they remain distinct. Still, the two companies want their customers to view the pharmacies as integrated. To that end,

drugstore.com has launched several branding and merchandising initiatives such as promoting drugstore.com logo on all Rite Aid prescription bottle caps, shopping bags and payment receipts, and making in-store offers that complement those of Rite Aid. The companies have also integrated many of their business functions, including fulfillment. Customers can elect to pick up their drugstore.com prescriptions at their local Rite Aid store while still paying the drugstore.com prices. This arrangement lets drugstore.com serve the acute-needs market for same-day prescriptions at the same time that Rite Aid enjoys increased store traffic.

The final strategy, **spin-off**, lies at the separation extreme of the integration-separation continuum. Barnes and Noble is one company that has embraced this multi-channel strategy. To compete with amazon.com, it established a completely separate division – barnesandnoble.com. The separation strategy has given Barnes and Noble many advantages that include speedy decision making, higher degree of flexibility, ability to create an entrepreneurial culture, and the access to the vast pool of capital available to Internet start-ups. However, despite those benefits, barnesandnoble.com is struggling. By divorcing its online business from its established stores, Barnes and Noble may have sacrificed more than it gained. For example, the company forfeited tremendous marketing opportunities by not promoting barnesandnoble.com in its stores.

Bahn and Fischer (2003) have identified five types of multi-channel strategies, which they labeled as Front Lobby, Maximize Product Profile, Unbundle Burdensome Transactions, Parallel Lines, and Direct Integration. These types of multi-channel strategies differ in the intended purpose of each channel and the extent of integration among the important front end and back end activities of the company. Hence, each strategy also varies in the amount of value it creates for consumers.

Front lobby describes a strategy where the company's website is utilized for the purpose of information dissemination only. This limited role of the website is due to product features

and/or supply chain issues that constrain any significant use of e-commerce even for support and marketing activities.

Maximize product profile is a multi-channel strategy that limits the use of the electronic channel to supporting product sales that are being executed through a network of retailers and dealers. In this case, the company's website is utilized for pre-sale activities such as providing information to assist customers with product selection or informing them about the location of the nearest retailer or dealer from whom the product can be obtained. It is also used to provide post-sale service and support for the product or to identify where such support can be found.

Unbundle burdensome transactions strategy utilizes the electronic channel primarily to support pre- and post-sale activities that are fairly burdensome for the customer when performed conventionally in the brick and mortar channel. The kind of products marketed by the companies pursuing this strategy would fall in the "look and feel" category, which includes products whose quality is not readily assessable without some direct experience of the customer. Also, these products tend to be higher priced items that are predominantly sold through traditional brick and mortar operations. Although the companies following this multi-channel approach may perform some commercial transactions electronically, the online channel is not intended to function as a significant source of sales growth.

Parallel lines strategy utilizes the company's website as an independent, full-fledged channel intentionally subordinate to the brick and mortar channel. The companies perform all primary business-to-consumer value chain activities such as selling, marketing, and post-sale services in parallel through both the online and the brick and mortar channels. Nevertheless, the breadth of inventory offered online is a subset of product array offered in the brick and mortar channel. Furthermore, most companies engaged in the parallel lines approach do not allow for cross-channel merchandise returns and exchanges. To the extent that these companies cross-

promote products between the channels, they use their website to promote the brick and mortar business operations and not vice versa.

The last multi-channel strategy, **direct integration**, calls for strong integration of e-commerce with brick and mortar operations. Not only all primary business-to-consumer value chain activities (selling, marketing, and post-sale services) are performed in both the online and the brick and mortar channels, but the access to the company's website is often explicitly offered to customers within the brick and mortar retail space through the Internet-linked kiosks. Each channel actively cross-promotes the other thus creating a sense of a ubiquitous multi-channel brand identity. Furthermore, in contrast to the **parallel lines** approach, the breadth and the depth of inventory offered online typically equal or exceed the product offering in the brick and mortar channel. For the purpose of the present discussion the focus will concern the direct integration strategy and the differences that exist within this approach.

2.1.2 Multi-Channel Systems and Corporate Strategy

The above overview of multi-channel business structures demonstrates the diversity of perspectives existing on the issue of integration versus differentiation. Industry experience has shown that a company's choice of a particular integration strategy depends on its specific business situation reflecting such factors as its products and services, customer characteristics, organizational architecture, distribution structure, financial situation, market expertise, etc. While it is acknowledged that managerial decision-making related to the crafting of a multi-channel distribution strategy is a complex process, the primary concern of this dissertation lies with the consumer perspective on channel integration. The degree of channel integration has important implications for consumers, because it can either create more customer value or make shopping difficult and frustrating. The amount of value that shoppers derive from channel

integration is directly related to how much complementarity they perceive between the channels. Hence, the concept of complementarity is discussed next.

2.2 Channel Complementarity

Channels differ in their ability to successfully perform various distribution functions because of their channel-specific strengths and weaknesses (Chandler 2005). For instance, refer to Table 2.1 for a comparison of store and website on a number of channel characteristics, demonstrating how store and website fall on the opposite ends of a continuum on several channel attributes. This suggests that if combined into a unified distribution system, the strengths of one channel may compensate for the weaknesses of the other channel, thus resulting in greater cumulative benefits to the consumer.

Hence, it is proposed here that consumers desire greater channel integration, because it creates value above and beyond what is possible when channels function independently. The two basic "touch points" where channels can be merged are fulfillment and merchandising. When channels are successfully integrated through fulfillment and merchandising, consumers perceive them as complementary. Hence, convergence value must be studied through **fulfillment integration** and **merchandising similarity**.

2.2.1 Fulfillment Integration

The principle of channel complementarity explains why many multi-channel retailers have focused their integration efforts on the elements of the fulfillment process. Fulfillment integration is defined as consumer perceptions about the existence of logistical links between the channels of the same company, which create purchasing process benefits enabling a customer to use these channels interchangeably. Integrated fulfillment creates convergence value by increasing customer access to the retailer's offerings, making shopping easy and convenient, and allowing the customer to design his/her own shopping experience. The positive relationship

between across-channel fulfillment integration and convergence value enjoyed by customers enhances the appeal of the multi-channel shopping strategy, which includes using the secondary channel (as perceived by the customer) not only as a support tool but also as an additional transactional channel.

Table 2.1 Comparison of Strengths and Weaknesses of Store and Website on a Set of Distribution Channel Attributes

Channel Attributes	Store	Website	Cites
Access	limited geography and time; requires more time and effort	anytime, anyplace; faster and easier	Wind et al. (2002) Li, Kuo, and Russell (1999)
Search	browsing is more holistic and experiential, but individual search is difficult	simple to find specific information; information-rich browsing	Wind et al. (2002) Li et al. (1999)
Selection	limited to store size and design	virtually unlimited	Wind et al. (2002)
Pricing	fixed	dynamic	Wind et al. (2002)
Experience	tactile, directed to all senses	intellectual, but becoming more tactile	Wind et al. (2002) Li et al. (1999)
Customization	difficult and time consuming	simple	Wind et al. (2002)
Delivery/ Returns for non digital products	simple and quick after the decision to purchase is made, but still requires a trip to a store	complex, involving delivery channels	Wind et al. (2002) Li et al. (1999)
Delivery/ Returns of digital products	more complex, requiring a trip to a store	easy	Wind et al. (2002)
Time for repeat purchasing	slow	very fast	Wind et al. (2002)

2.2.2 Merchandising Similarity

To create positive perceptions of channel complementarity, however, the retailer must also consider the degree of similarity in merchandising elements across the channels. Merchandising similarity is defined as consumer perceptions about the degree of correspondence between the channels in terms of product variety, assortment, pricing and promotion. The merchandising elements are not equal in the degree of similarity between the store and the website that is being favored by multi-channel shoppers. Greater similarity may be sought for prices due to the resultant price parity, which reduces the need for cross-channel price comparisons. However, moderate similarity may be preferred for product variety, brand assortment and promotional offers, because it provides shoppers with a larger selection of products and additional financial rewards, increasing their overall shopping satisfaction. Moderate similarity between the channels can also be viewed as moderate diversity, which expands the retailer's total product offering, providing shoppers with access to a larger number of promotional programs and helping them to optimize their purchases.

2.2.3 Managing Multi-Channel Shopping

A retailer's ability to successfully manage multi-channel shopping behavior of its customers largely depends on the management's understanding of how the two value-creating dimensions of channel complementarity (i.e., fulfillment integration and merchandising similarity) relate to customers' perceptions of value of multi-channel shopping. The retailer's objective is to create an optimum configuration of fulfillment integration and merchandising similarity between channels offering the most value to its multi-channel customers. When designing a multi-channel distribution system, the retailer must bear the point of diminishing returns of merchandising duplication, since complementarity of the channels may give way to substitutability, thus reducing the value of multi-channel shopping.

For instance, a traditional store customer of Bed, Bath and Beyond may perceive bedbathandbeyond.com as a less appealing substitute because of the website's merchandising mix (product variety, assortment and promotions) being almost identical to that of the retailer's stores. In fact, Bed, Bath and Beyond has adopted a multi-channel retailing strategy aimed at achieving as much channel consistency as possible. It is evident that the company's objective is to create shopping process value for its customers through closely integrated fulfillment. This strategy also involves a significant degree of duplication in merchandising (product variety, assortment, pricing and promotion), allowing customers to use the retailer's stores and the website interchangeably, should the need arise. On the other hand, the channel consistency strategy does not encourage multi-channel shopping (i.e., making purchases from both the retailer's store and its website). By creating a virtual replica of its traditional outlets, a retailer reaches its existing and potential online customers while offering little value for multi-channel shoppers.

In contrast, Banana Republic uses its website to create value through substantial merchandising differentiation in addition to shopping process value created through fulfillment integration across channels. Bananarepublic.com's product variety and assortment include merchandise available in the retailer's stores in addition to products that are distributed exclusively online. Furthermore, the website is somewhat different from the store in terms of promotions (e.g., volume-based discounts and website-only sale promotions). The close integration of store and website is reflected in a cooperative relationship between store sales associates and website customer service personnel. Sales associates are trained to use the website as additional "inventory" to help customers find the product they want, regardless of the channel used in the transaction. The advantage of this type of multi-channel strategy is that it

promotes positive perceptions of the alternative channel, presenting it as a valuable complement that creates additional customer benefits.

A more extreme case of channel diversity is reflected in the multi-channel strategy of Victoria's Secret. This retailer of women's apparel manages three channels of distribution: stores, website and catalogue. Their website mirrors the catalogue in terms of products, promotional offers and prices. These two channels share basic logistics and require no fulfillment integration, because both involve arm's-length transactions. Victoria's Secret store, however, is treated as a completely separate business entity. Its inventory represents only a small subset of all the products offered in the catalogue and on the website. Furthermore, it has a distinct market position of being a specialty retailer of women's lingerie and beauty products. There is no fulfillment integration between the remote channels of distribution (catalogue and website) and the store. As a result, all products purchased in the catalogue or online have to be sent back to the warehouse for returns and exchanges.

2.3 A Consumer's View of Channel Complementarity

Consumers form their perceptions of a multi-channel distribution system by mentally integrating the newly available channel with the familiar channel used in their past transactions with the retailer. This mental integration of channels serves to determine how the new channel fits with what consumers already know about the retailer. If a perceptual fit is established, consumers make inferences about the new channel's retail mix and performance based on their knowledge of the retailer.

Distribution expansion via additional channels is a costly and risky endeavor. The success of adding new channels of distribution to an already established distribution structure depends largely on customers' willingness and ability to adopt these new outlets. Assuming that consumers have no contextual constraints preventing them from trying the new channel, their

desire to adopt it is driven by one question: How does this additional channel benefit me? The answer depends on consumers' perceptions of channel complementarity and is judged in terms of the value created through fulfillment integration and merchandising similarity.

Consumer differences in the need or desire for fulfillment integration and merchandising similarity further complicate the issue. The level of fulfillment integration and merchandising similarity that consumers seek depends on their evaluations of channel utilities. Specifically, if all channels have high perceived utility, then consumers would desire greater integrated fulfillment and lower similarity in terms of promotions and, depending on the product category, product variety and assortment between the channels because it would allow them to use both channels to maximize their shopping value. In contrast, if one channel has higher perceived utility than the other, consumers' desire for merchandising similarity (all merchandising elements) is likely to be high since it provides assurance that by choosing to shop only in one channel (the store or the website) they still receive the same value as they would have if they chose to shop in the alternative channel. Also in this case, the customers' need for integrated fulfillment is likely to be contextually determined, that is, a high level of fulfillment integration between the channels becomes important only when the situation prevents the single-channel customers from shopping in their preferred channel. This implies that the curves describing the relationship between each complementarity dimension and the value of multi-channel shopping are likely to vary across consumers.

2.3.1 Consumer Value Perceptions in a Multi-Channel Distribution System

Existing distribution channel research has provided no theoretical or empirical support for how consumers form value perceptions in a multi-channel distribution system. Branding literature, however, appears to offer a theoretically sound basis for the propositions.

Consistent with the composite concept literature (Cohen and Murphy 1984; Hampton 1987; Murphy 1988), it is proposed that consumers conceive of a multi-channel distribution system as a composite concept, formed via a nested concept formation process (Schmitt and Dube 1992). Nested concept formation process occurs when a salient attribute of the nested concept assumes the value of the same attribute of the nesting concept, because the nesting concept has less variability on the attribute in question than the nested concept (Park, Jun, and Shocker 1996). Thus, if a customer's knowledge of the retailer is based on his/her patronage of the store (e.g., Target store), then when exposed to the retailer's website (www.target.com), this customer will consider the website concept nested under the store concept. The opposite will occur if the customer's knowledge of the retailer has originated online – i.e., the retailer's store concept will be perceived as nested under the website concept. This will result in a one-way value transfer for a number of retail mix attributes (assortment, pricing, service quality, etc.) from the nesting channel to the nested one (Park et al. 1996) thus establishing consumer expectations of the retail mix profile of the nested channel.

The above theorizing implies that there is some degree of overlap or similarity between the two channels. Given the shared distribution goals of store and website, consumers will expect these channels to have certain functional and merchandising similarities, including distribution functions and retail mix elements that are not channel-specific and can therefore be duplicated across channels (e.g., transactional capabilities, assortment, promotions, pricing, and brand image). In addition to shared elements, each channel also has unique features and capabilities defining its strengths and weaknesses. For instance, a website allows customers to make repeat purchases with a few clicks of a mouse, because it has a unique capability of storing and retrieving customer shopping and payment information. By contrast, a store offers a rich sensory experience that can affect a customer's overall shopping satisfaction. These unique

characteristics form the basis of each channel's advantage in different situations and determine its appeal to different shopper types.

As was discussed earlier, the amount of value consumers ascribe to the entire multi-channel distribution system depends on their perceptions of channel complementarity, defined in terms of fulfillment integration and merchandising similarity between channels. Consumer differences aside, it is logical that shoppers would generally prefer greater fulfillment integration. Functional peculiarities of each channel make fulfillment integration highly desirable, because it allows a customer to capitalize on the strengths of each channel (i.e., receive greater shopping process value). As previously noted, customers will also expect some degree of merchandising similarity between the channels. This duplication is important for several reasons. First, it helps customers to establish mental links between the store and the website, which facilitate a transfer of consumer beliefs about the retailer through a process of assimilation (Meyers-Levy and Sternthal 1993) thus minimizing online shopping risks and building customer trust. Furthermore, merchandising similarity provides the necessary foundation for the creation of shopping process value. For instance, customers would not be able to enjoy the benefit of a seamless shopping experience with its flexibility and customer control unless both channels carry the same merchandise. The problem, however, arises when merchandising similarity exceeds a certain level and consumer perceptions of channel complementarity give way to perceptions of channel substitutability. In this case, multi-channel shopping loses its appeal as a shopping strategy of choice and instead, becomes a contextually-prescribed shopping strategy.

2.3.2 Consumer Perceptions of Channel Utilities

Prior to combining channels into a unified system and then evaluating it, consumers are likely to evaluate each channel individually. Marketing literature on consumer decision making contributed significantly to our understanding of how consumers evaluate comparable

alternatives such as products within the same category and brands (Berning and Jacoby 1974; Bettman and Jacoby 1976; Bettman and Kakkar 1977; Bettman and Park 1980; Jacoby, Chestnut, Weigl, and Fisher 1976; Jacoby, Szybillo, and Busato-Schach 1977; Russo and Dosher 1983; Russo and Rosen 1975; Sheluga, Jaccard, and Jacoby 1979). Comparability is the degree to which alternatives are described or represented by the same attributes (Johnson 1984). Psychologists proposed a number of compensatory and noncompensatory models that specify different decision making rules employed in choice situations (Hansen 1976). All of these rules have been typically applied to the evaluation of comparable alternatives specified in terms of the same attribute dimensions. The interesting question is: how do people evaluate such noncomparable alternatives as distribution channels? After all, store shopping is very different from online shopping in terms of procedures, retail mix features, and benefits. Johnson's (1984; 1986; 1988; 1989) work on consumer evaluation of noncomparable alternatives provides important guidelines. Specifically, Johnson (1984) argues that consumers employ either across-attribute or within-attribute strategies when choosing among noncomparable alternatives. Across-attribute comparison strategy is less strenuous. It requires consumers to construct an overall evaluation of "value" of each alternative, using a linear compensatory strategy, and then compare them. Within-attribute comparison involves looking for comparable attributes by representing alternatives at higher levels of abstraction.

Considering that shopping is not a high risk task, consumers are likely to expend little effort in choosing between channels and therefore, use the across-attribute comparison strategy. Accordingly, they construct an overall evaluation of "channel value" or utility using a weighted compensatory model of choice (Sheth and Raju 1974; Hansen 1976). Specifically, they evaluate several salient features of the shopping experience delivered via a website (or a store) in terms of a) the channel's instrumentality or favorability and b) its perceived importance to the shopper.

Then, consumers add these individual evaluations to arrive at an overall "value" of the channel. In the end, a customer selects the shopping channel that has the highest overall utility or in other words, "helps attainment of certain goals" (Sheth and Talarzyk 1972, p. 6).

In sum, existing branding research on choosing among noncomparable alternatives appears to provide relevant theoretical support for the propositions addressing the role of shopping motivations and other consumer characteristics in selecting a shopping channel. This research explains how consumer characteristics influence shoppers' evaluations of channel attributes, and what shoppers use as a decision rule when choosing between the channels.

2.4 Shopping Motivations

Shopping is purposive and goal-directed behavior (Bagozzi 1995). Dominant shopping motivations are likely to affect consumers' evaluations of store and website shopping experience by supplying the importance weights attached to each shopping feature. Consistent with the expectancy-valence theory (Tolman 1951), consumers evaluate and subsequently choose between distribution channels based on their expectations of the channel's ability to accomplish desired outcomes (Bagozzi 1995). Therefore, this section examines consumers' shopping motivations that are likely to influence their shopping channel preferences.

Motivation has been a universal field of study uniting researchers from such diverse disciplines as anthropology, sociology, biology, management, and marketing, just to name a few. These motivation researchers are linked by a shared desire to understand **why** people behave the way they do. The term "motivation", derived from a Latin word **movere** (Steers and Porter 1983), denotes an unobservable inner force that stimulates and compels a behavioral response and provides a specific direction to that response (Madsen 1968). Motivation is viewed as an inner force and is commonly referred to as an urge, wish, feeling, need, or motive (Coffer and Appley 1964). This inner force is a dynamic and powerful stimulant activating individuals'

physical and/or mental systems and compelling them to behave in a way that is conducive to the fulfillment of the underlying need. Hence, motivated behavior can be described as individuals' goal-directed actions aimed at reducing the tension arising from the discrepancy between their present state and the desired state (Schiffman and Kanuk 1983).

To serve the objectives of this research, it is necessary to gain better understanding of the inner drives (motivations) that induce consumer choices of retail channels (direction). Shopping behavior is fueled by many motives, some of which guide consumers' product choices while others influence their choice of shopping experience. The value that consumers receive from the exchange includes not only value of the purchased product but also value of the exchange act (Bagozzi 1979). The idea that consumers may shop for reasons other than product acquisition has spawned a whole stream of research on motivation-based shopper typologies (Westbrook and Black 1985; Roy 1994; Karande and Ganesh 1998; Reynolds, Ganesh, and Luckett 2002). The research on consumer shopping motivations shows that differently motivated consumers seek different benefits from the exchange experience. Structural peculiarities of a channel set boundaries on the nature of the shopping experience it is capable of facilitating. Consequently, consumers may not value all channels equally. Shoppers with strong social and sensory stimulation motivations are likely to consider a website less appropriate as a channel because of its structural limitations that preclude social and sensory experiences. In contrast, time-poor consumers who want efficient and convenient transactions may value a retailer's website more highly than the store to save the time, effort, and psychic costs associated with store shopping.

The following sections will present a brief overview of two main schools of thought in motivation research (drive and reinforcement theories vs. cognitive theories) and their applications to consumer channel preferences. They will also provide a conceptual background of shopping motivations that are likely to guide consumer channel choices.

2.4.1 Theories of Motivation

The first theoretical advances in motivational psychology focused on the role of instincts in driving human behavior. Freud's (1916) notion of unconscious motivation implied that individuals were often unaware of all their desires and needs. Furthermore, he believed that people could not explain the reasons for their behavior because they did not know the forces that motivated their actions. In early 1920s, instinct theories received harsh criticisms from researchers who viewed human motivation as a result of learning. This school of thought produced several drive and reinforcement theories focusing on the behavioral consequences of learning. Specifically, drive theories assume that decisions concerning present behavior are largely based on consequences, or rewards, from past behavior (Steers and Porter 1983). Reinforcement theorists ignore the role of internal need states (drives) of the individual in predicting behavior and concentrate solely on the consequences of the person's actions. Hence, these theories have limited applicability in explaining consumer channel preferences.

Cognitive view theory is the second major school of though in motivation research. Cognitive theorists argue that individuals exhibit goal-directed behaviors reflecting their beliefs, expectations, and anticipations. In general, cognitivists view behavior as a multiplicative function of expectancies and valences. Specifically, expectancy theory states that the desire or motive to engage in certain behavior is a composite of the expected outcome and the value or evaluation of that behavior (Tolman 1951). Tolman proposed need, belief, and value as key variables determining the magnitude of behavioral tendency, which immediately precedes and is directly related to overt behavior. He operationally defined need as "the propensity of an individual to perform a characteristic type of consummatory response" (1951, p. 362). The response is defined in terms of the goal satisfying the underlying need. Each need is associated with a positive or negative value attached to different outcomes of the behavior. Additionally,

the belief construct captures the expectation that performing a particular behavior with respect to a need state will lead to goal attainment. In sum, the cognitivist view of human behavior as goal-directed and motivated by internal need states makes it a more appropriate theoretical foundation for understanding consumer channel preferences.

2.4.2 General Motivation Taxonomies

Early motivation researchers were primarily interested in developing exhaustive lists of human needs and motivations (Murray 1965; Bayton 1958; Maslow 1970; McGuire 1974, 1976). Despite certain substantive differences in the proposed inventories of human motivations, there were significant overlaps among them, allowing for systematic aggregation of human motives into more concise categories. The resultant theoretically-based groups of motives (McGuire 1974) created an opportunity for researchers to investigate the behavioral consequences of motives, including consumers' general shopping and patronage behaviors. The present discussion provides a general overview of existing motivation taxonomies, followed by a more specialized perspective on motivation research including important advances in the area of shopping motivations.

Bayton (1958) proposed a tripartite classification of motives: affectional needs, ego-bolstering needs, and ego-defensive needs. Affectional needs include human needs to form and maintain warm, harmonious, and emotionally satisfying relationships with others. Ego-bolstering needs capture an individual's needs to enhance and promote his/her personality by gaining prestige and recognition. Ego-defensive needs refer to an individual's needs to protect his/her personality and avoid physical and psychological harm.

Murray (1965) proposed a six-group classification of motivations that reflected his belief in universal human needs. He described 28 basic psychogenic needs, including achievement, affiliation, power, and abasement.

Maslow's (1970) contribution to motivation research was in devising a hierarchical structure of needs, in which satisfaction of lower level needs leads to activation of higher-order needs in the hierarchy. Maslow believed that all humans prioritized their needs in terms of importance to their well-being. Thus, physiological needs are placed at the bottom of the hierarchy, followed by safety and security, social, ego-centric, and finally self-actualization needs.

McGuire's (1974) motive classification system elaborates on Maslow's social and ego needs by defining 16 motives in terms of their position on four dimensions – cognitive/affective, equilibrium/growth, active/passive, and internal/external orientation. Cognitive motives are driving forces of the personality that stress an individual's need for being adaptive to the environment and achieving a sense of meaning. Affective motives, on the other hand, stress a person's need to reach satisfying feeling states and attain emotional goals. Equilibrium refers to a person's need to maintain his/her present state while growth denotes his/her desire for change. The third dimension deals with the nature of a person's interactions with the environment. Specifically, it examines whether a person proactively initiates behaviors or simply reacts to the circumstances. The final dimension addresses the question of whether the motives are directed towards achieving a new internal state or a new external relationship with the environment (McGuire 1976). McGuire's taxonomy of motives encompasses several theoretical paradigms, which he terms "identification theories," "stimulation theories," "affiliation theories," and "assertion theories." Identification theories view individuals as role players or identity adopters who seek ego enhancement by adding satisfying roles to extant self-concepts (Westbrook and Black 1985). The stimulation paradigm envisions humans as stimulus-craving beings, who long for varied experiences allowing them to escape boredom. Affiliation theories emphasize the altruistic and social nature of human beings seeking affection and acceptance in interpersonal

relations. Finally, assertion paradigm conceives of individuals as seekers of success, admiration, power and dominance.

2.4.3 Shopping-Based Motivation Taxonomies

In marketing discipline, motivation has been examined in the context of consumer shopping behavior. Tauber (1972) suggested that people's motives to shop were not limited to product acquisition. He argued that consumers derived satisfaction from shopping activities in addition to utility from the merchandise that might be purchased as a result of shopping. His exploratory study based on in-depth interviews revealed a number of personal and social motives that led consumers to a store. Personal motives included role enactment (i.e., being a shopper), diversion from daily routine, self-gratification (i.e., rewarding oneself), learning about new trends and innovations, physical activity, and sensory stimulation. Social motives comprised interaction with others outside of the home, communication with people who share similar interests, affiliation with reference and peer groups, an opportunity to command attention, and the pleasure derived from bargaining and negotiation. Westbrook and Black (1985) noted several important consistencies between Tauber's framework and many of the major theoretical paradigms discussed by McGuire (1974). Specifically, the role enactment motive may be directly related to McGuire's **identification** theories; sensory stimulation, diversion, self-gratification, and new product learning – to **stimulation** theories; social experiences outside of the home, communication with others, and affiliation with reference groups – to **affiliation** theories, and finally, a need to exert and increase one's social status and authority – to **assertion** theories.

With the aims of devising a motivation-based shopper typology, Westbrook and Black (1985) reviewed the to-date knowledge of shopper types. Their review covered significant ground in research on shopper taxonomies, from Stone's (1954) pioneering work on social links

between urban residents and their community to Bellenger and Korgaonkar's (1980) simplistic categorization of shoppers into recreational and functional economic types. What Westbrook and Black noted was that, despite significant diversity of proposed shopper taxonomies, certain shopper types appeared consistently across the studies. These types are economic, social, and apathetic shoppers (Stone 1954; Darden and Reynolds 1971; Moschis 1976; Darden and Ashton 1974-75; Williams, Painter, and Nichols 1978; Bellenger and Korgaonkar 1980). Using McGuire's (1974) work as a conceptual springboard, Westbrook and Black extended Tauber's research by proposing seven major dimensions of shopping motivation: anticipated utility, role enactment, negotiation, choice optimization, affiliation, power and authority, and stimulation. This study of consumer channel preferences adopts five of these shopping motives. Specifically, it examines the effects of role enactment, choice-optimization, affiliation, power and authority, and stimulation (sensory and cognitive) in directing consumer channel choices.

Developments since Westbrook and Black's (1985) work on shopping motivations have centered on shopping behavior patterns in the context of the traditional shopping mall (Roy 1994; Bloch, Ridgway, and Dawson 1994) and the factory-outlet mall (LaBay and Comm 1991; Karande and Ganesh 1998; Reynolds, Ganesh, and Luckett 2002). In addition, marketing researchers have become increasingly interested in understanding consumers' hedonic shopping motivations (Sherry 1990; Babin, Darden, and Griffin 1994; Arnold and Reynolds 2003). For instance, Arnold and Reynolds (2003) have examined such hedonic shopping motivations as adventure shopping, social shopping, gratification shopping, idea shopping, role shopping, and value shopping. Their adventure and social shopping motivations are very similar to the stimulation and affiliation motives proposed by Westbrook and Black (1985). Idea shopping motivation is somewhat similar to the cognitive stimulation motive. Finally, role shopping and

value shopping are similar to Westbrook and Black's role enactment and choice-optimization motives.

Some of the early efforts to develop a typology of online shoppers have been made in the context of online grocery retailing. Rohm and Swaminathan (2004) used such motives as shopping convenience, information seeking, immediate possession, social interaction, recreational shopping, and variety seeking to classify online grocery shoppers. Their analysis produced several shopper types: the variety seeker, the balanced buyer, the store-oriented shopper, and the convenience shopper. The variety seeker displays a dominant variety-seeking motive and a moderate desire for shopping convenience, including time and effort savings. The balanced buyer appears to have moderate levels of all shopping motives. The store-oriented shopper is characterized by the lowest level of online shopping convenience and the strongest physical store orientation that reflects the needs for immediate possession and social interaction. Finally, the convenience shopper is motivated primarily by the prospects of the overall online shopping convenience while also exhibiting a low level of physical store orientation.

Comparing the traditional and online shopping taxonomies discussed above reveals certain consistencies. First, both recognize that shopping is a complex behavior satisfying a variety of social, experiential and economic needs. In addition, there are significant overlaps in some shopper types, suggesting that motivations are closely associated with consumers' channel preferences. For instance, store-oriented shoppers in the online grocery consumer typology were motivated by the same social and gratification needs as shoppers in Arnold and Reynolds' research (2003). They viewed shopping primarily as a recreational activity and therefore, were not concerned with saving the time and effort involved in shopping. In contrast, convenience shoppers enjoyed making purchases online because of the efficiency and convenience of online

transactions. This convenience motivation was not examined in traditional shopping taxonomies, yet it plays an important role in defining online shopping behavior.

2.4.4 Consumption Efficiency Motive

Whatever limited research exists in the area of online shopping taxonomies, it clearly suggests that some consumers view their time spent shopping as an opportunity cost. Shopping is an integral part of human existence, yet more and more people find it difficult to allocate time for this activity. The socio-cultural and economic changes have created a time-impoverished society, where people spend more time working than enjoying the fruits of their labor. In such a society, people are under constant pressure to allocate the little free time they get after work between family and household chores. Hence, there has been a growing demand for time saving services such as personal shopping, housecleaning, dog-walking, babysitting, housekeeping services, and so on. In addition, this time saving trend may be credited for the speed and ease with which consumers have adopted the Internet as a distribution channel.

In sum, consumption efficiency is an important motivation that can explain why people choose to shop online, even if they are required to pay shipping fees and wait a few days for the delivery. No study of online shopping behavior would be complete without this motivational factor. To date, however, none of the traditional taxonomies have studied consumption efficiency. Hence, the purpose of this section is to provide a new theoretical background for the efficiency motivation, while emphasizing its importance in explaining contemporary shopping behavior.

Roth and Swaminathan (2004) limited the conceptual definition of the shopping convenience motive to the time and effort savings associated with the shopping process. Nonetheless, the convenience construct may in fact have a broader conceptual domain. For instance, some shoppers may define convenience in terms of being able to take immediate

possession of a purchased product or having multiple payment options. Hence for the purpose of this dissertation, the convenience motive is referred to as consumption efficiency. This narrowly defined construct focuses specifically on minimizing secondary shopping costs such as effort, time, and psychological discomfort.

Downs' (1961) theory of consumer efficiency has propelled major transformations in the field of retailing. The central hypothesis of his theory states that consumers seek to minimize the costs of consumption: money, time, and energy. Monetary outlay includes the costs of purchased goods, transportation and parking, and any income foregone by using time shopping. Time costs refer to the time spent traveling to a store, parking, moving from the car to a store and between stores, and selecting and paying for goods in each store. Energy costs involve the energy spent during shopping, including the effort involved in carrying packages and taking care of children while shopping as well as the frustration caused by fighting traffic, dealing with crowds, finding parking, waiting in lines, and so forth. Downs has pointed out that these consumption costs are not of the same importance to all consumers, or to any one consumer at every moment or concerning all types of shopping. In general, the relative importance of each type of cost varies significantly, depending on such factors as consumer income, prices, degree of product standardization, and the time pressure under which particular consumers act. Using his theory as a conceptual backdrop, Downs (1961) predicted a "retail revolution" characterized by retailers' continuous efforts to find new ways to make shopping more efficient. Commercialization of the Internet has not only fulfilled Downs' prophesy but has also revolutionized retailing beyond his most daring expectations. The Internet has enabled consumers to minimize the so-called fixed costs of money, time and energy that are necessarily incurred on a shopping trip while also reducing the variable costs of consumption (e.g., not being able to find the necessary product).

Time as an economic commodity received substantial attention from economists (Mincer 1963; Becker 1965; Lancaster 1966; Mabry 1970). The economic perspective on time derives largely from the so-called "new approach to consumption theory" (Gronau 1973), which has its roots in the works of Becker (1965) and Lancaster (1966). This view asserts, in part, that consumers desire to maximize utility subject to not only monetary constraints, but also time constraints (Wilson and Holman 1980). Schary (1971) has pointed out that "the value of either time or money is not inherent in itself, but only in the act of producing satisfaction" (p. 51). Every purchasing decision involves the allocation of both of these resources within absolute budgetary constraints. Consumers' perceptions of opportunity costs impact their valuation of time and money (Mincer 1963; Nichols, Smolensky, and Tideman 1971; Marmorstein, Grewal, and Fishe 1992) and in the end, the relative importance of these resources dictates consumer choices (Thompson 1971), including retail channel decisions.

Cultural changes in the United States such as the fast-growing number of women in the work force and the increasing amount of time allocated to activities promoting physical and mental well-being affected a time-saving shift in consumers' meal and shopping habits (Berry 1979; Berkowitz, Walker, and Walton 1979). Intrigued by these changes, marketing researchers have begun studying the role of time in consumer behavior. Conceptualized as a secondary purchase cost (Bender 1964), time has been shown to affect a consumer's choice of shopping strategy (Holman and Wilson 1982; Berry and Cooper 1992) and store patronage intentions (Baker, Parasuraman, Grewal, and Voss 2002). For example, Berkowitz et al. (1979) found that in-home food shoppers chose to shop at home because they placed higher value on convenience and harbored more negative attitudes toward shopping activities. Further, in-home shoppers appeared to be more concerned with the time it took to shop rather than the cost of goods. Thus,

an analogy can be drawn between in-home food shoppers (Berkowitz et al. 1979) and the modern website shoppers.

Marketing researchers have also investigated the effects of energy and psychic costs (Bender 1964, and Zeithaml 1988), linking them (along with time cost) to negative affective reactions, poor service evaluations (Taylor 1994, Hui and Bateson 1991), lower merchandize value perceptions (Baker, Parasuraman, Grewal, and Voss 2002), and even shopping motives (Eroglu and Harrell 1986).

In sum, the above review of economic and marketing literature strongly suggests that consumption efficiency is an important shopping motive that should be investigated in relation to consumer shopping behaviors. Some shoppers are likely to be highly sensitive to the secondary costs of shopping (time, energy, and psychic costs) due to their lifestyles or personalities. As a result, these efficient shoppers are likely to make shopping decisions allowing them to minimize secondary costs, even if these decisions result in higher monetary costs.

2.4.5 Proposed Shopping Motivations

All consumers are social beings who need to experience the world through tactile input while also allocating sufficient time for daily responsibilities such as family and work. Also, income is a constrained resource requiring consumers to make important budget-allocation decisions. Hence, it is reasonable to expect that shopping behavior is driven by multiple motivations: social, experiential, efficiency, and economic. Nonetheless, these various inner forces differ in the amount of influence they exert on behavior (Bellenger et al. 1977). Research on motivation-based taxonomies (Darden and Reynolds 1971; Darden and Ashton 1974-75; Moschis 1976; Williams et al. 1978; Bellenger and Korgaonkar 1980; Westbrook and Black 1985; Arnold and Reynolds 2003) provides ample evidence suggesting that consumers' shopping motivations differ in strength. Depending on the dominant motivations, consumers will seek

certain benefits from a shopping experience and therefore, will favor the channel that is capable of delivering desired utilities (Bellenger, Robertson, and Greenberg 1977). In sum, consumers prioritize different shopping benefits according to their motivational hierarchy. This prioritization in turn influences how consumers evaluate different channels and determine which channel provides the most utility.

This study examines affiliation, power/authority, sensory and cognitive stimulation, role enactment, choice-optimization, and efficiency motivations. Efficiency, which captures a person's need to acquire a product while minimizing the secondary costs of shopping such as time, effort, and psychic costs (Downs 1961, Bender 1964, and Zeithaml 1988), is conceptually based on Downs' **theory of consumer efficiency**. The remaining motivations are well-grounded in existing research on shopping motivations (Tauber 1972, Westbrook and Black 1985; Arnold and Reynolds 2003). Affiliation motive is conceptually derived from **affiliation** theories, while power and authority motivations are based on **assertion** theories (McGuire 1974). Sensory and cognitive stimulation motivations are grounded in **stimulation** theories (McGuire 1974). Role enactment motive is directly related to Tauber's (1972) role playing shopping motivation and is based on **identification** theories (McGuire 1974). Choice-optimization motive, which was initially proposed and empirically tested by Westbrook and Black (1985), is conceptually related to **utilitarian** theories.

In the proposed conceptual model, these shopping motivations are grouped according to their relevance to shopping process and product acquisition. Specifically, affiliation, power/authority, sensory stimulation, efficiency, and cognitive stimulation motivations describe the qualitative aspects of a shopping experience, and therefore are grouped together as shopping process motivations. In contrast, role enactment and choice-optimization motivations refer to a consumer's need to acquire a product. Hence, they are categorized as product acquisition

motivations. The following section discusses technology factors (technology anxiety and IT use innovativeness) and their relationships to consumers' channel preferences.

2.5 Technology Factors

The success of online transactions depends not only on the trustworthiness of both parties to the exchange (i.e., sellers and buyers) but also on the reliability of the technology used in facilitating online exchanges. When deciding on whether to make an online purchase, consumers also consider their general feelings toward the Internet. Hence, two technology factors are proposed to influence consumers' willingness to shop on the website of a multi-channel retailer: namely, **IT Use Innovativeness** and **Technology Anxiety**. These factors are expected to relate differently to online shopping behavior. IT use innovativeness is proposed to encourage online shopping, while technology anxiety is likely to have an opposite effect. The following sections provide a detailed discussion of each technology factor.

2.5.1 Internet Technology (IT) Use Innovativeness

Use innovativeness of shoppers is a personal characteristic that describes consumers as being experimental and having an inclination to try different things (Shih and Venkatesh 2004). It is a tendency of the consumer to act in an innovative fashion when he/she uses a previously adopted product to solve a novel consumption problem (Hirschman 1980). Creative and curious individuals are likely to exhibit higher levels of use innovativeness (Price and Ridgway 1983) because they have an enhanced ability to mentally manipulate a consumption problem (Hirschman 1980). Price and Ridgway (1983) have demonstrated that use innovativeness is related to the use of a previously adopted product in a single, novel way or in a variety of ways. They contend that use innovativeness leads to variety-seeking in the usage context because consumers with high levels of use innovativeness tend to be more creative and may try to use the product in multiple ways. Similar positive relationship between use innovativeness and variety

of use has been found in the contexts of product (Ram and Jung 1989) and home technology usage (Shih and Venkatesh 2004).

For the purpose of this dissertation, the conceptual domain of use innovativeness has been limited to reflect its focus on the consumer's use of the Internet. Specifically, IT use innovativeness has been defined as an individual characteristic describing a person's tendency to seek novel uses of the Internet technology. Drawing on the previously discussed research, it is proposed that consumers with high levels of IT use innovativeness would seek new applications of the Internet technology that expand their capabilities beyond electronic communication and information search. To satisfy their curiosity, innovative consumers may spend time and effort exploring various features of the retailer's website, including its transactional capabilities. This process of discovering new website applications is likely to result in greater functional and hedonic benefits to the consumer. Hence, it is expected that IT use innovativeness would have a positive effect on consumer preference for online shopping.

2.5.2 Technology Anxiety

Another important factor that is likely to impact the extent of consumer use of the Internet is technology anxiety, defined as the fear, apprehension, and hope people feel when considering use or actually using technology. This definition has been adapted from a related concept that has been the emphasis of research in the management and education literature – computer anxiety. Anxiety associated with computer use is characterized by "excessive timidity in using computers, negative comments against computers and information science, attempts to reduce the amount of time spent using computers, and even the avoidance of computers in the place where they are located" (Doronina 1995). Technology anxiety is different from computer anxiety in that it focuses on a user's state of mind regarding his/her ability and willingness to use

general technology tools, whereas computer anxiety is more narrowly focused on anxiety related to personal computer usage (Meuter, Ostrom, Bitner, and Roundtree 2003).

Studies have shown that computer anxiety is a fairly common phenomenon among American consumers. For instance, one study showed that 55 percent of Americans suffered from some degree of technophobia, while other research suggested that millions of American workers and one-third of college students experienced computer-related anxiety (cf. Meuter et al. 2003). These studies were conducted almost ten years ago, and it is quite possible that since then Americans have become more comfortable using computers. Nonetheless, the emergence of the Internet and other forms of self-service technology has posed new challenges that fuel consumers' anxiety over their abilities to operate these new technology tools.

The knowledge accumulated in researching computer anxiety can be logically applied to anxiety in relation to technology in general. For instance, Igbaria and Parasuraman (1989) have linked computer anxiety with the negative attitude towards computers. Similarly, Meuter et al. (2003) have shown that higher levels of technology anxiety are related to lower satisfaction with the self-service technology interaction and decreased likelihood of using the same self-service technology option in the future. Furthermore, their study suggests that higher levels of technology anxiety decrease the use of self-service technologies in general.

This dissertation is concerned with only one self-service technology tool – the Internet. It is proposed that some consumers may experience anxiety with the Internet because of their lack of understanding of the processes underlying electronic data transfer. As a result, consumers with high levels of technology anxiety are likely to limit their use of the Internet to simple activities such as browsing and e-mail.

In sum, both IT use innovativeness and technology anxiety are proposed to influence consumers' preferences for shopping in the store or on the website. Specifically, IT use

innovativeness will relate to online shopping behavior, while technology anxiety will describe store shopping.

2.6 Shopping Risks

Arm's-length transactions are generally riskier than high contact exchanges, such as store shopping. Shoppers face uncertainties at every stage of the purchasing process: from product selection to after-purchase processes, including returns, exchanges, repairs and so on. Online shopping has additional risks associated with credit card fraud and violating the customers' right to privacy. Hence, security and purchase risk perceptions are examined for their possible relationships to consumers' shopping channel preferences.

