THE RELATIVE IMPORTANCE OF SENSORY AND NON-SENSORY ATTRIBUTES IN PHYSICAL AND ONLINE STORES: AN EVALUABILITY PERSPECTIVE

by

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Abstract

The Relative Importance of Sensory and Non-sensory Attributes in Physical and Online Stores: An Evaluability Perspective

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Adviser: Professor Stephen Gould

This research investigates the effects of consumers' shopping environments on their decisions. It is widely acknowledged that these days consumers use both, brick and mortar (visits to physical stores) as well as click and browse (visits to websites) methods while making most purchases.

I draw on the Evaluability Hypothesis (Hsee 1996) to show that consumers' product evaluations based on attributes and their product choices vary depending on the attribute type and the shopping medium i.e. internet or physical store. The basic idea of my research flows like this: The internet facilitates judging of non-sensory attributes (e.g. price) of products and limits one's ability to judge the sensory attributes (e.g. material feel). So, when the consumers make their choices in online environments they will experience greater difficulty in evaluating the sensory attributes and hence those attributes will be discounted in the product evaluations and choices. A series of three empirical studies support these main effects for a variety of products.

The first experiment shows that evaluations of sensory attributes in internet environment were systematically lower than those in physical environment. However,

such differences were not found for non-sensory attributes. The second experiment demonstrates that the likelihood of consumers choosing products superior on sensory attributes is higher in physical stores as compared to in internet stores. Finally, the results of the third experiment support the mediating role of attribute evaluability in explicating the main effects of shopping medium on choice. Moreover, the third experiment also rules out need for touch as an alternate explanation strengthening the support for evaluability explanation.

Thus, this research indicates that consumers may not appreciate a product's superiority on sensory attributes while making the evaluations on internet but the same product could get much favorable evaluations in the physical stores.

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Chapter 1: Introduction

Consider this scenario faced by a hypothetical buyer, Lisa. Lisa is looking forward to purchasing a backpack. She is comparing a variety of backpacks on an internet website and chooses one of the available alternatives. Suppose, instead of shopping online, she goes to a physical store and encounters the same set of backpacks. Now, how likely is she to buy the same backpack, i.e. the one she would have bought on internet store? What factors would have played a role in Lisa's decision making? Will her evaluation of the various attributes of the backpacks be same? Will she factor in the same attributes while evaluating the alternatives? What would determine the consumer choice processes across these two environments? What are the implications on consumer choices of the differences in these shopping environments? In this dissertation, I raise and address such questions that arise while present day consumers increasingly shop across the multiple shopping environments i.e. physical stores and electronic web stores. Further, I have proposed a frame work that delineates the key differences in the way consumer choices are made, which arise because of the consumers' shopping in the different environments. Finally, I present and test an explanation based on evaluability hypothesis underlying these effects of shopping environments on consumer decision making.

People shop in different ways, at different places and at different times. Some people would only make a purchase after they get to touch, feel or in some way experience the product first hand. On the other hand, some people are equally or more comfortable choosing and buying stuff off the pages of a catalogue or a website then off the shelves of a store. But, with the passage of time since the early era of e-tailing, more

and more consumers are shopping across multiple channels i.e. Internet based e-stores and physical stores (Kumar and Venkatesan, 2005; Baal and Dach, 2005).

Findings from the extant research and managerial practice have clearly demonstrated the advantages that can accrue to the retailers who offer consumers a multi-channel option to make purchase and transact with them ("Business: The Real Internet Revolution," 1999; Dholakia, Zhao, and Dholakia, 2005; "John Miniati: the vice president of ComScore Networks", 2006). The advantages of such a multi-channel strategy include, the opportunity to leverage existing brand's equity in one environment to another (Hutchison, 2001), ability to make quick adjustments to various marketing variables like price, in response to changes in marketing environments (Bailey, 1998; Brynjolfsson and Smith 2000), to prevent loosing customers who prefer to shop across multiple channels (Stone, Hobbs and Khaleeli, 2002) etc. As such, the retail business space has witnessed tremendous growth in number of marketers offering consumers a chance to shop via internet and physical stores. While benefits of presenting consumers multiple channels are undisputable there exist some concerns to adoption of this strategy as well. The biggest problem such multi-channel retailers face is that of free riding consumers i.e. consumers who avail services in one domain and end up making their purchases in another (Baal and Dach, 2005). As Bakos (2001) suggests in the context of multi channel retailers the problem of free riding also arises when consumers use the resources of one channel but buy from another channel, especially consumers could use the physical stores to interact with and experience the products but may buy online. To prevent such free riding and facilitate consumers' shopping experiences it is imperative that we understand how consumers shop across such multiple channels. There have been