2.6.1 Online Security Risk

Consumers' concern with security of online transactions has been empirically linked to their attitude towards online shopping (Jarvenpaa and Todd 1997; Vellido, Lisboa, and Meehan 2000; Szymanski and Hise 2000; Forsythe and Shi 2003; Park and Kim 2003; Montoya-Weiss, Voss, and Grewal 2003). For instance, 30 percent of the respondents in Jarvenpaa and Todd's (1997) study stated that credit-card-related concern was the key impediment to their participation in electronic transactions. Similarly, Forsythe and Shi (2003) report that 23 percent of the respondents in their study named online security risk as the key issue that might prevent them from shopping online.

In contrast to the abundant exploratory work that simply identifies important consumer risk factors in the electronic environment, this study goes a step further to propose that online security risk influences consumer shopping channel preferences. Using the theory of perceived risk as a theoretical foundation, it is suggested that online security risk induces psychological discomfort, which shoppers try to reduce by finding alternative ways to make purchases. As a result, shoppers with high levels of online security risk are likely to favor store shopping,

because it allows them to acquire a product without being exposed to security risk associated with online transactions. Some preliminary evidence in favor of this argument comes from the work of Montoya-Weiss et al. (2003). In their study, online security risk perceptions had a negative effect not only on overall satisfaction with the multi-channel provider but also on the use of the online channel. Similarly, Forsythe and Shi (2003) have found that perceived online security risk, which they identified as perceived financial risk, has a negative effect on frequency of searching with intent to buy, amount spent on the Web, and frequency of purchasing online.

2.6.2 Purchase Risk

For the purpose of this dissertation, purchase risk has been defined in the context of Internet shopping. Thus, purchase risk refers to a consumer's perceptions about the possible loss of money and time as well as the inconvenience associated with the process of buying a product online. Specifically, purchase risk perceptions reflect a consumer's uncertainty about the e-tailer's ability and willingness to fulfill its transactional obligations such as order-filling, billing, and delivery in the best interests of the customer. This definition of purchase risk is conceptually similar to two types of perceived risk that have been explored elsewhere in the context of online shopping, as economic risk (Jarvenpaa and Todd 1997) and time/convenience risk (Forsythe and Shi 2003).

Economic risk is the monetary loss associated with buying a product online, including both the loss incurred due to a poor purchase decision and the loss associated with buying a product that cannot be returned or paying for a product and not receiving it. The similarity between the proposed concept of purchase risk and economic risk is that both refer to consumer concerns about being unable to return the purchased product or paying for a product and not receiving it. Time and convenience risk refers to the possible loss of time and inconvenience incurred due to difficulty of navigation and/or submitting an order, finding appropriate websites,

or delays receiving products (Forsythe and Shi 2003). The proposed conceptualization of purchase risk is similar to time/convenience risk in that it also deals with the loss of time and inconvenience resulting from inaccurate order-filling and delayed product delivery. The main difference between purchase risk and economic and time/convenience risks is that purchase risk focuses on consumer concerns about possible failures in the e-tailer's product fulfillment process while the other types of risk have broader conceptual domains that also include factors related to online shopping in general.

Since the 1960s, the theory of perceived risk has been used to explain consumer behavior. Considerable research has examined the impact of risk on traditional consumer decision making (Taylor 1974), showing that perceived risk is associated not only with what is being purchased, but also with how and where it is being purchased (Hisrich, Dornoff, and Kernan 1972). Consumers perceive risks in most store purchase decisions (Cox 1967) and higher risk in in-home shopping such as ordering by telephone or mail (Akaah and Korgaonkar 1988). Existing research suggests that consumers consider in-home shopping a higher-risk strategy due to the following reasons: 1) lack of opportunity to examine products prior to a purchase; 2) difficulty in returning faulty merchandise, and 3) frequent suspicion of business ethics of certain mail-order operations (Spence, Engel, and Blackwell 1970; Gillett 1970). The same reasons may explain why consumers perceive Internet shopping to have higher risk than in-store shopping (Tan 1999; Donthu and Garcia 1999).

The perceived risk theory posits that increased uncertainty about the outcome of a purchase will lead to increased reluctance to engage in purchase activities (Forsythe and Shi 2003). Hence, it is proposed that consumers with higher perceptions of purchase risk associated with online shopping would prefer to make purchases in the multi-channel retailer's store than on its website. This proposition is also consistent with Forsythe and Shi's findings suggesting that

some Internet shoppers may hesitate to shop on the Internet due to concerns about inconvenience or delays in receiving merchandise.

In sum, both purchase risk and security risk have important implications for consumers' shopping channel preferences. Specifically, shoppers with higher perceptions of either purchase risk or security risk are expected to have a stronger preference for store shopping.

2.7 The Conceptual Model

This section presents the proposed conceptual model, including assumptions and hypotheses. Assumptions are discussed first, followed by a description of the process used by consumers in choosing their preferred shopping channel. The remainder of the chapter focuses on developing hypotheses. Definitions of the constructs can be found in Appendix A.

2.7.1 Assumptions

Figure 2.1 depicts the proposed conceptual model describing how consumers form their shopping channel preferences. The model is based on three fundamental assumptions that define conceptual boundaries of this investigation. The first two assumptions relate to the type of consumer being considered, while the third defines types of retailers appropriate for study with this model. It is critical to note that the assumptions in this study relate to **true** choices, not forced choices.

The first assumption deals with the characteristics of the target shopper. The focus of this study is specifically on a hybrid consumer who has some experience with Internet technology (Wind et al. 2002). Wind et al. point out that hybrid consumers are not homogeneous in their shopping channel preferences, some using the Internet for their information needs but preferring to go to a physical store to purchase goods and services. This limited use of Internet technology may be due to a number of factors, including the general anxiety experienced when using the Internet and a lower level of innovativeness, inhibiting a consumer's desire to explore various

applications of the Internet. The effects of these technology-related factors are explored in this study.

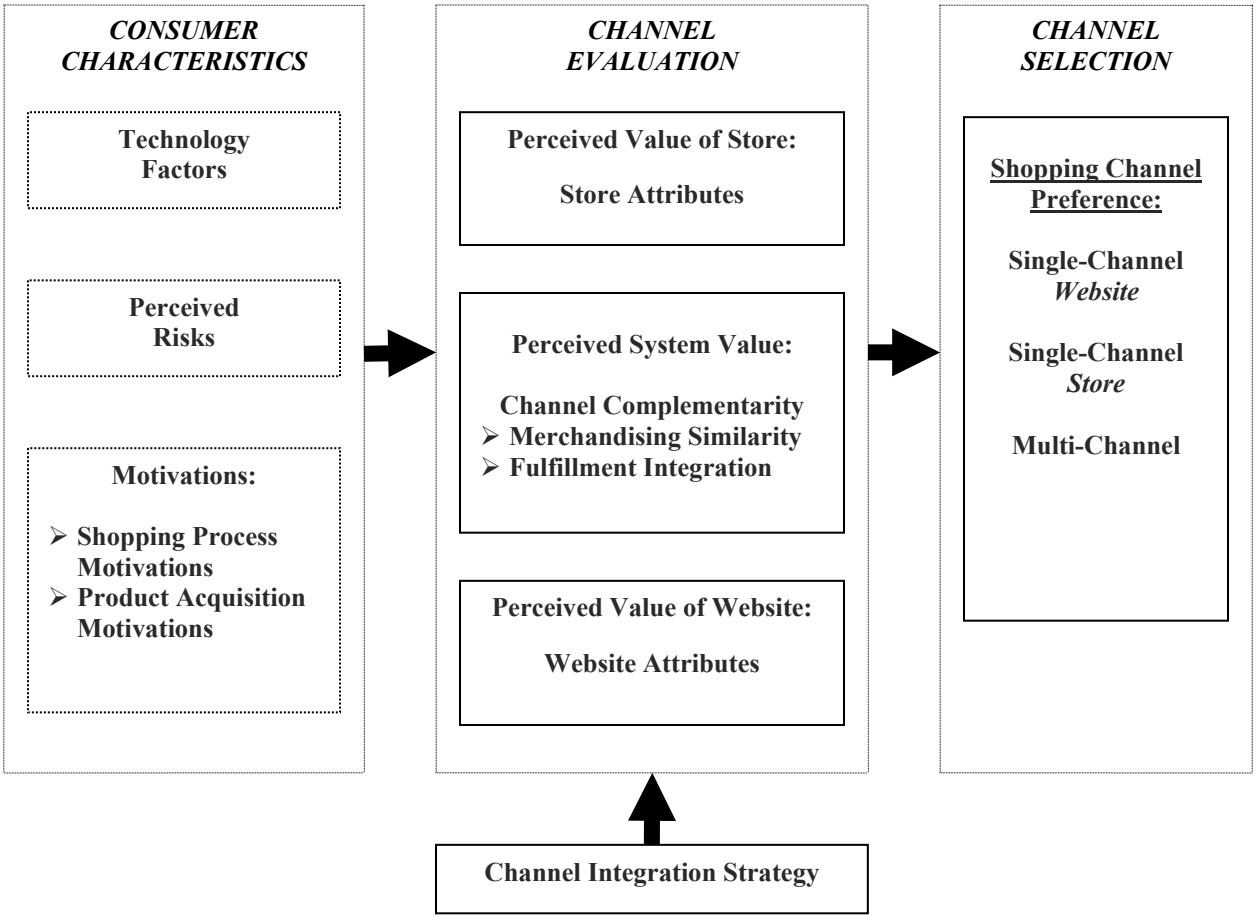

Figure 2.1 Conceptual Model of Consumer Multi-Channel Shopping Behavior

The second assumption deals with consumer access to the retailer's online and physical distribution channels. Specifically, it is assumed that the target customer: 1) knows about the retailer's multiple distribution channels and 2) has access to all of the retailer's distribution channels (i.e., computer and Internet access – for online shopping, location of the retailer's store within the customer's geographical area – for store shopping).

The final assumption refers to the characteristics of the target retailer. The model presumes that the retailer under discussion is using a multi-channel distribution strategy. This

means that both online and physical channels are, at a minimum, transaction-enabled. This study manipulates the degree of complementarity between channels in terms of fulfillment integration and merchandising similarity in order to examine its effects on consumers' channel preferences.

2.7.2 Process of Choosing a Preferred Shopping Channel

Consumers' shopping channel preferences are a function of their perceived channel utilities. First, shoppers mentally construct the overall channel value by weighing different salient shopping experience benefits in terms of their desirability and the channel's ability to deliver these benefits before summing them up into an overall "score." Next, consumers compare the overall channel values and select the one with the highest "score." This is likely done intuitively, without cognitively demanding and tiring mathematical calculations (Louviere 1988).

Furthermore, consumer characteristics such as shoppers' attitude toward technology (technology anxiety and IT use innovativeness), perceived risks (purchase risk and security risk) and shopping motivations are likely to exert a strong influence on consumers' channel evaluations. These consumer characteristics are reflected in the utility assessments consumers make regarding attributes and the importance of these attributes in defining the benefits that consumers seek from shopping.

2.8 Hypotheses

Based on the theoretical discussion presented earlier in this chapter, several sets of hypotheses are proposed, addressing: 1) the effects of store, website, and complementarity attributes on their respective channel utilities, 2) the effects of consumer characteristics (i.e., shopping motivations, technology factors and perceived risks) on evaluations of channel complementarity and finally, 3) the impact of these consumer characteristics on the attribute importance of channel complementarity when choosing among store, website, and multi-channel alternatives.

In evaluating these hypotheses, channel utility is defined as the total utility across all channel attributes. The attributes will explicitly represent store utility, website utility, and multi-channel (complementarity) utility. Basic store and website attributes are included to ensure the realism of their respective channel alternatives as well as of the multi-channel choice, which includes both sets of attributes. Furthermore, merchandising similarity, one of the two basic elements of channel complementarity, is proposed to have a positive curvilinear relationship in that levels of less than complete similarity (i.e., some diversity of certain merchandising elements) are actually more preferred than complete similarity. These effects will be discussed in more detail in a later section.

2.8.1 Channel Attributes and Channel Utility

The first set of hypotheses relates various channel attributes (store, website or channel complementarity) to overall channel utility. The focal hypotheses in this section, and the entire dissertation, address how channel complementarity attributes of merchandising similarity and fulfillment integration relate to multi-channel utility. Specifically, it is proposed that unlike fulfillment integration that has a positive linear relationship with multi-channel utility, where higher levels of integration are always preferred to the lower ones, merchandising similarity exhibits a positive curvilinear relationship. That is, medium levels of merchandising similarity provide consumers with greater utility than the high and low levels of merchandising similarity.

This section is organized as follows. First the relationships of store attributes and website attributes to their respective channel utilities are discussed. Although these hypotheses seem intuitive, they provide an important benchmark to judge the validity of conjoint model estimates. Then, the discussion focuses on the relationships of fulfillment integration and merchandising similarity attributes (product variety, brand assortment, discounts, rebates and price similarity) to multi-channel utility.

2.8.1.1 Store Attributes and Store Utility

This section describes the predicted positive linear relationship for the levels of store attributes, stating that favorable attribute levels are more preferred than unfavorable ones in determining the utility of traditional retail stores. This relationship will apply to the store attributes of store atmosphere, product displays and customer service. For the effect of store location, it is expected that consumers would have the strongest preference for a store located in a regional shopping center because of its proximity to a large number of other stores. Having an opportunity to shop in many stores without leaving the general shopping area maximizes consumers' overall shopping utility and provides a more enjoyable shopping experience. In contrast, a store located in an isolated area is likely to be least preferred because of a low benefits-to-costs ratio. Specifically, the chances of finding the right product in a single store are relatively low, yet the secondary costs (e.g., time and effort) of traveling to a stand-alone store are the same as, and in some cases even higher than, the costs associated with traveling to a popular shopping area hosting a large number of stores.

Hypotheses 1 through 4 relate to the impact of store attributes on channel preference:

H1: Store atmosphere has a positive linear relationship with store utility.

A pleasant store atmosphere produces greater store utility than unpleasant store atmosphere.

H2: Product displays have a positive linear relationship with store utility.

Attractive product displays produce greater store utility than unattractive product displays.

H3: Store location has a positive linear relationship with store utility.

A store located in a regional shopping center has the highest utility, while a stand-alone store has the lowest utility.

H4: Customer service has a positive linear relationship with store utility.

A high level of customer service has the greatest store utility, followed by medium and low levels of service.

2.8.1.2 Website Attributes and Website Utility

Similarly, the next set of hypotheses relating to channel utility predicts a positive linear relationship for each of the website attributes. That is, favorable levels of website attributes are expected to have a stronger impact on website utility than unfavorable ones. Here five website attributes are evaluated (website design, product information quality, entertainment value, shipping charges and delivery time) for their influence on channel preference. The five hypotheses (H5 through H9) are stated as:

H5: Website design has a positive linear relationship with website utility.

A website with organized pages has greater utility than a website with cluttered pages.

H6: Product information quality has a positive linear relationship with website utility.

A website with detailed product information has greater utility than a website with basic product information.

H7: Entertainment value of a website has a positive linear relationship website utility.

A highly entertaining website has greater utility than a less entertaining website.

H8: Shipping charges have a negative linear relationship with website utility.

Low shipping charges produce the highest website utility, followed by medium and high shipping charges.

H9: Delivery time has a negative linear relationship with website utility.

Short delivery times produce the highest website utility, followed by medium and long delivery times.

2.8.1.3 Complementarity Attributes and Multi-Channel Utility

The final type of channel preference relates to the utility of channel complementarity in terms of two value-creating dimensions: fulfillment integration and merchandising similarity. Fulfillment integration is hypothesized (H10) to have a linear relationship with channel complementarity in that higher levels of integration are related to increases in channel utility. Higher levels of integrated fulfillment create more closely integrated channel logistics and thus increase shopping process benefits by allowing customers to use the retailer's channels interchangeably. This positive relationship is seen through all levels of fulfillment integration.

In contrast, four of the five attributes constituting merchandising similarity (product variety, product assortment, discounts and rebates) are hypothesized to exhibit curvilinear relationships in their impact on channel utility (H11 to H14). Only price similarity (H15) is proposed to have a linear relationship. Specifically, consumers are likely to favor complete integration between channels in terms of prices, because consistent prices across channels increase their shopping confidence and reduce the need for price comparisons. For the other four attributes, moderate merchandising integration between channels produces greater perceived complementarity than complete integration. This relationship stems from the diversity between channels and its role in utility maximization.

Moderate similarity between channels in terms of product mix and promotional offers benefits consumers in two different ways. On the one hand, it ensures a certain degree of across-channel diversity, thus providing shoppers with a larger pool of products and promotional offers to consider when making a purchase. At the same time, it contains sufficient overlap in merchandising elements between channels, which results in additional shopping process benefits (e.g., examining a product in the store and buying it later from the website). It should be noted

that this comparative advantage of the medium level of similarity in product variety and assortment is more likely to hold for search products rather than for experience products requiring more extensive product examination prior to purchase and therefore favoring complete duplication of these product factors across channels.

There are two key issues in defining these moderate levels of integration. The first issue is distinguishing between the "dominance" of retail stores versus their website counterparts. To accommodate the distinctions, the five attributes of merchandising similarity (product variety, brands assortment, discounts, rebates and prices) have two variations of the medium level, each reflecting a separate channel. They are referred to as $medium_{website}$ and $medium_{store}$ levels. In the $medium_{website}$ level, the retailer's website has the greater product variety, brands assortment, discounts, rebates or different prices. In the $medium_{store}$ level, the retailer's store is the channel that carries more of or has greater diversity for the above mentioned merchandising elements.

With the two medium levels defined, the second issue to be addressed is the hypothesized utility level between the two and their relationship to the other attribute levels. In terms of comparing the $medium_{store}$ levels of merchandising similarity with the $medium_{website}$ levels, it is hypothesized that the $medium_{website}$ will have a higher perceived utility due to general perceptions about the Internet and its impact on shopping options. Since the medium level, in general, implies a diversity of the merchandising element across the two channels, it seems reasonable to assume that web-based options would be viewed as more capable of providing increased diversity due to its inherent scalability. For example, comparing the website versus store channels, the website always has more capability of providing greater product variety, deeper assortments and more complex and flexible pricing and rebates. As such, whenever diversity is desired by the consumer, the web-based option should be viewed more favorably. This is also reinforced by the results of the depth interviews where consumers evaluated websites

more positively than stores in terms of merchandise selection and promotional offers. Thus, the $medium_{website}$ level of these four merchandising similarity attributes will be hypothesized to be viewed more favorably by consumers that the $medium_{store}$ level of the same attribute.

Given the hypothesized preference of the $medium_{website}$ level over the $medium_{store}$ level, there is still an issue of relating the $medium_{store}$ level to the high level of each of these four attributes. Generally, it is proposed that the high level will be more preferred over the $medium_{store}$ level because it is often associated with greater total offering of products than the $medium_{store}$ level, and it increases consumers' shopping efficiency by minimizing secondary shopping costs. As discussed earlier, shoppers tend to perceive websites more favorably than stores in terms of their capabilities to offer more products, deeper discounts and generally more dynamic pricing. Hence, the high level of similarity between the store and the website assumes that the store would have the same advantages as the website, in addition to shopping process benefits allowing customers to move between channels seamlessly. Moreover, when stores offer moderate diversity in terms of merchandising elements, they require shoppers to visit the store in order to access the entire inventory of products and associated promotions offered by the retailer. This, in turn, increases secondary shopping costs related to allocating time for shopping, traveling to the store, parking and so on. For instance, Pier One, a retailer of imported home furnishings, provides a $medium_{store}$ level of similarity in terms of product lines and promotions (i.e., the store has greater diversity in terms of these merchandising elements than the website). Their website is largely underutilized, providing online and multi-channel shoppers with only a small subset of products that are also available in Pier One stores. Thus, when shopping for home furnishings, online shoppers face a dilemma: if they like Pier One products, then they have to go to the nearest Pier One store to see everything this retailer sells. If they don't want to make a store trip, then they have to shop for furnishings elsewhere on the Internet.

The final six hypotheses (H10 through H15), defining the relationships of channel attributes (in this case complementarity) to multi-channel utility, are:

H10: Fulfillment integration has a positive linear relationship with multi-channel utility.

A high level of fulfillment integration produces the greatest multi-channel utility, followed by medium and low levels of fulfillment integration.

H11: Product variety similarity has a positive curvilinear relationship with multi-channel utility.

For a search product, the $medium_{website}$ level of product variety similarity produces the greatest multi-channel utility, followed by high, $medium_{store}$ and low levels of product variety similarity.

H12: Product assortment similarity has a positive curvilinear relationship with multi-channel utility.

For a search product, the $medium_{website}$ level of product assortment similarity produces the greatest multi-channel utility, followed by high, $medium_{store}$ and low levels of product assortment similarity.

H13: Discounts similarity has a positive curvilinear relationship with multi-channel utility.

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The $medium_{website}$ level of discounts similarity produces the greatest multi-channel utility, followed by high, $medium_{store}$ and low levels of discounts similarity.

H14: Rebates similarity has a positive curvilinear relationship with multi-channel utility.

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The $medium_{website}$ level of rebates similarity produces the greatest multi-channel utility, followed by high, $medium_{store}$ and low levels of rebates similarity.

H15: Price similarity has a positive linear relationship with multi-channel utility.

A high level of price similarity produces the greatest multi-channel utility, followed by medium and low levels of price similarity.

2.8.2 Consumer Characteristics and Channel Complementarity Attributes

The second set of hypotheses (H16 through H30) addresses the propositions that consumer characteristics such as shopping motivations, attitude toward technology (technology anxiety and IT use innovativeness) and perceived risks are likely to relate to how consumers

evaluate the degree of complementarity between the store and the website of a multi-channel retailer. Consumer characteristics are examined only in relation to four merchandising similarity attributes (product variety similarity, brand assortment similarity, discounts, and rebates similarity). Their relationship to price similarity is not examined as all consumers, regardless of motivation, attitude toward technology, or perceived risks, are believed to desire price consistency across channels.

Generally, it is proposed that store-shopping motivations (affiliation, power/authority, and sensory stimulation) will have a positive relationship with the $medium_{store}$ level of merchandising similarity attributes, such that higher levels of these motivations relate to increases in consumers' evaluations of the $medium_{store}$ level of merchandising similarity. In contrast, website-shopping motivations (cognitive stimulation and efficiency) will relate positively to the $medium_{website}$ level of merchandising similarity. These reverse relationships will also be evident in how store shoppers and website shoppers evaluate fulfillment integration. In particular, higher levels of store shopping motivations will relate to both less favorable evaluations of high fulfillment integration and less negative evaluations of low fulfillment integration. In contrast, website shopping motivations are expected to have a positive relationship with high fulfillment integration and a negative relationship with low fulfillment integration.

The relationships of technology anxiety and IT use innovativeness will closely mimic the relationships of store-shopping and website-shopping motivations respectively. Thus for example, higher levels of technology anxiety will be associated with higher evaluations of the high and $medium_{store}$ levels of merchandising similarity and lower evaluations of the low level of merchandising similarity. The relationship between technology anxiety and fulfillment integration will be similar to that of store-shopping motivations.

Finally, risk perceptions are proposed to have the same relationships to channel complementarity because they both create a stronger preference for store shopping. As a result, their relationships to merchandising similarity and fulfillment integration will be very similar to the relationships of store-shopping motivations and technology anxiety.

The following sections first discuss how store-shopping motivations, which include affiliation, power and authority and sensory stimulation, relate to channel complementarity. Then the relationships of website-shopping motivations (cognitive stimulation and efficiency) are considered, followed by a discussion of technology factors (technology anxiety and IT use innovativeness) and perceived risks (security risk and purchase risk).

2.8.2.1 Store-Shopping Motivations

The first set of hypotheses in this section (H16 through H18) examines relationships between shopping process motivations closely associated with store shopping (affiliation, power and authority, and sensory stimulation) and consumers' evaluations of channel complementarity. In particular, these store-shopping motivations are proposed to have a positive relationship with consumers' evaluations of the $medium_{store}$ level of merchandising similarity attributes. In addition, it is proposed that these motivations relate to how consumers evaluate high and low levels of fulfillment integration. Specifically, higher levels of store-shopping motivations are expected to relate to decreases in consumers' evaluations of high fulfillment integration (negative relationship) and increases in their evaluations of low fulfillment integration (positive relationship). The reasoning for these propositions is explained as follows.

Both store and multi-channel shoppers are proposed to be driven by affiliation, power and authority, and sensory stimulation motives. Given their enjoyment of store shopping, it is likely that these types of customers would favor integration characteristics between the store and the website that increase their value of shopping in the store. $Medium_{store}$ levels of product variety,

brand assortment, discounts, and rebates similarity are such integration characteristics. Specifically, when merchandising differences between channels favor the store with a larger inventory of products and more promotional offers, store shoppers are likely to feel even more justified in their channel preference. Multi-channel shoppers would enjoy such differences as well because of the resultant increase in their overall shopping value.

Affiliation, power and authority, and sensory stimulation motives may also relate to consumers' perceptions of fulfillment integration. Although it has been hypothesized that fulfillment integration preferences would exhibit a positive linear relationship, with the high level being most preferred, followed by medium, low and finally, no integration levels (H10), the extremity of these evaluations is likely to depend on consumers' individual characteristics, including shopping motivations. Namely, consumers with prominent store-shopping motivations (affiliation, power and authority, and sensory stimulation) are likely to be less enthusiastic about having highly integrated store and website, because they rarely take advantage of this shopping benefit. For the same reason, they may not be particularly displeased with a low level of integration between the channels.

The first set of hypotheses (H16 through H18), addressing the relationship between store-shopping motivations and channel complementarity, are stated as:

H16: Store-shopping motivations (i.e., affiliation, power and authority, and sensory stimulation) have a positive relationship with consumers' evaluations of the medium$_{store}$ level of all or any merchandising similarity attributes, except price similarity.

Shoppers with higher store-shopping motivations of a) affiliation, b) power and authority and c) sensory stimulation evaluate medium$_{store}$ level of all or any merchandising similarity attributes more positively than shoppers with lower levels of these motivations.

H17: Store-shopping motivations (i.e., affiliation, power and authority, and sensory stimulation) have a negative relationship with consumers' evaluations of high fulfillment integration between the store and the website.

Shoppers with higher store-shopping motivations of a) affiliation, b) power and authority and c) sensory stimulation evaluate high fulfillment integration less positively than shoppers with lower levels of these motivations.

H18: Store-shopping motivations (i.e., affiliation, power and authority, and sensory stimulation) have a positive relationship with consumers' evaluations of low fulfillment integration between the store and the website.

Shoppers with higher store-shopping motivations of a) affiliation, b) power and authority and c) sensory stimulation evaluate low or no fulfillment integration less negatively than shoppers with lower levels of these motivations.

2.8.2.2 Website-Shopping Motivations

This section proposes several hypotheses (H19 through H21), addressing how shopping process motivations closely associated with website shopping (cognitive stimulation and efficiency) relate to channel complementarity. It is proposed that website-shopping motivations of cognitive stimulation and efficiency have a positive relationship with consumers' evaluations of the $\text{medium}_{\text{website}}$ level of merchandising similarity attributes. In addition, they are expected to relate to consumers' evaluations of fulfillment integration. Specifically, it is proposed that these website-shopping motivations have a positive relationship with high fulfillment integration, such that higher levels of these motivations are associated with increases in shoppers' evaluations of high fulfillment integration. In contrast, higher levels of these motivations are also expected to relate to decreases in consumers' evaluations of low fulfillment integration, thus demonstrating a negative relationship between website-shopping motivations and low level of fulfillment integration. The rationale for these hypotheses is as follows.

Cognitive stimulation and efficiency motives are proposed to describe, at least to some degree, website shoppers' behavior. Just like store shoppers, who may exhibit lower cognitive stimulation and efficiency motives, website shoppers enjoy merchandising consistency between channels and get annoyed when the store and the website appear to have nothing in common. Hence, cognitive stimulation and efficiency motives are not likely to influence how shoppers

evaluate high and low levels of merchandising similarity attributes. The differences, however, between store shoppers and website shoppers become apparent when comparing their evaluations of the $medium_{website}$ level of product variety, brand assortment, discounts and rebates similarity. In contrast to store shoppers who show greater preference for the $medium_{store}$ level of merchandising similarity attributes, website customers favor the $medium_{website}$ level of these integration attributes. The underlying reasoning is fundamentally the same: greater selection of products and promotional offers on the website, compared to the store, increases website customers' shopping value and positively reinforces their decision to shop online.

Cognitive stimulation and efficiency motives may also relate to how shoppers evaluate high and low levels of fulfillment integration. Unlike store shoppers, website shoppers are likely to favor closer integration between the channels, because it allows them to use the store as a supplementary channel, if such need arises (e.g., examine the product prior to purchase or make returns). The same reason explains why website shoppers are likely to have negative perceptions about low fulfillment integration between the website and the store.

The following hypotheses (H19 through H21) define relationships between website-shopping motivations and channel complementarity, and are stated as:

H19: Website-shopping motivations (i.e., cognitive stimulation and efficiency) have a positive relationship with consumers' evaluations of the $medium_{website}$ level of all or any merchandising similarity attributes, except price similarity.

Shoppers with higher website-shopping motivations of a) cognitive stimulation and b) efficiency evaluate $medium_{website}$ level of all or any merchandising similarity attributes more positively than shoppers with lower levels of these motivations.

H20: Website-shopping motivations (i.e., cognitive stimulation and efficiency) have a positive relationship with consumers' evaluations of high fulfillment integration between the store and the website.

Shoppers with higher website-shopping motivations of a) cognitive stimulation and b) efficiency evaluate high fulfillment integration more positively than shoppers with lower levels of these motivations.

H21: Website-shopping motivations (i.e., cognitive stimulation and efficiency) have a negative relationship with consumers' evaluations of low fulfillment integration between the store and the website.

Shoppers with higher website-shopping motivations of a) cognitive stimulation and b) efficiency evaluate low or no fulfillment integration more negatively than shoppers with lower levels of these motivations.

2.8.2.3 Product Acquisition Motivations

It is difficult to predict how product acquisition motivations, which include role enactment and choice optimization, relate to channel complementarity. As previously discussed, both store shoppers and website shoppers are likely to have these motives, thus making it difficult to determine in advance how consumers' evaluations of merchandising similarity attributes and fulfillment integration would differ across the high and low levels of these motivations. Role enactment and choice optimization motives describe a consumer who likes shopping and has extensive experience doing it. This type of consumer takes pride in finding the right product at a good price and may rate his/her shopping skills above those of an average shopper. Hence, it seems logical that shoppers with dominant role enactment and choice optimization motivations would exhibit a stronger tendency toward multi-channel shopping behavior. Yet, one could argue that traditional store shoppers may also have strong role enactment and choice optimization motives. Store shopping is still the most prevalent shopping strategy that consumers learn from an early age. Hence, many consumers would consider store shopping a more natural way to locate and purchase products. In sum, the preferred shopping strategy of consumers with higher role enactment and choice optimization motivations is likely to be influenced by a variety of other personal and situational factors that may include their attitude toward technology, time availability, occupation, education, peer groups, and so on.

In light of the above, no formal hypotheses in regard to how product acquisition motivations relate to channel complementarity are proposed. These relationships will be examined post hoc to gain better understanding of how these motivations influence consumers' evaluations of merchandising similarity attributes and fulfillment integration.

2.8.2.4 Technology Factors

This section proposes four hypotheses (H22 through H25), addressing the relationships between technology factors (technology anxiety and IT use innovativeness) and channel complementarity. Technology anxiety and IT use innovativeness are proposed to have qualitatively different relationships with complementarity. Technology anxiety, for instance, is expected to have a positive relationship with high and $\text{medium}_{\text{store}}$ levels of merchandising similarity attributes, but a negative relationship with the low level of merchandising similarity. In contrast, it is expected that IT use innovativeness would be related negatively to the evaluations of the high level of merchandising similarity, but positively to the $\text{medium}_{\text{website}}$ and low levels of this complementarity dimension. In terms of fulfillment integration, the relationships between these technology factors and fulfillment integration are again reversed. Specifically, technology anxiety is expected to have a negative relationship with the high level of fulfillment integration and a positive relationship with the low level of fulfillment integration. In contrast, IT use innovativeness is expected to relate positively to high fulfillment integration and negatively to low fulfillment integration. Given such differences in technology factors, they are discussed here separately.

Technology Anxiety is likely to influence how consumers evaluate complementarity between the store and the website. Consistent with the earlier discussion suggesting that technology anxiety is likely to influence consumers' preference for store shopping, it is reasonable to propose that shoppers with higher technology anxiety may be particularly

interested in having the same products, brands, promotions, and prices across channels. Such merchandising duplication reassures store shoppers that they have access to the same product selection and the same promotional offers as website customers, thus minimizing the need to engage in cross-channel comparison. Also as store shoppers, they may enjoy having greater merchandise selection and promotional offers than website shoppers. The store advantage in this case reinforces their decision to shop in the store and downgrades the significance of the website as an alternative retail channel.

Furthermore, consumers with higher technology anxiety may be less concerned with fulfillment integration between channels because of their stronger preference for store shopping. Even though it was hypothesized earlier that consumers would generally exhibit the strongest preference for high fulfillment integration and the least preference for the absence of any fulfillment integration between the store and the website (H10), it is possible that shoppers with higher technology anxiety would be less interested in either option. Thus, they are likely to evaluate high fulfillment integration less positively and no fulfillment integration less negatively than other shoppers.

The hypotheses H22 and H23, which define the relationships between technology anxiety and channel complementarity, are stated as:

H22: Technology anxiety has: a) a positive relationship with consumers' evaluations of the high level; b) a positive relationship with consumers' evaluations of the medium$_{store}$ level; and c) a negative relationship with consumers' evaluations of the low level of all or any merchandising similarity attributes, except price similarity.

Shoppers with higher technology anxiety evaluate: a) the high level of all or any merchandising similarity attributes more positively; b) the medium$_{store}$ level of all or any merchandising similarity attributes more positively; and c) the low level of all or any merchandising similarity attributes more negatively than shoppers with lower technology anxiety.

H23: Technology anxiety has: a) a negative relationship with consumers' evaluations of the high level; and b) a positive relationship with consumers' evaluations of the low level of fulfillment integration between the store and the website.

Shoppers with higher technology anxiety evaluate: a) high fulfillment integration less positively; and b) low or no fulfillment integration less negatively than shoppers with lower technology anxiety.

IT use innovativeness may also relate to consumers' evaluations of channel complementarity. Consumers high in IT use innovativeness feel comfortable on the Internet and may have extensive experience making purchases online. However, it does not necessarily follow that this type of customer is a website shopper, who prefers the convenience of online shopping to the experiential and social benefits of store shopping. Innovative consumers, who enjoy exploring various applications of the Internet, may be multi-channel shoppers using both store and website to maximize their overall shopping value. Hence, it seems reasonable that this type of shopper would generally prefer medium levels of merchandising similarity (product variety, brand assortment, discounts and rebates similarity). Being experienced online shoppers, they may even favor website as the source of greater selection of products, brands and promotional offers. As multi-channel shoppers, they may also enjoy greater merchandising diversity between the store and the website of a multi-channel retailer, because it offers a larger selection of products and promotional offers to choose from. In contrast, they are more likely to discount a higher level of merchandising duplication across the channels as a less appealing alternative that reduces their potential shopping value.

In regard to fulfillment integration, innovative consumers are likely to prefer seamless logistical links between the store and the website that would allow them to use both channels to their advantage. Similarly, this type of consumer may be particularly displeased with a multi-channel retailer, whose store and website operate as completely independent entities. Lack of integration between the channels in transactional functions creates additional costs (time, effort,

psychic and monetary) associated with basic steps in consumers' decision making process: information search, evaluation of alternatives, purchasing and post-purchase processes (e.g., returns and exchanges). These costs may not be relevant to store shoppers; however, they are critical for website and multi-channel shoppers because of the greater risk inherent in online purchases.

The above relationships are stated in hypotheses H24 and H25:

H24: IT use innovativeness has: a) a negative relationship with consumers' evaluations of the high level; b) a positive relationship with consumers' evaluations of the medium$_{website}$ level; and c) a positive relationship with consumers' evaluations of the low level of all or any merchandising similarity attributes, except price similarity.

Shoppers with higher IT use innovativeness evaluate: a) the high level of all or any merchandising similarity attributes less positively; b) the medium$_{website}$ level of all or any merchandising similarity attributes more positively; and c) the low level of all or any merchandising similarity attributes less negatively than shoppers with lower IT use innovativeness.

H25: IT use innovativeness has: a) a positive relationship with consumers' evaluations of the high level; and b) a negative relationship with consumers' evaluations of the low level of fulfillment integration between the store and the website.

Shoppers with higher IT use innovativeness evaluate: a) high fulfillment integration more positively; and b) low or no fulfillment integration more negatively than shoppers with lower IT use innovativeness.

2.8.2.5 Risk Perceptions

The set of hypotheses presented in this section (H26 through H30) examines the relationships between perceived risks and consumers' evaluations of channel complementarity. Generally, it is proposed that security risk and purchase risk perceptions relate to both merchandising similarity attributes and fulfillment integration in similar ways. That is, higher levels of these risk perceptions are related to more favorable evaluations of the high and medium$_{store}$ levels of merchandising similarity. At the same time, both security and purchase risks relate negatively to consumers' evaluations of the low level of merchandising similarity.

Furthermore, higher levels of security and purchase risk perceptions are associated with lower evaluations of high fulfillment integration and higher evaluations of low or no fulfillment integration. These propositions are discussed in greater detail in the following.

Security Risk and **Purchase Risk** may both relate to how consumers evaluate merchandising similarity and fulfillment integration. Consumers with a high level of security risk are least likely to be regular online shoppers. This type of shopper feels more comfortable making purchases in a store and may perceive no real value in shopping on the retailer's website. Similarly, shoppers with higher purchase risk perceptions are likely to have a stronger preference for store shopping. These shoppers are worried about losing money and time as well as being inconvenienced as a result of buying a product online. Hence, they choose to shop in a store, where such concerns are significantly minimized due to a customer' ability to inspect the product prior to purchase, to own it immediately after making a payment, and to return or exchange it in real time.

As predominantly store shoppers, consumers with higher security or purchase risk perceptions are likely to desire as much duplication between channels as possible to ensure that by shopping exclusively in the store they are not missing out on better products and promotional offers. For the same reason, these customers may be particularly displeased if the store and the website of the same retailer offer completely different merchandise and promotions. Their tolerance for merchandising differences between the channels is likely to be higher if it is the store that carries a larger selection of products and brands in addition to offering more discounts and rebates.

As discussed earlier in reference to technology anxiety, shoppers with higher perceptions of security or purchase risk are less likely to be interested in fulfillment integration between the

store and the website. As a result, their evaluations of closer channel integration are likely to be less positive, while their judgments about the absence of integration less negative.

Hypotheses H26 through H30 define these relationships as follows:

H26: Risk perceptions (i.e., security risk and purchase risk) have a positive relationship with consumers' evaluations of the high level of all or any merchandising similarity attributes, except price similarity.

Shoppers with higher a) security risk and b) purchase risk perceptions evaluate the high level of all or any merchandising similarity attributes more positively than shoppers with lower risk perceptions.

H27: Risk perceptions (i.e., security risk and purchase risk) have a positive relationship with consumers' evaluations of the $\text{medium}_{\text{store}}$ level of all or any merchandising similarity attributes, except price similarity.

Shoppers with higher a) security risk and b) purchase risk perceptions evaluate the $\text{medium}_{\text{store}}$ level of all or any merchandising similarity attributes more positively than shoppers with lower risk perceptions.

H28: Risk perceptions (i.e., security risk and purchase risk) have a negative relationship with consumers' evaluations of the low level of all or any merchandising similarity attributes, except price similarity.

Shoppers with higher a) security risk and b) purchase risk perceptions evaluate the low level of all or any merchandising similarity attributes more negatively than shoppers with lower risk perceptions.

H29: Risk perceptions (i.e., security risk and purchase risk) have a negative relationship with consumers' evaluations of high fulfillment integration between the store and the website.

Shoppers with higher a) security risk and b) purchase risk perceptions evaluate high fulfillment integration less positively than shoppers with lower risk perceptions.

H30: Risk perceptions (i.e., security risk and purchase risk) have a positive relationship with consumers' evaluations of low fulfillment integration between the store and the website.

Shoppers with higher a) security risk and b) purchase risk perceptions evaluate low or no fulfillment integration less negatively than shoppers with lower risk perceptions.

2.8.3 Consumer Characteristics and Channel Complementarity Attribute Importance

The last conceptual question to be addressed is the extent to which certain consumer characteristics (motivations and purchase risk) relate to shoppers' perceptions of importance of the complementarity attributes. Earlier it was suggested that consumers evaluate different channel attributes in terms of their ability to meet certain needs. Thus, the differences in shoppers' perceptions of importance of different complementarity attributes may be due to some of the consumer characteristics studied in this dissertation.

This section addresses the relationships of shopping motivations and purchase risk to consumers' perceptions of importance of the complementarity attributes. Website-shopping motivations, product acquisition motivations and purchase risk are proposed to have a positive relationship with shoppers' perceptions of importance of fulfillment integration and merchandising similarity attributes. In contrast, store-shopping motivations are likely to relate negatively to the perceived importance of these complementarity attributes. No relationships are specified for technology factors and security risk. That is, technology anxiety and security risk perceptions may influence shoppers' channel preferences regardless of their evaluations of channel complementarity attributes. Shoppers with higher perceptions of either technology anxiety or security risk may choose to shop in the store simply to avoid taking part in online transactions. Thus their decision may come spontaneously, without deliberate consideration of fulfillment integration and/or merchandising similarity attributes. In regard to IT use innovativeness, there is no theoretical basis to relate this technology factor to consumers' perceptions of importance of the complementarity attributes.

2.8.3.1 Shopping Motivations

Earlier it was proposed that store-shopping motivations of affiliation, power and authority, and sensory stimulation would influence consumers' preference for store shopping,

while website-shopping motivations of efficiency and cognitive stimulation would attract consumers to the Internet. In addition, it was suggested that multi-channel shoppers may have both store-shopping (affiliation, power/authority and sensory stimulation motivations) and website-shopping (cognitive stimulation and efficiency) motivations. Yet, there may still be noticeable differences among multi-channel shoppers in terms of which channel they consider primary and which one they use as supplementary. Thus, multi-channel shoppers with dominant store-shopping motivations may use the website for research and occasional purchases, yet spend most of their dollars in stores. In contrast, multi-channel shoppers with prominent website-shopping motivations may spend most of their time and money online and shop in stores on special occasions (e.g., after Thanksgiving shopping) or when making special purchases (e.g., furniture, groceries). Hence, it is proposed that consumers with stronger store-shopping motivations would be less concerned with channel complementarity when choosing among three shopping strategies (store-only, website-only and multi-channel shopping). On the other hand, consumers with higher website-shopping motivations will consider channel complementarity more important when making the same decision.

Product acquisition motivations of choice optimization and role enactment were also proposed to influence consumers' preference for multi-channel shopping. Considering that multi-channel shoppers are particularly concerned with complementarity between the channels, it is proposed that higher levels of product acquisition motivations would relate to greater perceptions of importance of the complementarity attributes.

The above relationships are specified in general terms because it is difficult to predict which consumer characteristics would influence what type of integration attribute. Even though these hypotheses do not define specific relationships between individual motivations and

consumers' perceptions of importance of the complementarity attributes, they help to establish a general relationship between these factors.

2.8.3.2 Purchase Risk

Purchase risk is also proposed to influence consumers' perceptions of importance of complementarity between the channels. In particular, purchase risk relates positively to fulfillment integration, such that higher levels of purchase risk are associated with greater importance of fulfillment integration. In the earlier discussion, it was suggested that shoppers with higher purchase risk perceptions avoid shopping online, because they are afraid to lose money and don't want to deal with the hassle of returns and exchanges, if the purchased product does not meet their expectations. Fulfillment integration between the store and the website helps alleviate some of these fears. Hence, consumers with higher purchase risk may be willing to shop on the website, as long as it is closely integrated with the store in terms of fulfillment.

The four hypotheses (H31 to H34), addressing the relationships between consumer characteristics and complementarity attributes, are stated as:

H31: Any of the store-shopping motivations (i.e., affiliation, sensory stimulation, and power and authority) has a negative relationship with consumers' perceptions of importance of: a) any merchandising similarity attribute (product variety, brand assortment, discounts, rebates, and price similarity); and b) fulfillment integration.

H32: Any of the website-shopping motivations (i.e., cognitive stimulation and efficiency) has a positive relationship with consumers' perceptions of importance of: a) any merchandising similarity attribute (product variety, brand assortment, discounts, rebates, and price similarity); and b) fulfillment integration.

H33: Any of the product acquisition motivations (i.e., role enactment and choice optimization) has a positive relationship with consumers' perceptions of importance of: a) any merchandising similarity attribute (product variety, brand assortment, discounts, rebates, and price similarity); and b) fulfillment integration.

H34: Purchase risk has a positive relationship with consumers' evaluations of importance of fulfillment integration.

2.9 Summary

The purpose of this chapter was to provide a theoretical discussion of the key concept, **Channel Complementarity**, which is proposed to influence the success of a multi-channel strategy. Channel complementarity was defined by two value-creating dimensions: fulfillment integration and merchandising similarity. Thus, the main focus of this chapter was on consumers' preferences for different levels of these complementarity attributes. The secondary research questions addressed the relationships of consumer characteristics to shoppers' evaluations of different levels of the complementarity attributes and their perceptions of importance of the complementarity attributes when choosing among alternative shopping strategies (store-only shopping, website-only shopping and multi-channel shopping). The chapter also discusses the proposed conceptual model and the hypotheses designed to test the above relationships.

CHAPTER 3

RESEARCH DESIGN

The dissertation hypotheses addressing the effects of store, website and complementarity attributes on their respective channel utilities were tested using choice-based conjoint (CBC) analysis. A CBC experiment was designed, wherein respondents were charged with purchasing a digital camera (search product) from either the store, or the website, or both outlets of the same retailer, making their choice on the basis of the attributes describing each of these alternatives. Respondents were also asked to provide their evaluations on a number of individual factors such as shopping motivations, technology factors, perceived risks and general shopping behaviors, which were examined for their effects on channel preferences. This chapter provides a general discussion of conjoint analysis, as well as a description of the qualitative research and pretests, conducted in order to determine relevant attributes, to achieve greater precision of level definitions, and to examine the psychometric properties of the scales measuring individual factors. The chapter concludes with a detailed account of the research design, including a description of the questionnaire used in the study, an overview of the experimental procedure, and a brief discussion of the estimation procedures employed in testing the proposed hypotheses.

3.1 Conjoint Analysis

This section provides a brief overview of conjoint analysis and discusses issues that are specific for this multivariate technique. The decision to use conjoint analysis was based on the following factors: 1) the goal of the study is to predict discrete choices; 2) it uses categorical predictor variables; 3) the models can be estimated at the aggregate and individual levels; and 4) it can accommodate both linear and nonlinear relationships.

Conjoint analysis is a multivariate technique used to understand how respondents develop preferences for products and services. It is based on the premise that consumers evaluate the

value of a product or service by combining the separate amounts of value provided by each attribute. The overall value of the product, or its utility, is a subjective judgment of preference unique to each individual. It encompasses all product or service attributes and is based on the value placed on every level of the attributes. The general form of a conjoint model can be shown as:

$$(\text{Total utility of a product})_{ij\ldots n} = \text{Part-worth utility of level } i \text{ for factor 1} + \\ + \text{Part-worth utility of level } j \text{ for factor 2} + \\ + \text{Part-worth utility of level } n \text{ for factor } m$$

where the product or service has *m* attributes, each having *n* levels (Hair, Black, Babin, Anderson, and Tatham 2005).

Conjoint analysis differs from other multivariate techniques in three distinct areas: 1) its decompositional nature; 2) the ability to provide estimates at the individual level; and 3) its flexibility in terms of relationships between dependent and independent variables (Hair et al. 2005). Conjoint analysis is termed a **decompositional** model because it disaggregates the overall preference to determine the value of each attribute. With conjoint analysis, the researcher needs to know only a respondent's overall preference for a set of attribute levels that make up a product or service profile in order to estimate each level's contribution to the overall utility of the product or service. This is in contrast to **compositional** models such as discriminant analysis and regression, in which respondents need to provide their ratings on many product characteristics, which are then related to some overall preference rating to develop a predictive model. With compositional models, the respondent's product attribute ratings and overall preference ratings are analyzed to "compose" the overall preference from the respondent's evaluations of the product on each attribute.

Conjoint analysis differs from other multivariate techniques in that it can estimate separate preference models for each respondent as well as a single model for a group of respondents. At the disaggregate level, each respondent rates enough stimuli for the analysis to be performed separately for each individual. Predictive accuracy is calculated for each person, rather than only for the total sample. The individual results can then be aggregated to portray an overall model as well.

Finally, conjoint analysis can accommodate both linear and nonlinear relationships between the dependent and independent variables. This technique makes separate predictions for the effects of each level of the independent variable and does not assume they are related. Hence, conjoint analysis can handle even a complex curvilinear relationship, in which one value is positive, the next negative, and the third is again positive (Hair et al. 2005).

3.1.1 Defining Attributes and Levels

The design of conjoint analysis involves specifying the conjoint variate by selecting the factors and levels to be included in constructing the stimuli. In general, the factors and levels must be easily communicated for a realistic evaluation and precisely stated to avoid perceptual differences among respondents as to their actual meaning. In addition, the researcher must consider the number of factors to be included in the analysis as it directly affects the statistical efficiency and reliability of the results (Hair et al. 2005). As factors and levels are added, the increased number of parameters to be estimated requires either a larger number of stimuli or a reduction in the reliability of parameters. Furthermore, the researcher must consider the possibility of multicollinearity among the factors. High inter-attribute correlation denotes lack of conceptual independence among the factors and affects the parameter estimates. In addition, multicollinearity may result in unbelievable combinations of two or more factors. Here the problem lies not in the levels themselves but in the fact that they cannot realistically be paired in

all combinations, which is required for parameter estimation. Finally, efforts should be made to balance or equalize the number of levels across factors because the estimated relative importance of a variable appears to increase as the number of levels increases, even if the end points stay the same (Wittink, Krishnamurthi, and Reibstein 1990, Verlecon, Schifferstein, and Wittink 2002).

3.1.2 Types of Conjoint Methodologies

Traditional conjoint methodology cannot accommodate a large number of attributes and often lacks the realism of the choice task. To address these problems, two alternative conjoint methodologies have been developed: 1) an adaptive conjoint analysis for dealing with a large number of attributes and 2) a choice-based conjoint analysis for providing more realistic choice tasks. The adaptive model utilizes self-explicated values (a respondent's rating of the desirability of each level of an attribute and his/her rating of the relative importance of the attribute overall) in creating a small subset of stimuli selected from a fractional factorial design. The sets of stimuli differ among respondents, and although each respondent evaluates only a small number of them, collectively all stimuli are evaluated by a portion of the respondents (Hair et al. 2005).

Choice-based conjoint (CBC) analysis is used for discrete choice modeling. The main characteristic distinguishing CBC from other types of conjoint analysis is that each respondent expresses preferences by choosing stimuli from sets of stimuli, rather than by rating or ranking them. The choice-based task is similar to what buyers actually do in the marketplace – choose a preferred product or service from a group of products or services.

One of the strengths of CBC is its ability to deal with interactions. In contrast to most conjoint methods that estimate only main effects and ignore the existence of interactions between attributes, CBC automatically evaluates all two-way interactions. Also, unlike the traditional and adaptive conjoint methodologies that estimate utilities at the individual level, CBC provides

estimates that describe preferences of a group. To supplement group estimates with individual-level part-worth utilities, CBC has often been paired with Hierarchical Bayes (HB) method, which uses each individual's choices along with information about the distribution of part-worth utilities for all respondents to estimate individual-level parameters.

3.1.3 Individual vs. Aggregate Results

The advantage of the individual level of analysis is that it allows researchers to account for respondent differences when examining the predictive ability of product or service factors (Renken 1997). At the individual level of analysis, part-worth estimates for each factor are examined for every respondent to assess their magnitude and pattern for both practical relevance as well as correspondence to any theory-based relationships among levels (Hair et al. 2005). The higher the part-worth, the more impact it has on overall utility.

At the aggregate level, conjoint analysis fits one model to the group of respondents, assuming that respondents are homogeneous in their evaluations of the attributes. In this case, part-worth utilities are estimated for the group of respondents, with higher estimates indicating a stronger impact of the attribute level on the overall utility of the product or service for the entire group. Given the heterogeneity of respondents, aggregate models may not be optimal in predicting consumer choices. Hence, it has been generally advised to supplement aggregate models with models estimated at the individual level of analysis. In this study, the HB method is used to generate estimates for each individual, which are then evaluated for possible reversals. Reversals denote a violation of a monotonic relationship between adjacent levels of an attribute. Specifically, reversals reflect an invalid representation of a preference structure, where an estimated part-worth for a level of an attribute is greater or lower than it should be in relation to an adjacent level. The actual procedure will be discussed in more detail in Chapter 4.

In sum, CBC analysis is a very useful technique for predicting discrete choices. It is flexible enough to accommodate both linear and nonlinear relationships, uses categorical variables in predicting choices, and can provide estimates at the aggregate and individual levels. Hence, CBC is the most appropriate method for testing the hypotheses that were proposed in Chapter 2.

3.2 Qualitative Research

The qualitative research design is composed of a focus group and follow-up depth interviews to gain insight to consumer shopping motivations and their perceptions of benefits and costs associated with shopping in a store, on a website, and in both retail channels. The findings also shed light on how shoppers interpret channel complementarity and what role fulfillment integration and merchandising similarity play in consumer perceptions of multi-channel system utility. The discussion of the qualitative research begins with a description of the procedures used in conducting focus group and depth interviews. Then results are summarized, identifying similarities and differences in participants' responses.

3.2.1 Focus Group and Depth Interviews

The focus group was conducted with 20 undergraduate student volunteers enrolled in senior-level marketing class. All participants indicated that they had experience with shopping in the store and on the website of the same retailer. The mediator, a doctoral student in marketing, asked focus group participants to talk about their shopping experience, directing their discussion toward such issues as the process of multi-channel shopping, the advantages and disadvantages of store and website shopping, the benefits of channel integration, the reasons for consumer channel preferences, and the role of various situational factors in determining channel choices. The focus group session was audio-taped and then transcribed. The focus group

participants were also invited to participate in follow-up depth interviews in exchange for extra credit.

Thirteen focus group participants agreed to take part in depth interviews. The individual interviews were audio-taped and then transcribed for the analysis. The interviewee was asked to read several shopper profiles, described in terms of different dominant shopping motivations (social, experiential, efficiency, and cognitive stimulation) and indicate those that most closely described his or her shopping behavior. Then the interviewee was asked a series of questions designed to probe his or her shopping motivations, channel-specific value perceptions, perceived benefits of fulfillment integration, desired levels of merchandising similarity, and the situational factors that may constrain his/her choice of the preferred channel.

The interview findings suggest that some shoppers have well-pronounced channel preferences. Five interviewees indicated that they preferred store shopping, five preferred website shopping, and three respondents stated that they equally enjoyed shopping in the store and on the website thus demonstrating multi-channel preference. The analysis of the interview responses showed that consumers with different channel preferences demonstrated noticeable differences in their shopping motivations, perceived benefits and costs associated with each channel, and the desired levels of merchandising similarity.

Table 3.1 provides a summary of key findings from depth interviews. These findings will also be discussed in more detail in the following sections. Shopper profiles and the depth interview script are provided in Appendix B.

3.2.2 Shopping Motivation Profiles

At the start of the interview, participants were asked to identify their shopper type by reading four different descriptions of a shopper motivated by social, experiential, efficiency, and cognitive stimulation needs, and then selecting one or more descriptions that reflected their own

shopping behavior. Having made their selection, participants were asked to explain how these descriptions fit their own shopping behavior, thus providing a basic form of validation for the self-selection results. These categorizations were used in interpreting interview results.

Table 3.1 Summary of Depth Interviews

Purpose	• Gain insight to consumer shopping motivations and their perceptions of benefits and costs associated with store-, website- and multi-channel shopping; • Explore how consumers define key concepts: channel complementarity, fulfillment integration and merchandising similarity; • Explore what role fulfillment integration and merchandising similarity play in consumer perceptions of multi-channel system utility.

Key Findings	• **Shopping motivations appear to predict channel preferences:** *Store* shoppers had dominant social and experiential motives, *website* shoppers – efficiency and cognitive stimulation motives, *multi-channel* shoppers – social, experiential, efficiency, and cognitive stimulation motives.
	• **Noticeable gender differences**: most women described themselves as store shoppers with dominant social and experiential motives and men – as website shoppers with efficiency and, in some cases, cognitive stimulation motives.
	• **Shopping preferences reflect perceived channel advantages**: Store shoppers listed many more advantages of store shopping than website shoppers and vice versa. Multi-channel shoppers had a more balanced perception of channel advantages.
	• **Greater online security risk among store shopper:** All store shoppers had some concerns with the security of providing their credit card information online.
	• **Greater purchase risk for search products:** All respondents emphasized the importance of assessing the quality of a product (feel, touch, smell) before making a purchase. This was especially true for experience products.
	• **Channel complementarity** means the degree to which multiple retail channels work synergistically to create value. Complementary channels give customers integrated solutions that create more value than the sum of the parts.
	• **Fulfillment integration:** All respondents indicated a desire for greater fulfillment integration.
	• **Merchandising similarity:**
	  • *Product variety and assortment* – Unlike store- and website shoppers, multi-channel shoppers wanted to see more differences between the channels, justifying it by a greater desire for more choices.
	  • *Promotions* – Unlike store- and website shoppers, multi-channel shoppers wanted more promotional differences across channels.
	  • *Prices* – All shopper types wanted identical prices across channels.

Four out of the five shoppers with a store preference identified themselves within two shopper profiles portrayed in terms of dominant social and experiential motivations. They

described shopping as a way to spend time with friends, to fight boredom, and to reward themselves. Only one shopper with a store preference indicated that his dominant motivations were shopping efficiency and cognitive stimulation. He described shopping as a necessary and goal-driven activity that had no recreational value. In this case, the preference for store shopping was primarily driven by the respondent's low tolerance for purchase risk. Accordingly, his value of store shopping was directly tied to the ability to experience the product prior to purchase and to get a salesperson's assistance in product selection.

All five respondents with the website shopping preference chose the shopper profile described in terms of shopping efficiency. In addition, four out of the five interviewees picked the shopper profile with cognitive stimulation as a dominant motive. For these consumers, shopping is nothing more than a means to an end. Their attitude toward shopping is evident from the following statements: "I don't go shopping until I absolutely need something," "shopping is not fun for me," "I hate shopping," "I don't ever go shopping with my friends," "I will go shopping only if I need something immediately," "I will go shopping the day after Thanksgiving, because it is a tradition," and "I will go shopping if I need to get a last-minute gift."

The three multi-channel shoppers identified with the shopper profile described in terms of the dominant social motivation. In addition, each of these respondents chose a different second profile: an experientially-motivated shopper, an efficiency-motivated shopper, and a cognitive stimulation-motivated shopper. Their reasons for shopping included getting the needed product, spending time with friends, and relieving stress and boredom. Mood appeared to play an important role in these shoppers' decision to spend time shopping. Both positive and negative moods impel consumers to go shopping but for different reasons. A shopper in a bad mood views shopping as a distraction that allows her to cope with pressing concerns and problems. In

contrast, a shopper in a good mood considers shopping an opportunity to reward herself and thus sustain or even enhance the positive feeling.

In sum, shopping motivations seemed to be closely related to participants' channel preferences. As summarized in Table 3.1, store shoppers demonstrated dominant social and experiential motivations, while website shoppers talked about efficiency and cognitive stimulation needs. Multi-channel shoppers, on the other hand, exhibited a mix of motivations (social, experiential, efficiency, and cognitive stimulation).

In addition, there were noticeable gender differences in how men and women defined their shopping motivations. Specifically, men often described themselves as website shoppers who were particularly concerned with saving time and, in some cases, engaging in cognitive stimulation. Women, on the other hand, tended to describe themselves as store shoppers with strong social and experiential needs.

3.2.3 Channel Value Perceptions

This section discusses differences in respondents' value perceptions of different channels across motivation-based channel preferences. Specifically, respondents were asked to talk about positive and negative attributes of shopping in a store and on the Internet. Their responses are reported next.

3.2.3.1 Store-Shopping Preference

Respondents with the store shopping preference indicated that the main value-creating factors associated with store shopping were product experience, instant product ownership, no additional transactional costs (shipping and handling charges), and salesperson's assistance. The costs of store shopping included crowding, time spent waiting in lines, noise, and such salesperson's behaviors as inattentiveness toward shoppers and excessive eagerness to make a sale.

All store shoppers recognized the value of the website in simplifying the shopping process. They perceived the retailer's website to be an extension of the store that allows them to research products at their leisure and to order the desired product size or color when none is available in the store. Shipping charges, delivery time, hassle of returns, and inability to assess the quality of the product prior to purchase were the main costs of shopping on the retailer's website.

3.2.3.2 Website-Shopping Preference

Similarly to the store shopper, the website shoppers considered product experience to be the primary advantage of store shopping. Some website shoppers also mentioned instant ownership and salesperson's assistance as valuable benefits of store shopping. However, unlike store shoppers, none of the website shoppers showed any concern for shipping and handling charges. Also, the list of costs associated with store shopping was more extensive than that of store shoppers. It included the time and effort spent making a trip to the store, fighting traffic, parking, shopping, and waiting in lines; crowding; a salesperson's lack of product knowledge and his or her often annoying demeanor (e.g., trying hard to make a sale, asking why the customer is returning the product); product clutter that makes it difficult to find the needed product, and finally, frequent stock outs.

In contrast to the store shoppers, the website shoppers appeared to derive many more benefits from online shopping. These benefits included search efficiency and extensive product information; pre-paid return labels that give customers a choice of whether to return the purchased product in the store or ship it back to the retailer; ability to manipulate the display of the product to view it from different angles; product recommendations, ability to compare prices and products; better deals; speed, ease and convenience of ordering products from the website; and generally greater product variety and assortment. The costs of website shopping identified

by the respondents with the website shopping preference were the same as those mentioned by the store shoppers, with the exception of shipping charges. Once again, the website shoppers appeared to have little concern for the additional costs of shipping the products to the customer. Some respondents even stated that it was fair for the retailer to add these charges, and that additional costs were minimal relative to the time and effort savings enjoyed by the customer.

3.2.3.3 Multi-Channel Shopping Preference

The benefits and the costs of store and website shopping listed by multi-channel shoppers were very similar to those identified by consumers with the store and the website shopping preferences. The only notable difference was that multi-channel shoppers listed fewer benefits than shoppers with channel preferences. It seemed that the store and the website shoppers tried to justify their channel preferences by making their channel of choice appear more advantageous relative to the alternative channel. However, multi-channel shoppers perceived no such need and therefore balanced the favorableness of the store and the website by naming a relatively equal number of benefits and costs associated with each channel.

Thus, as summarized in Table 3.1, respondents' shopping channel preferences appear to reflect their perceived advantages of the preferred channel. Specifically, store shoppers had a more favorable view of store shopping, while website shoppers named many more benefits for online shopping. Multi-channel shoppers, on the other hand, appeared to have a more balanced perception of store and website advantages.

3.2.4 Channel Complementarity Perceptions

This section discusses respondents' perceptions of channel complementarity, fulfillment integration, and merchandising similarity. Interview participants were asked to describe how they understood the notion that two channels complement each other. Also, they were encouraged to talk about the meaning of fulfillment integration, and specify what type and how

much of duplication between the store and the website they would consider beneficial. Their responses are reported next.

3.2.4.1 Defining Complementarity

All interviewees described channel complementarity in terms of fulfillment links and some degree of merchandising duplication between the channels of the same retailer. Their view of complementarity entailed the creation of certain shopping benefits that would not be available if the shopper patronized only a single channel, whether the store or the website. In essence, channel complementarity allowed consumers to take advantage of the strengths of both the store and the website while minimizing the negative impact of the costs associated with each channel. All interviewees were presented with a definition of complementarity and asked how consistent this definition was with their own understanding of the concept. This definition was simplified to ensure that respondents understood the intended meaning of the concept. Specifically, channel complementarity was defined as the degree to which the store and the website worked together to create more shopping benefits than the sum of benefits created by each individual channel. All interviewees agreed that this definition accurately represented the meaning of channel complementarity.

3.2.4.2 Fulfillment Integration

The interviewees' description of fulfillment integration was primarily based on their multi-channel shopping experience. The ability to pickup and to return online purchases in the store was the most frequently mentioned characteristic of fulfillment integration. In addition, respondents listed a number of fulfillment integration characteristics that they would like to see implemented by multi-channel retailers. These included researching a product online and then getting additional information from a salesperson; being able to view store merchandise online via a web camera, having access to the website's inventory and being able to order a product

from the website while shopping in the store; being able to obtain information about the product's location in the store while shopping on the website; making purchases on the website with a gift card purchased in the store; using the website to obtain information about the closest store's location, hours, and inventory on hand; accessing store coupons online; and being able to get alterations free of charge in the store for the merchandise purchased online. When asked how much integration between the store and the website there should be in order to provide the most value to a multi-channel shopper, all respondents agreed that the more channels are integrated, the better it is for the consumer. Also, the interviewees clearly communicated that they expected to find a significant overlap in inventory across the store and the website.

3.2.4.3 Merchandising Similarity

All respondents, regardless of their channel preference, believed that it would be beneficial to have some differences in product offering and promotions across the store and the website. In general, the store shoppers believed that the store and the website should carry relatively the same variety of products but different assortment depth – the website was expected to offer more sizes, colors and styles than the store. The website shoppers stated that the website inventory should include more variety and deeper assortment than the store inventory. Multi-channel shoppers, on the other hand, wanted to find even more differences between the store and the website in terms of product offering. These expectations were driven primarily by their desire for more choices.

The store shoppers believed that promotions should largely be the same across the store and the website. Given their high sensitivity to additional shipping charges, it was not surprising that they expected online purchasers to receive some form of financial reward for the additional costs associated with shipping the product. In contrast, the website shoppers wanted the website to offer more rebates and discounts than could be found in the store. For instance, one

respondent stated that the website of a national retailer should offer all special event promotions that were available to store shoppers in different regions (e.g., Mardi Gras discounts in Louisiana, St. Patrick's Day Discounts in New York, etc.). Multi-channel shoppers, on the other hand, once again expressed a desire for greater promotional differences between the store and the website, demonstrating a need to optimize their choices. As for the retail prices of the merchandise, all respondents agreed that they should be the same across the store and the website.

As summarized in Table 3.1, all interviewees described channel complementarity in terms of synergistic value (i.e., the total is greater than the sum of the parts). Thus, in their opinion, the store and the website complement each other when they make shopping easy and convenient. All participants, regardless of their shopping motivations, wished for greater fulfillment integration between the store and the website of a multi-channel retailer. Yet, there were differences in how store shoppers, website shoppers and multi-channel shoppers interpreted merchandising similarity. Specifically, multi-channel shoppers appeared to favor greater diversity between the channels in terms of product variety, assortment, and promotions. However, store and website shoppers alike found greater similarity between the channels in terms of these merchandising elements more desirable. At the same time, all respondents wanted price consistency across channels.

3.2.5 Attitude Toward the Internet

The interviewees were also asked about their attitude toward the Internet. They were encouraged to discuss how they feel about the Internet, how they use it, how much time they spend online, what concerns, if any, they have when using the Internet and so on.

All respondents indicated that they were comfortable with using the Internet. It was evident from the interviews that most consumers considered the Internet an integral part of their

daily lives. The time spent surfing the Internet and/or performing goal-directed activities such as checking email, reading news, and using the Internet for work or school related activities ranged from one hour to eight hours per day. There was no noticeable difference in time spent using the Internet between the store and the website shoppers.

3.2.6 Online Security Concerns

All store shoppers had some concerns with the security of providing their credit card information online. However, the experience with making online purchases and the reputation of the retailer appeared to have a strong negative effect on these concerns. The respondents explained that their online security concerns had declined significantly over time due to the satisfactory online transactions and the accumulated knowledge about the security features offered by the credit card companies. They also indicated that they would make purchases online only from reputable companies, which were primarily judged by their size and the quality of the website. Retailers with an established brand had a notable advantage over new and less familiar companies in winning shoppers' trust.

3.2.7 Situational Variables

The store shoppers indicated that they would make a purchase from the retailer's website if: 1) the desired product is not available in the store; 2) the product is cheaper on the website; 3) there is no need to own the product immediately; 4) there is no need to examine the product because it is non-experiential in nature, or the shopper already knows the product's quality and size (if applicable); and 5) the purchased gift needs to be shipped.

The website shoppers stated that they would make a purchase in the store if: 1) they need the product immediately and cannot afford to wait for its delivery; 2) the purchase is a last-minute gift; 3) there is any ambiguity about the quality of the product; 4) the product is bulky or fragile; 5) they cannot find the needed product on the website; 6) the ratio of the product's price

to shipping charges is low; 7) shopping is part of a tradition (e.g., the day after Thanksgiving shopping); and 8) they have limited knowledge of certain product categories (e.g., one respondent said that he needed a salesperson's assistance when buying a gift for his girlfriend or a female relative).

The multi-channel shoppers' channel choices were largely driven by situational factors. The need to own the product immediately, the ambiguity related to the product's features, and the desire to leave home motivated multi-channel shoppers to go to the store. On the other hand, if the shopper was willing to wait for the product delivery, had no time for shopping, reordered the same product, and wanted to purchase a search product, the website appeared to be the most appropriate shopping channel.

In sum, the findings from focus group and depth interviews were consistent with the general propositions discussed earlier in the dissertation (see Chapter 2). Shopping motivations appeared to differ across consumers' channel preferences, and online security concerns seemed to be stronger among store shoppers than website shoppers. This qualitative research also helped to refine the concepts of complementarity (fulfillment integration and merchandising similarity) by giving a consumer perspective on the meaning of and the relationships between these integration factors and shopping value.

3.3 Pretests

The dissertation hypotheses, presented in Chapter 2, were tested using choice-based conjoint (CBC) analysis. A CBC experiment was designed, where respondents were required to choose among three alternative shopping strategies (store, website and multi-channel), each defined by its own set of attributes. Respondents were also asked to provide their evaluations for a number of individual factors such as shopping motivations, technology factors, and perceived risks, which were examined for their relationships to channel complementarity. The actual experiment

– its design, procedures and measures – is discussed later in this chapter. The purpose of this section is to describe and report findings of a series of pretests that were conducted in order to determine relevant attributes, to achieve greater precision of level definitions, and to examine the measurement properties of the scales used to measure individual factors.

A total of three pretests were conducted prior to the main study. The first pretest was designed to assess the effectiveness of several store (store atmosphere and product displays) and website (website design, product information and entertainment value) attributes that were represented visually in the main study. In addition, it helped to define the levels of two website attributes: namely, shipping charges and delivery time. This pretest also provided insights to consumers' perceptions of differences between stores and websites on a number of product factors (product variety, assortment and prices), which were used in defining complementarity levels and in the interpretation of the main study results.

The purpose of the second pretest was to examine measurement properties of a number of individual factors (shopping motivations, technology factors and perceived risks) that were used in the main study. Additionally, it provided important insights to how shoppers interpret complementarity between a store and a website. This information proved valuable in defining the levels of fulfillment integration and merchandising similarity examined in the third pretest.

The last pretest examined the effectiveness of different levels of integration attributes (fulfillment integration and merchandising similarity) prior to their inclusion in the main study. Specifically, it helped to determine which combinations of fulfillment integration attributes best represented the medium and low levels of fulfillment integration, and assessed respondents' comprehension of the descriptions used in defining the four levels of merchandising similarity (low, $\text{medium}_{\text{website}}$, $\text{medium}_{\text{store}}$ and high).

3.3.1 Visuals Pretest

This pretest sought to accomplish four objectives: 1) assess the effectiveness of the visuals representing website and store attributes of a multi-channel electronics retailer that are later used in the main study, 2) determine whether positive and/or negative emotions affect respondents' evaluations of website and store attributes, 3) explore consumer perceptions of differences between stores and websites in general on a number of product factors, and finally 4) explore consumer perceptions of different levels of shipping charges and delivery time for a digital camera. The expected findings included: 1) website and store attributes' effects only on corresponding measures and 2) only main effects, if any, of emotions on the evaluations of website and store attributes. Overall, the pretest results showed that the visuals of website and store attributes were effective and that emotions did not pose any concern for the design of the experiment. Table 3.2 provides a summary of the pretest findings, which are also discussed in more detail later in this section. Copies of the website and store pretests can be found in Appendix C.

3.3.1.1 Pretest Design

In this pretest, store attributes were examined separately from website attributes. Both studies used a between-subject design and a similar procedure, asking respondents to evaluate the visuals of favorable and unfavorable levels of different attributes and report their positive and negative emotions in response to the visual stimuli. The two studies were conducted with students from the same university in the Southwestern United States. Also, they both used the same measures of emotions, namely a 10-point scale with "Not At All Likely (1)" and "Very Likely (10)" as anchors. The items measuring emotions were adopted from shopping literature (Babin and Attaway 2000). Furthermore, both studies employed MANOVA in testing the effectiveness of the visuals and the importance of positive and negative emotions for the

inclusion in the main study. Specifically, the visuals of different website (or store) attributes were coded and entered as independent variables and their measures were included as dependent variables. It was expected that visuals would have significant main effects only on their respective measures, with favorable stimuli having higher evaluations than unfavorable ones.

Table 3.2 Summary of the Visuals Pretest

Purpose	• Assess the effectiveness of the visuals representing website and store attributes that are later used in the dissertation study:
	  • *Website attributes*: site design, product information quality and entertainment value
	  • *Store attributes*: store atmosphere and merchandise displays
	• Determine whether positive and/or negative emotions have effects on respondents' evaluations of website and store attributes;
	• Explore consumer perceptions of differences between stores and websites in terms of product variety, brand assortment, and prices;
	• Explore consumer perceptions of different levels of shipping charges and delivery time for a digital camera.

Expected Results	• Website and store attributes will have effects only on corresponding measures; • Emotions (positive and negative) may have main effects on the evaluations of website and store attributes but will not interact with either set of attributes.
Pretest Results	• **Website visuals were effective:** Website attributes had significant main effects only on corresponding measures. Interactions were not significant. • **Store visuals were effective:** Store attributes had significant main effects only on corresponding measures. Interactions were not significant. • **Positive and negative emotions are of little concern:** Emotions associated with the website had only main effects on the measures of website attributes (except the effect of negative emotions on entertainment value, which was not significant). None of the interactions were significant. Positive store emotions had only main effects on the measures of store attributes, with no significant interactions. In contrast, negative store emotions did not have main effects on the measures of store attributes, but there was an ordinal interaction between store atmosphere and negative emotions on the measure of product displays. • **General online shopping behaviors are of little concern:** Only purchasing frequency had a significant main effect on the measure of site design. None of the interactions were significant. • **Shipping charges:** low – $5.36, average – $10.55, high – $16.61. • **Delivery time:** short – 1 to 3 days, average – 5 to 7 days, long – 14 days. • **Respondents perceived online prices to be the same or somewhat lower than in stores.** • **Online product variety and assortment were perceived to be the same or somewhat larger than in stores.**

Also, emotions were expected to have only main effects on the measures of website (or store) attributes.

The pretest examining website attributes used a 2 X 2 X 2 between-subjects design with two levels of each website attribute. The website visuals included a product information page, a shopping page and an entertainment page representing product information quality, site design and entertainment value respectively. Also, a home page of the website was used to introduce the pretest and to make it more realistic. The home page was not manipulated. A sample of 70 respondents evaluated website pages and reported their positive and negative emotions associated with the website in question, their general online shopping behaviors, their perceptions of differences between stores and websites in terms of prices, product variety and assortment and finally, their estimates of different levels of shipping charges and delivery time for a digital camera. The website attributes were measured with a 10-point scale anchored by "Poor (1)" and "Excellent (10)." Most of these attributes were adopted from shopping literature.

The pretest of store attributes used a 2 X 2 between-subjects design with two levels of each store attribute. The store visuals represented store atmosphere and product displays. Sixty respondents evaluated pictures of positive or negative store atmosphere and product displays and reported their emotions associated with the target store. The store attributes were measured with a 10-point scale anchored by "Poor (1)" and "Excellent (10)." Most of these attributes were adopted from shopping literature.

3.3.1.2 Results for Website Attributes

Prior to their inclusion in MANOVA, which was used in testing the effects of website visuals and emotions on the measures of website attributes, all measures were evaluated with exploratory factor analysis (EFA). This section presents results for both of these analyses (EFA and MANOVA). In addition, this section reports the respondents' estimates of different levels of

shipping charges and delivery time for an online purchase of a digital camera. Finally, a series of MANOVAs were performed to determine whether the respondents' general online shopping behaviors influenced their evaluations of the visual stimuli representing website attributes. Results of these analyses are also reported in this section.

3.3.1.2.1 CFA

The data analysis began with the assessment of psychometric properties of all measures. Table 3.3 provides a summary of the exploratory factor analysis results and reliability estimates for the website attributes and the emotions associated with the website being pretested. As can be seen from Table 3.3, all website attributes had high loadings on the intended factors and all scales had acceptable reliability estimates, represented by Cronbach's alpha (Cortina 1993). Hence, summated scales of the home page, site design, information quality and entertainment value were computed for use in further analyses. Further, all four positive emotions items had high factor loadings, and the resulting scale had high reliability. However, the "indifferent" item of negative emotions exhibited a low communality (< 0.50) and "anxious" item loaded on a separate factor. As a result, neither of these items was included in the summated scale (these items are not shown in Table 3.3).

3.3.1.2.2 MANOVA

Then MANOVA was performed to examine the effects of website visuals on their measures. Specifically, visuals of website design, product information and entertainment value were entered as independent variables and their measures as dependent variables. Multivariate and univariate results of this analysis may be found in Table 3.4.

As can be seen from this Table, there were significant multivariate effects for all website attributes (all p-vales $\leq$ 0.001). None of the multivariate interactions were significant. Also, for

all website attributes univariate significance was achieved only for the corresponding attribute measures. None of the univariate interactions were significant.

Table 3.3 Factor Analysis Results and Reliability Estimates – Website

	Home Page (α = 0.83)	Site Design (α = 0.95)	Information Availability (α = 0.93)	Entertain. (α = 0.93)	Positive Emotions (α = 0.95)	Negative Emotions (α = 0.70)
HP visual appeal	0.840					
HP organization	0.899					
HP navigation	0.862					
SP organization		0.949				
SP ease of seeing avail. prod.		0.952				
SP navigation		0.963				
PIP information amount			0.931			
PIP information usefulness			0.869			
PIP information detail			0.950			
PIP ease of selecting a product			0.877			
EP entertainment amount				0.919		
EP page interest				0.952		
EP page excitement				0.949		
Confident					0.919	
Pleased					0.959	
Satisfied					0.952	
Involved					0.886	
Annoyed						0.897
Bored						0.839

Note: HP – Home Page; SP – Shopping Page; PIP – Product Information Page; EP – Entertainment Page

The effects of emotions on the measures of the website attributes were examined to determine whether they should be included in the main study. Prior to the analyses, the summated scales of the website emotions (positive and negative) were transformed into categorical variables (1-low emotions and 2-high emotions) using the median split method. Then the testing was performed with a series of ANOVAs. Separate ANOVA tests were performed for positive and negative emotions. In each analysis of variance, the positive or the negative emotion was entered as an independent variable together with one of the website attributes while the corresponding measure of the website attribute was included as a dependent variable. The results of these analyses are reported in Table 3.5. To avoid redundancy of reporting, the table presents only the main effects of emotions and the interactions.

Table 3.4 MANOVA Results – Website Attributes

Multivariate Results				Univariate F-Values		
	Wilk's λ	F-Value	df	Site Design	Info Quality	Entertainment
Main Effects:						
Site Design	0.327	**30.421 (0.000)**	4	**90.396 (0.000)**	0.103 (0.749)	0.013 (0.910)
Info Quality	0.659	**7.618 (0.000)**	4	0.001 (0.974)	**24.280 (0.000)**	0.001 (0.974)
Entertainment	0.740	**5.183 (0.001)**	4	1.359 (0.248)	0.867 (0.355)	**6.518 (0.013)**
Interactions:						
Site Design X Info Quality	0.955	0.703 (0.593)	4	0.120 (0.730)	0.246 (0.621)	0.055 (0.816)
Site Design X Entertainment	0.883	1.958 (0.113)	4	2.691 (0.106)	0.187 (0.667)	0.556 (0.459)
Info Quality X Entertainment	0.946	0.838 (0.506)	4	2.370 (0.129)	0.013 (0.910)	0.180 (0.673)
Site Design X Info Quality X Entertainment	0.974	0.398 (0.809)	4	0.093 (0.761)	0.052 (0.820)	0.548 (0.462)

Note: p-values are provided in parentheses; significant effects are in bold type

As can be seen from Table 3.5, positive emotions had a significant effect on the measures of all website attributes: site design (p-value = 0.004), information quality (p-value = 0.000), and entertainment value (p-value = 0.003). None of the interactions were significant. The results also show that negative emotions had a significant effect on all website attributes except entertainment value (p-value = 0.087). None of the interactions were significant.

3.3.1.2.3 Shipping Charges and Delivery Time

The respondents were also asked to estimate different levels of shipping charges and delivery time that can be found when shopping online for a digital camera. First, frequencies for the estimates of different levels of shipping charges were calculated. The results, however, showed that the responses had a wide distribution with no notable "majority" value. Hence, the decision was made to calculate mean values for each level of shipping charges. The mean values

for low, average, and high shipping charges were 5.36, 10.55, and 16.61 respectively. Then frequencies for the estimates of delivery time were calculated. The results showed that 81 percent of the sample considered one to three days to be a short time to wait for product delivery; 27 and 25 percent of the sample considered five and seven days to be the average waiting time respectively and finally, 29 percent of the respondents decided that 14 days was a long time for product delivery.

Table 3.5 Select ANOVA Results – Positive and Negative Emotions (Website)

	Univariate F-Values		
	Site Design	Info Quality	Entertainment
Main Effect:			
Positive Emotions	**9.005 (0.004)**	**14.527 (0.000)**	**9.840 (0.003)**
Negative Emotions	**7.337 (0.009)**	**5.083 (0.027)**	3.013 (0.87)
Interactions:			
Site Design X Positive Emotions	0.473 (0.494)	__	__
Site Design X Negative Emotions	0.793 (0.376)	__	__
Info Quality X Positive Emotions	__	0.160 (0.690)	__
Info Quality X Negative Emotions	__	0.247 (0.621)	__
Entertainment X Positive Emotions	__	__	0.069 (0.793)
Entertainment X Negative Emotions	__	__	0.086 (0.770)

Note: p-values are provided in parentheses; significant effects are in bold type

3.3.1.2.4 Online Shopping Behaviors

The respondents also provided answers to a number of questions addressing their general online shopping behaviors and their perceptions about the comparability of prices, product

variety and brand assortment across websites and stores in general. In response to the question about their online search behavior, 47 percent of the respondents indicated that they searched on the Internet at least once a month for information about electronics they were planning to buy in the near future. At the same time, 10.6 percent of the sample reported that they never searched for information about electronics online.

Almost 38 percent of the respondents indicated that they never bought electronic products online, while 21.2 percent made online purchases of electronics once a year. In addition, 9.1 percent of the sample purchased electronics online once a month, 18.2 percent – every three months, and finally 13.6 percent – every six months.

Further, 37.9 percent of the respondents indicated that they spent between 30 minutes and an hour when shopping online. Approximately 14 percent of the sample did not shop online and 16.7 percent spent only 30 minutes on this activity. Approximately 32 percent of the respondents could be classified as heavy online shoppers, considering that they spent at least an hour shopping on the Internet.

Almost 57 percent of the respondents perceived that online prices were up to ten percent lower that in stores, while 21.5 percent believed them to be the same. A little over 12 percent of the sample perceived the online prices to be more than ten percent lower than in stores, and only 9.2 percent believed that online prices were higher than in stores.

In terms of product variety, 63.7 percent of the sample believed that websites offered more products than stores did. Of that number, 18.2 percent believed that difference to be ten percent or greater. Almost 20 percent of the respondents did not see any difference in product variety between websites and stores, while 16.7 percent believed that stores offered more products than websites.

As for brand assortment, 50 percent of the respondents believed that websites offered more brands than stores. A little over 33 percent of the sample perceived no difference in brand selection across stores and websites. Further, only 16.7 percent of the respondents believed that stores offered more brands than websites.

The possible effects of the respondents' general shopping behaviors (product information search, online purchasing of electronics, and online shopping time) on their evaluations of the website attributes were examined with a series of MANOVAs. Prior to testing, the seven categories of information search and the five categories of online shopping time were reduced to four categories while the five categories of purchasing frequency were reduced to three categories. As a result, the four categories of information search were "never," "rarely" (from once a year to every six months), "average" (from every three months to every month), and "frequently" (from once a week to every day); the four categories of online shopping time were "no time" (do not shop online), "little time" (less than 30 minutes), "average" (30 minutes to one hour) and "much time" (from one hour to more than 2 hours); finally, the three categories of online purchasing frequency were "never," "rarely" (from once a year to every six months), and "frequently" (from every three months to once a month).

The results of the MANOVAs, summarized in Table 3.6, show that there was a significant multivariate effect only for purchasing frequency (p-value = 0.034). Univariate results indicate that shopping time and information search had no significant effects on the evaluations of shopping page, product information page, and entertainment page. Purchasing frequency, on the other hand, had a significant effect on the evaluations of the shopping page (p-value = 0.019). The examination of the means combined with the post hoc tests revealed that frequent online purchasers had the highest evaluations of the shopping page. Respondents in the "never" and "rarely" groups had statistically the same evaluations (p-value = 0.999).

Table 3.6 MANOVA Results – General Shopping Behaviors

Multivariate Results				Univariate F-Values		
	Wilk's λ	F-Value	df	Site Design	Info Quality	Entertainment
Main Effects:						
Shopping Time	0.775	1.321 (0.212)	12	1.701 (0.176)	0.615 (0.608)	0.614 (0.608)
Info Search	0.757	1.445 (0.151)	12	0.495 (0.687)	1.835 (0.150)	0.834 (0.480)
Purchasing Freq.	0.762	**2.179 (0.034)**	8	**4.197 (0.019)**	0.255 (0.776)	0.434 (0.650)

Note: p-values are provided in parentheses; significant effects are in bold type

In sum, the results of the above analyses, which are also summarized in Table 3.2, suggest that all website visuals were effective representations of their respective website attributes. Also, emotions (positive and negative) and general online shopping behaviors should not pose any problems for the design of the main study. Finally, in comparing different product factors between stores and websites, respondents generally perceived websites to offer more products and brands as well as lower prices than stores.