many empirical studies that have identified and examined such differences in consumers' evaluations of various products across the multiple shopping domains. But, the empirical evidence and findings from the prior research could only be regarded as contradictory (Suri, Long and Monroe, 2003). One of the leading examples of these contradictions can be observed in the research delineating the effects of shopping environments on pricing. The questions like, will prices be more important for consumers while shopping online, will the prices be more disperse in online stores as compared to the physical stores, are not definitively answered by the current research. Degeratu et al. (2000) demonstrate that price will have lesser impact in online stores as compared to the physical stores. Similarly, in an earlier study Bailey (1998) found that prices for books, CDs and software were higher in online stores than in traditional brick and mortar stores. These studies suggest that shopping mediums would not have much of an impact on the consumers' use of price as a comparative attribute. On the other hand, Lee (1998) suggests that as internet markets are more competitive and as prices are easier to search and compare online, the retailers will be forced to charge lesser prices to effectively compete online. Further, Grewal, et al. (2003) propose that prices for products sold by internet based retailers would be less dispersed as compared to price dispersions observed in product categories that are only sold through traditional physical stores. This proposition is exactly counter to the findings demonstrating that internet has not lead to any narrowing of the price dispersions (Pan et al. 2001; Ratchford et al., 2002). Also, in the case of Degeratu et al. (2000) there was only an indirect support for price effects for 'light margarine spread' while for 'paper towels' the price effects were not significantly different across the environments. Moreover, among other limitations, Degeratu et al.

(2000) also acknowledge that one of the key limitations of that study was a lack "of experimental control making precise inferences infeasible."

It is evident that the role shopping medium plays has not escaped researchers' attention but given the state of research in this domain, there is a need to consolidate these findings by an integrating model. In this dissertation, I am proposing such a conceptual model.

I draw from the theory of evaluability hypothesis (Hsee, 1996, 2000; Yeung and Soman 2005) to explicate the differences that manifest in consumers' product evaluations across the shopping environments. The term evaluability refers to the ease of evaluating a product based on the attribute information alone. Evaluability hypothesis posits that consumers' evaluations of products are more guided by the attributes that are comparatively easier to evaluate and comprehend than the attributes that are difficult to evaluate. In the present research, I am proposing that the shopping environment differentially weighs on the evaluability of various product attributes. Especially, the attributes that need some sort of sensory interaction are more difficult to evaluate in the internet environment. Thus, I propose that such attributes will have lesser impact on consumers' choices in the internet domain. Recall the opening example of Ms. Smith trying to evaluate a suitable backpack for her college use. If she were to make this decision via a visit to some website then based on the propositions stated herein she would be more likely to base her choice on the non-sensory attributes like price, brand name, size, etc. as against the sensory attributes like weight, fabric quality, carrying comfort etc. Further, it seems plausible that the various decision aids and shopping tools deployed by modern e-stores would improve the evaluability of non-sensory attributes in

online shopping environments. Alternatively, experienced shoppers or shoppers who are more comfortable shopping online may find it easier to choose products based on their sensory properties too even in online stores. Thus, website shopping comfort will moderate the effects of shopping context on choices and these effects will either be eliminated or at least be considerably attenuated. In other words, for shoppers who are comfortable shopping online the effects of shopping environment will not be reflected in their choices. Figure 1 shows a graphical representation of the proposed conceptual model.