3.3.1.3 Results for Store Attributes

Similarly to the analyses of website attributes, measures of store attributes and emotions were first examined with EFA. Then a series of MANOVAs were performed to test the effects of store visuals and emotions on measures of store attributes. The results for both of these analyses are reported in this section.

3.3.1.3.1 EFA

Analysis of store attributes began with the assessment of the measures of store attributes and emotions. Table 3.7 provides a summary of EFA results and reliability estimates for the store attributes and the positive and negative emotions associated with the focal store.

As can be seen from the Table, all store attributes had high loadings on the intended factors and all scales had acceptable reliability estimates. Hence, summated scales of store

atmosphere and product displays were computed to be used in further analyses. Additionally, all four positive emotions items and three of the four original negative emotions items had high loadings and acceptable reliabilities. The "indifferent" item loaded on a separate factor thus violating the condition of unidimensionality. As a result, it was excluded from the summated scale of negative emotions and is not reported in Table 3.7.

3.7 Factor Analysis Results and Reliability Estimates – Store

	Store atmosphere ($\alpha = 0.94$)	Product display ($\alpha = 0.92$)	Positive Emotions ($\alpha = 0.94$)	Negative Emotions ($\alpha = 0.82$)
Store decor	0.942			
Visual appeal of the store	0.952			
Shopping environment	0.936			
Ability to examine products		0.948		
Ease of selecting a product		0.940		
Product display attractiveness		0.907		
Pleased			0.937	
Satisfied			0.949	
Excited			0.893	
Involved			0.912	
Frustrated				0.906
Annoyed				0.906
Bored				0.742

3.3.1.3.2 MANOVA

The effectiveness of store visuals was examined with MANOVA. For this multivariate technique, the visuals of different store atmosphere and product displays were coded and entered as independent variables and their measures were included as dependent variables. Multivariate and univariate results of the analysis are reported in Table 3.8. As one can see, there were significant multivariate effects for both store attributes (both p-vales ≤ 0.001). The multivariate interaction was not significant. Also, for both store attributes, univariate significance was achieved only for the corresponding attribute measure. None of the univariate interactions were significant.

Table 3.8 MANOVA Results – Store Attributes

Multivariate Results				Univariate F-Values	
	Wilk's λ	F-Value	df	Store Atmosphere	Product Display
Main Effects:					
Store Atmosphere	0.685	**12.638 (0.000)**	2	**21.712 (0.000)**	0.538 (0.466)
Product Display	0.773	**8.095 (0.001)**	2	2.221 (0.142)	**15.981 (0.000)**
Interactions:					
Store Atmosphere X Product Display	0.988	0.339 (0.714)	2	0.247 (0.621)	0.095 (0.760)

Note: p-values are provided in parentheses; significant effects are in bold type

The effects of emotions on the measures of store attributes were examined to determine whether they should be included in the main dissertation study. Prior to the analyses, the summated scales of positive and negative store emotions were transformed into categorical variables (1-low emotions and 2-high emotions) using the median split method. Then testing was performed with two MANOVAs. In each MANOVA, the effects of store attributes were examined in conjunction with the effect of positive or negative emotions on the measures of store atmosphere and product displays. The results of these analyses may be found in Table 3.9. To avoid redundancy of reporting, the table presents only the main effects of emotions and the interactions.

As one can see from the Table, positive emotions had a significant multivariate effect (p-value = 0.000), while no multivariate significance was achieved for negative emotions (p-value = 0.173). Also, none of the multivariate interactions were significant. The univariate results show that positive emotions had significant effects on both store atmosphere and product displays (both p-values = 0.000), suggesting that respondents who felt more favorably about the store evaluated both store attributes more positively. None of the univariate interactions for positive emotions were significant. In contrast, negative emotions did not have a significant univariate

effect on either store attribute (both p-values > 0.05). However, there was a significant interaction between store atmosphere and negative emotions on the measure of product displays (p-value = 0.049). A close examination of the means suggests that among respondents exposed to negative store atmosphere, those who experienced stronger negative emotions provided much lower evaluations of product displays than the respondents with less negative emotions.

Table 3.9 MANOVA Results – Positive and Negative Emotions (Store)

Multivariate Results				Univariate F-Values	
	Wilk's λ	F-Value	df	Store Atmosphere	Product Display
Main Effects:					
Positive Emotions	0.644	**14.075 (0.000)**	2	**23.001 (0.000)**	**16.569 (0.000)**
Negative Emotions	0.934	1.815 (0.173)	2	1.964 (0.167)	3.391 (0.071)
Interactions:					
Positive Emotions X Store Atmosphere	0.985	0.390 (0.679)	2	0.088 (0.767)	0.792 (0.377)
Positive Emotions X Product Display	0.970	0.783 (0.463)	2	0.467 (0.497)	0.506 (0.480)
Positive Emotions X Store Atmosphere X Product Display	0.930	1.917 (0.157)	2	1.789 (0.187)	0.670 (0.417)
Negative Emotions X Store Atmosphere	0.926	2.043 (0.140)	2	0.544 (0.464)	**4.071 (0.049)**
Negative Emotions X Product Display	1.000	0.002 (0.998)	2	0.003 (0.956)	0.004 (0.953)
Negative Emotions X Store Atmosphere X Product Display	0.974	0.678 (0.512)	2	0.001 (0.971)	1.074 (0.305)

Note: p-values are provided in parentheses; significant effects are in bold type

In sum, the results of the above analyses (also see Table 3.2) suggest that store visuals were effective at representing their respective store attributes. Furthermore, both positive and negative emotions do not pose much of a concern to the design of the dissertation study.

3.3.2 Pretesting Scales

The main purpose of this pretest was to evaluate measures of shopping motivations (affiliation, power and authority, sensory stimulation, cognitive stimulation, role enactment, choice optimization, and efficiency), technology factors (technology anxiety and IT use innovativeness), and risk perceptions (online security risk and purchase risks) prior to their inclusion in the main study. In addition, this pretest was used to explore respondents' perceptions of integration between a store and a website. A summary of the pretest results, which are discussed in this section, can also be found in Table 3.10, while a sample questionnaire in Appendix D.

Table 3.10 Summary of the Scales Pretest

Purpose	• Evaluate the scales measuring technology anxiety, Internet technology (IT) use innovativeness, perceived online security and purchase risks, and shopping motivations such as affiliation, power and authority, sensory stimulation, cognitive stimulation, role enactment, choice optimization and efficiency; • Explore respondents' perceptions of integration between a store and a website.

Pretest Results	• Purified scales through exploratory and confirmatory factor analyses;
	• The following fulfillment integration attributes were perceived as describing highly integrated store and website and had the highest mean importance ratings:
	  • checking availability of products in the store from the website,
	  • returning the website purchases to the store, and
	  • using the gift card both in the store and on the website.
	• All merchandising similarity attributes (product variety, assortment, prices and promotions) were perceived to describe highly integrated store and website and were believed to be equally important.

3.3.2.1 Procedure

Students in two undergraduate and one graduate classes studying at a university in the Southwestern part of the U.S. were recruited to help with data collection. The students were asked to administer the questionnaire to non-student individuals of varying ages. Names, email addresses and phone numbers were collected for data validation. The respondents were randomly contacted via email and phone to confirm their participation in the survey. The

resultant sample consisted of 92 individuals. Sixty-two percent of the respondents were females. The age of the participants ranged between 15 and 62, with the average age being 29.67 years old.

The multi-item measure of technology anxiety was adopted from Meuter et al. (2003). The items for the IT use innovativeness scale were adapted from the work of Shih and Venkatesh (2004). The scale of perceived online security risk was adapted from Wolfinbarger and Gilly (2001), while the measures of perceived purchase risk were developed on the basis of extensive literature review. All of the motivations measures, except that of efficiency motivation, came from Arnold and Reynolds (2003) and Attaway (1989). The measure of efficiency motivation was created after a thorough review of relevant literature. All scales were analyzed with exploratory and confirmatory factor analyses.

The respondents were also asked to indicate which of the provided fulfillment integration and merchandising similarity statements described closely integrated store and website. Having identified relevant attributes, they were required to rate them in terms of importance for channel complementarity, with 1 being not important and 10 – the most important. The different fulfillment integration and merchandising similarity attributes were analyzed by calculating frequencies and mean ratings. Frequencies helped to identify the attributes that were marked most frequently as representative of high fulfillment integration or high merchandising similarity. Means were used to assess the relative importance of the identified complementarity attributes. The results of these analyses were used in designing the last of the three pretests, the purpose of which was to examine integration attributes.

3.3.2.2 Results of Scales Evaluations

Scales were initially examined with exploratory factor analysis (EFA) and then validated with confirmatory factor analysis (CFA). This section reports results of both of these analyses. Factor loadings and reliability estimates are summarized in Table 3.11.

3.3.2.2.1 EFA

Prior to performing factor analysis, two of the **Technology Anxiety** items were reverse coded to be on the same scale with the other items. The initial analysis produced a two-factor solution, with one item – "I feel apprehensive about using technology" – loading on a separate factor. Having excluded the violating item, a second factor analysis was performed, resulting in a one-factor solution that explained 58.45 percent of variance. As can be seen in Table 3.11, all factor loadings were high, and the reliability of the scale was 0.76.

The first factor analysis of **IT Use Innovativeness** produced a one-factor solution with 58.09 percent of explained variance. One of the items had a very low communality and therefore, was excluded from the second factor analysis. The final solution explained 76.98 percent of variance. All factor loadings were high, and the reliability of the scale was 0.85.

Prior to conducting factor analysis, all **Online Security Risk** measures were reverse coded. The analysis produced a one-factor solution explaining 79.23 percent of variance. The communalities of all items were greater than 0.5, and their factor loadings were all very high. The reliability of the online security risk scale was 0.87.

The initial solution for the **Purchase Risk** scale produced a single factor explaining 62.16 percent of variance. Two of the items had communalities lower than 0.5 and hence, were excluded from the second factor analysis. The final solution explained 74.71 percent of variance. All factor loadings were high, and the reliability of the scale was 0.89.

Table 3.11 Factor Analyses Results and Reliability Estimates – Technology Factors, Perceived Risks and Shopping Motivations

	Tech. Anxiety (α = 0.76)	IT Use Innovat. (α = 0.85)	Security Risk (α = 0.87)	Purchase Risk (α = 0.89)	Affiliation (α = 0.91)	Power/ Authority (α = 0.84)
Tech. anxiety 1	0.745					
Tech. anxiety 2	0.749					
Tech. anxiety 3	0.451[a]					
Tech. anxiety 4	0.850					
Tech. anxiety 5	0.706					
IT use innovativeness 1		0.157[b]				
IT use innovativeness 2		0.833				
IT use innovativeness 3		0.906				
IT use innovativeness 4		0.891				
Security risk 1			0.820			
Security risk 2			0.913			
Security risk 3			0.933			
Purchase risk 1				0.913		
Purchase risk 2				0.891		
Purchase risk 3				0.813		
Purchase risk 4				0.837		
Affiliation 1					0.881	
Affiliation 2					0.956	
Affiliation 3					0.926	
Power & authority 1						0.799
Power & authority 2						0.914
Power & authority 3						0.906
	Sensory Stimulation (λ = 0.68)	Cognitive Stimulation (λ = 0.80)	Role Enactment (λ = 0.83)	Choice Optimiz. (λ = 0.89)	Efficiency (λ = 0.84)	
Sensory stimulation 1	0.872					
Sensory stimulation 2	0.872					
Cognitive stimulation 1		0.821				
Cognitive stimulation 2		0.857				
Cognitive stimulation 3		0.869				
Role enactment 1			0.846			
Role enactment 2			0.882			
Role enactment 3			0.870			
Choice optimization 1				0.857		
Choice optimization 2				0.903		
Choice optimization 3				0.886		
Choice optimization 4				0.854		
Efficiency 1					0.814	
Efficiency 2					0.825	
Efficiency 3					0.786	
Efficiency 4					0.873	

Note: **a.** Tech. anxiety 3 loaded on a separate factor and was excluded from the scale;
b. IT use innovativeness 1 had low communality and loading, and was excluded from the scale.

Factor analysis of the **Affiliation** scale produced a one-factor solution explaining 84.92 percent of variance. All items had acceptable communalities and high factor loadings. The reliability of the scale was 0.91.

The analysis of the **Power and Authority** scale resulted in a one-factor solution that explained 76.47 percent of variance. The communalities of all measures were acceptable. The factor loadings of all items were high, and the reliability of the scale was 0.84.

The initial factor solution for the **Sensory Stimulation** scale had a single factor explaining 55.60 percent of variance. One item had an unacceptably low communality and therefore, was excluded when a second factor analysis was performed. The second solution explained 75.99 percent of variance. All items had high factor loadings, and the reliability of the scale was 0.68.

Factor analysis of the **Cognitive Stimulation** scale produced a single-factor solution that explained 72.15 percent of variance. All items had acceptable communalities and high factor loadings. The reliability of the scale was 0.80.

The initial factor analysis of the **Role Enactment** scale produced a single-factor solution explaining 62.86 percent of variance. One of the items had a low communality and was excluded from the second factor analysis. The final solution explained 75 percent of variance in the scale. The factor loadings of all items were high, and the reliability of the scale was 0.83.

The analysis of the **Choice Optimization** scale resulted in a one-factor solution that explained 76.61 percent of variance. All items had acceptable communalities and high factor loadings. The reliability of the scale was 0.89.

Finally, the initial factor analysis of the **Efficiency** scale produced a one-factor solution explaining 60.30 percent of variance. One of the items had a low communality. Hence, a new factor analysis without the violating item was performed, producing a solution that explained

68.11 percent of variance. All items had high factor loadings. The reliability of the scale was 0.84.

3.3.2.2.2 CFA

The scales were further validated with confirmatory factor analyses. Given the relatively small sample size (92 cases), it was decided to estimate two separate measurement models: one model for technology and risk factors and the other model for shopping motivations. In the measurement model of technology and risk factors, technology anxiety, IT use innovativeness, online security risk and purchase risk were modeled as correlated first-order factors, each with its own set of measures. The fit statistics of the model were unacceptable (χ^2= 134.90, df = 71; NNFI = 0.88, CFI = 0.91, RMSEA = 0.093). A close examination of squared multiple correlations and modification indices revealed that one of the technology anxiety items was a poor measure of its factor and had a cross-factor correlated error. As a result, a new model without the violating item was estimated. The fit statistics of the second model were good (χ^2= 87.10, df = 59; NNFI = 0.94, CFI = 0.96, RMSEA = 0.062). All item loadings on the intended factors were statistically significant and above 0.6. None of the modification indices had unusually high values. High squared multiple correlations for all but one item (technology anxiety) indicated that the variables in the model were good measures of their latent constructs. The violating item was somewhat lower than 0.50 threshold value; however, the decision was made to keep it, because it was adopted from literature and, if eliminated, technology anxiety would have to be measured with only two items.

In the measurement model of shopping motivations, affiliation, power and authority, sensory stimulation, cognitive stimulation, role enactment, choice optimization and efficiency were modeled as correlated first-order factors, each with its own set of measures. The fit statistics of the model fell short of being acceptable (χ^2= 317.62, df = 188; NNFI = 0.85, CFI =

0.88, RMSEA = 0.077). A close examination of squared multiple correlations of items and modification indices for both loadings and errors revealed four violating items. First, one of the sensory stimulation items had an unacceptably low squared multiple correlation (0.33), suggesting that less than 50 percept of variance in the item was accounted for by the sensory stimulation factor. However, this item remained in the scale because it had been previously used in literature and, if removed, the measure of sensory stimulation would be reduced to only one item. In addition, a cognitive stimulation item and a role enactment item appeared to violate the condition of unidimensionality by having high loadings on more than one factor. The same role enactment item was also found having a cross-factor correlated error. Finally, one of the efficiency items had a within-factor correlated error. Hence, the measurement model was re-estimated without these violating items. This time it had an acceptable fit (χ^2= 199.69, df = 131; NNFI = 0.90, CFI = 0.92, RMSEA = 0.063). With the exception of the sensory stimulation item discussed above, all other items had statistically significant loadings on the intended factors that were above 0.65. A close examination of modification indices did not reveal any unusually high values. High squared multiple correlations for all but the violating item indicated that the variables in the model were good measures of their latent constructs.

In sum, the results of EFA and CFA analyses suggest that all multi-item measures, with a few exceptions, were good measures of their latent constructs. As a result, these purified scales were later used in measuring individual factors in the main study.

3.3.2.3 Results of Integration Attributes Analyses

As mentioned earlier, the purpose of the analyses presented in this section was to identify fulfillment integration and merchandising similarity attributes that best represented high degree of complementarity between the store and the website. This was accomplished by calculating frequencies and means for the different attributes of complementarity. Frequencies were

calculated to determine which complementarity attributes (fulfillment integration and merchandising similarity) the respondents considered descriptive of high degree of integration between a store and a website. Means helped to rate the most important of the identified complementarity attributes. The results of these analyses for fulfillment integration are summarized in Table 3.12 and for merchandising similarity in Table 3.13.

As evident from Table 3.12, the integration attributes such as "checking availability of products in the store from the website," "finding the product first seen in the store on the website," "paying for the website order in the store," "picking up the website order in the store free of charge," "returning the website purchases to the store," "exchanging the website order in the store," "using the gift card both in the store and on the website," "earning rewards when shopping in the store and on the website," and "redeeming the frequent shopper rewards both in the store and on the website" were believed to describe highly-integrated store and website (at least 60 percent of the respondents marked each attribute). An examination of the means of the fulfillment integration attributes revealed that "checking availability of products in the store from the website," "returning the website purchases to the store," "exchanging the website order in the store," and "using the gift card both in the store and on the website" were considered the most important integration attributes (all means $\geq$ 7.80).

These results were later used in designing a pretest examining different levels of the fulfillment integration attributes. Specifically, "checking availability of products in the store from the website," "returning the website purchases to the store," and "using the gift card both in the store and on the website" were selected for the creation of high, medium and low integration levels. These three attributes had the highest mean ratings and represent three dimensions: product search (locating store products on the website), post-purchase services (returning and

exchanging website merchandise in the store), and payment options (paying with the same gift card across channels).

Table 3.12 Descriptive Statistics – Fulfillment Integration Attributes

Fulfillment Integration Attributes	Frequency		Percent		Means
	yes	no	yes	no	
Check availability of products in the store from the website	80	12	87.0	13.0	8.30
Access the website's inventory in the store via an Internet-linked kiosk	51	41	55.4	44.6	6.80
Order something from the website without leaving the store	46	46	50.0	50.0	6.00
Find the product I saw in the store on the website	75	17	81.5	18.5	7.48
Pay for my website order in the store	59	33	64.1	35.9	7.00
Pick up my website order in the store free of charge	68	24	73.9	26.1	7.66
Return my store purchases by mail	36	56	39.1	60.9	6.03
Return my website purchases to the store	82	10	89.1	10.9	8.07
Exchange my website order in the store	79	13	85.9	14.1	8.19
Use my gift card in the store and on the website	73	19	79.3	20.7	7.81
Earn rewards when I shop in the store and on the website	67	25	72.8	27.2	7.60
Redeem my frequent shopper rewards both in the store and on the website	64	28	69.6	30.4	7.67

As shown in Table 3.13, summarizing the results for merchandising similarity, all proposed merchandising similarity attributes were marked as describing highly integrated store and website (at least 70 percent of the respondents marked each attribute). Furthermore, a close examination of the means revealed that all merchandising integration attributes were considered important, with prices, product variety and product assortment being slightly more important than various forms of sale promotion. Hence, all of these attributes were included in the pretest of different levels of the merchandising similarity attributes. The levels of the merchandising similarity attributes were developed in terms of different degrees of overlap between the store and the website in product variety, product assortment, sale promotions, and price.

Table 3.13 Descriptive Statistics – Merchandising Similarity Attributes

	Frequency		Percent		Means
Merchandising Similarity Attributes	yes	no	yes	no	
Store and website sell the same products	80	12	87.0	13.0	7.79
Store and website sell the same sizes and colors	72	20	78.3	21.7	7.86
Store and website have the same discounts	71	21	77.2	22.8	7.66
Store and website give the same rebates on products	71	21	77.2	22.8	7.70
Store and website redeem the same coupons	71	21	77.2	22.8	7.63
Store and website have the same retail prices	77	15	83.7	16.3	7.81

In sum, these exploratory analyses of the complementarity attributes helped to identify fulfillment integration and merchandising similarity attributes that had the highest ratings for channel complementarity. As summarized in Table 3.10, the three fulfillment integration

attributes that were considered the most desirable for channel complementarity were: "checking availability of products in the store from the website," "returning the website purchases to the store," and "using the gift card both in the store and on the website." These three attributes represent different stages in the consumer purchasing process (pre-purchase, purchase, and post-purchase respectively) and therefore, all three were examined in the third and last pretest for the inclusion in the main study. In contrast, all merchandising similarity attributes presented to respondents (product variety, assortment, prices and promotions) were considered important attributes of channel complementarity. These merchandising variables were proposed in the theoretical discussion of the dissertation and thus, all four were used in the third pretest and subsequently, in the main study.

3.3.3 Pretest of Integration Levels

As discussed in Chapter 2, the focus of the dissertation study is to examine the effects of integration attributes on consumer channel preferences. Therefore, it is important to take care in defining integration attributes and their levels. During the previous pretest, the primary purpose of which was to evaluate the scales of measured variables, efforts were made to explore different fulfillment integration and merchandising similarity attributes that respondents consider descriptive of well-integrated store and website and likewise consider highly desirable. The purpose of this pretest was to build on those findings and to test different levels of integration attributes for the inclusion in the main study. Specifically, it sought to accomplish the following: 1) determine which combinations of fulfillment integration attributes would best represent the medium and low levels of fulfillment integration and 2) pretest consumer comprehension of the wording describing the four levels of merchandising similarity (low, $\text{medium}_{\text{website}}$, $\text{medium}_{\text{store}}$ and high), as well as explore consumer preferences for the different merchandising similarity levels. Table 3.14 provides a summary of the pretest results, which are

also discussed in detail in the following sections. Also, a sample questionnaire can be found in Appendix E.

Table 3.14 Summary of the Integration Levels Pretest

Purpose	• Determine which combinations of fulfillment integration attributes would best represent the medium and low levels of fulfillment integration; • Pretest consumer comprehension of the wording describing the four levels of merchandising similarity (low, $medium_{website}$, $medium_{store}$ and high) and explore consumers' preferences for different merchandising similarity levels.

Pretest Results	**Fulfillment Integration Levels:**
	Determined the most appropriate medium and low levels of fulfillment integration to be used in the dissertation experiment:
	• Identified a) a medium level combination of fulfillment integration attributes with the highest means on coordination and desirability and b) an attribute representing a low level of fulfillment integration with the lowest coordination mean;
	• Statistically, all medium levels of fulfillment integration were considered to be equal in terms of coordination (except 1 pair) and desirability;
	• Statistically, all low levels of fulfillment integration were considered to be equal in terms of coordination and desirability.
	Merchandising Similarity Levels:
	• **Medium levels were generally perceived to be the same in terms of coordination:** nonsignificant differences between medium levels were found for product variety, discounts, rebates, and price;
	• **$Medium_{store}$ was generally perceived to be closer to the low level in terms of coordination:** nonsignificant differences between $medium_{store}$ and low levels were found for product assortment and prices;
	• **$Medium_{website}$ was generally perceived to be closer to the high level in terms of coordination:** nonsignificant differences between $medium_{website}$ and high levels were found for product assortment and discounts;
	• **Desirability means were consistent with our theory:** Most preferred level(s) of merchandising similarity were:
	  • High level of product variety similarity;
	  • Both high and $medium_{website}$ levels of product assortment similarity;
	  • High and both medium levels of discounts similarity; the desirability mean for the $medium_{website}$ level of discounts similarity was higher than the desirability mean for the high level;
	  • Both high and $medium_{website}$ levels of rebates similarity;
	  • High level of price similarity.

3.3.3.1 Procedure

Fulfillment integration levels were made up of different combinations of three fulfillment integration attributes: "checking availability of products in the store from the website,"

"returning the website purchases to the store," and "using the gift card both in the store and on the website." As was mentioned earlier, these attributes had the highest mean importance ratings in the previous pretest and represent three dimensions: product search (locating store products on the website), post-purchase services (returning and exchanging website merchandise in the store), and payment options (paying with the same gift card across channels).

The pretest had a 2 X 2 X 2 between-subjects design, where the levels represented the existence or the absence of different fulfillment integration attributes. Since the focus of the pretest was on determining the most appropriate medium and low levels of fulfillment integration to be used in the main study, the "high" level (all attributes present) and the "none" level (none of the attributes present) were not tested. Four different versions of the questionnaire were created. Three questionnaires included one medium level and one low level of fulfillment integration, while the fourth questionnaire included three different combinations of fulfillment integration attributes each representing a medium level.

Merchandising similarity levels were constructed by varying the degree of duplication between the store and the website in terms of product variety, product assortment (number of brands), promotions (discounts and rebates), and prices. Hence, four levels (low, $\text{medium}_{\text{website}}$, $\text{medium}_{\text{store}}$ and high) were created for each of these attributes. Two medium levels were used to examine consumers' preferences for the medium level of merchandising similarity when the focus of greater product variety, product assortment, promotions and different prices is the store ($\text{medium}_{\text{store}}$) or the website ($\text{medium}_{\text{website}}$). The merchandising similarity levels were tested with four different questionnaire versions. Each questionnaire contained all merchandising similarity attributes, described as either low, or $\text{medium}_{\text{website}}$, or $\text{medium}_{\text{store}}$, or high level.

The four versions of the fulfillment integration questionnaire and the four versions of the merchandising similarity questionnaire were combined, so that each respondent received a single

questionnaire containing one of the medium and one of the low levels of fulfillment integration (or all medium levels) in addition to five merchandising similarity attributes represented as one of four levels (high, $medium_{website}$, $medium_{store}$, and low). Respondents were required to provide coordination and desirability scores for each attribute level. These scores were used in determining the best medium and low levels of fulfillment integration that were distinct from each other and in assessing the effectiveness of the descriptions of the four merchandising levels.

Fulfillment integration levels were analyzed by calculating coordination and desirability means to determine a medium level of fulfillment integration with the highest means on both measures and a low level of fulfillment integration with the lowest mean on coordination. In addition, a MANOVA was used to test for the differences among the three variations of the medium and low levels of fulfillment integration. In analyzing merchandising similarity, two ANOVAs were performed to test the differences among the four levels of the merchandising similarity attributes (product variety, product assortment, discounts, rebates and prices). The univariate analyses of variance were preferred because of a very high correlation in coordination and desirability means for all merchandising similarity attributes.

The pretest was administered to a sample of students enrolled in four marketing classes in return for extra credit. Fifty-six percent of the respondents were male and 67.6 percent were between the ages of 21 and 23. Sixty-four percent of the respondents indicated that they liked shopping both in the store and on the Internet. This was followed by the store-only shopping preference at 30.7 percent. The final dataset included 113 cases.

3.3.3.2 Results for Fulfillment Integration Attributes

As mentioned earlier, coordination and desirability means were first calculated for each combination of fulfillment integration attributes representing medium and low levels. These descriptive statistics are summarized in Table 3.15. Given the objective of determining a

medium fulfillment integration level that is distinct from the low fulfillment integration level and is highly desirable, it was important to identify: 1) a combination of fulfillment integration attributes (medium level) that had the highest "coordination" and "desirability" scores and 2) a fulfillment integration attribute (low level) with the lowest "coordination" score. As evident from the Table, "returning the website purchases to the store" and "using the gift card both in the store and on the website" is the medium level combination of fulfillment integration attributes that had the highest means on coordination (mean = 3.37) and desirability (mean = 6.37). For the low fulfillment integration level, "checking availability of products in the store from the website" is the attribute that had the lowest fulfillment coordination mean (mean = 1.83).

Table 3.15 Coordination and Desirability Means for Fulfillment Integration Levels

Fulfillment Integration Levels	Coordination Mean	Desirability Mean
Medium Levels:		
Checking availability of products in the store from the website and using the gift card both in the store and on the website	2.95	6.13
Using the gift card both in the store and on the website and returning the website purchases to the store	3.37	6.37
Checking availability of products in the store from the website and returning the website purchases to the store	2.70	5.57
Low Levels:		
Using the gift card both in the store and on the website	2.21	5.11
Checking availability of products in the store from the website	1.83	4.22
Returning the website purchases to the store	2.11	3.74

Then, MANOVAs were conducted to test for the significance of mean differences among the three variations of the medium and low levels of fulfillment integration. In case of the medium level, the multivariate effect was not significant (Wilk's lambda = 0.920, F-value = 2.325, p-value = 0.057). The univariate significance was achieved only for coordination (F-value = 4.576, p-value = 0.012). The results of the post hoc tests showed that the only significant mean difference was between "returning the website purchases to the store and using the gift card both in the store and on the website" and "checking availability of products in the store from the website and returning the website purchases to the store" combinations (p-value = 0.010) on coordination. None of the mean differences for the desirability measure were significant (all p-values > 0.05). As for the low level of fulfillment integration, none of the multivariate or univariate effects were significant (all p-values > 0.05).

3.3.3.3 Results for Merchandising Similarity Attributes

As previously mentioned, due to high correlations between coordination and desirability measures for all merchandising similarity attributes (all Pearson correlations $\geq$ 0.70, p-values < 0.01), ANOVAs were conducted to determine the effects of the merchandising similarity attributes (product variety, product assortment, promotions and prices) on the measures of merchandising coordination and desirability. The results of these analyses are summarized in Table 3.16. Then post hoc tests were used to test the mean differences among the levels of merchandising similarity on coordination and desirability for all merchandising similarity attributes. The coordination and desirability means for the levels of all merchandising similarity attributes are presented in Table 3.17.

As can be seen in Table 3.16, the effects of all merchandising similarity attributes on the coordination measure were significant (all p-values = 0.000). The post hoc tests showed that

there were significant mean differences among all levels of product variety similarity except the two variations of the medium level (p-value = 0.230).

Nonsignificant mean differences were also found for the low and $medium_{store}$ (store is the focus of greater product assortment) level and high and $medium_{website}$ (website has greater product assortment) level of product assortment similarity (p-values were 0.21 and 0.15 respectively).

Table 3.16 ANOVA Results for Merchandising Similarity Attributes

	Univariate F-Values	
	Coordination	Desirability
Main Effects:		
Product Variety	29.579 (0.000)	13.825 (0.000)
Product Assortment	22.406 (0.000)	20.245 (0.000)
Discounts	45.459 (0.000)	19.960 (0.000)
Rebates	15.044 (0.000)	9.947 (0.000)
Prices	19.988 (0.000)	8.194 (0.000)

Note: p-values are provided in parentheses

For the discounts coordination measure, mean differences were not significant for the variations of the medium level (p-value = 0.112), and the $medium_{website}$ (website has more discounts) and high level (p-value = 0.274) of discounts similarity. For rebates coordination, there was no significant difference in means between the variations of the medium level (p-value = 1.00) of rebates similarity.

Finally for price coordination, nonsignificant mean differences were found for the low and $medium_{website}$ (website has different prices) level, low and $medium_{store}$ (store has different prices) level, and the variations of the medium level (p-values were 0.25, 0.97 and 0.46 respectively) of price similarity.

Table 3.17 Coordination and Desirability Means for Merchandising Similarity Attributes

Merchandising Similarity Levels	Coordination	Desirability
Product Variety:	1.84	4.11
Low Level		
$Medium_{STORE}$ Level	2.74	4.74
$Medium_{WEBSITE}$ Level	3.26	5.95
High Level	4.39	8.56
Product Assortment:	2.26	4.00
Low Level		
$Medium_{STORE}$ Level	2.84	5.16
$Medium_{WEBSITE}$ Level	3.82	7.83
High Level	4.47	8.74
Discounts:	2.26	4.16
Low Level		
$Medium_{STORE}$ Level	3.82	7.11
$Medium_{WEBSITE}$ Level	4.37	8.32
High Level	4.79	8.11
Rebates:	2.84	4.90
Low Level		
$Medium_{STORE}$ Level	3.77	6.72
$Medium_{WEBSITE}$ Level	3.74	6.84
High Level	4.74	8.53
Prices:	2.12	4.39
Low Level		
$Medium_{STORE}$ Level	2.26	4.21
$Medium_{WEBSITE}$ Level	2.74	4.80
High Level	4.37	7.84

Furthermore, as evident from Table 3.16, the effects of all merchandising similarity attributes on the desirability measure were significant (all p-values = 0.000). For product variety

desirability, there were significant mean differences between the high and the remaining levels of product variety similarity (all p-values < 0.05). However, the mean differences between the low and the medium levels as well as between the medium levels were not significant.

For product assortment desirability, significant differences were found for low and $medium_{website}$ level (website has greater product assortment), low and high level, and the two variations of the medium level (all p-values < 0.05) of product assortment similarity. Yet, the mean difference between the $medium_{website}$ and the high level was not significant (p-value = 0.578).

For discounts desirability, all mean differences were significant except for the difference between the high level and the two medium levels (p-values were 0.986 for $medium_{website}$ and 0.376 for $medium_{store}$), as well as the two medium levels (p-value = 0.213) of discounts similarity. Interestingly, and consistent with our theory, the desirability mean for the $medium_{website}$ level was even higher than the desirability mean for the high level. Similarly, significant mean differences were found between the low and the remaining levels and between $medium_{store}$ (store offers more rebates) and high level of rebates similarity for the rebates desirability measure. The mean differences between the medium levels and between the $medium_{website}$ (website offers more rebates) and the high level, however, were not significant (all p-values > 0.05).

Finally, for the price desirability measure, significant differences were found only between the high and the remaining levels of price similarity (all p-vales < 0.05). In sum, the results of these tests are consistent with our proposition that for some merchandising attributes, medium level of similarity is just as desirable, and in some cases even more so, than the high level.

In sum, the analyses discussed in this pretest helped to identify the most appropriate medium and low levels of fulfillment integration to be used in the main study. In addition, they produced some interesting findings, describing how respondents perceived different levels of merchandising similarity. For instance, $medium_{website}$ and $medium_{store}$ levels of merchandising similarity attributes were considered the same in terms of coordination when the merchandising attributes were product variety, discounts, rebates, and price similarity. Yet, in terms of assortment, $medium_{store}$ was generally perceived to be closer to the low level and $medium_{website}$ to the high level on the coordination measure. These results suggest that respondents perceived stores to be poorly integrated with the website of the multi-channel retailer when they were known to sell more brands than the website. In contrast, when it was the website that sold more brands than the store, the channels were considered more integrated. This reflects a general bias in evaluations of websites relative to stores that was initially noted in the first pretest (see Table 3.2). One of the most important contributions of this pretest was the finding that medium levels of most merchandising similarity attributes were just as preferred, and in some instances even more so, than the high level of merchandising similarity. These results are consistent with the propositions discussed in Chapter 2.

3.4 Research Design

Data for testing all the hypotheses were generated with a conjoint choice-based (CBC) experiment. The context chosen was a purchase of a digital camera from a multi-channel retailer of electronics – a hypothetical company called Bzz. Respondents were given a choice of three alternative shopping strategies: they could purchase a digital camera by shopping only in the retailer's store (store-only), only on its website (website-only) or in both the store and the website (multi-channel). Sawtooth Software's CBC system was used in designing the study and estimating parameters (Carmone and Schaffer 1995).

3.4.1 Conjoint Choice Task

The conjoint profiles (shopping choice options) were constructed using Sawtooth Software's **Alternative-Specific Design**, which is a specialized type of CBC choice task, wherein some or all alternatives have their own unique sets of attributes. This design allowed the creation of alternative-specific profiles, thus increasing the realism of the choice task and accommodating all of the store, website and complementarity attributes, the total number of which exceeded the 10-attribute limit for CBC analysis. According to this design, the store-only alternative was described in terms of the levels of the four store attributes, the website-only alternative was defined in terms of five website attributes and the multi-channel (both the store and the website) alternative included six integration attributes as well as both the store and the website described in the other two shopping alternatives. Hence, even though the levels of the store and the website attributes from the other two alternatives were not explicitly included in the description of the multi-channel alternative, respondents were instructed to keep them in mind when making a choice among the three shopping strategies. The decision not to use the store and the website attributes in the description of the multi-channel alternative was a precautionary attempt to prevent possible information overload resulting from respondents' viewing all 15 attributes describing the multi-channel alternative (Lines and Denstadli 2004). Furthermore, when compared to the other shopping strategies, the substantially larger number of attributes describing the multi-channel alternative might bias respondents' choices in its favor.

The attributes for the store, website and integration options were all the result of the pretesting procedures described earlier in this chapter. A summary of the predictor attributes (store, website, fulfillment integration, and merchandising similarity) and of their levels is presented in Table 3.18. Table 3.19 provides descriptions of the levels of each merchandising similarity attribute that were provided to the respondents as a reference during the choice tasks.

Table 3.18 Predictor Attributes and Their Levels

Attributes	Levels
Store Attributes: Store Atmosphere Product Displays Store Location Customer Service	 Pleasant / Unpleasant Attractive / Unattractive Regional Shopping Center / Strip Mall / Stand-Alone Store High (Salespeople seek to assist) / Medium (Must ask for assistance) / Low (Cannot find a salesperson)
Website Attributes: Website Design Product Information Quality Entertainment Value Shipping Charges Delivery Time	 Organized / Cluttered Detailed Information / Basic Information Highly Entertaining /Less Entertaining High ($16.00) /Medium ($10.00) /Low ($5.00) Long (14 days) /Medium (7 days) /Short (3 days)
Complementarity Attributes: Fulfillment Integration	When shopping at Bzz, I am ABLE to: **Hi Level:** 1. check availability of products in the store from the website, 2. return my website purchases to the store, and 3. use my gift card in the store and on the website **Medium Level:** 1. return my website purchases to the store and 2. use my gift card in the store and on the website; BUT NOT: check availability of products in the store from the website **Low Level:** 1. check availability of products in the store from the website; BUT NOT return my website purchases to the store or use my gift card in the store and on the website **None:** When shopping at Bzz, I am UNABLE to: 1. either check availability of products in the store from the website, or 2. return my website purchases to the store or 3. use my gift card in the store and on the website
Product Variety Integration Brand Assortment Integration Discounts Integration Rebates Integration Price Integration	High / Medium (website) / Medium (store) / Low High / Medium (website) / Medium (store) / Low High / Medium (website) / Medium (store) / Low High / Medium (website) / Medium (store) / Low High / Medium (website) / Medium (store) / Low

Visual descriptions were also used where appropriate to supplement the written descriptions. Two store attributes – atmosphere and merchandise displays – were visually represented to allow respondents to attach a more concrete meaning to these rather abstract attributes. The visuals were carefully designed and thoroughly pretested to make sure respondents could differentiate between the levels of these attributes. Among the website attributes, website design, product information quality, and entertainment value were also

Table 3.19 Merchandising Integration Attributes and Their Levels

	High	Medium (Website)	Medium (Store)	Low
Product Variety	The store and the website carry the same variety of products that includes everything the retailer has to offer. Hence, regardless of whether you shop in the store or on the website, you'll see the entire selection of products in the retailer's inventory.	The merchandise selection on the website is much richer than in the store and includes products that are sold exclusively online. Hence, to see everything the retailer has to offer, you should definitely visit the retailer's website.	The merchandise selection in the store is much richer than on the website and includes products that are sold exclusively in the store. Hence, to see everything the retailer has to offer, you should definitely visit the retailer's store.	Most of the merchandise sold in the store and on the website is different. Hence, it is very unlikely that you'll be able to find the product you want on the website if it is sold out in the store.
Brand Assortment	The store and the website carry the same brand assortment that includes all brands the retailer has to offer. Hence, regardless of whether you shop in the store or on the website, you will see the entire assortment of brands in the retailer's inventory.	The website carries more brands than the store. Hence, if you cannot find the brand you want in the store, you should definitely visit the retailer's website.	The store carries more brands than the website. Hence, if you cannot find the brand you want on the website, you should definitely visit the retailer's store.	Most of the brands sold in the store are different from those offered on the website. Hence, it is very unlikely that you'll be able to find the brand you want on the website if they are sold out in the store.
Discounts / Rebates	The store and the website offer absolutely the same discounts. Hence, regardless of whether you shop in the store or on the website, you will find all discounts the retailer has to offer. The store and the website offer absolutely the same product rebates. Hence, regardless of whether you shop in the store or on the website, you will find all product rebates the retailer has to offer.	In addition to discounts available in the store, the website also offers exclusive discounts on online orders. Hence, you can find more bargains if you also visit the retailer's website. The website offers exclusive product rebates in addition to those you can get in the store. Hence, you can find more bargains if you also visit the retailer's website.	In addition to discounts available on the website, the store also offers exclusive discounts on store purchases. Hence, you can find more bargains if you also visit the retailer's store. The store offers exclusive product rebates in addition to those you can get from the website. Hence, you can find more bargains if you also visit the retailer's store.	The store and the website often have different discounts. Hence, it is very unlikely that you'll be able to get the same discount you were offered on the website if you buy the product in the store and vice versa. The store and the website often offer different product rebates. Hence, it is very unlikely that you'll be able to get the same rebate you were offered in the store if you buy the product from the website and vice versa.

Table 3.19 cont.

	High	Medium (Website)	Medium (Store)	Low
Prices	The prices in the store and on the website are absolutely the same. Hence, regardless of whether you shop in the store or on the website, you can be sure that you will pay the same price.	Some products on the website are priced differently than in the store. Hence, it may be necessary to compare product prices in the store and on the website prior to making a purchase.	Some products in the store are priced differently than on the website. Hence, it may be necessary to compare product prices in the store and on the website prior to making a purchase.	The prices in the store and on the website are often different. Hence, regardless of whether you shop in the store or on the website, you can never be sure that you will pay the same price.

visually represented as website pages. All of the visual representations were pretested in conjunction with the written descriptions to ensure the effectiveness of the visuals in conveying the differences between the positive and negative levels.

The CBC system generated a total of 5,115 choice tasks; however, each respondent was exposed to only a subset consisting of 15 choice tasks: 12 random tasks used for estimation purposes and three fixed tasks used for validation. In the random tasks, attribute levels were manipulated at random, thus resulting in choice sets consisting of uniquely described alternatives. Moreover, these 12 choice tasks were embedded in ten different survey versions, which were created and randomly distributed among respondents to maintain some degree of randomization.

In the fixed tasks, the attribute levels of each alternative were preset, thus producing predetermined concept descriptions. The fixed tasks were not varied across survey versions, meaning that all respondents were shown the same three choice tasks. Attribute levels were set such that they created an obviously superior shopping alternative that was most likely to be chosen. Although the fixed holdout tasks are not used for utility estimation, they often prove useful in providing a proximal indication of validity, measured by the utilities' ability to predict choices not used in their estimation.

3.4.2 Survey Administration

Students enrolled in undergraduate marketing classes were recruited to participate in the study. The experiment was administered as a two-part CBC paper-and-pencil interview. The first part consisted of the choice experiment to be completed in class under the supervision of the study administrator. The second part included a written questionnaire measuring consumer characteristics and respondent demographics. Respondents were asked to complete the second part of the study at home and bring it to the study administrator to receive full credit for their participation. After the surveys were returned, respondent identification numbers were used to combine surveys with the corresponding choice data sheets. The final sample numbered 371 observations with data for both parts of the experiment.

During the experiment, respondents received a number of study materials that were used in data collection: a booklet with store and website visuals as well as the definitions of integration attributes, a choice response sheet also containing experimental instructions, a booklet with 15 choice tasks and a survey measuring a number of individual factors, including general shopping behaviors. The study administrator used a Power Point presentation to provide a detailed explanation of the study, data collection materials and the experimental procedure. Given the complexity of the choice experiment, respondents were also encouraged to ask questions. The objective was to induce deeper information processing to ensure that respondents considered all attributes in making their choices among the alternative shopping strategies. All study materials, except the booklet with choice tasks, are provided in Appendix G. A sample choice task can be found in Appendix F.

3.4.3 Conjoint Model Estimation

The proposed model relating store, website, and integration attributes to channel utility was estimated through a conjoint model with Hierarchical Bayes methodology. Aggregate part-

worth estimates were used in assessing the overall impact of each attribute level as proposed in Hypotheses 1 though 15. Estimates of the part-worths were also obtained through the conjoint model for each respondent. A more detailed description of the estimation and hypothesis testing procedure is provided in Chapter 4.

3.4.4 Assessment of Impacts of Consumer Characteristics

The part-worth estimates for individual respondents were used in additional analyses to assess the impact of consumer characteristics (technology factors, motivations, and risks) on the formation of multi-channel utility as represented in Hypotheses 16 through 34. The analysis of these hypotheses took place in two steps. In the first step, a MANOVA was used to assess the impact of the consumer characteristics on the specific part-worth estimates for each level of the complementarity attributes (Hypotheses 16 through 30). In these analyses, the objective is to understand the role consumer characteristics play in determining the part-worth estimates of the complementarity attributes (fulfillment integration and merchandising similarity) for individuals. In the second step, the consumer characteristics were related to the measures of attribute importance (Hypotheses 31 through 34) in order to determine the existence of individual differences in consumers' perceptions of importance of different complementarity attributes when choosing among shopping channel alternatives (store, website, multi-channel).

3.5 Summary

The purpose of this chapter was to provide a detailed account of the extensive conceptual development and pretesting that preceded the main study of the dissertation. It also offered important background information about how the main study was designed and administered as well as what types of analyses were performed. The following chapter provides a more detailed discussion of the estimation procedures involved in each stage of data analysis and reports the results of the analyses of each hypothesis developed in Chapter 2.

CHAPTER 4

ANALYSES AND RESULTS

Evaluation of the hypotheses proposed in Chapter 2 was performed in three stages. Stage One involved the estimation of conjoint model employing a Hierarchical Bayes (HB) estimation procedure of the conjoint model from which individual-level and aggregate part-worths for each level of the store, website and complementarity (i.e., merchandising similarity and fulfillment integration) attributes were obtained. These part-worth estimates represent the unique contribution of each level (e.g., the regional mall location within the Store Location attribute) to the utility of each channel alternative. As such, these part-worth estimates were the basis for testing the first set of hypotheses (H1 through H15) examining the relationships of store, website and complementarity attributes to their respective channel utilities.

Stage Two of the data analysis focused on examining the effects of consumers' individual characteristics (i.e., motivations, technology variables and risk perceptions) on their evaluations of the levels of the complementarity attributes. These effects were proposed in the second set of hypotheses (H16 through H30) and tested with a series of MANOVAs, estimating the effects of each consumer characteristic on the individual-level part-worths for the fulfillment integration and merchandising similarity attributes.

The final stage of the data analysis examined the impact of consumer characteristics on the perceptions of importance for each complementarity attribute (proposed in hypotheses 31 through 34). Once again, a MANOVA was used in estimating the effects, this time evaluating the impacts on the importance weights derived from individual-level part-worth utilities.

The following sections describe the analytical procedures and results for the three stages of data analysis. In each section an overview of the hypotheses to be evaluated is given first, followed by an explanation of the analytical procedures to be used. Then the empirical results

applicable to each hypothesis are reported, and the hypotheses are examined for statistical support.

4.1 Stage One: Estimating Effects of Attribute Levels on Channel Utilities

In Stage One the purpose was to examine how different levels of store, website and complementarity attributes relate to channel utility. Specifically, it was proposed that store and website attributes have a positive linear relationship with their respective channel utilities, such that higher levels of these attributes are associated with greater utility.

Of primary interest were the relationship patterns exhibited by the levels of the two types of complementarity attributes. Specifically, it was hypothesized that fulfillment integration has a positive linear relationship with multi-channel utility, such that higher levels of fulfillment integration are associated with greater utility. In contrast, the merchandising similarity attributes are expected to reflect a positive curvilinear relationship. That is, the medium levels of the merchandising similarity attributes (product variety, brand assortment, discounts and rebates) were predicted to be more preferred than high and low levels of merchandising similarity.

All of the relationships (and accompanying hypotheses) were examined with the Hierarchical Bayes estimation procedure for the conjoint model producing part-worth estimates for each attribute level. These part-worths were then examined in terms of their relationship patterns and significance to ascertain their correspondence to the hypothesized relationships.

4.1.1 Sample Characteristics

Before examining the empirical results, the sample will be profiled to assess its representativeness for the research question at hand. The final sample consisted of 371 respondents completing both the choice tasks as well as questionnaire detailing consumer characteristics. Sixty-five percent of the respondents were between the ages of 19 and 21, and there was an appropriate balance on gender (i.e., 48 percent were males). An examination of

their shopping behaviors revealed that the sample was relatively heterogeneous in terms of their channel preferences. About one-third of the respondents (35 percent) identified themselves as primarily store shoppers, 18 percent claimed a website-shopping preference, and 47 percent reported shopping regularly in both channels. Shopping behavior in the last 6 months showed that 66 percent indicated that they shopped mostly in stores, 17 percent said that they shopped primarily online, and the remaining 17 percent reported that they used both channels when making purchases. The diversity of shopping channel preferences among the sample respondents support the assumptions of the conceptual model that shoppers in the study are familiar with multi-channel retailers and have made purchases from both stores and websites in the past. This also suggests that the student sample used in this dissertation is appropriate for the study of consumers' shopping channel preferences.

4.1.2 Estimation of the Conjoint Model

The choice-based conjoint (CBC) model was estimated using Hierarchical Bayesian approach through the CBC/HB conjoint model developed by Sawtooth Software (Sawtooth Software, Inc. 2004). This approach employs Bayesian estimation techniques to estimate individual-level and aggregate part-worth utilities for each level of every attribute used in describing shopping channel alternatives. Aggregate part-worth estimates were used in assessing the overall impact of each attribute level as proposed in Hypotheses 1 though 15.

Bayesian analysis has been widely used in conjoint analysis (Allenby, Arora and Ginter 1995; Lenk, DeSarbo, Green and Young 1996; Marshall and Bradlow 2002) and other multivariate techniques such as regression analysis (Allenby, Arora and Ginter 1998). The advantages of the Bayesian estimation include its comparability and even superiority in part-worth estimation and predictive capability, compared to more traditional methods (Andrews, Ansari and Currim 2002). Furthermore, as mentioned earlier, Bayesian estimation allows for

conjoint models to be estimated at the individual level where previously only aggregate models were possible (Sawtooth Software, Inc. 2003).

This section will provide a brief description of the Bayesian estimation. Bayesian analysis investigates the probability distribution of the parameters, given the data (i.e., the choices that individuals make). The Hierarchical Bayes model has two levels: at the higher level, it is assumed that individuals' part-worths are described by a multivariate normal distribution, characterized by a vector of means and a covariance matrix; at the lower level, it is assumed that, given an individual's part-worths, his/her probabilities of choosing particular alternatives are governed by a multinomial logit model. Thus, to estimate the probability of the *i*th person's choosing the *k*th alternative, the HB technique executes four interrelated steps: 1) adding up the part-worths for the attribute levels describing the *k*th alternative to get the *i*th individual's utility for the *k*th alternative, 2) exponentiating that alternative's utility, 3) performing the same operations for other alternatives in that choice task, and 4) percentaging the result for the *k*th alternative by the sum of similar values for all alternatives. The parameters to be estimated are the vectors of part-worths for each individual, the vector of means of the distribution of part-worths, and the matrix of variances and covariances of that distribution. These parameters are estimated by an iterative process using a technique knows as Gibb's Sampling or Monte Carlo Markov Chain. Specifically, each iteration consists of three steps, during which one set of parameters (means, part-worths or covariance matrix) is re-estimated, given current values for the other two sets. The iterative process continues for a large number of iterations (several thousand or more) until it converges to the correct distributions for each of the three sets of parameters. The final values of the part-worths for each individual, and also of the vector of means and the covariance matrix, are obtained by averaging the values estimated after convergence (Sawtooth Software, Inc. 2004).

4.1.2.1 Measures for Assessing Goodness-of-Fit

The assessment of the goodness-of-fit (GOF) for the estimated conjoint model will be undertaken at both the aggregate and individual levels. At the aggregate level, model fit will assess the degree to which the model explains the observed choices as well as the existence of significant parameter estimates for the attributes and their levels across all respondents. At the individual level, the GOF measures will first assess convergence of the HB estimates. Then, for each respondent, the predictive ability of the estimated part-worths will be assessed along with examination of the estimated part-worths for their correspondence with theoretical patterns. Instances of serious deviations from these theoretical patterns, known as reversals, will be used in conjunction with measure of predictive accuracy to identify respondents that should be eliminated from the analysis.

At the aggregate level of model GOF, two measures are available. The first is the chi-square measure of model fit, which can be assessed for its statistical significance. This measure compares the "baseline" log likelihood (i.e., that obtained if all estimated parameters were zero) to the log likelihood obtained from the estimated model. Twice the difference in the log likelihood is distributed as chi-square, with the degrees of freedom being the number of levels minus the number of attributes. The second measure is the RLH (root likelihood) value, which is the geometric mean of the predicted probabilities. Specifically, RLH is equal to 1/**k**, where **k** is the number of alternatives in each choice task. The upper limit of the RLH would be one if the fit were perfect.

At the individual level, four measures can be used to assess convergence of HB estimates. The first one is RLH value, which was discussed earlier. In this case, the RLH value is calculated for the overall model based on individual-level parameters. The second measure is Percent Certainty, which indicates how much better the solution is than chance, as compared to a

"perfect" solution. It is equal to the difference between the final log likelihood and the log likelihood of a chance model, divided by the negative of the log likelihood for a chance mode. It typically varies between zero and one, with a value of zero meaning that the model fits the data at only the chance level, and a value of one meaning a perfect fit. Both RLH and Percent Certainty measures are derived from the likelihood of the data. The third and fourth measures of convergence are Average Variance, which is the average of the current estimate of the variances of part-worths across respondents, and Parameter RMS, defined as root mean square of all part-worth estimates across all part-worths and over all respondents. Both Average Variance and Parameter RMS assess the GOF indirectly, with larger values of these parameter estimates reflecting better fit.

For individual respondents, the GOF will be assessed using two measures. The first is the RLH measure described above, which can be calculated for each individual as well as for the overall sample. The final measure is a reversal, which represents a substantive departure from a theoretically-based relationship among the levels within an attribute. The estimation of separate part-worths can create the instance, in which the estimated part-worth relationships deviate from an established relationship and thus create questions as to the validity of the estimated part-worths (Hair, et al 2005). For example, distance from a retail outlet is an established relationship through numerous empirical studies and an accepted relationship in retailing strategy. If distance was included as an attribute with varying levels of distance as levels, a reversal would be found if the part-worth estimates indicated an increase in utility as distance increases rather than the expected decrease in utility as distances increase. Reversals may result from lack of respondent focus on the choice tasks, complexity in the choice tasks themselves or even misunderstanding of the attributes or levels. The end result, however, are part-worth estimates that do not have theoretical support. When the number of reversals increases for any respondent, the researcher

must question the overall validity of that respondent's responses and consider deleting the respondent from the analysis (Hair et al 2005).

4.1.2.2 Goodness-of-Fit for the Initial Conjoint Model

The first goodness-of-fit assessments were for the aggregate conjoint model. As a statistical measure, the chi-square value was 978.10, which is statistically significant with 33 degrees of freedom (49 part-worth estimates minus the 16 attributes: in the Alternative Specific Design, channel alternative is entered as one of the attributes, but its attribute part-worths are not examined). This indicates that parameter estimates significantly increased the explanation of the choice tasks. As a second measure, the RLH value was examined. The value for the aggregate conjoint model was 0.37, which exceeds the expected value of .33 (i.e., with three alternatives per choice task, the expected RLH value for a chance model would be 1/3 = 0.33). These two measures combine to provide evidence of the empirical validity of the conjoint model.

At the individual level, convergence of the HB estimates was assessed with Percent Certainty, RLH, Average Variance and Parameter RMS statistics. Percent Certainty was 0.712, indicating that the log likelihood was 71.2% of the way between the value that would be expected by chance and the value for a perfect fit. The RLH value of 0.729 was more than twice the expected value for a chance model (i.e., 0.33). Finally, Average Variance and Parameter RMS were 3.842 and 2.072 respectively. Although, there is no threshold value with which these statistics could be compared, their relatively large values indicate good fit of the overall model.

Then, individual estimates for each respondent were evaluated for their RLH value and reversals to identify those with unacceptable levels on these measures. Setting the initial minimum RLH value at 0.66, which is twice the level of chance, RLH values were examined for each of the 371 respondents separately. Of that number, 66 had RLH values lower than 0.66 (18 percent of the total sample): 46 respondents had RLH values between 0.60 and 0.66, 16 had RLH

values between 0.50 and 0.60, three had RLH values between 0.43 and 0.50 and one had an RLH value of 0.35. Most of the acceptable RLH values were high, with the highest value being 0.930.

Next, the part-worth estimates for attributes that had logically predictable patterns were examined in an attempt to identify possible reversals. These included three store attributes (store atmosphere: unpleasant/pleasant, store displays: messy/organized and customer service: low/medium/high) and five website attributes (website design: cluttered/organized, product information: basic/detailed, entertainment value: low/high, shipping costs: $3.00/$5.00/$10.00 and delivery time: 2 days/5 days/10 days). Forty-nine respondents exhibited reversals for at least 4 attributes (50 percent).

A combination of both GOF measures was used in that respondents with unacceptable goodness-of-fit values in addition to a large number of reversals (at least 50 percent) were excluded from further analyses. Twenty-three of the 49 respondents with reversals also had unacceptable RLH values (less than 0.66). In addition, seven respondents had reversals for five out of eight attributes (63 percent), even though their RLH values were acceptable. The high number of reversals raised concerns about the validity of these responses. As a result, 30 respondents were excluded from further analyses, leaving a total of 341 respondents for the final analysis.

4.1.2.3 Goodness-of-Fit for the Final Conjoint Model

The GOF of the final conjoint model estimated at the aggregate level was also assessed with a chi-square and the RLH value. The chi-square value was again significant (χ^2 = 986.23, df = 33) and the RLH value was .376, exceeding the threshold value. These two values indicate that the estimated model attributes made a significant contribution to their respective choice alternatives. Examination of the individual respondent results indicated that all of the remaining

respondents had acceptable RLH values and minimal reversal. Thus, the 341 respondents were deemed acceptable for analysis and interpretation.

4.1.3 Estimation and Evaluation of the Part-Worth Utilities

The conjoint model estimated main effects for 341 respondents using a total of 4,092 choice tasks. Only random tasks were included in the estimation process. The distribution of channel choices was as follows: store-only shopping alternative was chosen 27.81% of times, website-only alternative – 24.29% of times and finally, multi-channel alternative – 47.9% of times. The estimated part-worths for each level of the store, website, and complementarity attributes were evaluated for their statistical significance. Since attributes are not tested directly for their overall significance, attributes were deemed as significant contributors to overall channel utility if at least one level within that attribute had a statistically significant part-worth estimate. Table 4.1 contains the estimated part-worths for each level, with significant part-worths indicated with (*). The analysis of the significance of the levels within attributes revealed that two out of 15 attributes did not make a significant contribution to channel utility. These are **Entertainment Value** of the website and **Price Similarity**.

To aid the interpretation and comparability of part-worths, they were rescaled so that the smallest part-worth within an attribute was set to 0. Table 4.1 also reports rescaled part-worths for all attribute levels, and the part-worth estimates were plotted to provide a visual representation of the relationships among attribute levels. These plots are found in Appendix H.

The following sections examine part-worths (their significance and pattern) for all levels of store, website and complementarity attributes in order to test the proposed relationships of these attributes to channel utility (H1 through H15). To simplify the interpretation of relationships between attribute levels, rescaled part-worths (lowest = 0) are used in the discussion of results. Differences between the levels of a single attribute were assessed with

paired-samples t-tests for individual-level part-worths generated by HB analysis. Their p-values are reported in the discussions for each type of channel attribute in the following sections.

Table 4.1 Part-Worth Estimates for the Levels of Store, Website and Complementarity Attributes

	Attribute Levels	Original Value	Rescaled Value
Store Attributes	Store Atmosphere:		
	Pleasant	0.41801*	0.83602
	Unpleasant	-0.41801*	0
	Product Displays:		
	Organized	0.35119*	0.70238
	Messy	-0.35119*	0
	Store Location:		
	Regional Shopping Center	0.1041	0.42238
	Strip Mall	0.21417*	0.53245
	Stand Alone Store	-0.31828*	0
	Service Level:		
	High (sales associates seek to assist customers)	0.49219*	0.841
	Medium (customer must ask for assistance)	-0.14338*	0.20543
	Low (self-service)	-0.34881*	0
Website Attributes	Website Design:		
	Organized Web Pages	0.39277*	0.78554
	Cluttered Web Pages	-0.39277*	0
	Product Information:		
	Detailed	0.18306*	0.36612
	Basic	-0.18306*	0
	Entertainment Value:		
	Many Entertainment Features	0.02583	0.05166
	Few Entertainment Features	-0.02583	0
	Shipping Charges:		
	Low ($3.00)	0.15414*	0.42234
	Medium ($5.00)	0.11407*	0.38227
	High ($10.00)	-0.2682*	0
	Delivery Time:		
	Short (2 days)	0.25736*	0.52951
	Medium (5 days)	0.0148	0.28695
	Long (10 days)	-0.27215*	0

Table 4.1 cont.

	Attribute Levels	Original Value	Rescaled Value
Merchandising Similarity Attributes	Product Variety Similarity:		
	High (same products across channels)	0.12372	0.27528
	$Medium_{website}$ (website has more products)	-0.08977	0.06179
	$Medium_{store}$ (store has more products)	-0.15156*	0
	Low (different products across channels)	0.11761	0.26917
	Brand Assortment Similarity:		
	High (same brands across channels)	.04356	0.28395
	$Medium_{website}$ (website has more brands)	0.2286*	0.46899
	$Medium_{store}$ (store has more brands)	-0.03177	0.20862
	Low (different brands across channels)	-0.24039*	0
	Discounts Similarity:		
	High (same discounts across channels)	-0.06025	0.22501
	$Medium_{website}$ (website has more discounts)	0.31441*	0.59967
	$Medium_{store}$ (store has more discounts)	0.03109	0.31635
	Low (different discounts across channels)	-0.28526*	0
	Rebates Similarity:		
	High (same rebates across channels)	-0.05779	0
	$Medium_{website}$ (website has more rebates)	-0.04787	0.00992
	$Medium_{store}$ (store has more rebates)	-0.02462	0.03317
	Low (different rebates across channels)	0.13028*	0.18807
	Prices Similarity:		
	High (same prices across channels)	-0.04659	0.05419
	$Medium_{website}$ (some website prices are different)	0.09565	0.19643
	$Medium_{store}$ (some store prices are different)	-0.10078	0
	Low (different prices across channels)	0.05171	0.15249
Fulfillment Integration Attributes	High: *When shopping at Bzz, I am ABLE to:* 1. check availability of products in the store from the website, 2. return my website purchases to the store, and 3. use my gift card in the store and on the website	0.24399*	0.46917
	Medium: *When shopping at Bzz, I am ONLY able to:* 1. return my website purchases to the store and 2. use my gift card in the store and on the website; *BUT NOT:* check availability of products in the store from the website	0.15526*	0.38044
	Low: *When shopping at Bzz, I am ONLY able to:* 1. check availability of products in the store from the website *BUT NOT:* return my website purchases to the store or use my gift card in the store and on the website	-0.22518*	0
	No: *When shopping at Bzz, I am UNABLE to:* 1. either check availability of products in the store from the website, or 2. return my website purchases to the store or 3. use my gift card in the store and on the website	-0.17407*	0.05111

Note: (*) indicates significant part-worth estimates at $p < 0.05$.

4.1.3.1 Store Attributes (H1 – H4)

As evident from Table 4.1, all store attributes, except location, had a positive linear relationship with store utility. Specifically, pleasant store atmosphere and organized displays were more preferred than the negative levels of these factors (p-value = 0.00 for both attributes). Also, store utility progressively increased with the increase in service level (p-value = 0.00 for all levels of service). These results are consistent with the hypothesized relationships in H1, H2 and H4.

Contrary to hypothesis H3(a), however, location exhibited a positive curvilinear relationship with store utility: strip mall was the most preferred location (part-worth = 0.53245), closely followed by regional shopping center (part-worth = 0.42238). The difference between these levels of store location was significant (p-value = 0.00). These results suggest that respondents generally preferred medium-size shopping areas rather than large shopping centers hosting dozens of different stores, as was originally hypothesized in H3(a). Conjoint results also indicate that a store located outside of a shopping area was the least favored alternative (part-worth = 0), thus supporting H3(b).

4.1.3.2 Website Attributes (H5 – H9)

Aggregate part-worths in Table 4.1 also show that website design and product information had a positive linear relationship, while shipping charges and delivery time had a negative linear relationship with website utility. Thus, respondents preferred a well designed website that provided detailed product information, charged low shipping fees, and delivered products very quickly (p-value = 0.00 for all four attributes). These results are consistent with H5, H6, H8 and H9. Entertainment value was a non-significant predictor of channel utility (t = 0.61005 for high entertainment value, t = -0.61005 for low entertainment value), even though the

relationship pattern between the levels of this attribute was in the predicted direction. Hence, H7 was not supported.

4.1.3.3 Complementarity Attributes (H10 – H15)

In sum, conjoint estimates supported the hypothesized relationships in H10, H12 and H13. Hypotheses 11, 14 and 15 were not supported. This section reports results for each hypothesis, beginning with those that received support. Figure 4.1 provides part-worth plots for the levels of complementarity attributes.

Consistent with H10, multi-channel utility increased with the increase in fulfillment integration (p-value = 0.00 for all levels of fulfillment integration), thus exhibiting a positive linear relationship between the attribute levels and multi-channel utility (see Table 4.1 and Figure 4.1 for part-worths).

Also, as hypothesized in H12, brand assortment similarity had a positive curvilinear relationship with multi-channel utility, where $medium_{website}$ was the most preferred level (part-worth = 0.46899), followed by high (part-worth = 0.28395), $medium_{store}$ (part-worth = 0.20862) and low (part-worth = 0) levels of brand assortment similarity. The differences between levels were significant for all pairs (p-value = 0.00), except for the $medium_{store}$ and low levels of brand assortment similarity (p-value = 0.395).

Likewise, as Figure 4.1 shows, discounts similarity (H13) had a positive curvilinear relationship with multi-channel utility, albeit a somewhat different pattern. In particular, $medium_{store}$ level of discounts similarity appeared to be more preferred than high level of discounts similarity. Thus, according to the relationship pattern, respondents showed greatest preference for $medium_{website}$ level (part-worth = 0.59967) of discounts similarity, followed by $medium_{store}$ (part-worth = 0.31635), high (part-worth = 0.22501) and finally, low (part-worth = 0) levels of discounts similarity. This pattern is generally consistent with the hypothesized

relationship between discounts similarity levels and multi-channel utility proposed in H13. Statistically, however, high and both medium levels of brand assortment similarity appeared to be equally preferred (high and $medium_{website}$ levels: p-value = 0.830, high and $medium_{store}$ levels: p-value = 0.308, $medium_{website}$ and $medium_{store}$ levels: p-value = 0.381).

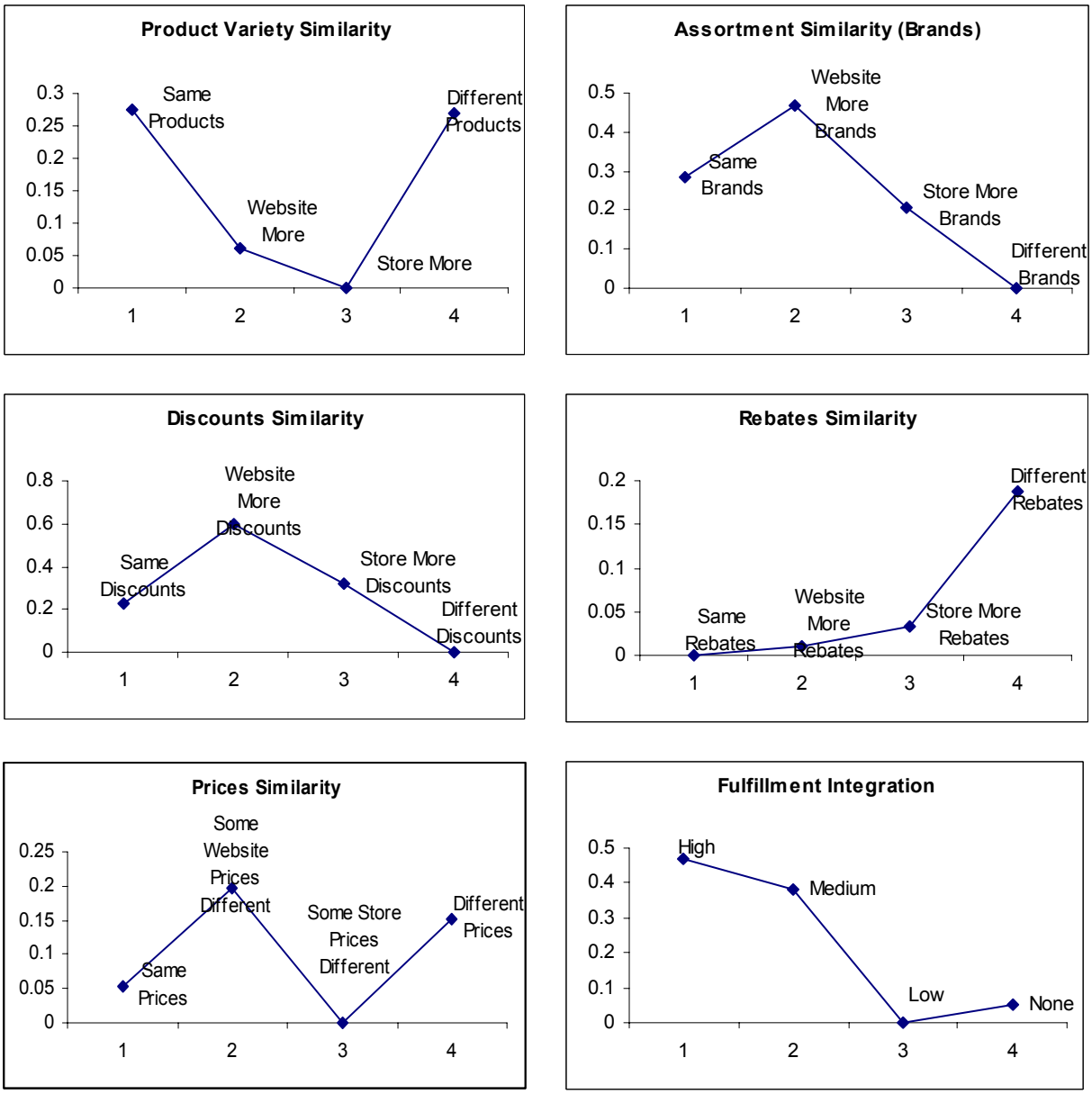

Figure 4.1 Part-Worth Plots for Complementarity Attributes

In contrast, the levels of product variety similarity (H11) and rebates similarity (H14) did not follow the hypothesized relationship pattern. Specifically, the levels of product variety similarity exhibited a negative curvilinear pattern where high level of similarity had the greatest utility (part-worth = 0.27528), closely followed by the low (part-worth = 0.26917) level of similarity. $Medium_{website}$ (part-worth = 0.06179) and $medium_{store}$ (part-worth = 0) levels of product variety similarity were the least preferred alternatives. Although this relationship pattern of the attribute levels, as depicted in Figure 4.1, suggests substantial differences between the $medium_{website}$ level and the high and low levels of product variety similarity, the t-tests showed that $medium_{website}$ and low levels of product variety similarity were equally preferred (p-value 0.079). Thus, H11 received no support.

Also, rebates similarity appeared to have a negative linear relationship, where multi-channel utility increased with greater differences in rebates across channels (i.e., low level of rebates similarity). Statistically, all rebates similarity levels were different (p-value = 0.00 for all levels). These results fail to provide support to H14.

Finally, price similarity appeared to make no significant contribution to multi-channel utility (high level: t = -0.75396, $medium_{website}$ level: t = 1.48228, $medium_{store}$ level: t = -1.67483, low level = 0.83380). Furthermore, the relationship pattern of its levels was sporadic, making it difficult to interpret. As a result, H15 was not supported.

In sum, the conjoint results provided support to ten out of 15 hypotheses. All store attributes, except location (H1 through H4, excluding H3) and all website attributes, except entertainment value of the website (H5 through H9, excluding H7) exhibited the hypothesized patterns in relation to channel utility. In addition, fulfillment integration had a positive linear relationship (H10), while two of the five merchandising similarity attributes (brand assortment similarity and discounts similarity) had a positive curvilinear relationship (H12 and H13) with

multi-channel utility, where the $medium_{website}$ level was the most preferred alternative. Product variety similarity and rebates similarity exhibited other than hypothesized relationship patterns, thus failing to support H11 and H14. Price similarity, on the other hand, was not a significant contributor to multi-channel utility at all and therefore, was not examined here. As a result, H15 was also not supported.

4.1.4 Summary of Results

Conjoint results, presented in Stage One of data analysis, were generally consistent with the hypothesized relationships between attribute levels and utility. A summary of specific results can be found in Table 4.2. In terms of the complementarity attributes, higher levels of fulfillment integration between the store and the website create more value for shoppers than low or no fulfillment integration. Also, moderate diversity between the channels in terms of merchandising similarity adds more to complementarity than complete duplication between the channels. Interestingly, for some merchandising similarity attributes (product variety and rebates similarity) greater diversity between the channels was just as much preferred, and in the case of rebates similarity even more so, than complete cross-channel duplication.

The relationships of store attribute levels and website attribute levels to their respective channel utilities were in the predicted direction. Specifically, more favorable attribute levels produced greater utility than less favorable ones. The only exception was store location. Conjoint results suggested that shoppers preferred moderate size shopping areas (strip mall) rather than very large regional shopping centers. The reason could be the time and effort costs involved in traveling to these large shopping centers, parking, fighting crowds and so on.

The next section will examine the second set of hypotheses relating consumer characteristics to the part-worth estimates of the complementarity attributes. Emphasis will be

placed on specific relationships within each attribute, although the entire set of effects on all part-worth estimates will be examined to identify any effects that were not hypothesized.

Table 4.2 Summary of Tests of Hypotheses (H1 through H15)

Hypotheses	Expected Relationship	Estimated Relationship	Supported or Not (Yes/No)
Store Attributes:			
H1: Store Atmosphere – Store Utility	Linear (+)	Linear (+)	Yes
H2: Product Displays – Store Utility	Linear (+)	Linear (+)	Yes
H3: Store Location – Store Utility	Linear (+)	Curvilinear (+)	Partially
H4: Customer Service – Store Utility	Linear (+)	Linear (+)	Yes
Website Attributes:			
H5: Website Design – Website Utility	Linear (+)	Linear (+)	Yes
H6: Product Information – Website Utility	Linear (+)	Linear (+)	Yes
H7: Entertainment – Website Utility	Linear (+)	Not significant	No
H8: Shipping Charges – Website Utility	Linear (-)	Linear (-)	Yes
H9: Delivery Time – Website Utility	Linear (-)	Linear (-)	Yes
Complementarity Attributes:			
H10: Fulfillment Integration – Multi-channel Utility	Linear (+)	Linear (+)	Yes
Merchandising Similarity Attributes:			
H11: Product Variety – Multi-channel Utility	Curvilinear (+)	Curvilinear (-)	No
H12: Brand Assortment – Multi-channel Utility	Curvilinear (+)	Curvilinear (+)	Yes
H13: Discounts – Multi-channel Utility	Curvilinear (+)	Curvilinear (+)	Yes
H14: Rebates – Multi-channel Utility	Curvilinear (+)	Linear (-)	No
H15: Prices – Multi-channel Utility	Curvilinear (+)	Non significant	No

4.2 Stage Two: Estimating Effects of Consumer Characteristics on the Part-Worth Estimates of the Complementarity Attributes

The main objective of the second stage of data analysis was to determine whether consumer characteristics influenced the respondent's evaluations of different levels of store, website and complementarity attributes. Generally, it was proposed that store-shopping motivations (affiliation, power and authority, and sensory stimulation) have a positive relationship with the evaluations of the $medium_{store}$ levels of the merchandising similarity attributes. In addition, they were proposed to relate positively to the low level and negatively to the high level of fulfillment integration. In contrast, website-shopping motivations were posited to have a positive

relationship with the $medium_{website}$ levels of the merchandising similarity attributes. Their relationships with fulfillment integration were expected to be the reverse of the hypothesized relationships of the store-shopping motivations. The relationships of technology anxiety and IT use innovativeness were proposed to mirror those of store-shopping and website-shopping motivations respectively. Finally, the relationships between perceived risks and the complementarity attributes were expected to be similar to the relationships of store-shopping motivations.

4.2.1 Analysis Methodology

Direct examination of the influence of a respondent's individual characteristics on the estimated model parameters is achieved through introducing some measure of respondent heterogeneity. This has spurred development of techniques such as latent class analysis and finite mixture models (DeSarbo, Benedetto, Jedidi, and Song 2006; Moon, Russell, and Duwuri 2006; Jedidi and Kohli 2005), which attempt to incorporate direct measures of consumer characteristics into the model estimation process. In this research, the process of assessing the impact of consumer characteristics will be done separately from model estimation. In doing so, the explicit role of each consumer characteristic can be assessed independently. The strengths and weaknesses of the three options for analysis, multivariate regression, MANOVA and multivariate GLM, are discussed below.

One approach is to employ multiple regression analysis to assess the impact of each of the consumer characteristics on the estimated part-worths. In doing so, all of the consumer characteristics would be entered as independent variables and a part-worth for each attribute level as a dependent variable. This approach, however, has a significant problem in that part-worth estimates within each attribute are correlated, thus making the regression models interdependent as well. Use of a regression-based approach would require an estimation

methodology accommodating the interdependence of the regression models, such as seemingly-unrelated regression (Gatu and Kontoghiorghes 2006). The advantage of incorporating all of the consumer characteristics into a single model is that it allows for an assessment of the unique impacts of each consumer characteristic, controlling for multicollinearity among the consumer characteristics. The advantages, however, are offset by the complex nature of the estimation approach and lack of available software.

A second approach is to use MANOVA, which allows for assessing all of the part-worth estimates for an attribute collectively. MANOVA explicitly accounts for correlation among the dependent variables and allows for all of the part-worth estimates to be analyzed jointly, but requires that the consumer characteristics be converted to non-metric or categorical measures. Moreover, sample size constraints prevent the inclusion of more than one or two consumer characteristics in a model. Thus, use of this approach is limited in its ability to discern the unique effects of each consumer characteristic relative to the other consumer characteristics.

A third approach is to use multivariate GLM where all consumer characteristics would be entered as covariates and the part-worths for the levels of each complementarity attribute as dependent variables. The main advantage of this type of analysis is the ability to assess all of the part-worth estimates for an attribute collectively without having to dichotomize consumer characteristics. Yet, it appears that inclusion of all consumer characteristics at once results in reduced statistical power for individual effects. Even when only a single consumer characteristic is entered as a covariate, multivariate GLM, with its confirmatory approach, produces fewer significant effects than MANOVA. In fact, the exploratory nature of MANOVA is more appropriate for the present research seeking to identify all possible effects of consumer characteristics on channel complementarity attributes.

In sum, the interdependent nature of the part-worth estimates for each attribute and statistical power considerations dictated that the MANOVA approach is utilized even though each consumer characteristic would be assessed individually. While this approach requires that the impact for each consumer characteristic be considered in light of its relationship to other consumer characteristics, it does provide a direct assessment of the impact on the set of part-worth estimates collectively and identifies patterns of influence for each attribute in a single analysis. As will be described in detail in a later section, separate MANOVAs were performed to estimate the effects of each individual factor (technology anxiety, IT use innovativeness, security risk, purchase risk and motivations) on individual-level part-worths for all attribute levels. Prior to conducting the MANOVAs, individual variables were examined in terms of their measurement qualities and then transformed into categorical variables. The following sections describe statistical procedures involved in assessing the measurement properties of the consumer characteristic constructs, developing categorical measures for each consumer characteristic and then performing the multivariate analyses of variance for each complementarity attribute.

4.2.2 Assessment of Consumer Characteristics

The set of consumer characteristics included constructs in three primary areas (shopping motivations, technology factors, and risk perceptions) that were measured with multiple items. These measurement properties were first examined with exploratory and confirmatory factor analyses (EFA and CFA respectively). After each construct achieves acceptable measurement properties, it is then dichotomized to form the non-metric variable use in the MANOVA analysis.

The first step is to perform an exploratory factor analysis (EFA) for each set of constructs. Items are identified for possible deletion as construct measures if loadings fall below 0.70 and communalities are less than 0.50. Table 4.3 summarizes the EFA factor loadings and reliability estimates for each construct, and a brief description of the results for each construct is

contained in the following sections. Confirmation of the EFA results and a final decision on retention of each item will be provided by the confirmatory factor analysis discussed in the next section. A Table with the descriptions of all multi-item measures is provided in Appendix I.

4.2.2.1 Technology Factors

As discussed in Chapter 2, the technology factors (technology anxiety and IT use innovativeness) are the two constructs reflecting consumer characteristics. The technology anxiety measure consisted of three items explaining 65.8 percent of the variance. One item, however, had a loading of only .65 and a communality of 0.43, thus becoming a candidate for elimination. The reliability of the three-item scale was 0.83.

The second technology-related construct was IT use innovativeness, which also was represented by three items. The EFA identified one item with a loading of .58 and a communality of 0.33, suggesting possible elimination from the construct. Both other measures had acceptable loadings and communalities and the scale had a reliability of 0.76.

4.2.2.2 Perceived Risks

The risk perceptions of consumers were also represented by two constructs, namely transactional security and purchase risk perceptions (see Chapter 2 for a complete description of each construct). Transactional security risk was measured with three items and the EFA produced a one-factor solution explaining 78.6 percent of variance. All items had acceptable communalities (> 0.50) and high loadings that ranged from 0.79 to 0.93.

The construct of purchase risk was comprised of four items. EFA resulted in a one-factor solution explaining 60.7 percent of variance, with all items having communalities greater than 0.50 and factor loadings that ranged from 0.72 to 0.84.

4.2.2.3 Shopping Motivations

The final general type of consumer characteristic was shopping motivations, represented in this study by seven constructs (affiliation, power and authority, sensory stimulation, cognitive stimulation, role enactment, choice optimization, and efficiency). Each of the seven constructs was evaluated with EFA to assess dimensionality and item loadings. A brief description of the results for each motivation construct is provided below and in Table 4.3.

The affiliation motivation construct was measured with three items. EFA produced a one-factor solution explaining 81.9 percent of variance, all items had acceptable communalities and factor loadings ranging from 0.87 to 0.92 and the scale had a reliability of 0.89. The motivation of power and authority was also measured with three items. The EFA analysis resulted in all items having acceptable communalities (> 0.50) and factor loadings while explaining 71.2 percent of variance and achieving a reliability of 0.78. Both measures of sensory stimulation achieved high communalities and factor loadings of 0.90 in the EFA. These two items were represented by a single factor with a reliability of 0.76, explaining 80.9 percent of variance.

The constructs of cognitive stimulation and role enactment were both measured with three items. All items for both constructs had acceptable communalities (>0.50) and high factor loadings. The constructs also exhibited adequate reliability (0.80 and 0.78 respectively) while explaining 70 percent or more of the variance in each construct.

The final two constructs (choice optimization and efficiency) were both measured with four items. For both constructs all items achieved acceptable communalities and factor loadings. Moreover, reliabilities were well above the threshold level (0.91 and 0.85 respectively), while they also explained 78.5 and 69.7 percent of variance across the two constructs.

Table 4.3 Exploratory Factor Analyses Results and Reliability Estimates – Technology Factors, Perceived Risks and Shopping Motivations

	Tech. Anxiety (α = 0.83)	IT Use Innovat. (α = 0.76)	Security Risk (α = 0.86)	Purchase Risk (α = 0.78)	Affiliation (α = 0.89)	Power/ Authority (α = 0.78)
Tech. anxiety 1	0.879					
Tech. anxiety 2	0.880					
Tech. anxiety 3	0.653*					
IT use innovativeness 1		0.578*				
IT use innovativeness 2		0.860				
IT use innovativeness 3		0.852				
Security risk 1			0.789			
Security risk 2			0.931			
Security risk 3			0.932			
Purchase risk 1				0.803		
Purchase risk 2				0.835		
Purchase risk 3				0.720		
Purchase risk 4				0.752		
Affiliation 1					0.870	
Affiliation 2					0.922	
Affiliation 3					0.923	
Power & authority 1						0.777
Power & authority 2						0.894
Power & authority 3						0.856
	Sensory Stimulation (λ = 0.76)	Cognitive Stimulation (λ = 0.80)	Role Enactment (λ = 0.78)	Choice Optimization (λ = 0.91)	Efficiency (λ = 0.85)	
Sensory stimulation 1	0.900					
Sensory stimulation 2	0.900					
Cognitive stimulation 1		0.853				
Cognitive stimulation 2		0.843				
Cognitive stimulation 3		0.852				
Role enactment 1			0.845			
Role enactment 2			0.801			
Role enactment 3			0.846			
Choice optimization 1				0.836		
Choice optimization 2				0.912		
Choice optimization 3				0.897		
Choice optimization 4				0.897		
Efficiency 1					0.799	
Efficiency 2					0.832	
Efficiency 3					0.805	
Efficiency 4					0.901	

Note: (*) indicates items that were not included in summated scales.

As a result, all eleven constructs were deemed suitable for further analysis, with only two items identified as possible candidates for deletion in the process of creating summated scales. The next section will examine the confirmatory factor analysis that finalizes the issues of construct validity.

4.2.2.4 CFA Results

Using confirmatory factor analysis (CFA), an 11-factor 35-item correlated measurement model was estimated. The fit statistics of this model were generally acceptable (χ^2= 1121.31, df = 505; NNFI = 0.89, CFI = 0.91, RMSEA = 0.057). All factor loadings and residuals were statistically significant. Nonetheless, a close examination of the items' squared multiple correlations revealed that one IT use innovation item and one technology anxiety item shared unacceptably low amounts of variance with their respective factors and therefore had questionable validity. These are the same items that had low communalities in EFA. Hence, these items were removed from the analysis and the measurement model re-estimated. The fit statistics of the new model were also acceptable (χ^2= 986.07, df = 440; NNFI = 0.90, CFI = 0.92, RMSEA = 0.057). All construct pairs passed the Fornell-Larcker test of discriminant validity (1981), thus providing evidence of their uniqueness.

In sum, CFA results showed that all items had acceptable factor loadings (from 0.54 to 0.95) and adequate squared multiple correlations (0.29 and above). Reliabilities of all multiple-item measures ranged from 0.76 to 0.91 (for specific reliability estimates, refer to Table 4.3). Thus when taken together, EFA and CFA results suggest that all individual factors had good measures and therefore, summated scales of these factors could be created without jeopardizing their validity and reliability.

4.2.3 Multivariate Analyses of Variance (MANOVA)

Prior to performing analyses, summated scales of all individual factors were first created and then transformed into categorical variables. Both risk perceptions (security risk and purchase risk) as well as role enactment, cognitive stimulation, choice optimization and efficiency motivations had normal distributions. Hence, these factors were transformed into categorical variables using median split method. On the other hand, technology anxiety and power/authority motives had negatively skewed distributions while IT use innovativeness, affiliation and sensory stimulation had positively skewed distributions. Consequently, these factors were split into categorical variables at 3.5, which is the middle of the 7-point scale used to measure these variables. Even though this type of transformation created unbalanced groups, this was not a major concern when using MANOVA.

The effects of consumer characteristics on the evaluations of different levels of complementarity attributes were tested with separate MANOVA for each independent variable. In each analysis, one of the consumer characteristics was entered as an independent variable and part-worth utilities (original conjoint estimates, not rescaled) for all levels of one of the complementarity attributes (fulfillment integration and merchandising similarity) acted as dependent variables. The rationale for testing all levels of one of the complementarity attributes with a single MANOVA is based on the fact that these levels are highly interrelated and as a result, a significant effect for one level may be influenced by significant effects for other levels. Hence, each effect of an individual consumer characteristic on a single level of a complementarity attribute is examined in relation to the effects of that consumer characteristic on other levels of the attribute. Results of these analyses are reported next. Multivariate effects for each one-factor MANOVA are reported in Table 4.4. Appendix J contains a Table that provides a general overview of all significant univariate effects (F-values and p-values are reported in the

text) for the complementarity attributes, regardless of whether they were hypothesized or not. Factor means for significant part-worths are reported in the text as well.

Table 4.4 One-factor MANOVA Effects of Consumer Characteristics on Part-Worths of Complementarity Attributes

Independent Variables	Wilk's λ (F-value)					
	Fulfillment Integration	Product Varity	Brands Assortment	Discounts	Rebates	Prices
S-S Motivations:						
Affiliation	0.975(2.131)	0.983(1.470)	0.974(2.212)	0.988(0.981)	0.983(1.421)	0.985(1.266)
Power/Authority	0.997(0.239)	0.983(1.428)	0.991(0.724)	0.992(0.645)	0.995(0.402)	0.991(0.738)
Sensory Stimul.	**0.958(3.718)**	0.986(1.226)	**0.957(3.738)**	0.990(0.814)	0.974(2.200)	**0.967(2.881)**
PA Motivations:						
Role Play	**0.966(2.921)**	0.975(2.158)	0.986(1.174)	0.979(1.758)	0.980(1.705)	0.986(1.192)
Choice Optimiz.	**0.962(3.361)**	0.988(1.029)	0.985(1.252)	**0.968(2.812)**	0.986(1.226)	0.983(1.419)
W-S Motivations:						
Efficiency	0.996(0.359)	0.994(0.478)	0.990(0.809)	0.992(0.667)	**0.963(3.247)**	0.982(1.515)
Cognitive Stimul.	**0.968(2.757)**	0.989(0.900)	0.993(0.608)	0.988(0.982)	0.991(0.732)	0.985(1.305)
Tech. Factors:						
Technology Anx.	0.982(1.565)	0.982(1.519)	0.976(2.027)	0.997(0.283)	**0.972(2.444)**	0.986(1.209)
IT Innovat.	0.980(1.717)	0.994(0.473)	0.975(2.158)	0.993(0.585)	0.997(0.243)	0.987(1.134)
Risks:						
Security Risk	0.994(0.519)	**0.968(2.783)**	0.995(0.426)	0.992(0.686)	0.982(1.537)	0.993(0.610)
Purchase Risk	0.983(1.466)	0.991(0.729)	0.983(1.430)	0.999(0.103)	0.995(0.390)	0.983(1.447)

Note: Motivation abbreviations: S-S = Store Shopping, PA = Product Acquisition, W-S = Website Shopping
Significant multivariate effects indicated in bold type

4.2.3.1 Effects of Affiliation Motivation (H16a, H17a and H18a)

As indicated in Table 4.4, none of the multivariate effects of affiliation were significant. As hypothesized, a univariate significance was found for $medium_{store}$ level of product variety similarity (F-value = 5.413, p-value = 0.021) and low fulfillment integration (F-value = 5.151, p-value = 0.024). The effect of affiliation on high fulfillment integration was not significant (F-value = 0.146, p-value = 0.703), thus failing to support H17(a).

Examination of means revealed the following relationships between affiliation motivation and complementarity attributes. Respondents with higher affiliation motivation evaluated

$medium_{store}$ level of product variety similarity more favorably than shoppers with lower affiliation motivation (means for $medium_{store}$ level of product variety similarity: high affiliation = -0.0097, low affiliation = -0.3814). This finding provides support for H16(a). Moreover, and consistent with H18(a), shoppers with higher affiliation motivation provided less negative evaluations of low fulfillment integration (means for low fulfillment integration: high affiliation = -0.4948, low affiliation = -0.7703).

Additional results include significant univariate effects of affiliation on low level of brand assortment similarity (F-value = 7.080, p-value = 0.008), $medium_{website}$ level of price similarity (F-value = 4.279, p-value = 0.039) and a marginally significant effect on low level of rebates similarity (F-value = 3.645, p-value = 0.057). Specifically, shoppers with higher affiliation motivation appeared to have a less favorable view of low levels of brand assortment similarity (means for low level of brand assortment similarity: high affiliation = -0.2186, low affiliation = 0.0421) and rebates similarity (means for low level of rebates similarity: high affiliation = -0.4035, low affiliation = -0.0219). Also, these shoppers evaluated $medium_{website}$ level of price similarity more positively than those with lower affiliation motivation (means for $medium_{website}$ level of price similarity: high affiliation = 1.1078, low affiliation = 0.8128).

4.2.3.2 Effects of Power/Authority Motivation (H16b, H17b and H18b)

None of the multivariate effects of power/authority motivation were significant. Similarly, no significant effects were found for $medium_{store}$ level of merchandising similarity attributes (all p-values > 0.05) and for fulfillment integration levels (p > 0.05). Hence, H16b, H17b and H18b were not supported.

Although not hypothesized, a significant effect was found for high level of product variety similarity (F-value = 4.244, p-value = 0.040). Specifically, shoppers with higher power/authority motivation had a more favorable view of having the same products across the

store and the website (means for high level of product variety similarity: high power/authority = -0.4400, low power/authority = -0.8367).

4.2.3.3 Effects of Sensory Stimulation Motivation (H16c, H17c and H18c)

Sensory stimulation had significant multivariate effects for the levels of fulfillment integration (Wilk's lambda = 0.958, F-value = 3.718, p-value = 0.006), brands assortment similarity (Wilk's lambda = 0.957, F-value= 3.738, p-value = 0.005) and price similarity (Wilk's lambda = 0.967, F-value = 2.881, p-value = 0.023). As hypothesized, a significant univariate effect was found for low level of fulfillment integration (F-value = 11.855, p-value = 0.001), but not for high level (F-value = 0.225, p-value = 0.636), thus failing to support H17(c). None of the effects on $medium_{store}$ level of merchandising similarity attributes were significant (all p-values > 0.05). Hence, H16(c) was not supported.

Examination of means revealed that shoppers with higher sensory stimulation motivation evaluated the low level of fulfillment integration less negatively (means for low level of fulfillment integration: high sensory stimulation = -0.4840, low sensory stimulation = -0.9608), thus providing support for H18(c). In addition, sensory stimulation had a significant effect on the medium level of fulfillment integration (F-value = 4.553, p-value = 0.034), suggesting that shoppers with higher sensory stimulation motivation evaluated the medium level of fulfillment integration less positively (means for medium level of fulfillment integration: high sensory stimulation = 1.0574, low sensory stimulation = 1.4307). This effect, although not hypothesized, is consistent with the basic premise underlying hypothesis 17(c): that is, as likely store shoppers, consumers with high sensory stimulation motivation would be more or less indifferent toward the issue of close integration between the store and the website.

Additional findings include significant effects of sensory stimulation on low level of brand assortment similarity (F-value = 11.474, p-value = 0.001), $medium_{website}$ level (F-value =

4.463, p-value = 0.035) and low level (F-value = 5.814, p-value = 0.016) of rebates similarity as well as $medium_{website}$ level (F-value = 5.728, p-value = 0.017) and low level (F-value = 7.497, p-value = 0.007) of price similarity. Specifically, respondents with higher sensory stimulation motivation did not like having different brands (means for low level of brand assortment similarity: high sensory stimulation = -0.2144, low sensory stimulation = 0.1655), different rebates (means for low level of rebates similarity: high sensory stimulation = -0.3969, low sensory stimulation = 0.1566) and different prices (means for low level of price similarity: high sensory stimulation = 0.3975, low sensory stimulation = 0.9615) across the store and the website. Finally, shoppers with high sensory stimulation evaluated a multi-channel system, where the website offers more rebates, less negatively (means for $medium_{website}$ level of rebates similarity: high sensory stimulation = -1.1195, low sensory stimulation = -1.5829), and where some of the website prices are different, more positively (means for $medium_{website}$ level of price similarity: high sensory stimulation = 1.0955, low sensory stimulation = 0.7032).

4.2.3.4 Effects of Role Enactment Motivation

As evident from Table 4.4, role enactment motivation had a significant multivariate effect only for fulfillment integration levels (Wilk's lambda = 0.966, F-value = 2.921, p-value = 0.021). Although not hypothesized, significant univariate effects were found for low (F-value = 6.073, p-values = 0.014) and "none" levels (F-value = 5.273, p-value = 0.022) of fulfillment integration. Specifically, shoppers with higher role enactment motivation evaluated low fulfillment integration less negatively (means for low level of fulfillment integration: high role enactment = -0.4528, low role enactment = -0.7301) and no fulfillment integration more negatively (means for no fulfillment integration: high role enactment = -1.5729, low role enactment = -1.1558) than those with lower role enactment motivation.

In addition, role enactment motivation had significant effects on $medium_{store}$ level of product variety similarity (F-value = 6.800, p-value = 0.010), low level of rebates similarity (F-value = 3.978, p-value = 0.047) and low level of price similarity (F-value = 4.773, p-value = 0.030). These effects suggest that shoppers with higher role enactment motivation had positive evaluations of a multi-channel system, characterized by greater product variety in stores rather than on the website (means for $medium_{store}$ level of product variety similarity: high role enactment = 0.0526, low role enactment = -0.3336). Also, these shoppers had somewhat unfavorable views of different rebates (means for low level of rebates similarity: high role enactment = -0.4552, low role enactment = -0.0852) and different prices (means for low level of price similarity: high role enactment = 0.3440, low role enactment = 0.7081) across the store and the website.

4.2.3.5 Effects of Choice Optimization Motivation

Choice optimization had significant multivariate effects for the levels of fulfillment integration (Wilk's lambda = 0.962, F-value = 3.361, p-value = 0.010) and discounts similarity (Wilk's lambda = 0.968, F-value = 2.812, p-value = 0.025). Examination of univariate results showed significant effects for low fulfillment integration (F-value = 8.513, p-value = 0.004) and $medium_{website}$ level of discounts similarity (F-value = 6.162, p-value = 0.014).

Specifically, shoppers with higher choice optimization evaluated low fulfillment integration more favorably than those with lower levels of this motivation (means for low fulfillment integration: high choice optimization = -0.4262, low choice optimization = -0.7529). Also, they seemed to feel less favorably about being offered more discounts on the website (means for $medium_{website}$ level of discounts similarity: high choice optimization = 0.1316, low choice optimization = 0.4485).

Additional significant effects include those for high level of brand assortment similarity (F-value = 3.963, p-value = 0.047), high level of rebates similarity (F-value = 3.882, p-value = 0.050) and low level of price similarity (F-value = 4.999, p-value = 0.026). That is, shoppers with higher choice optimization appeared to have a more negative attitude toward having the same brands across the store and the website (means for high level of brand assortment similarity: high choice optimization = -0.9147, low choice optimization = -0.6747). Yet, they preferred to have the same rebates in the store and on the website (means for high level of rebates similarity: high choice optimization = 0.3922, low choice optimization = 0.0640). Furthermore, these shoppers provided lower evaluations of different prices across the channels (means for low level of price similarity: high choice optimization = 0.3360, low choice optimization = 0.7080)

4.2.3.6 Effects of Cognitive Stimulation Motivation (H19a, H20a and H21a)

Cognitive stimulation had a significant multivariate effect only for fulfillment integration levels (Wilk's lambda = 0.888, F-value = 0.922, p-value = 0.611). Univarite results showed significant effects for low (F-value = 3.933, p-value = 0.048) and "none" (F-value = 6.595, p-value = 0.011) levels of fulfillment integration. Also, cognitive stimulation appeared to have no effect on $\text{medium}_{\text{website}}$ level of merchandising similarity attributes and high level of fulfillment integration (all p-values > 0.05). Hence, hypotheses H19(a) and H20(a) were not supported.

Consistent with the hypothesis H21(a), shoppers with higher cognitive stimulation motivation evaluated no fulfillment integration between the store and the website even more negatively than those with lower cognitive stimulation motivation (means for no fulfillment integration: high cognitive stimulation = -1.5699, low cognitive stimulation = -1.0959). On the other hand, their evaluations of low fulfillment integration were higher than the evaluations of

shoppers with a lower need for cognitive stimulation (means for low fulfillment integration: high cognitive stimulation = -0.4896, low cognitive stimulation = -0.7175).

Additional significant effect was found for low level of price similarity (F-value = 4.747, p-value = 0.030), suggesting that shoppers with higher cognitive stimulation motivation are not particularly fond of different prices across channels (means for low level of price similarity: high cognitive stimulation = 0.3642, low cognitive stimulation = 0.7339). This effect was not hypothesized, yet it is consistent with the premise that shoppers with higher cognitive stimulation motivation have a stronger predisposition for website shopping and therefore, would not like significant differences between the store and the website, unless these differences favor their preferred shopping channel, i.e., the website.

4.2.3.7 Effects of Efficiency Motivation (H19b, H20b and H21b)

Efficiency motivation had a significant multivariate effect only for rebates similarity levels (Wilk's lambda = 0.963, F-value = 3.247, p-value = 0.012). A significant univariate effect was found for $medium_{website}$ level of rebates similarity (F-value = 3.944, p-value = 0.048). Also, efficiency appeared to have no effect on any of the fulfillment integration levels (all p-values > 0.05). As a result, H20(b) and H21(b) were not supported.

In regard to $medium_{website}$ level of rebates similarity, shoppers with higher efficiency motivation appeared to favor more rebates on the website (means for $medium_{website}$ level of rebates similarity: high efficiency = -1.0396, low efficiency = -1.3899), thus providing support for H19(b). Furthermore, a significant effect was found for high level of rebates similarity (F-value = 6.001, p-value = 0.015), suggesting that efficient shoppers do not particularly favor having the same rebates in the store and on the website (means for high level of rebates similarity: high efficiency = 0.0360, low efficiency = 0.4421). Although this effect was not hypothesized, it is consistent with the underlying premise of H19(b), which states that efficient

shoppers are likely to have a stronger predisposition to shop online and therefore, would value merchandising strategies favoring the multi-channel retailer's website relative to the company's stores.

In addition, efficiency had a significant effect on the high level of price similarity (F-value = 4.855, p-value = 0.028). That is, efficient shoppers appeared to place higher evaluations on having the same prices in the store and on the website (means for high level of price similarity: high efficiency = -1.5406, low efficiency = -1.8958).

4.2.3.8 Effects of Technology Anxiety (H22a-c, H23a,b)

Technology anxiety had a significant multivariate effect only on the levels of rebates similarity (Wilk's lambda = 0.972, F-value = 2.444, p-value = 0.046). The univariate results showed that technology anxiety had significant effects on high level of rebates similarity (F-value = 3.878, p-value = 0.50) as well as high (F-value = 3.978, p-value = 0.047) and "none" (F-value = 5.234, p-value = 0.023) levels of fulfillment integration. Hence, H22(b,c) was not supported.

These results suggest that respondents with higher technology anxiety favored greater similarity in rebates between the store and the website (means for high rebates similarity: high technology anxiety = -0.4563, low technology anxiety = 0.2759), thus providing support to H22(a). Also, this type of shopper evaluated close fulfillment integration between the store and the website less positively (means for high level of fulfillment integration: high technology anxiety = 0.2147, low technology anxiety = 0.8626) and no fulfillment integration less negatively (means for "none" level of fulfillment integration: high technology anxiety = -0.5032, low technology anxiety = -1.4298). These results are consistent with H23(a,b).

4.2.3.9 Effects of IT Innovativeness (H24a-c and H25a,b)

As one can see in Table 4.4, none of the multivariate effects of IT use innovativeness were significant (all p-values > 0.05). The univariate results showed that IT use innovativeness had significant effects only on high (F-value = 4.558, p-value = 0.033) and low (F-value = 4.929, p-value = 0.027) levels of brand assortment similarity. Thus, H24(b) and H25(a,b) were not supported.

Examination of means revealed that respondents with higher IT use innovativeness had lower evaluations of high brand assortment similarity between the store and the website (means for high level of brand assortment similarity: high IT use innovativeness = -0.8713, low IT use innovativeness = -0.3230). At the same time, they evaluated low level of brand assortment similarity more favorably than respondents with lower IT use innovativeness (means for low level of brand assortment similarity: high IT use innovativeness = -0.0825, low IT use innovativeness = -0.3230). These results support hypotheses 24(a, c).

4.2.3.10 Effects of Security Risk Perceptions (H26a, H27a, H28a, H29a and H30a)

Security risk had a significant multivariate effect only for the levels of product variety similarity (Wilk's lambda = 0.968, F-value = 2.783, p-value = 0.027). Significant univariate effects were found for $medium_{store}$ (F-value = 3.999, p-value = 0.046) and low (F-value = 5.067, p-value = 0.025) levels of product variety similarity. Also, marginal significance was found for the effect of security risk on high level of rebates similarity (F-value = 3.773, p-value = 0.053). Thus, H29(a) and H30(a) were not supported.

These results suggest that consumers with acute perceptions of security risk favor a multi-channel system characterized by greater product variety in stores than on the website (means for $medium_{store}$ level of product variety similarity: high security risk = 0.0108, low security risk = -0.2866). Also, this type of consumer appears to have lower evaluations of

across-channel differences in product variety (means for low level of product variety similarity: high security risk = 0.3894, low security risk = 0.7621). Furthermore, respondents with high security risk perceptions preferred to have the same rebates across channels (means for high level of rebates similarity: high security risk = 0.3857, low security risk = 0.0612). These results are consistent with H26(a), H27(a) and H28(a).

Additional results include a significant effect of security risk on $medium_{website}$ level of product variety similarity (F-value = 4.392, p-value = 0.037). Namely, consumers with higher security risk perceptions evaluated greater product variety on the website more positively than those with lower risk perceptions (means for $medium_{website}$ level of product variety similarity: high security risk = 0.4602, low security risk = 0.1905). Besides not being hypothesized, this effect appears to be counterintuitive.

4.2.3.11 Effects of Purchase Risk Perceptions (H26b, H27b, H28b, H29b and H30b)

None of the multivariate effects of purchase risk were significant (all p-values > 0.05). Univariate results showed that purchase risk had a significant effect only on high level of brand assortment similarity (F-value = 5.175, p-value = 0.024). Hence, H27b through H30b were not supported. Examination of means revealed that consumers with higher perceptions of purchase risk favored having access to the same brands across channels (means for high level of brand assortment similarity: high purchase risk = -0.6585, low purchase risk = -0.9322), thus providing support to H26(b).

Additionally, a significant effect of purchase risk was found for $medium_{store}$ level of price similarity (F-value = 4.411, p-value = 0.036). Specifically, shoppers with higher purchase risk perceptions evaluated some price differences in stores more positively than respondents with lower purchase risk perceptions (means for $medium_{store}$ level of price similarity: high purchase risk = 0.3646, low purchase risk = 0.0280).

4.2.4 Summary of Results

The objective of data analyses performed in Stage Two was to examine individual differences in consumers' evaluations of different complementarity attributes. This section provides general interpretation of the results. For the results of specific hypotheses, please refer to Table 4.5.

4.2.4.1 Store Shopping Motivations

It was generally hypothesized that store-shopping motivations would influence how consumers evaluated complementarity attributes. Specifically, it was proposed that those higher in store shopping motivations would prefer complementarity attributes favoring stores in the multi-channel system (e.g., the store carries more products, more brands, more discounts and more rebates) and would be particularly annoyed with large merchandising differences between the store and the website. Given their general tendency toward store shopping, they were also expected to be less concerned with fulfillment integration and as a result, evaluate high level of fulfillment integration less positively and low level less negatively.

The results presented in this section provide ample support for these propositions. Given their store shopping predisposition, it was not surprising that store shoppers (i.e., dominant or higher affiliation, sensory stimulation and power/authority motivations) favored a multi-channel retailer that carried more products in the store than on the website. They also preferred greater merchandising duplication across these channels, and did not like it when the store and the website offered different brands, promotions (e.g., rebates), and prices. Furthermore, they appeared to have a rather indifferent view of fulfillment integration, reflected in their somewhat neutral evaluations of this integration attribute (store shoppers evaluated the medium level of fulfillment integration less positively and the low level less negatively).

Table 4.5 Summary of Hypotheses (H16 through H30) and Results

Hypotheses for Complementarity Attributes	Expected Relationship	Estimated Relationship	Support or Not (Yes/No)
Store-Shopping Motivations:			
H16a: Affiliation – $Medium_{store}$ level of any Merch. Simil.	+	+	Yes
H16b: Power/Authority – $Medium_{store}$ level of any Merch. Simil.	+	Not Sig.	No
H16c: Sensory Stimulation – $Medium_{store}$ level of any Merch. Simil.	+	Not Sig.	No
H17a: Affiliation – High Fulfillment Integration	--	Not Sig.	No
H17b: Power/Authority – High Fulfillment Integration	--	Not Sig.	No
H17c: Sensory Stimulation. – High Fulfillment Integration	--	Not Sig.	No
H18a: Affiliation – Low/No Fulfillment Integration	+	+	Yes
H18b: Power/Authority – Low/No Fulfillment Integration	+	Not Sig.	No
H18c: Sensory Stimulation – Low/No Fulfillment Integration	+	+	Yes
Website-Shopping Motivations:			
H19a: Cognitive Stimul. – $Medium_{website}$ level of any Merch. Simil.	+	Not Sig.	No
H19b: Efficiency – $Medium_{website}$ level of any Merch. Simil.	+	+	Yes
H20a: Cognitive Stimulation – High Fulfillment Integration	+	Not Sig.	No
H20b: Efficiency – High Fulfillment Integration	+	Not Sig.	No
H21a: Cognitive Stimulation – Low/No Fulfillment Integration	--	--	Yes
H21b: Efficiency – Low/No Fulfillment Integration	--	Not Sig.	No
Technology Factors:			
H22a: Technology Anxiety – High level of any Merch. Simil.	+	+	Yes
H22b: Technology Anxiety – $Medium_{store}$ level of any Merch. Simil.	+	Not Sig.	No
H22c: Technology Anxiety – Low level of any Merch. Simil.	--	Not Sig.	No
H23a: Technology Anxiety -- High Fulfillment Integration	--	--	Yes
H23b: Technology Anxiety – Low/No Fulfillment Integration	+	+	Yes
H24a: IT Innovativeness -- High level of any Merch. Simil.	--	--	Yes
H24b: IT Innovativeness – $Medium_{website}$ level of any Merch. Simil.	+	Not Sig.	No
H24c: IT Innovativeness – Low level of any Merch. Simil.	+	+	Yes
H25a: IT Innovativeness – High Fulfillment Integration	+	Not Sig.	No
H25b: IT Innovativeness – Low/No Fulfillment Integration	--	Not Sig.	No
Risk Perceptions			
H26a: Security Risk – High level of any Merch. Simil.	+	+	Yes
H26b: Purchase Risk – High level of any Merch. Simil.	+	+	Yes
H27a: Security Risk – $Medium_{store}$ level of any Merch. Simil.	+	+	Yes
H27b: Purchase Risk – $Medium_{store}$ level of any Merch. Simil.	+	Not Sig.	No
H28a: Security Risk – Low level of any Merch. Simil.	--	--	Yes
H28b: Purchase Risk – Low level of any Merch. Simil.	--	Not Sig.	No
H29a: Security Risk – High Fulfillment Integration	--	Not Sig.	No
H29b: Purchase Risk – High Fulfillment Integration	--	Not Sig.	No
H30a: Security Risk – Low/ No Fulfillment Integration	+	Not Sig.	No
H30b: security Risk – Low/No Fulfillment Integration	+	Not Sig.	No

4.2.4.2 Website Shopping Motivations

Individuals with high website shopping motivations (dominant cognitive stimulation and efficiency motivations) were expected to prefer a multi-channel system where websites offered more product lines, a larger selection of brands and more discounts. In addition, they were likely to require greater fulfillment integration to reduce the risks associated with online shopping. The results of the analyses provide evidence supporting the proposed relationships between website shopping motivations and their evaluations of channel complementarity. Specifically, the website-oriented respondents appeared to favor greater selection of promotional offers (e.g., rebates) on the website than in the store. Similarly, they were not particularly fond of the same rebates across the channels. When it came to prices, those favoring website motivations wanted across-channel consistency, probably so that they did not have to go to the store to compare prices. Finally, their evaluations of fulfillment integration reflected their need for greater logistical coordination between the channels (website shoppers evaluated higher fulfillment integration more positively and lower integration more negatively).

4.2.4.3 Product Acquisition Motivations

Product acquisition motivations of role enactment and choice optimization were believed to describe multi-channel shoppers who seek to maximize their value by shopping both in the store and on the website. Hence, it was expected that both role players and choice optimizers would prefer across channel diversity in terms of merchandising, but no prediction was offered as to which channel, the website or the store, would be favored in creating such diversity (i.e., offer more product lines, more brands and more sale promotions). Logically, multi-channel shoppers would maximize their value if both the store and the website offered somewhat different merchandise and discounts in addition to the consistent core of products (along with the associated discounts) available in both channels. Furthermore, multi-channel shoppers are likely

to desire greater fulfillment integration to ensure a seamless across-channel shopping experience. The results of the analyses, however, were mixed.

Role players appeared to have stronger store-shopping preferences. Their evaluations of attributes were very similar to those of other store shoppers. For instance, role players favored a multi-channel retailer that offered more products in the store than on the website. They did not like across-channel inconsistencies in promotional offers (e.g., rebates) and prices, and had a less negative opinion about low fulfillment integration.

Choice optimizers, on the other hand, appeared to have mixed feelings about the store and the website. They did not like having more discounts offered on the website than in the store, but preferred the same rebates and prices across these channels. At the same time, they showed a more negative attitude toward the same products in the store and on the website. Taken together, these results suggest that choice optimizers see more value in across-channel diversity in terms of products sold in the store and on the website. Yet, when it comes to promotions and prices, they wish to see greater consistence between the channels. Thus, if they find a sale item in the store, they want to receive the same discount (not more or less) when purchasing this item on the website, and vice versa.

Finally, choice optimizers' opinion of low fulfillment integration was not as negative as that of shoppers with lower choice optimization motivation. That is, choice optimizers were not particularly concerned with the fact that they could not return online purchases to the store, nor could they use the same gift card across the channels. They were content with just having an opportunity to check products sold in the store from the website. These results suggest that choice optimizers may be using the website to research products and the store to make purchases. Nonetheless, if they want to purchase an item exclusive offered on the website, they don't mind having to return it to the retailer by mail.

4.2.4.4 Technology Factors

Technology anxiety and IT use innovativeness were expected to have opposite relationships with channel attributes. Specifically, technology anxiety was believed to be closely associated with store shopping and therefore, its relationships with complementarity attributes were proposed to be similar to those of other store shoppers. In contrast, IT use innovativeness was a likely attitudinal characteristic of website shoppers. Hence, its relationships were expected to mimic those of other website shoppers.

Generally, the results were consistent with the above propositions. Shoppers with higher technology anxiety preferred greater consistency between the channels in terms of promotional offers (e.g., rebates). Also, their evaluations of fulfillment integration mirrored those of other store shoppers: lower evaluations for the high level of fulfillment integration and higher evaluations for no integration. Complementarity evaluations of innovative shoppers, on the other hand, were similar to those of other website shoppers. For instance, they preferred greater diversity between the channels in terms of product variety.

4.2.4.5 Risk Perceptions

Both security and purchase risk perceptions were believed to motivate store shopping. Hence, their relationships with complementarity attributes were expected to be very similar to those of other store shoppers.

The results provide support for these propositions. For instance, shoppers with higher security risk perceptions favored greater product variety in the store than on the website and were particularly displeased with major differences in inventory across these channels. They also wished for greater consistency in promotional offers (e.g., rebates) across the store and the website. Similarly, shoppers with higher purchase risk perceptions wanted to have access to the same brands in the store that were sold on the website.

There were also a few anomalous results, such as a desire of shoppers with higher security risk perceptions to see more products sold on the website than in the store. Likewise, shoppers with higher purchase risk perceptions seemed to be less upset with having somewhat different prices in the store, compared to the website.

4.3 Stage Three: Estimating Effects of Consumer Characteristics on Perceptions of Attribute Importance

This last stage of data analysis focuses on testing hypotheses addressing the relationships between some consumer characteristics (motivations and purchase risk) and the perceived importance of fulfillment integration and merchandising similarity attributes (H31 through H34). These relationships were examined with a separate MANOVA for each consumer characteristic. Specifically, one of the consumer characteristics was entered as an independent variable and the importance weights for all complementarity attributes were included as dependent variables. As mentioned earlier, the importance weights for each attribute were derived from the part-worths for all of its levels. The procedure involved subtracting the lowest part-worth from the highest part-worth for each attribute, and then dividing each difference by the total of the differences for all attributes.

The results of these analyses are reported next. The results will be discussed for each consumer characteristic separately, beginning with store-shopping motivations and concluding with purchase risk. Each section will indicate the specific hypotheses being addressed by the analysis. Table 4.6 presents multivariate results for each one-factor MANOVA. A general summary of significant univariate effects can be found in Table 4.7 (F-values and p-values are reported in text). Factor means for significant part-worths are also reported in text.

4.3.1 Store-Shopping Motivations

MANOVA results reported in this section examine the relationships between store-shopping motivations (affiliation, power/authority and sensory stimulation) and consumers'

perceptions of importance of fulfillment integration and merchandising similarity attributes (H31). It was generally proposed that store-shopping motivations would have a negative relationship with consumer's perceptions of importance of complementarity attributes (H31a,b). The results of individual MANOVA are reported here for each store-shopping motivation separately.

Table 4.6 One-factor MANOVA Results for the Effects of Consumer Characteristics on Importance Weights of Channel Attributes

Independent Variables	Wilk's λ	F-value	df	p-value
Store-Shopping Motivations:				
Affiliation	0.967	1.919	6	0.077
Power/Authority	0.998	0.105	6	0.996
Sensory Stimulation	0.977	1.338	6	0.239
Product Acquisition Motivations:				
Role Enactment	0.992	0.467	6	0.833
Choice Optimization	0.973	1.529	6	0.168
Website-Shopping Motivations:				
Efficiency	0.954	2.694	6	**0.014**
Cognitive Stimulation	0.980	1.112	6	0.355
Risk Perceptions:				
Purchase Risk	0.984	0.908	6	0.490

Note: significant effects in bold type.

4.3.1.1 Affiliation

As evident from Table 4.6, the multivariate effect of affiliation on complementarity attributes was not significant (Wilk's lambda = 0.967, F-value = 1.919, p-value = 0.077). Univariate results showed that affiliation had a significant effect on discounts similarity (F-value = 7.683, p-value = 0.006) and a marginally significant effect on product variety similarity (F-value = 3.649, p-value = 0.057). The effect on fulfillment integration was not significant (F-value = 0.128, p-value = 0.721), thus failing to support H31(b) for affiliation motivation.

Examination of means showed that, consistently with the hypothesized relationship in H31(a), shoppers with higher affiliation motivation perceived product variety similarity (means for product variety similarity: high affiliation = 7.2982, low affiliation = 7.9178) and discounts similarity (means for discounts similarity: high affiliation = 6.6757, low affiliation = 7.6155) less important that shoppers with lower affiliation motivation. Thus, H31(a) for affiliation motivation was supported.

Table 4.7 Significant Univariate Effects of Consumer Characteristics on Importance Weights of Complementarity Attributes

Independent Variables	Complementarity Attributes					
	Fulfillment	Product Variety	Brands Assort.	Discounts Simil.	Rebates Simil.	Price Simil.
Store-Shopping Motivations:						
Affiliation	--	√	--	√	--	--
Power/Authority	--	--	--	--	--	--
Sensory Stimulation	--	--	--	--	√	--
Product Acquisition Motivations:						
Role Enactment	--	--	--	--	--	--
Choice Optimiz.	--	√	--	--	--	--
Website-Shopping Motivations:						
Efficiency	--	√	--	--	--	--
Cognitive Stimulation	--	--	--	--	--	--
Risk Perceptions:						
Purchase Risk	√	--	--	--	--	--

4.3.1.2 Sensory Stimulation

The multivariate effect of sensory stimulation was not significant (Wilk's lambda = 0.977, F-value = 1.338, p-value = 0.239). The only significant univariate effect was found for rebates similarity (F-value = 4.700, p-value = 0.031), while the effect of sensory stimulation on fulfillment integration was not significant (p-value = 0.561). Hence, H31(b) for sensory stimulation was not supported.

Again, consistent with the hypothesized relationship in H31(a), shoppers with higher sensory stimulation motivation considered rebates similarity a less important complementarity attribute than shoppers with lower sensory stimulation needs (means for rebates similarity: high sensory stimulation = 8.9228, low sensory stimulation = 9.8792). This finding supports H31(a) for sensory stimulation motivation.

4.3.1.3 Power and Authority

As Table 4.6 shows, the multivariate effect of power and authority was not significant (Wilk's lambda = 0.998, F-value = 0.105, p-value = 0.996). None of the effects on merchandising attributes and fulfillment integration were significant (all p-values > 0.05), thus failing to support H31 for power and authority motivation.

4.3.2 Website-Shopping Motivations

Website shopping motivations of cognitive stimulation and efficiency were proposed to have a positive relationship with complementarity attributes (both merchandising similarity and fulfillment integration). These relationships are presented in H32. The results of each individual MANOVA are reported separately for each website-shopping motivation.

4.3.2.1 Cognitive Stimulation

The multivariate effect of cognitive stimulation on complementarity attributes was not significant (Wilk's lambda = 0.980, F-value = 1.112, p-value = 0.355). Univariate results showed that none of the hypothesized effects were significant (all p-values > 0.05). Thus hypothesis 32(a,b) for cognitive stimulation was not supported.

4.3.2.2 Efficiency

As Table 4.6 shows, the multivariate effect of efficiency was significant (Wilk's lambda = 0.954, F-value = 2.694, p-value = 0.014). Univariate results produced a significant effect for product variety similarity (F-value = 10.235, p-value = 0.037). The effect of efficiency on

fulfillment integration was not significant (p-value > 0.05). Hence, hypothesis 32(b) for efficiency was not supported.

Consistent with H32(a), shoppers with higher efficiency motivation considered product variety similarity a more important complementarity attribute than shoppers with lower efficiency motivation (means for product variety similarity: high efficiency = 7.9623, low efficiency = 7.0108). These results support H32(a) for efficiency motivation.

4.3.3 Product Acquisition Motivations

As stated in Hypothesis 33, product acquisition motivations of choice optimization and role enactment are expected to have a positive relationship with any of the complementarity attributes (merchandising similarity and fulfillment integration). The results of individual MANOVA analyses are reported here for each product acquisition motivation separately.

4.3.3.1 Choice Optimization

The multivariate effect of choice optimization was not significant (Wilk's lambda = 0.973, F-value = 1.529, p-value = 0.168). Univariate results produced a significant effect only for product variety similarity (F-value = 4.224, p-value = 0.041). The effects on other merchandising similarity attributes and fulfillment integration were not significant (all p-values > 0.05).

Contrary to the hypothesized positive relationship in H33(a), shoppers with higher choice optimization motivation considered product variety similarity a less important complementarity attribute than shoppers with lower levels of this motivation (means for product variety similarity: high choice optimization = 7.1992, low choice optimization = 7.8167). In sum, the results of the MANOVA failed to support H33(a,b) for choice optimization.

4.3.3.2 Role Enactment

The multivariate effect of role enactment motivation on complementarity attributes was not significant (Wilk's lambda = 0.992, F-value = 0.467, p-value = 0.833). Similarly, none of the univariate effects on merchandising similarity and fulfillment integration were significant (all p-values > 0.05). Hence, Hypothesis 33(a,b) for role enactment was not supported.

4.3.4 Purchase Risk

This final section discusses MANOVA results for Hypothesis 34, which proposes a positive relationship between purchase risk and consumers' perceptions of importance of fulfillment integration. A one-factor MANOVA for purchase risk produced a non-significant multivariate effect (Wilk's lambda = 0.984, F-value = 0.908, p-value = 0.490). As hypothesized, the only significant univariate effect was found for fulfillment integration (F-value = 4.135, p-value = 0.043). Specifically, shoppers with higher perceptions of purchase risk placed more importance on fulfillment integration than shoppers with lower levels of this risk factor (means for fulfillment integration: high purchase risk = 9.1395, low = 8.2671). These results provide support for H34.

4.3.5 Summary of Results

The objective of Stage Three data analyses was to examine the relationships between some consumer characteristics (shopping motivations and purchase risk) and perceived importance of fulfillment integration and merchandising similarity attributes when choosing among three shopping alternatives (store-only shopping, website-only shopping and multi-channel shopping). Generally, it was proposed that website-shopping and product acquisition motivations would related positively to how much importance shoppers place on all or any of the complementarity attributes. In contrast, store-shopping motivations were expected to have a negative relationship to perceived importance of fulfillment integration and any of the

merchandising similarity attributes. Furthermore, purchase risk was expected to relate positively to perceived importance of fulfillment integration.

When interpreted together, the results of the analyses suggest that shoppers indeed have relatively well defined shopping preferences, characterized to some extent by store-shopping and website-shopping motivations. In turn, these preferences create differences in what attributes shoppers consider important when deciding between channel alternatives.

Thus, store shoppers (dominant affiliation, sensory stimulation, and power/authority motivations) seemed to minimize the importance of complementarity attributes such as product variety similarity, discounts similarity and rebates similarity. In contrast, website shoppers (dominant cognitive stimulation and efficiency motivations) placed greater importance on complementarity attributes (product variety similarity) when choosing among store shopping, website shopping and multi-channel shopping. Contrary to the expectation, shoppers with higher product acquisition motivations (role enactment and choice optimization) exhibited lesser interest in complementarity attributes (product variety similarity).

The results also suggest that fulfillment integration is an important factor for shoppers with heightened purchase risk perceptions. These could be predominantly store shoppers who recognize the value of shopping on the website, yet are worried about the possibility of losing money and going through an emotional rollercoaster if the purchased product does not meet their expectations and needs to be returned. Hence, the issue of fulfillment integration acquires special significance for these shoppers.

This final section provided a general overview of the results of the analyses performed in Stage Three. A summary of specific results can be found in Table 4.8.

Table 4.8 Summary of Hypotheses (H31 through H34) and Results

Hypotheses for Complementarity Attributes:	Expected Relationship	Estimated Relationship	Support or Not (Yes/No)
H31a: any Store-Shopping Motivation – any Merchandising Sim.	--	--	Yes
H31b: any Store-Shopping Motivation – Fulfillment Integration	--	Not Sig.	No
H32a: any Website-Shopping Motivation – any Merchandising Sim.	+	+	Yes
H32b: any Website-Shopping Motivation – Fulfillment Integration	+	Not Sig.	No
H33a: any Product Acquisition Motivation – any Merchand.Sim.	+	--	No
H33b: any Product Acquisition Motivation – Fulfillment Integration	+	Not Sig.	No
H34: Purchase Risk – Fulfillment Integration	+	+	Yes

4.4 Summary

The purpose of this chapter was to explain the analyses performed in testing the proposed hypotheses and to discuss specific results for each hypothesis. Data analysis was performed in three stages. In the first stage, hypotheses H1 through H15 were examined by estimating a conjoint model using HB methodology. The results of this analysis supported 10 out of 15 hypothesized relationships. Most importantly, they provided support for the positive linear relationship among the levels of fulfillment integration (H10) and the positive curvilinear relationship for several merchandising similarity attributes (brand assortment similarity in H12 and discounts similarity in H13).

In the second stage of the data analysis, consumer characteristics (shopping motivations, technology factors and perceived risks) were related to the evaluations of the complementarity attributes (fulfillment integration and merchandising similarity attributes) by estimating the effects of each consumer characteristic on part-worth utilities for attribute levels of each complementarity attribute using a series of MANOVAs (Hypotheses H16 through H30). These analyses supported 14 out of 35 hypotheses and produced additional results that were generally consistent with the theory used in predicting the relationships between consumer characteristics and the evaluations of complementarity attributes.

The last stage of the data analysis examined the relationships between select consumer characteristics (motivations and perceived risk) and consumers' perceptions of importance of the complementarity attributes in choosing among the three shopping channel alternatives of a multi-channel retailer (store, website and multi-channel). These analyses used a MANOVA in estimating the effects of each consumer characteristic on the importance weights of complementarity attributes, which were derived from part-worth utilities for the levels of each attribute. The results of the analyses produced support for three out of 7 hypotheses.

Taken together, the overall results suggest that shoppers prefer closer logistical links between the channels of a multi-channel retailer and some diversity in certain merchandising elements (brand assortment and discounts). Furthermore, websites are perceived to have better capabilities to accommodate such diversity. In addition, the results suggest that shoppers have channel preferences, which influence their evaluations of the complementarity attributes. Even multi-channel shoppers appear to have channel preferences that influence which channel they favor in facilitating merchandising diversity.

CHAPTER 5

CONCLUSIONS AND IMPLICATIONS

The goal of this dissertation was to find an answer to a key question in multi-channel strategy planning, namely: what is the optimum level of integration between channels that maximizes value for multi-channel shoppers? Results of this research have produced interesting findings that pose a challenge to the popular notion of complete channel duplication (Perry 2005).

5.1 Managerial Implications

Fulfillment integration and merchandising similarity issues have important implications for the success of a multi-channel strategy. Industry observers have consistently voiced their criticisms of multi-channel retailers, accusing them of losing touch with customer needs (Rigby 2005). Thus, a retailer who has intimate knowledge of the benefits that customers seek from shopping is already one step ahead of the competition. These customer-responsive companies understand that a successful multi-channel strategy requires more than just coordination of existing channels. In fact, as this research suggests, it calls for a synergistic approach to the creation of a new shared logistical structure with a moderate degree of merchandising diversity between the channels.

5.1.1 Fulfillment Integration

The findings of this research concur with what industry experts have long been advocating, i.e., multi-channel shoppers need greater logistical interdependence between the store and the website of a multi-channel retailer. This multi-channel integration issue is one where consumers are not willing to compromise. In today's highly competitive market, characterized by limited differentiation in product offerings, the quality of the shopping process can be an important competitive advantage, sustainable through ongoing efforts to ensure operational integrity of the integrated logistical structure. Cross-channel integrated fulfillment

creates numerous customer benefits that include shopping flexibility, convenience, and shopping efficiency, just to name a few. In a closely integrated multi-channel system, customers can move effortlessly between the channels, leveraging each channel's strengths and minimizing the impact of channels' weaknesses (Chandler 2005).

For retailers, the key selling proposition of highly integrated fulfillment is that it has important benefits for their bottom line. Despite the fact that the creation and maintenance of a closely integrated fulfillment structure requires ongoing investing in logistics and research, this type of strategy offers retailers critical marketing and customer relationship management opportunities. From the marketing perspective, integrated fulfillment enhances the retailer's cross-promotional efforts, offers opportunities for cross-channel selling, supports a more cost-effective customer acquisition strategy, and improves the quality of customer research that can help fine-tune the company's multi-channel strategy. The opportunities in customer relationship management include the creation of a shared customer database that could be used to enhance the retailer's direct marketing efforts and improve customer retention. In addition, close fulfillment integration can improve the company's efforts to provide effective after-sale support that would further contribute to higher customer retention. In fact, a company's ability to retain existing customers can be dramatically improved as a result of greater fulfillment integration. The reason is that highly integrated store and website logistics facilitate a seamless shopping experience that results in greater customer satisfaction and an opportunity to build long-term relationships.

In sum, closely integrated fulfillment is a win-win multi-channel strategy that benefits not only shoppers but also retailers. The challenge, however, is to understand what fulfillment integration attributes customers value the most, and then focus on creating a multi-channel system that provides these highly valued customer benefits.

5.1.2 Merchandising Similarity

The dissertation results also suggest that multi-channel shoppers do not necessarily want the store and the website to mirror each other in terms of product lines, brand assortment and promotions. Certainly, there is a need for some consistency in these merchandising elements, because it gives consumers the freedom to decide which channel they want to use at different stages of the purchasing process (i.e., product research, comparison shopping, purchase and post-purchase processes). Yet, shoppers appear to recognize the inherent advantages of a website, relative to a store, in offering larger assortment of merchandise and promotional offers. Moderate diversity between the channels, especially when facilitated by the website, offers shoppers more opportunities to find the right product at a good price from their favorite retailer. These findings provide a competing view to the general opinion of industry experts, stating that a successful multi-channel strategy must be built on close cross-channel integration in both fulfillment and merchandising aspects.

Moderate diversity between channels benefits not only shoppers but also retailers. By utilizing their websites to its fullest potential, multi-channel retailers do not only provide more value for their customers but also increase their own chances to make additional sales (New Media Age 2005). In addition, moderate cross-channel diversity provides opportunities for cross-selling. For instance, when a shopper is picking out an outfit, a well trained sales associate can direct this customer to the Internet kiosk, strategically located in the store, to research the website inventory for shoes and accessories that can complement the chosen outfit. Coupled with closely integrated fulfillment, moderate cross-channel diversity creates a more satisfactory customer experience while also increasing the monetary value of the purchase.

The challenge that multi-channel retailers face lies in determining what types of products and brands should be consistent across channels and which ones can be used to add more value

through differentiation. This is not an easy problem to solve, and management will have to rely heavily on its knowledge of customers and competitors. Market research will be essential in providing the answers to some of the key questions related to the design of partially-differentiated merchandising strategy. Logically, it appears that the consistent core of products across channels would include fast-moving product lines and those that have greater variability in size and quality, thus requiring greater pre-purchase inspection and trial (e.g., apparel). Bulky items that are difficult to ship (e.g., furniture, appliances) are also better adapted for store selling. On the other hand, website merchandise may include branded products and product lines that have more or less consistent quality (e.g., accessories, some apparel, electronics, etc.). In fact, even experiential products like apparel could be successfully sold online as long as the website merchandising diversity is supported by closely integrated fulfillment, thus allowing shoppers to return and exchange online purchases if they did not meet their expectations.

5.1.3 Consumer Channel Preferences

At the beginning of this dissertation, it was acknowledged that multi-channel retailers serve not only multi-channel customers but also single-channel store and single-channel website shoppers. Thus, the possibility that a multi-channel strategy designed to maximize the value of multi-channel customers could alienate single-channel shoppers, especially traditional store customers, should be taken into consideration when deciding on a multi-channel merchandising strategy. The opinion of industry experts on this issue is reflected in their advocacy of channel duplication (Business Wire 2005). In other words, in order to please all customers, it is better to offer them exactly the same products and promotional mix in the store and on the website. This is indeed a sensible strategy, if the retailer's objective is to pursue a low-risk and low-returns strategy. Yet, if the goal of the retailer is to enhance value for its most profitable customers, who

are known to be multi-channel shoppers, then the partially-differentiated merchandising strategy should be considered.

Still, retailers must keep in mind that even multi-channel shoppers have well defined channel preferences influencing how they evaluate different integration attributes. Specifically, the results of this research suggest that shoppers with a store shopping preference want the store to carry more product lines, more brands and more discounts than the website. They also appear content with complete merchandising duplication across the channels. In contrast, website shoppers desire greater diversity on the website and prefer differentiation over complete merchandise matching between the channels.

5.2 Theoretical Contributions

From the theoretical perspective, the main contribution of this dissertation is in bringing to the forefront of research the concept of **Channel Complementarity**. This dissertation is the first known research effort to address multi-channel strategy from the consumer perspective on channel integration. It examines how consumers interpret channel integration and what factors they use in defining complementarity between the channels. Specifically, channel complementarity is posited as a key concept that guides consumers' evaluations of a multi-channel strategy by determining what benefits they receive from the multi-channel distribution system. These benefits are construed within the parameters of fulfillment integration or merchandising similarity, which are the value-defining dimensions of channel complementarity.

In addition, this dissertation offers theoretical explanations of how shoppers mentally combine channels into a unified distribution system, and what process guides the formation of their channel preferences. This conceptualization draws heavily on branding research, thus underscoring the need for theory development in the area of multi-channel distribution.

Finally, the results of this dissertation demonstrate the importance of considering consumer characteristics when evaluating different multi-channel strategies. Consumer characteristics such as shopping motivations, attitude toward technology, expressed through either technology-related anxiety (negative attitude) or use innovativeness (positive attitude) and lastly, perceived risks influence not only what channels shoppers prefer but also how they evaluate integration characteristics of a multi-channel distribution system. Further research could consider some sociological factors (e.g., cultural and reference group influences) that may relate to consumers' willingness to adopt the Internet as a shopping channel.

5.3 Limitations

Like any experiment, this research has several limitations. First, it used a convenience sample of students, thus making it difficult to generalize to larger shopping population. Yet, it should be noted that students are a primary target market for many multi-channel retailers (e.g., Abercrombie & Fitch CO., American Eagle and Old Navy), and the participants in this research had extensive experience with shopping in stores and on websites.

A second limitation involves the complexity of the experimental task. Specifically, participants had to review substantial amounts of information before and while making choices, thus potentially contaminating some of their results due to information overload. To reduce the possibility of information overload, the experiment administrator used a PowerPoint presentation, explaining the procedure and the stimuli. Furthermore, the possible effects of information overload were examined in the estimation process through the identification of reversals.

The third limitation relates to lack of control over how respondents filled out the questionnaire asking about consumer characteristics. It is possible that some respondents put

very little thought in their answers, thus affecting the validity and the reliability of the measures of consumer characteristics.

Additionally, this research is limited in its practical application. As the assumptions of the proposed model state, this research examines value creation from the multi-channel customer perspective. Thus, channel complementarity is a relevant construct for consumers who have access to both the store and the website of a multi-channel retailer. On the other hand, companies using a multi-channel strategy for geographical expansion – i.e., setting up a website to reach consumers in remote locations – would have a mix of customers, including store shoppers, multi-channel shoppers, and website shoppers.

Each group of customers has a unique set of needs and different perceptions about channel complementarity. For instance, as present research shows, store shoppers may not be particularly concerned with fulfillment integration and their attitude toward merchandising similarity may reflect a desire for greater product mix and promotional diversity in the store, thus highlighting their general bias toward store shopping.

Website shoppers, on the other hand, may comprise a heterogeneous group of consumers who shop on the Internet for different reasons. Those website shoppers who do not have access to the retailer's store will have no opinion about the degree of complementarity between the multi-channel retailer's stores and website. Yet, their shopping needs will be best served by a website offering numerous product lines, deep brand assortment, and a large selection of promotional offers. The second type of website shoppers, who choose to shop online despite having access to the retailer's stores, may also have a biased view of channel complementarity, favoring website shopping experience. As the results of this research suggest, "voluntary" website shoppers desire greater fulfillment integration and greater product mix and promotional diversity on the website, seeking economic justification for their online shopping preference. In

fact, complementarity perceptions of "voluntary" website shoppers appear to be similar to the perceptions of multi-channel shoppers, as reflected in the aggregate part-worths for the complementarity attributes.

In sum, it is the responsibility of the management team to identify its target customer group when designing a multi-channel strategy. Furthermore, how the company positions itself in terms of the retail category in which it competes (e.g., boutique, specialty, department store, etc.) is likely to influence the multi-channel strategy the company decides to pursue. For instance, large retail operations like department stores (e.g., J.C. Penney and Dillard's) and category killers (e.g., Toys-R-Us) may choose to integrate their physical and online channels through closely aligned fulfillment and complete merchandising duplication. On the other hand, specialty stores (e.g., GAP) and boutiques may choose to compensate for their spatial limitations by utilizing their websites to their fullest potential.

5.4 Summary

In sum, this dissertation has posed challenging questions that take a closer look at the issues involved in designing a successful multi-channel strategy. These questions are not easy to answer and require a combination of management expertise, acquired through a hands-on experience in developing and implementing a multi-channel strategy, and market research that can give managers a more accurate perspective on their customers' needs and competitors' strategies. The findings of this dissertation generally support a multi-channel strategy based on close logistical integration and moderate, website-driven, diversity between the channels. The findings also suggest that, despite different channel preferences, shoppers follow their value maximizing attitudes in seeking greater product variety, larger assortment and more promotions when doing business with multi-channel retailers.

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APPENDIX A

CONCEPTUAL DEFINITIONS

1. **Perceived Channel Complementarity** is the degree to which multiple retail channels work synergistically to create aggregate value, which is referred to as convergence value. Complementary channels give customers integrated solutions that create more value than would be possible if the two channels operated as independent entities.
2. **Fulfillment Integration** is defined as consumer perceptions about the existence of logistical links between the channels of the same company, which create purchasing process benefits that enable a customer to use these channels interchangeably.
3. **Merchandising Similarity** is defined as consumer perceptions about the degree of correspondence between channels in terms of product variety, assortment, pricing, and promotion.
4. **Shopping Mode Preference** is the consumer predisposition to use a certain channel when shopping.
    - **Single-Channel Preference** is the predisposition to shop either in the multi-channel retailer's store or on its website. Depending on consumers' shopping motivations and other factors, they are classified as either single-channel store shoppers or single-channel website shoppers.
    - **Multi-Channel Preference** is the predisposition to make purchases in all channels of the same retailer. A customer may elect to shop both in the store and on the website prior to making a single purchasing decision. Alternatively, he/she may use the two channels on separate shopping occasions.
5. **Shopping Motivations** are defined as unobservable inner forces that stimulate and compel an individual to interact with the retailing community and provide specific

direction to his/her behavior (Attaway 1989). Several shopping motivations have been identified for their likely ability to discriminate between consumer channel preferences:

- **Affiliation** is a social motive, defined as "the motivation to affiliate directly or indirectly with other individuals involved in marketplace institutions, principally other shoppers and merchants" (Westbrook and Black 1985, p. 87). Direct affiliation involves social interactions and communications. Therefore, it subsumes Tauber's (1972) motivations of social experiences (obtaining a variety of social experiences outside of home) and communication with others (engaging in verbal interaction with other people who may share similar interests and attitudes). Indirect affiliation refers to the process, in which shoppers identify with particular reference groups through their patronage, dress, or mannerisms in retail settings. Thus, indirect affiliation is closely related to Tauber's (1972) peer group attraction motivation (aspiration to belong to a certain reference group).
- **Power and Authority** are social motivations, reflecting a person's desire to command attention and respect. These motivations concern the attainment of the elevated social position and control over another person's activities in the course of social interaction during shopping. "Most typically, these relationships involve retail personnel and are reflected in behavior of the latter to serve and please the shopper/customer through attention, respect, and deference" (Westbrook and Black 1985, p. 87). Tauber (1972) empirically identified this motive and termed it status and authority.
- **Sensory Stimulation** is an experiential motive, reflecting a person's desire to seek novel and interesting stimuli from the retail environment using sensory faculties (Tauber 1972). This motive is defined more narrowly than Westbrook

and Black's (1985) stimulation motive, which also includes stimuli that can be processed with emotive and cognitive faculties.

- **Efficiency** is a utilitarian motive, reflecting a person's need to acquire a product while minimizing secondary costs of shopping such as time, effort, and psychic costs (Downs 1961; Bender 1964; and Zeithaml 1988).
- **Cognitive Stimulation** is the motivation to seek novel and interesting stimuli from the retail environment that can be processed with cognitive faculties (Westbrook and Black 1985). This motivation is reflected in the satisfaction that some individuals experience from searching for and finding information about new products and trends, solving puzzles, imagining themselves using products, and so forth.
- **Role Enactment** is "the motivation to identify with and assume culturally prescribed roles regarding the conduct of shopping activity" (Westbrook and Black 1985, p. 87). Role enactment is closely related to Tauber's (1972) role playing, which he described as the motivation to perform behaviors that are traditionally expected or accepted as part of a certain position or role in society.
- **Choice-Optimization** is "the motivation to search for and secure precisely the right product to fit one's demands. Such demands may or may not be directly articulable prior to shopping. The gratifications experienced when this motivation is fulfilled are reflected in a sense of achievement and mastery of the choice environment" (Westbrook and Black 1985, p. 87).

6. **IT Use Innovativeness** is an individual characteristic describing a person's tendency to seek novel uses of the Internet technology (Shih and Venkatesh 2004). Creative and

curious individuals are likely to exhibit higher levels of IT use innovativeness (Price and Ridgeway 1983).

7. **Technology Anxiety** is the fear, apprehension, and hope people feel when considering use or actually using technology. Technology anxiety focuses on the user's state of mind regarding his/her ability and willingness to use the technology (Meuter et al. 2003).
8. **Online Security Risk** is a subjectively determined expectation of monetary loss caused by the possibility that one's credit card information may be misused.
9. **Purchase Risk** refers to a consumer's perceptions about the possible loss of money and time as well as inconvenience associated with the process of buying a product online. Specifically, purchase risk perceptions reflect a consumer's uncertainty about the e-tailer's ability and willingness to fulfill its transactional obligations such as order-filling, billing and delivery in the best interests of the customer.

APPENDIX B

QUALITATIVE RESEARCH MATERIALS

B.1 Shopper Profiles

Shopper A

This type of shopper views shopping as an opportunity for a social experience outside of home. Spending time with friends and family, meeting new people, socializing and bonding with others while shopping, and receiving personal service and attention from a salesperson are some of the benefits that this group of consumers seeks from the shopping experience. Spending time with friends and family is definitely worth the time and effort spent in making the trip, finding a parking space, and fighting the crowds.

Shopper B

This type of shopper seeks the experiential benefits of shopping, which include browsing through the racks and displays, trying on clothes, experiencing products and store atmosphere by touching, smelling, seeing, and hearing. The pleasure that this shopper receives from experiencing the store environment and the merchandise are definitely worth the time and effort spent in making the trip, finding a parking space, and fighting the crowds.

Shopper C

This shopper values efficiency more than social and sensory experiences of shopping. Efficient shopper may perceive a chronic shortage of free time due to his/her busy lifestyle. This type of consumer sees shopping as a necessary activity rather than a pleasurable way to spend time. This shopper does not care much for personal service and social interaction during shopping and is often willing to pay additional shipping costs in order to avoid going to the store.

Shopper D

This type of shopper loves technology and the learning opportunities it provides. He/she enjoys gathering detailed information about products. They strongly believe that knowing everything about the upcoming purchase will help them make a better decision. As a result, they are willing to spend a lot of time researching a number of products before making their final pick. They like researching products on the Internet because it allows them to control the speed, accuracy, and extent of their search activity. They believe that the quality of information acquired from the retailer's website is likely to exceed the quality of information obtained from a salesperson because of a number of human factors (e.g., training, memory, mood, distraction) that are nonexistent online.

Shopper E

This type of shopper finds surfing the Internet a fun and exciting activity. They see an outfit and imagine what it would look like on them; they see a travel ad for Bahamas and imagine themselves lying on the gold sand beach, sipping cocktails and enjoying the sound of the ocean waves, etc. In general, when they see an ad they like to imagine themselves using the product or service. This type of shopper is generally creative and has rich imagination.

B.2 In-Depth Interview Script

1. Please read the following profiles and pick the one that describes you the most accurately.
2. What are some of the reasons why you would go shopping?

3. What are the advantages of shopping in a store?

4. What are the disadvantages of shopping in a store?

5. What are the advantages of shopping on a company's website?

6. What are the disadvantages of shopping on a company's website?

7. In your opinion, what does it mean when a retailer's store and website complement each other?

8. What characteristics describe closely integrated store and website? Think about the shopping activities made possible through close integration between a retailer's store and its website.

9. What are the benefits of shopping with a retailer whose store and the website are closely integrated?

10. How much of integration should there be between the store and the website? Should there be some optimum level of integration?

11. When we talk about similarity between the store and the website in terms of merchandise, what do we mean?

12. When it comes to the retailer's merchandise, how much of similarity should there be between the store and the website?

13. What should be the same across the store and the website?

14. What should be different across the store and the website?

15. Do you enjoy using the Internet?

16. How much time do you spend every day on the Internet?

17. Do you have any concerns about using the Internet? Are you comfortable using the Internet?

18. Do you like exploring the different ways you could use the Internet?

19. Do you ever worry about the security of your credit card information when you make payments online?

20. You describe yourself as a (store) (online) shopper, can you think of any circumstances when you would shop (on the website) (in the store)?

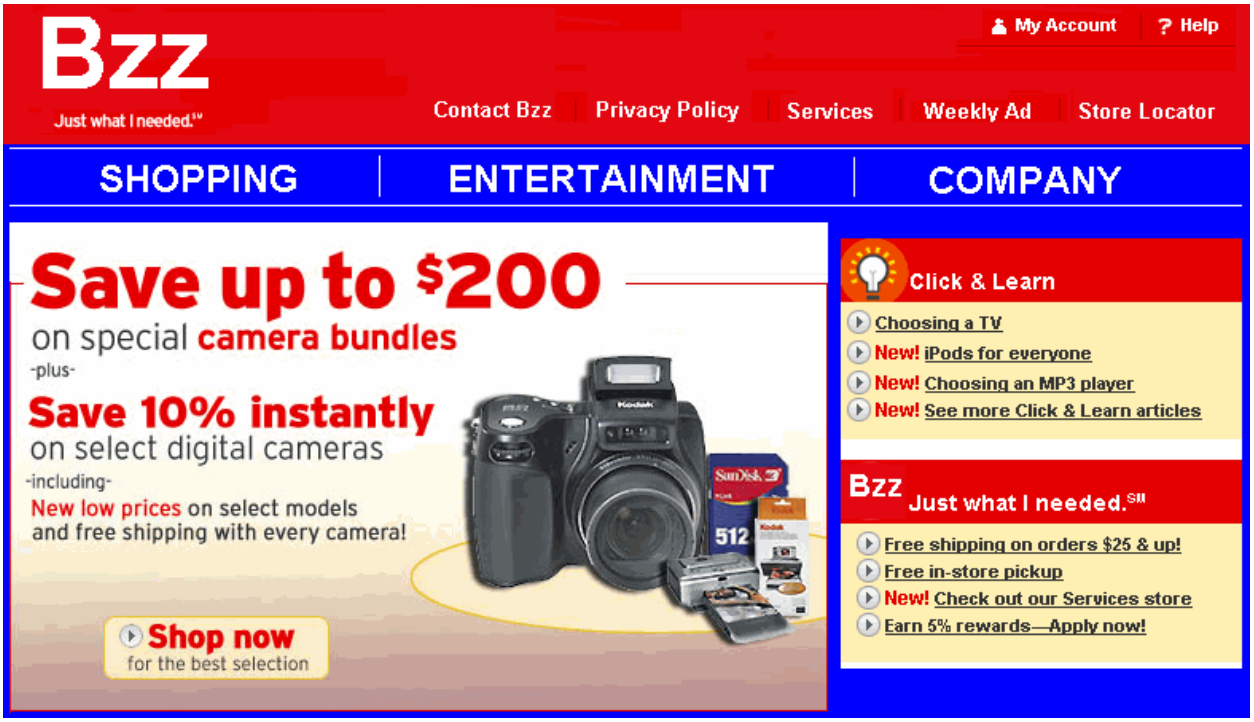
APPENDIX C

VISUALS PRETEST

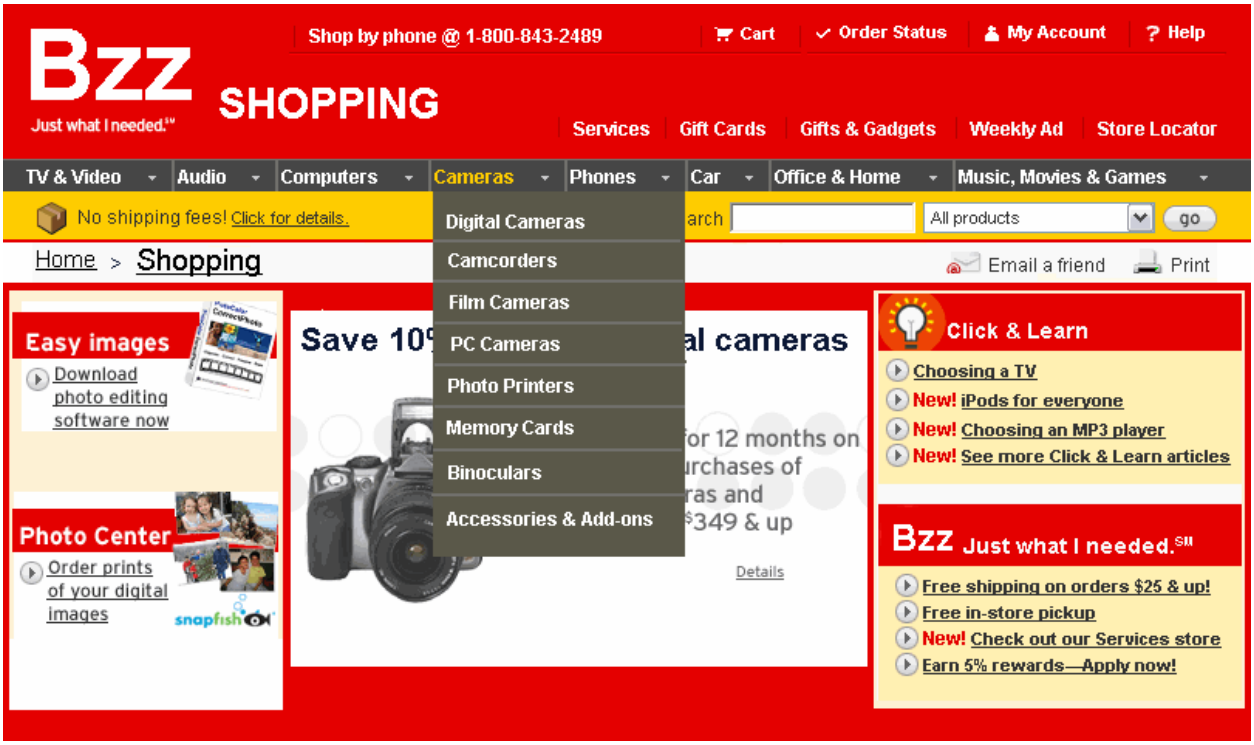
C.1 Pretest of Website Visuals

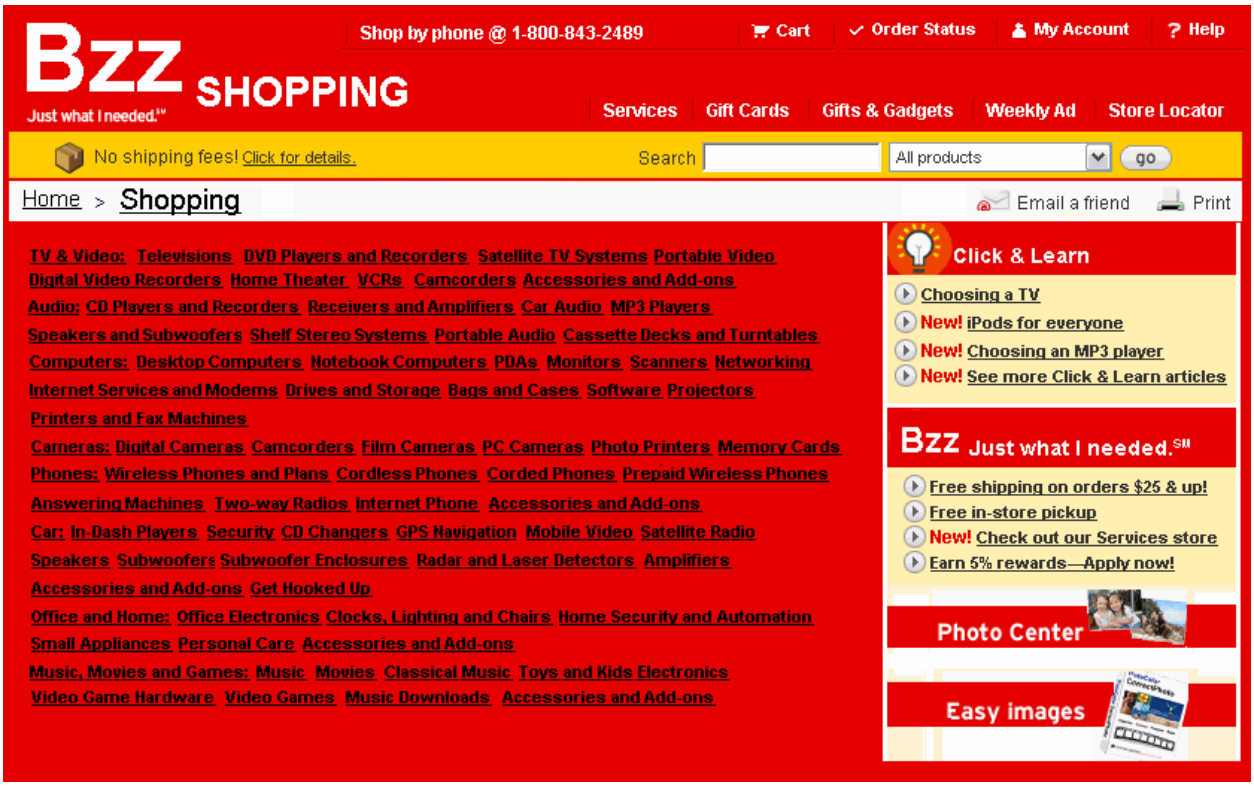
Bzz is a company that sells a variety of electronic, computer and photo imaging products. Imagine yourself browsing through the following pages of the **Bzz** website with the purpose of selecting and purchasing a digital camera. The **Bzz** website pages that you will see include the ***shopping page***, the ***product information page***, and the ***entertainment page***. Please examine these web pages carefully. When you are finished, turn to the questionnaire and respond to all questions.

Home Page

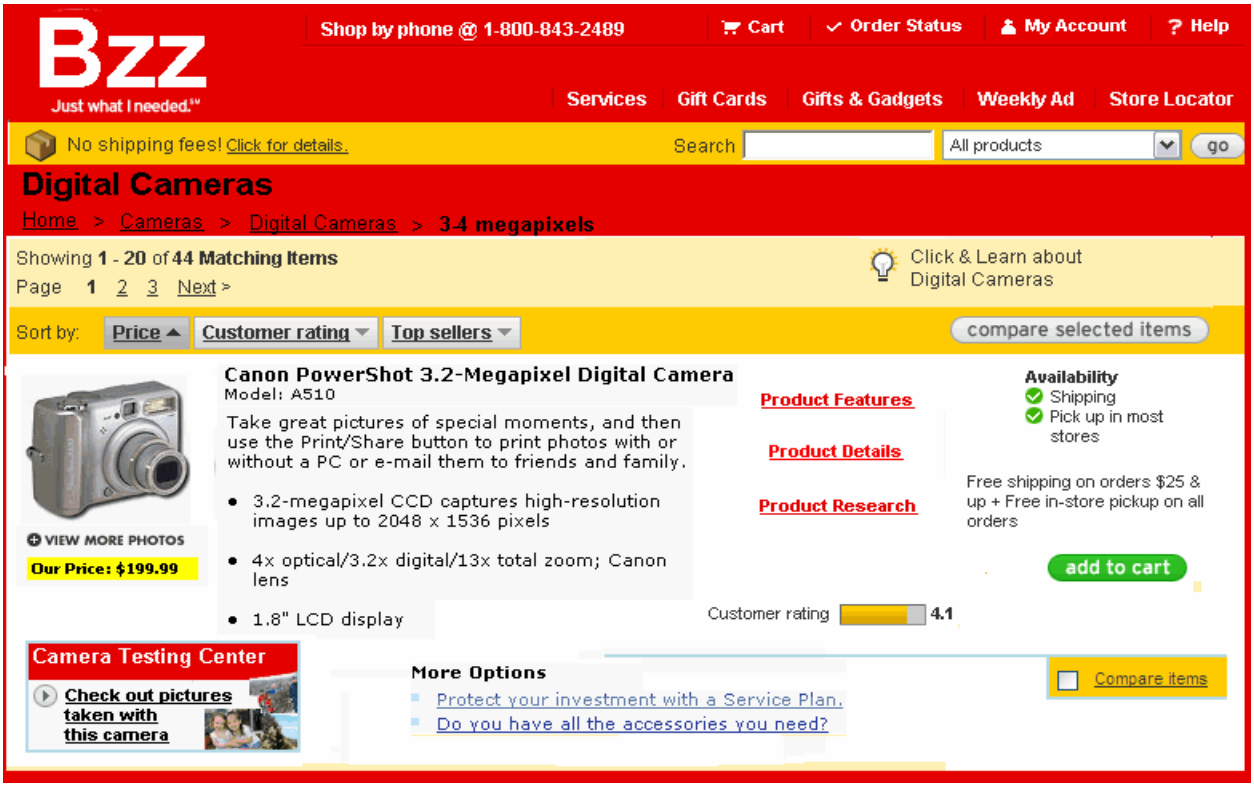


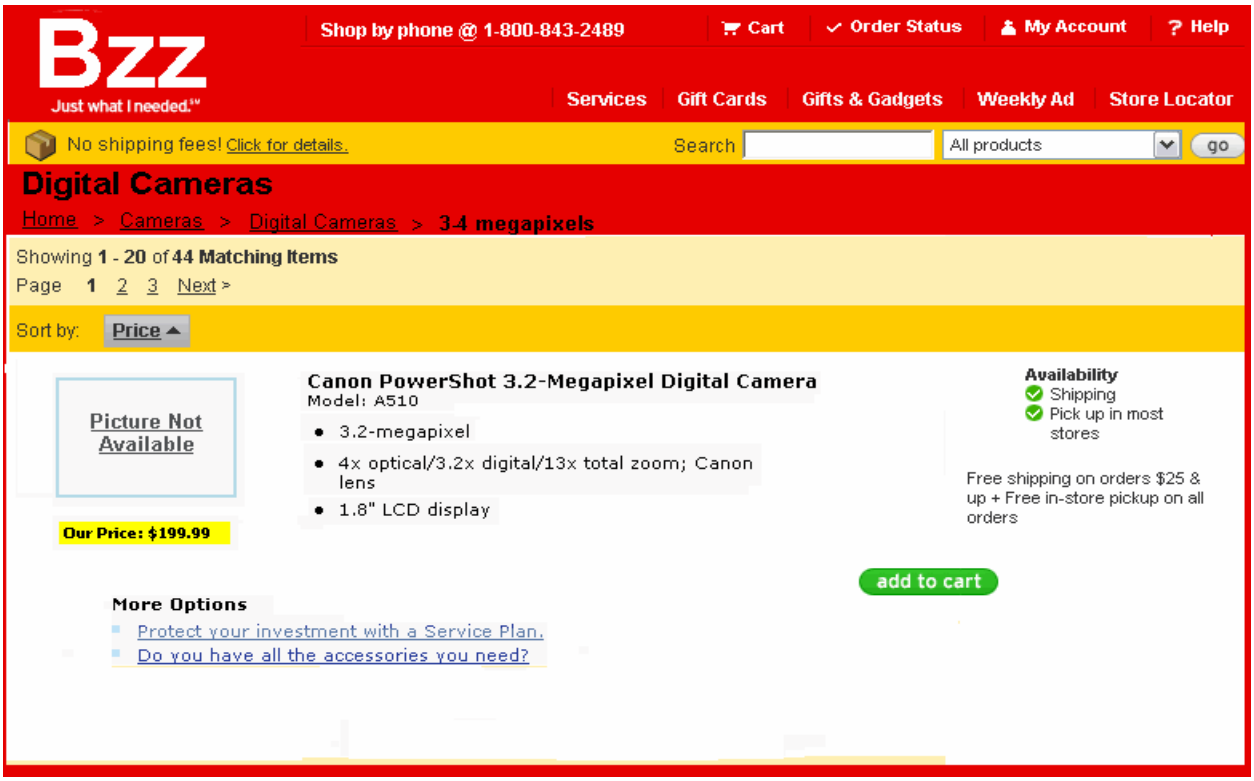
Shopping Page



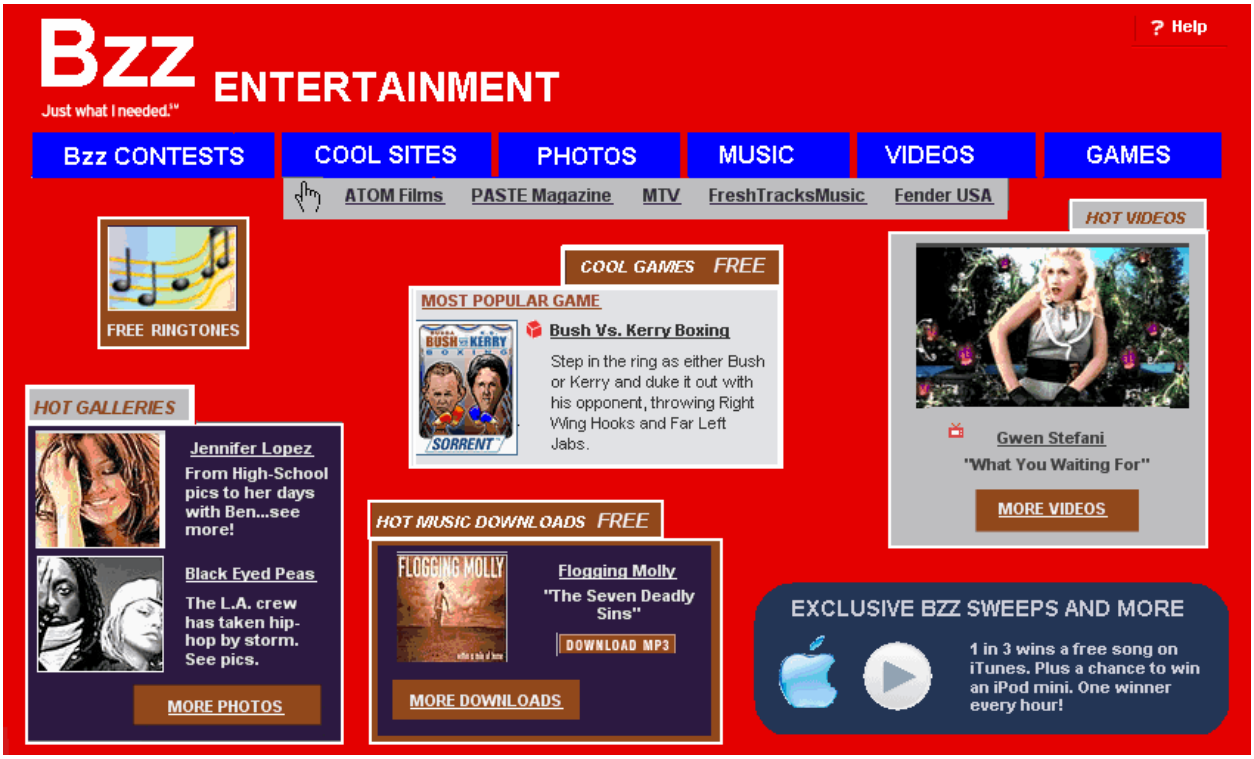


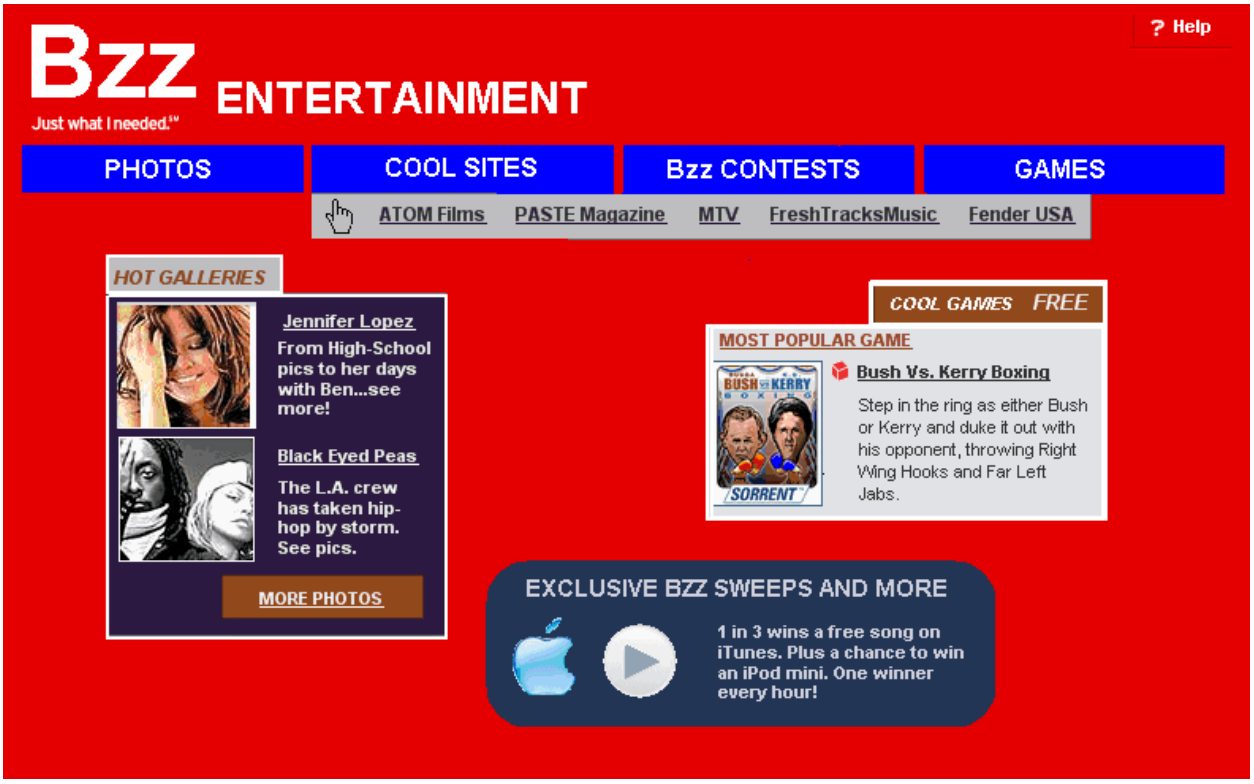
Product Information Page





Entertainment Page





Website Questionnaire

I. First, give us your impressions of the Home Page of the Bzz website, which is the first website page you saw. It contains a promotional message for a camera and the links to the company's shopping, entertainment, and company information.

	Poor									Excellent
1. Visual appeal	1	2	3	4	5	6	7	8	9	10
2. Organization	1	2	3	4	5	6	7	8	9	10
3. Ease of navigation	1	2	3	4	5	6	7	8	9	10

II. Now, evaluate the Shopping Page of the Bzz website. The Shopping Page lists the products offered on the Bzz website.

	Poor									Excellent
4. Organization	1	2	3	4	5	6	7	8	9	10
5. Ease of seeing available products	1	2	3	4	5	6	7	8	9	10
6. Ease of navigation	1	2	3	4	5	6	7	8	9	10

III. Next, the Product Information Page of the Bzz website, which contains information about Canon PowerShot 3.2-megapixel digital camera.

	Poor									Excellent
7. Product information amount	1	2	3	4	5	6	7	8	9	10
8. Product information usefulness	1	2	3	4	5	6	7	8	9	10
9. Product information detail	1	2	3	4	5	6	7	8	9	10
10. Ease of selecting a product	1	2	3	4	5	6	7	8	9	10

IV. Finally, evaluate the Entertainment Page of the Bzz website containing entertainment features such as Bzz sweepstakes, links to cool websites, games, etc.

	Poor									Excellent
11. Entertainment amount	1	2	3	4	5	6	7	8	9	10
12. Interest value of the page	1	2	3	4	5	6	7	8	9	10
13. Excitement value of the page	1	2	3	4	5	6	7	8	9	10

V. The following questions refer to your decision to shop on the Bzz website.

14. If you were looking to buy a digital camera online, would you shop on Bzz.com? **Yes _____** **No_____**

15. If you were to actually shop on the Bzz website, how likely would you feel:

	Not At All Likely									Very Likely
a) Confident	1	2	3	4	5	6	7	8	9	10
b) Pleased	1	2	3	4	5	6	7	8	9	10
c) Satisfied	1	2	3	4	5	6	7	8	9	10
d) Involved	1	2	3	4	5	6	7	8	9	10
e) Indifferent	1	2	3	4	5	6	7	8	9	10
f) Anxious	1	2	3	4	5	6	7	8	9	10
g) Annoyed	1	2	3	4	5	6	7	8	9	10
h) Bored	1	2	3	4	5	6	7	8	9	10

VI. The following set of questions asks you about your shopping behavior on the Internet in general. These questions focus on your general experience with online retailers of electronic products and DO NOT refer to the Bzz website.

	Never	Once A Year	Every 6 Months	Every 3 Months	Once A Month	Once A Week	Every Day
16. How often do you search for information from the Internet retailers about electronic products you intend to buy in the near future?	_____	_____	_____	_____	_____	_____	_____
17. How often do you purchase electronic products online?	_____	_____	_____	_____	_____	_____	_____

	I Do Not Shop Online	Less Than 30 Minutes	30 Minutes To 1 Hour	1 To 2 Hours	More Than 2 Hours
18. How much time do you spend when shopping online?	_____	_____	_____	_____	_____

	More Than 10% Lower	0 To 10% Lower	Same As In Stores	0 To 10% Higher	More Than 10 % Higher
19. Compared to store prices, online prices are:	_____	_____	_____	_____	_____

	More Than 10% Less	0 To 10% Less	Same As In Stores	0 To 10% Greater	More Than 10% Greater
20. Compared to stores, the online retailers' selection of:					
a) different products	_____	_____	_____	_____	_____
b) different brands	_____	_____	_____	_____	_____

The next two questions ask you to provide your estimates of shipping charges (in dollars $) and delivery time (in days). Make sure you provide these estimates for all categories.

For example: ***Lowest Charges Expected $ 3.99*** ***Average Charges Expected $ 6.99*** ***Highest Charges Expected $ 9.99***

21. In your opinion, what shipping charges for a digital camera bought online for $ 199.99 would be considered:	**Lowest Charges Expected $_____**	**Average Charges Expected $_____**	**Highest Charges Expected $_____**
22. In your opinion, what delivery time for a digital camera bought online for $ 199.99 would be considered:	**Very Short____(days)**	**Average ____(days)**	**Very Long____(days)**

Thank You for Your Participation!

C.2 Pretest of Store Visuals

Bzz is a company that sells a variety of electronic, computer and photo imaging products. The following images are examples of the kind of atmosphere and product displays you will find in Bzz stores. Please examine these images carefully. When you are finished, turn to the questionnaire and respond to all questions.

Store Atmosphere

Product Display

Store Questionnaire

I. First, we'd like you to evaluate the shopping environment in Bzz store based on the picture of store atmosphere you have just seen.

	Poor									**Excellent**
1. Store décor	1	2	3	4	5	6	7	8	9	10
2. Shopping environment	1	2	3	4	5	6	7	8	9	10
3. Visual appeal of the store	1	2	3	4	5	6	7	8	9	10

II. Now please evaluate the product displays in Bzz store judging by the picture of a product display you have just seen.

	Poor									**Excellent**
4. Attractiveness of product displays	1	2	3	4	5	6	7	8	9	10
5. Ability to examine products	1	2	3	4	5	6	7	8	9	10
6. Ease of selecting a product	1	2	3	4	5	6	7	8	9	10

III. Have you ever shopped at a store with similar atmosphere and product displays?

Yes _____ No _____

What is the name of the store? _____

IV. The following questions ask you to make inferences about your possible shopping experience if you were to shop in Bzz store in real life.

When shopping in Bzz store, how likely would you feel:

	Not At All Likely									**Very Likely**
7. Pleased	1	2	3	4	5	6	7	8	9	10
8. Satisfied	1	2	3	4	5	6	7	8	9	10
9. Excited	1	2	3	4	5	6	7	8	9	10
10. Involved	1	2	3	4	5	6	7	8	9	10
11. Indifferent	1	2	3	4	5	6	7	8	9	10
12. Frustrated	1	2	3	4	5	6	7	8	9	10
13. Annoyed	1	2	3	4	5	6	7	8	9	10
14. Bored	1	2	3	4	5	6	7	8	9	10

THANK YOU FOR PARTICIPATING!

APPENDIX D

SCALES PRETEST

Part I. The following questions ask about your attitude towards technology and the Internet.

	Strongly Disagree						Strongly Agree
1. I am confident I can learn technology-related skills.	1	2	3	4	5	6	7
2. I have difficulty understanding most technological matters.	1	2	3	4	5	6	7
3. I feel apprehensive about using technology.	1	2	3	4	5	6	7
4. I am able to keep up with important technological advances.	1	2	3	4	5	6	7
5. I hesitate to use technology for fear of making mistakes I cannot correct.	1	2	3	4	5	6	7
6. I am very curious about how the Internet works.	1	2	3	4	5	6	7
7. I am comfortable doing things on the Internet that are different from what I am used to.	1	2	3	4	5	6	7
8. I use the Internet in more ways than most people do.	1	2	3	4	5	6	7
9. I like figuring out how to do different things on the Internet without anyone's help.	1	2	3	4	5	6	7

Part II. The following questions ask about your perceptions of risk when ordering products from a website.

	Strongly Disagree						Strongly Agree
10. Most websites have adequate security features.	1	2	3	4	5	6	7
11. I generally feel secure giving out my credit card information when I make purchases online.	1	2	3	4	5	6	7
12. I generally feel safe in my online transactions.	1	2	3	4	5	6	7
13. When shopping online, I am always worried that:							
a. The website would get my order wrong.	1	2	3	4	5	6	7
b. I would be billed incorrectly.	1	2	3	4	5	6	7
c. The website may have misrepresented the product.	1	2	3	4	5	6	7
d. It would take forever for the order to arrive.	1	2	3	4	5	6	7
e. I might not receive my order at all.	1	2	3	4	5	6	7
f. The product I ordered might not work (or fit).	1	2	3	4	5	6	7

Part III. The following questions ask about the reasons that motivate you to shop.

	Strongly Disagree						Strongly Agree
14. I enjoy socializing with others when I shop.	1	2	3	4	5	6	7
15. To me, shopping with friends or family is a social occasion.	1	2	3	4	5	6	7
16. Shopping with others is a bonding experience.	1	2	3	4	5	6	7
17. I enjoy the feeling of power I have when being served by a salesperson.	1	2	3	4	5	6	7
18. I always make salespeople drop what they are doing to cater to my needs.	1	2	3	4	5	6	7
19. I often feel superior to the salespeople that wait on me.	1	2	3	4	5	6	7
20. I enjoy looking at interesting or attractive store displays.	1	2	3	4	5	6	7
21. I love the "feel" of a store which is in tune with my needs and desires.	1	2	3	4	5	6	7
22. It is a pleasure to visit a store which has a tasteful and nicely decorated store interior.	1	2	3	4	5	6	7
23. I sometimes imagine which products I might buy if I had unlimited monetary resources.	1	2	3	4	5	6	7
24. I enjoy imagining myself wearing or using certain products.	1	2	3	4	5	6	7
25. I often find myself thinking about products I would like to purchase or own.	1	2	3	4	5	6	7
26. Doing the buying is one of my roles for the household.	1	2	3	4	5	6	7
27. Doing the family shopping makes me feel "fulfilled" as a person.	1	2	3	4	5	6	7
28. I don't mind doing the shopping for other household members if they can't.	1	2	3	4	5	6	7
29. I find myself doing all the gift-buying for the household.	1	2	3	4	5	6	7
30. For the most part, I go shopping when there are sales.	1	2	3	4	5	6	7
31. I enjoy looking for discounts when I shop.	1	2	3	4	5	6	7
32. I enjoy hunting for bargains when I shop.	1	2	3	4	5	6	7
33. I go shopping to take advantage of sales.	1	2	3	4	5	6	7
34. I only go shopping if I need to buy something.	1	2	3	4	5	6	7
35. In my opinion, shopping is a waste of time.	1	2	3	4	5	6	7

	Strongly Disagree						Strongly Agree
36. When I go shopping, my goal is to get in and out of the store as quickly as possible.	1	2	3	4	5	6	7
37. In my opinion, shopping is extremely time-consuming.	1	2	3	4	5	6	7
38. Shopping takes my time away from more important things.	1	2	3	4	5	6	7

Part IV. A multi-channel retailer is one that sells products in its stores and on the website. For example, shoppers have an option of purchasing Gap apparel and accessories in Gap stores and on Gap.com. In this section we are interested in what you think about integration/coordination between the store and the website operations of a multi-channel retailer.

You will see two sets of statements that describe different degrees of integration/coordination between the store and the website of a multi-channel retailer. You are required to do the following:

1) **First, check the statements, which clearly indicate that the store and the website of a multi-channel retailer are well-coordinated. Check as many statements as you think appropriate.**

2) **Once you complete the above task, you will need to rate the checked statements in terms of their importance to you on a scale from 1 to 10, where 1 is the least important and 10 is the most important.**

A. When shopping at the multi-channel retailer XYZ, I am able to:	**Check here (X)**	**Rate here (1-10)**
Check availability of products in the store from the website	_____	_____
Access the website's inventory in the store via the Internet-linked kiosk	_____	_____
Order something from the website without leaving the store	_____	_____
Find the product I saw in the store on the website	_____	_____
Pay for my website order in the store	_____	_____
Pick up my website order in the store free of charge	_____	_____
Return my store purchases by mail	_____	_____
Return my website purchases to the store	_____	_____
Exchange my website order in the store	_____	_____
Use my gift card in the store and on the website	_____	_____
Earn rewards when I shop in the store and on the website	_____	_____
Redeem my frequent shopper rewards both in the store and on the website	_____	_____

B. The store and the website of the multi-channel retailer XYZ:	Check here (X)	Rate here (1-10)
Sell the same products	_____	_____
Sell the same sizes and colors	_____	_____
Have the same sales	_____	_____
Give the same rebates on products	_____	_____
Redeem the same coupons	_____	_____
Have the same retail prices	_____	_____

Part V. The following questions are asked for background information only.

1. What is your gender? Female _____ Male _____

2. What is your age? _____

Part VI. The following will be used for survey verification only.

Your Name _____

E-Mail Address _____

Phone Number _____

Name of Student (who recruited you) _____

THANK YOU FOR PARTICIPATING!

APPENDIX E

INTEGRATION LEVELS PRETEST

A multi-channel retailer is one that sells products in its stores and on its website. For example, shoppers have an option of purchasing GAP apparel and accessories in Gap stores and on Gap.com. In this survey we are interested in what you think about integration/coordination between the store and the website of a multi-channel retailer. When a multi-channel retailer creates a high degree of coordination between its stores and the website, its customers enjoy more benefits than either the store or the website can provide on their own.

The coordination between the store and the website involves not only 'how' customers shop for products but also 'what' they can buy from the store and the website. Hence, you will see two sets of statements that describe coordination between the store and the website of a multi-channel retailer in terms of the shopping process and the product offering.

YOUR TASK:

1) **First, you will see a set of statements describing the shopping process benefits that the customer may enjoy when the stores and the website of a multi-channel retailer are coordinated. For each description of the benefits, you'll be asked to indicate your opinion as to how well the stores and the website of this multi-channel retailer are coordinated. Then, you'll be asked to indicate how much you would want the multi-channel retailer to have the described level of coordination if you were its customer.**

2) **The second set of statements describes different levels of coordination between the store and the website of a multi-channel retailer in terms of the product offering. Once again, you'll be asked to indicate how well you think the stores and the website of this multi-channel retailer are coordinated and then state your desire for the described levels of product offering coordination.**

3) **In conclusion of the survey, you'll be asked a few personal questions for background information.**

Shopping Process Coordination

For each description of the shopping process benefits stated below, please indicate the following:

1) **How well do you think the stores and the website of the multi-channel retailer XYZ are coordinated?**
2) **If you were a customer of the XYZ retailer, how much would you want the described level of coordination between the store and the website? (1 – Would Not Want At All, 10 – Would Want Very Much)**

The website and the stores of the XYZ retailer are _____ because:	**Poorly Coordinated** 1	2	3	4	**Well Coordinated** 5	**Desirability Rating (1-10)**
1. I am **ONLY** able to: • check availability of products in the store from the website and • return my website purchases to the store; **BUT NOT:** use my gift card in the store and on the website.	**1**	**2**	**3**	**4**	**5**	_____
2. I am **ONLY** able to: • check availability of products in the store from the website **BUT NOT:** • return my website purchases to the store or • use my gift card in the store and on the website.	**1**	**2**	**3**	**4**	**5**	_____

Product Offering Coordination

For each of the following descriptions of the product offering coordination between the stores and the website of the multi-channel retailer XYZ, please indicate the following:

1) **How well do you think the stores and the website are coordinated?**
2) **If you were a customer of the XYZ retailer, how much would you want the described level of coordination between the store and the website? (1 – Would Not Want At All, 10 – Would Want Very Much)**

The website and the stores of the XYZ retailer are _____ because:	**Poorly Coordinated 1**	**2**	**3**	**4**	**Well Coordinated 5**	**Desirability Rating (1-10)**
1. The store and the website carry the same variety of products that includes everything the retailer has to offer. Hence, regardless of whether you shop in the store or on the website, you'll see the entire selection of products in the retailer's inventory.	**1**	**2**	**3**	**4**	**5**	_____
2. The website carries more sizes and colors than the store. Hence, if you cannot find the color or size you want in the store, you should definitely visit the retailer's website.	**1**	**2**	**3**	**4**	**5**	_____
3. In addition to sales available on the website, the store also offers exclusive discounts on store purchases. Hence, you can find more bargains if you also visit the retailer's store.	**1**	**2**	**3**	**4**	**5**	_____
4. The prices in the store and on the website are often different. Hence, regardless of whether you shop in the store or on the website, you can never be sure that you will pay the same price.	**1**	**2**	**3**	**4**	**5**	_____
5. The store offers exclusive product rebates in addition to those you can get from the website. Hence, you can find more bargains if you also visit the retailer's store.	**1**	**2**	**3**	**4**	**5**	_____

The following questions are asked for background information only.

1. What is your gender? Female _____ Male _____

2. What is your age? _____

THANK YOU FOR PARTICIPATING!

APPENDIX F

SAMPLE CHOICE TASK

How would you shop for a digital camera? Choose one of the alternatives:

I Will Shop In Bzz Store Only, given the following store characteristics:	I Will Shop On Bzz.com Only, given the following website characteristics:	I Will Shop In Bzz Store AND On Bzz.com, given the following integration characteristics:
The Store Has Pleasant Atmosphere	The Website Pages Are Organized	The Store Sells More Products Than the Website
Product Displays Are Messy	The Website Has Basic Product Information	The Store Sells More Brands Than the Website
The Store Is Located In the Regional Shopping Center	The Website Has Few Entertainment Features	The Sales In the Store Are Not the Same As On the Website
It Is Hard to Find a Salesperson to Assist You	Shipping Charges: $10.00	The Website Offers More Rebates Than the Store
	Delivery Time: 2 days	Some Prices On the Website Are Different Than In the Store
		When shopping at Bzz, I am ONLY able to: 1. check availability of products in the store from the website BUT NOT: return my website purchases to the store or use my gift card in the store and on the website
A	**B**	**C**

APPENDIX G

STUDY MATERIALS

G.1 CBC Instructions

In this part of the survey we want to learn about the reasons why you prefer to shop in a store, online or in both places. You'll see different sets of choices. As you'll notice, all choices refer to the same retailer – Bzz. Bzz is a retailer that sells products in its stores and through its website – Bzz.com.

Choice A: description of Bzz store.

Choice B: description of Bzz.com website.

Choice C: the integrative links between the store and the website when you choose to use both in making your purchases.

It is important that you examine each choice alternative carefully before deciding which one you prefer the most.

Your Choices And What They Mean:

A. Choosing a Store-Only alternative (Choice A) means that you intend to do your shopping only in the Bzz store regardless of the characteristics of the Bzz.com website.

B. Choosing a Website-Only alternative (Choice B) means that you intend to do your shopping only on the Bzz.com website regardless of the characteristics of the Bzz store.

C. Choosing Both Store and Website alternative means that you intend to shop in both places: the Bzz store and on the Bzz.com website. It also means that:

1) Both Store and Website are acceptable and

2) You want to exert the extra effort to use both the store and the website because the benefits of using both outweigh the extra effort.

Do Not Choose This Option If You Know You Would Shop Only in the Bzz Store or Only on the Bzz.com website.

Please examine each choice alternative carefully and then pick the one that appeals the most to you. Remember, the attributes describing each choice alternative will change with every set. Therefore, it is important to examine each choice alternative carefully every time you are presented with a new set. Also, you must make a choice before moving on to the next choice set.

ANSWER SHEET IS ON THE BACK OF THIS PAGE

G.2 Shopping Questionnaire

A. The following questions ask about your attitude towards technology and the Internet.

	Strongly Disagree						Strongly Agree
1. I am confident I can learn technology-related skills.	1	2	3	4	5	6	7
2. I am able to keep up with important technological advances.	1	2	3	4	5	6	7
3. I hesitate to use technology for fear of making mistakes I cannot correct.	1	2	3	4	5	6	7
4. I am comfortable doing things on the Internet that are different from what I am used to.	1	2	3	4	5	6	7
5. I use the Internet in more ways than most people do.	1	2	3	4	5	6	7
6. I like figuring out how to do different things on the Internet without anyone's help.	1	2	3	4	5	6	7

B. The following questions ask about your perceptions of risk when ordering products from a website.

	Strongly Disagree						Strongly Agree
7. Most websites have adequate security features.	1	2	3	4	5	6	7
8. I generally feel secure giving out my credit card information when I make purchases online.	1	2	3	4	5	6	7
9. I generally feel safe in my online transactions.	1	2	3	4	5	6	7
10. When shopping online, I am always worried that:							
a. The website would get my order wrong.	1	2	3	4	5	6	7
b. I would be billed incorrectly.	1	2	3	4	5	6	7
c. It would take forever for the order to arrive.	1	2	3	4	5	6	7
d. I might not receive my order at all.	1	2	3	4	5	6	7

C. The following questions ask about the reasons that motivate you to shop.

	Strongly Disagree						Strongly Agree
11. I enjoy socializing with others when I shop.	1	2	3	4	5	6	7
12. To me, shopping with friends or family is a social occasion.	1	2	3	4	5	6	7
13. Shopping with others is a bonding experience.	1	2	3	4	5	6	7
14. I enjoy the feeling of power I have when being served by a salesperson.	1	2	3	4	5	6	7
15. I always make salespeople drop what they are doing to cater to my needs.	1	2	3	4	5	6	7
16. I often feel superior to the salespeople that wait on me.	1	2	3	4	5	6	7
17. I enjoy looking at interesting or attractive store displays.	1	2	3	4	5	6	7
18. I love the "feel" of a store which is in tune with my needs and desires.	1	2	3	4	5	6	7
19. I sometimes imagine which products I might buy if I had unlimited monetary resources.	1	2	3	4	5	6	7
20. I enjoy imagining myself wearing or using certain products.	1	2	3	4	5	6	7
21. I often find myself thinking about products I would like to purchase or own.	1	2	3	4	5	6	7
22. Doing the buying is one of my roles for the household.	1	2	3	4	5	6	7
23. Doing the family shopping makes me feel "fulfilled" as a person.	1	2	3	4	5	6	7
24. I find myself doing all the gift-buying for the household.	1	2	3	4	5	6	7
25. For the most part, I go shopping when there are sales.	1	2	3	4	5	6	7
26. I enjoy looking for discounts when I shop.	1	2	3	4	5	6	7
27. I enjoy hunting for bargains when I shop.	1	2	3	4	5	6	7
28. I go shopping to take advantage of sales.	1	2	3	4	5	6	7
29. In my opinion, shopping is a waste of time.	1	2	3	4	5	6	7
30. When I go shopping, my goal is to get in and out of the store as quickly as possible.	1	2	3	4	5	6	7
31. In my opinion, shopping is extremely time-consuming.	1	2	3	4	5	6	7
32. Shopping takes my time away from more important things.	1	2	3	4	5	6	7

D. The following questions ask about your shopping behavior and some demographic information that will be used for research purposes only.

33. Now, think back to your past shopping experience with a retailer that sells products in its stores and through its website. (It cannot be a store-only retailer like a grocery store or an online-only retailer like amazon.com).

a. What product did you shop for? _____

b. What is the name of this retailer? _____

c. Where did you shop for the product, in the store or on the website?
_____ I shopped in the store
_____ I shopped on the website
_____ I shopped in both places: the store and the website

d. In the last 6 months, which of the following occurred most frequently?
_____ I shopped mostly in stores
_____ I shopped mostly on the Internet
_____ I shopped in stores as often as I shopped on the Internet

e. In the last 6 months, when making a purchase at a store that had a website, how often did you shop at both the store and its website when making a purchase?
_____ Never
_____ Very infrequently
_____ Sometimes
_____ As often as I could
_____ Every time

	Very Limited	**Somewhat Limited**	**Adequate**	**Good**	**Very Good**
34. Please evaluate **the stores in your area** on the following attributes:					
a. Assortment of cameras	1	2	3	4	5
b. Number of stores that sell cameras and the stores' accessibility	1	2	3	4	5
35. Now evaluate **online stores (websites) that you shop or visit:**					
a. Assortment of cameras	1	2	3	4	5
b. Number of websites that sell cameras	1	2	3	4	5
36. Now evaluate **online stores (websites) on the entire Internet:**					
a. Assortment of cameras	1	2	3	4	5
b. Number of websites that sell cameras	1	2	3	4	5

37. How confident are you that you will find the camera you want…	**Not at all Confident**				**Totally Confident**
a. In the stores in your area?	1	2	3	4	5
b. At the websites you visit or shop?	1	2	3	4	5
c. Somewhere on the Internet?	1	2	3	4	5

38. What is the likelihood of finding the lowest total price of the camera you want…	**Not at all Likely**				**Very Likely**
a. In the stores in your area?	1	2	3	4	5
b. At the websites you visit or shop?	1	2	3	4	5
c. Somewhere on the Internet?	1	2	3	4	5

39. The following questions ask about the amount of money you spend on and the frequency with which you shop for the following products:

Product Category	Total $$ spent **in stores and on the Internet** in last 6 months	Percent (%) of total $$ spent in last 6 months at **websites on the Internet**	Average number of *visits* per month to **websites selling this product**
1. Music & movies (CDs, tapes, DVDs)			
2. Electronic & computer equipment			
3. Clothes			
4. Books			
5. Flowers and gifts			
6. Home furnishings			

40. How would you describe yourself in terms of product knowledge of digital cameras?

Know very little about						**Know very much about**
1	2	3	4	5	6	7

Inexperienced						**Experienced**
1	2	3	4	5	6	7

Uninformed						**Informed**
1	2	3	4	5	6	7

Novice buyer						**Expert buyer**
1	2	3	4	5	6	7

41. How would you describe yourself in terms of **shopping in stores**?

Know very little about						**Know very much about**
1	2	3	4	5	6	7

Inexperienced						**Experienced**
1	2	3	4	5	6	7

Uninformed						**Informed**
1	2	3	4	5	6	7

Novice buyer						**Expert buyer**
1	2	3	4	5	6	7

42. How would you describe yourself in terms of **shopping on the Internet**?

Know very little about						**Know very much about**
1	2	3	4	5	6	7

Inexperienced						**Experienced**
1	2	3	4	5	6	7

Uninformed						**Informed**
1	2	3	4	5	6	7

Novice buyer						**Expert buyer**
1	2	3	4	5	6	7

43. What is your age? _____

44. What is your gender?

_____ Male
_____ Female

THANK YOU FOR YOUR PARTICIPATION!

G.3 Reference Booklet

This is a reference booklet for Part I of this survey. It contains pictures of store and website attributes along with the explanations of integration attributes used in the choice tasks to describe the three shopping alternatives from which you will choose one that you like the most. Take your time and examine each picture and integration attribute in this reference booklet carefully.

Here is how to use this Reference Booklet:

1. In part I of the survey, you'll see a set of choice tasks. Each choice task will contain three shopping alternatives: **Store Only** ("I will shop in Bzz store only"), **Website Only** ("I will shop on Bzz.com only") and **Both Store and Website** ("I will shop in Bzz store and on Bzz.com").
2. **Store Only** alternative will be described in terms of store characteristics. Some store characteristics are underlined indicating that you should refer to this Reference Booklet to see the picture that represents the relevant attribute.
3. **Website Only** alternative will be described in terms of website attributes. Similarly to store characteristics, some website attributes are underlined indicating that a relevant picture can be found in this Reference Booklet to provide a visual explanation for the appropriate website attribute.
4. **Both Store and Website** alternative will be described in terms of the different ways the Bzz store and its website are linked to each other. Similarly to the other two alternatives, most of the integrative attributes are underlined indicating that relevant explanations of these attributes can be found in this Reference Booklet.
5. Your task will be to read each alternative in the choice task carefully.
6. For each underlined attribute, you should refer to this Reference Booklet for the relevant picture or the explanation.

For example:

Choice Task	Reference Booklet
I Will Shop In Bzz Store Only, given the following store characteristics: The Store Has Pleasant Atmosphere	**Store Atmosphere** **Pleasant** 

INTEGRATION ATTRIBUTES

Product Variety Integration: *How Much The Store and the Website Are Similar in Terms of the Products They Sell*	
The Store And the Website Sell the Same Products	The store and the website carry the same variety of products that includes everything Bzz has to offer. Hence, regardless of whether you shop in the store or on the website, you'll see the entire selection of products in the Bzz's inventory.
The Website Sells More Products Than the Store	The merchandise selection on the website is much richer than in the store and includes products that are sold exclusively online. Hence, to see everything Bzz has to offer, you should also visit the Bzz website.
The Store Sells More Products Than the Website	The merchandise selection in the store is much richer than on the website and includes products that are sold exclusively in the store. Hence, to see everything Bzz has to offer, you should also visit the Bzz store.
The Store And the Website Sell Different Products	Most of the merchandise sold in the store and on the website is different. Hence, it is very unlikely that you'll be able to find the product you want on the website if it is sold out in the store.

Product Assortment Integration: *How Much The Store and the Website Are Similar in Terms of the Brands They Sell*	
The Store And the Website Sell the Same Brands	The store and the website carry the same product assortment that includes all brands Bzz has to offer. Hence, regardless of whether you shop in the store or on the website, you will see all brands in the Bzz's inventory.
The Website Sells More Brands Than the Store	The website carries more brands than the store. Hence, if you cannot find the brand you want in the store, you should definitely visit the Bzz website.
The Store Sells More Brands Than the Website	The store carries more brands than the website. Hence, if you cannot find the brand you want on the website, you should definitely visit the Bzz store.
The Store And the Website Sell Different Brands	Most of the brands sold in the store are different from those offered on the website. Hence, it is very unlikely that you'll be able to find the brand you want on the website if it is sold out in the store.

Discounts / Rebates Integration: *How Much The Store and the Website Are Similar in Terms of Their Discounts / Rebates*	
The Store And the Website Have the Same Discounts / Rebates	The store and the website offer absolutely the same discounts / rebates. Hence, regardless of whether you shop in the store or on the website, you will find all discounts / rebates Bzz has to offer.
The Website Has More Discounts / Rebates Than the Store	In addition to discounts / rebates available in the store, the website also offers exclusive discounts / rebates on online orders. Hence, you can find more bargains if you also visit the Bzz website.
The Store Has More Discounts / Rebates Than the Website	In addition to discounts / rebates available on the website, the store also offers exclusive discounts / rebates on store purchases. Hence, you can find more bargains if you also visit the Bzz store.
The Discounts / Rebates in the Store Are Not the Same as on the Website	The store and the website often have different discounts / rebates. Hence, it is very unlikely that you'll be able to get the same discount / rebate you were offered on the website if you buy the product in the store and vice versa.

Price Integration: *How Much The Store and the Website Are Similar in Terms of Their Prices*	
The Store And the Website Have The Same Prices	The prices in the store and on the website are absolutely the same. Hence, regardless of whether you shop in the store or on the website, you can be sure that you will pay the same price.
Some Prices on the Website Are Different Than in the Store	Some products on the website are priced differently than in the store. Hence, it may be necessary to compare product prices in the store and on the website prior to making a purchase.
Some Prices in the Store Are Different Than on the Website	Some products in the store are priced differently than on the website. Hence, it may be necessary to compare product prices in the store and on the website prior to making a purchase.
The Prices in the Store And on the Website Are Different	The prices in the store and on the website are often different. Hence, regardless of whether you shop in the store or on the website, you can never be sure that you will pay the same price.

BZZ STORE

STORE ATMOSPHERE

PLEASANT

UNPLEASANT

PRODUCT DISPLAY

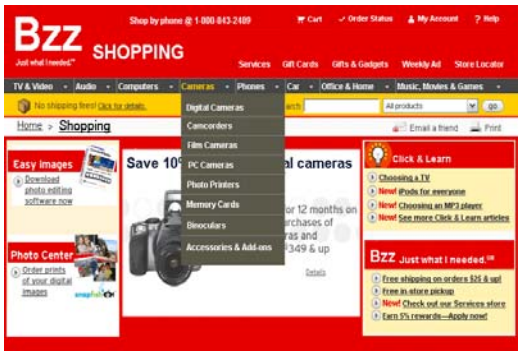
GOOD

POOR

BZZ WEBSITE

THE WEBSITE PAGES ARE…

ORGANIZED



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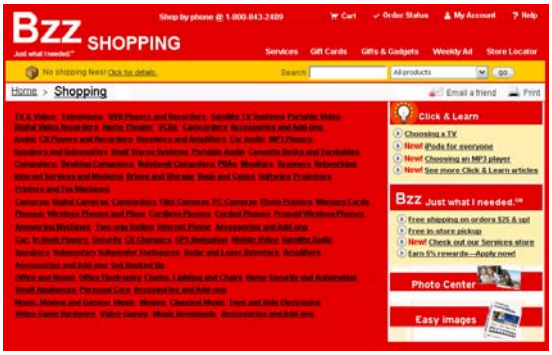
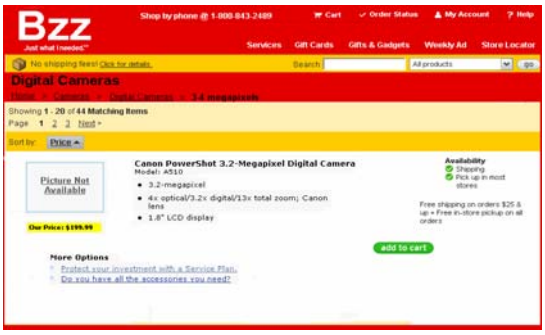


THE WEBSITE HAS…

DETAILED PRODUCT NFORMATION

BASIC PRODUCT INFORMATION



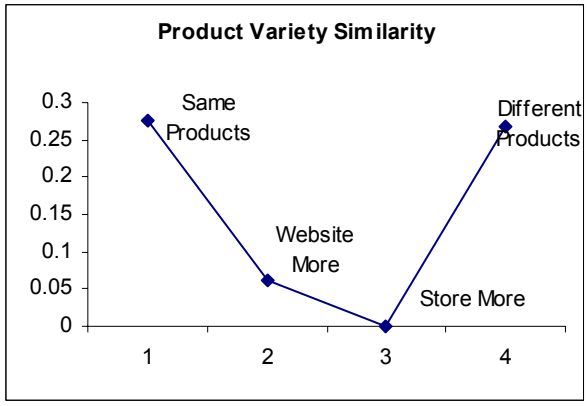
THE WEBSITE HAS…

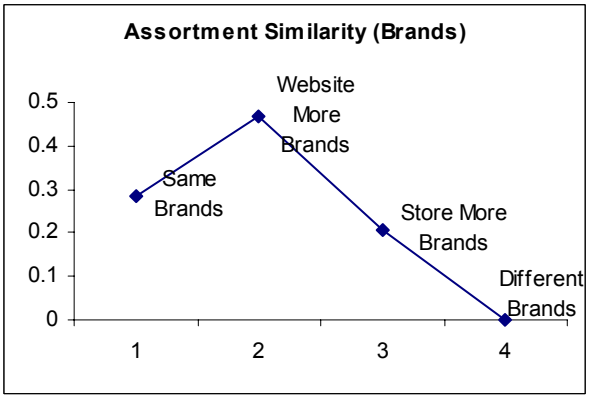
MANY ENTERTAINMENT FEATURES

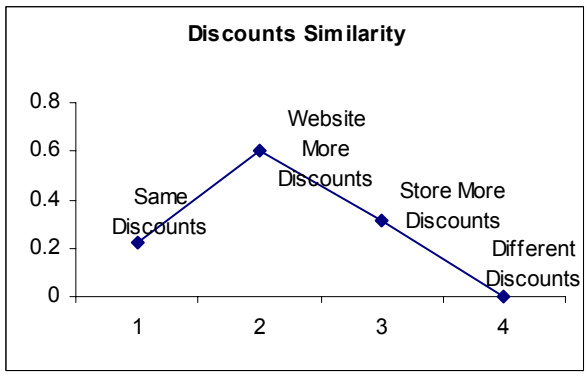
FEW ENTERTAINMENT FEATURES

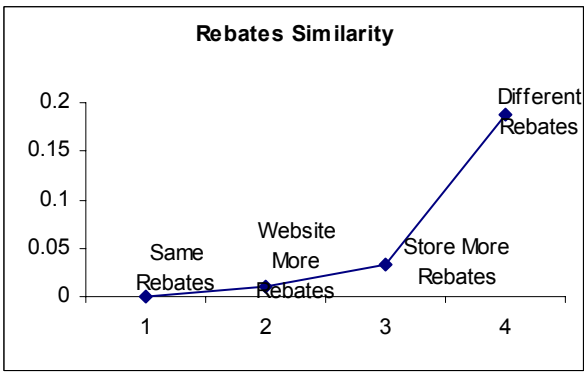
APPENDIX H

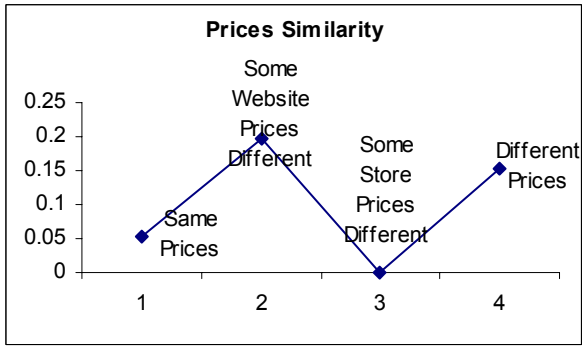
PART-WORTH PLOTS FOR COMPLEMENTARITY ATTRIBUTES

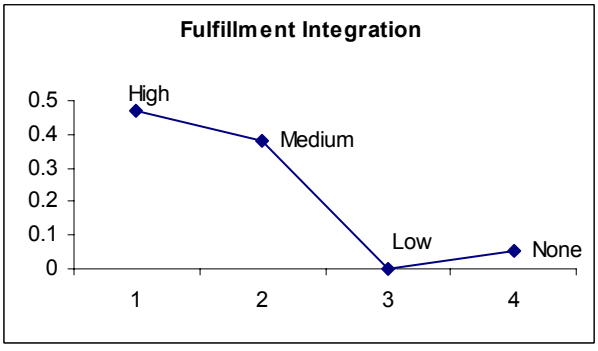


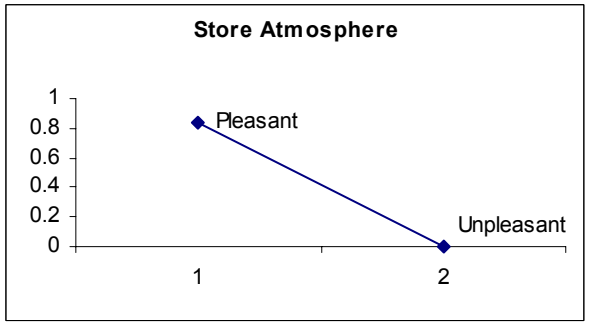


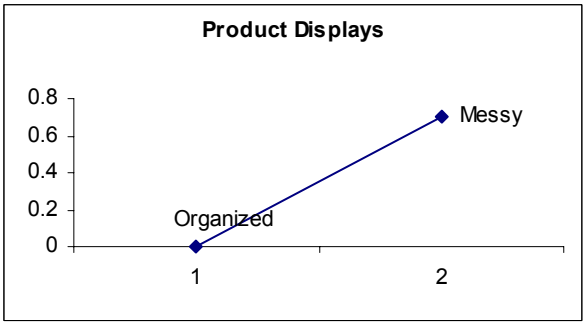


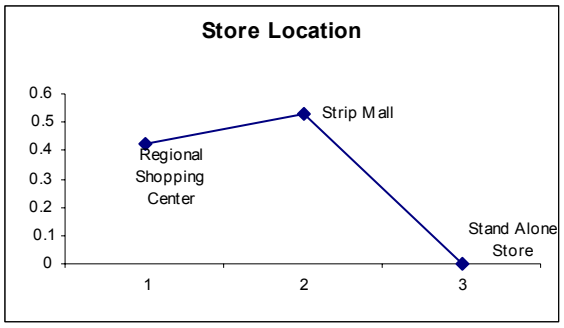


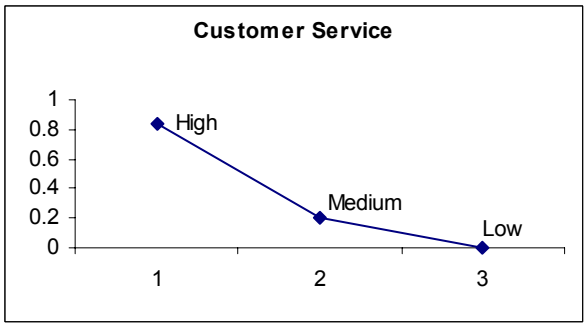


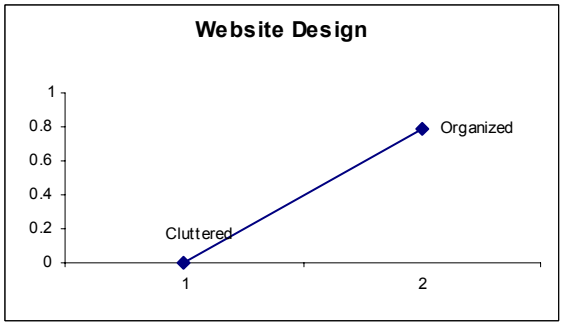


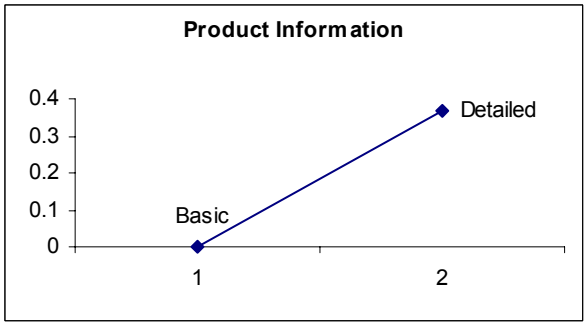


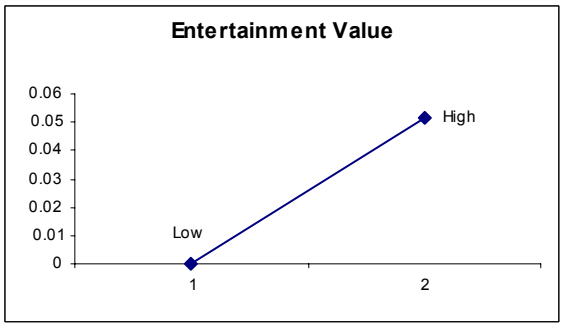



Store Location
0.6
0.5
0.4
0.3
0.2
0.1
0
Regional Shopping Center
Strip Mall
Stand Alone Store
1
2
3


Customer Service
1
0.8
0.6
0.4
0.2
0
High
Medium
Low
1
2
3


Website Design
1
0.8
0.6
0.4
0.2
0
Cluttered
Organized
1
2


Product Information
0.4
0.3
0.2
0.1
0
Basic
Detailed
1
2


Entertainment Value
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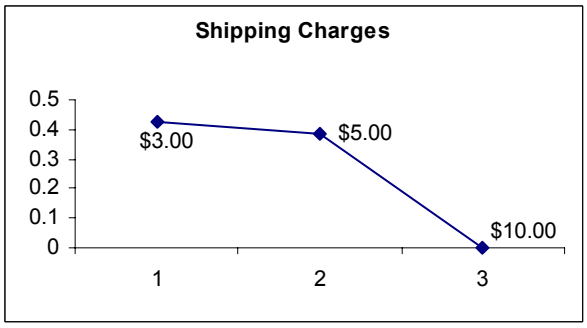
0.04
0.03
0.02
0.01
0
Low
High
1
2


Shipping Charges
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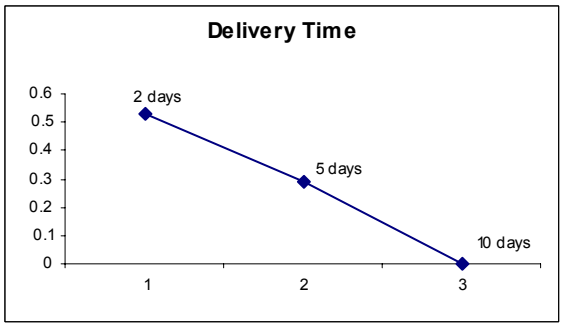
0.4
0.3
0.2
0.1
0
$3.00
$5.00
$10.00
1
2
3


Delivery Time
0.6
0.5
0.4
0.3
0.2
0.1
0
2 days
5 days
10 days
1
2
3

APPENDIX I

MULTI-ITEM MEASURES OF CONSUMERS CHARACTERISTICS

Tech. anxiety 1	1. I am confident I can learn technology-related skills
Tech. anxiety 2	2. I am able to keep up with important technological advances.
Tech. anxiety 3	3. I hesitate to use technology for fear of making mistakes I cannot correct.
IT use innovativeness 1	1. I am comfortable doing things on the Internet that are different from what I am used to.
IT use innovativeness 2	2. I use the Internet in more ways than most people do.
IT use innovativeness 3	3. I like figuring out how to do different things on the Internet without anyone's
Security risk 1	1. Most websites have adequate security features.
Security risk 2	2. I generally feel secure giving out my credit card information when I make purchases online.
Security risk 3	3. I generally feel safe in my online transactions.
	When shopping online, I am always worried that:
Purchase risk 1	1. The website would get my order wrong.
Purchase risk 2	2. I would be billed incorrectly.
Purchase risk 3	3. It would take forever for the order to arrive.
Purchase risk 4	4. I might not receive my order at all.
Affiliation 1	1. I enjoy socializing with others when I shop.
Affiliation 2	2. To me, shopping with friends or family is a social occasion.
Affiliation 3	3. Shopping with others is a bonding experience.
Power & authority 1	1. I enjoy the feeling of power I have when being served by a salesperson.
Power & authority 2	2. I always make salespeople drop what they are doing to cater to my needs.
Power & authority 3	3. I often feel superior to the salespeople that wait on me.
Sensory stimulation 1	1. I enjoy looking at interesting or attractive store displays.
Sensory stimulation 2	2. I love the "feel" of a store which is in tune with my needs and desires.
Cognitive stimulation 1	1. I sometimes imagine which products I might buy if I had unlimited monetary resources.
Cognitive stimulation 2	2. I enjoy imagining myself wearing or using certain products
Cognitive stimulation 3	3. I often find myself thinking about products I would like to purchase or own.
Role enactment 1	1. Doing the buying is one of my roles for the household.
Role enactment 2	2. Doing the family shopping makes me feel "fulfilled" as a person.
Role enactment 3	3. I find myself doing all the gift-buying for the household.
Choice optimization 1	1. For the most part, I go shopping when there are sales.
Choice optimization 2	2. I enjoy looking for discounts when I shop.
Choice optimization 3	3. I enjoy hunting for bargains when I shop.
Choice optimization 4	4. I go shopping to take advantage of sales.
Efficiency 1	1. In my opinion, shopping is a waste of time.
Efficiency 2	2. When I go shopping, my goal is to get in and out of the store as quickly as possible.
Efficiency 3	3. In my opinion, shopping is extremely time-consuming.
Efficiency 4	4. Shopping takes my time away from more important things.

APPENDIX J

SIGNIFICANT UNIVARIATE EFFECTS OF CONSUMER CHARACTERISTICS ON LEVELS OF COMPLEMENTARITY ATTRIBUTES

Independent Variables	Fulfillment Integration				Product Variety				Assortment				Discounts				Rebates				Prices			
	H	M	L	N	H	M_w	M_s	L	H	M_w	M_s	L	H	M_w	M_s	L	H	M_w	M_s	L	H	M_w	M_s	L
Store-Shopping Motivations:																								
Affiliation			√				√					√								√*		√		
Power/Authority					√																			
Sensory Stimulation		√	√									√						√		√		√		√
Product Acquisition Motivations:																								
Role Enactment			√	√			√													√				√
Choice Optimization			√						√					√			√							√
Website-Shopping Motivations:																								
Efficiency																	√	√			√			
Cognitive Stimulation			√	√																				√
Technology Factors:																								
Technology Anxiety	√			√													√							
IT Innovativeness									√			√											√*	
Risk Perceptions:																								
Security Risk						√	√	√									√*							
Purchase Risk									√														√	

Note: (√) represents significant effects; H – high, M – medium, M_w – $medium_{website}$, M_s – $medium_{store}$, L – low; (*)denotes marginally significant effects.

VITA

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