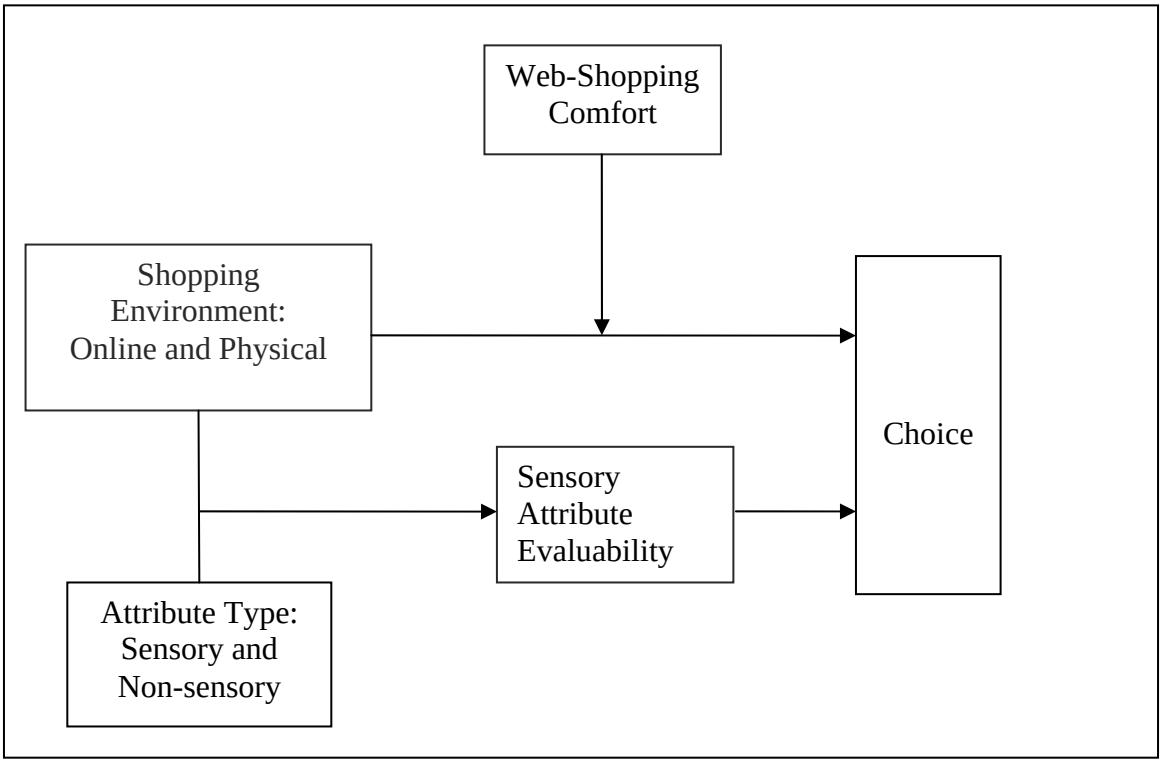


Figure 1: Proposed Conceptual Framework

In this dissertation, I present the theoretical principles underlying the proposed framework and strong empirical evidence supporting the proposed predictions. The plan for the remaining chapters of this thesis runs like this: The second chapter presents a

review of the extant research in the domain of electronic commerce vis-à-vis physical stores. The chapter also covers a discussion of the research gaps and some of the contradictions arising out of the current studies. The third chapter provides an outline of the relevant theoretical studies pertaining to consumer decision making. Further, this chapter also presents a set of hypotheses based on the theoretical discussion of consumer choice processes and the literature review of research in the field of e-commerce. The fourth chapter provides a description of the first study conducted to test and validate various hypotheses and presents the empirical analysis. The fifth chapter presents an explanation for the effects of shopping context on choices and also discusses the second study. In the following chapter, sixth, the moderating role of online shopping comfort is discussed and the results of the third and final experiment are presented. Finally, in the seventh chapter, I present the contributions and potential avenues for further research based on this dissertation.

Now, follows a review of the relevant research in the domain of e-commerce and multi channel shopping environments.

Chapter 2: Research in the Domain of E-commerce

Throughout the world, electronic commerce has become a ubiquitous part of the present day shopping environment. A variety of products from CDs to PCs and from juices to jeans are purchased off the virtual shelves of thousands of e-stores on a daily basis. Industry sources clearly suggest that (ComScore Report, 2006) internet has occupied a prominent place in the commercial activities of almost all enterprises. Moreover, the latest statistics relating to internet commerce vindicate the increasing attention marketers have been paying to e-commerce in formulating their strategies. For the first quarter of 2006 the total U.S. non-travel on-line spending was estimated at $24.5 billion (U.S. Department of Commerce, 2006). This reflects a year-over-year growth of 22%. The research relating to ecommerce has also kept pace with this strong growth in e-commerce.

The central tenets of research in the domain of e-commerce address the description, identification and demonstration of the effects of various parameters and variables that affect consumers' online shopping. That is, most research studies have focused on indentifying factors that either encourage or discourage consumers' propensity to shop online. Primarily, the research on e-commerce can be categorized in different ways based on the type of research questions addressed by a study. A review of the pertinent research in the field reveals that research on e-commerce has broadly addressed three types of questions: Which factors inhibit or facilitate use of internet? Who are more likely to shop online? And what is more likely to be shopped online? The first set of research studies identifies and delineates the role of contingent factors that

expand or inhibit consumers' acceptance of ecommerce as a shopping medium. The Second examines consumers' demographic and personality traits that play a role in consumers adoption of internet as a shopping medium. Finally, the third set of research inquiries demonstrates the impact of product characteristics on the likelihood of that product being bought online.

The purpose of incorporating following description of research literature on ecommerce in this chapter is to show the research gaps that the present study fills and highlight some of the contradictions in extant research that the present research will attempt to resolve.

2.1 Factors affecting consumers' acceptance of internet as a shopping medium

The factors affecting consumers' acceptance of internet can be divided as extrinsic and intrinsic. The intrinsic factors are the product and the consumer characteristics, while all other factors are considered as extrinsic. Grewal et al. (2004) present an excellent review and a conceptual model of various limiters and enablers of e-commerce. The factors that facilitate the use of internet for shopping include, convenience, product category characteristics (discussed separately in the section 2.3), access to product and purchase related information, access to price information, novelty, and accessibility. In a recent exhaustive review of online-consumer behavior, Cheung et al. (2005) have delineated the determinants of online consumer behavior. They provide a list of factors affecting consumers' intentions to use internet, adoption of internet and finally continuing their usage of internet as a shopping medium. The list broadly includes factors such as navigation, ease of use, security, privacy, exposure, consumer knowledge etc. I present hereunder a brief outline of the factors delineated in the extant research.

2.1.1 Convenience:

It is suggested that as shoppers' perceived usefulness of an interactive medium (online shopping) improves they tend to hold more favorable attitude towards it (Childers, Carr, Peck and Carson, 2001). The convenience of shopping through internet lies in the fact that it is an always open (24/7) shop that can be visited at any time without leaving the comfort of one's home (Grewal, Iyer and Levy, 2004). Prior empirical evidences have found that shoppers do take into account this convenience of shopping from home or office and flexibility of shopping at a time of their choosing in selecting internet as a shopping environment (Swaminathan, Lepkowska-White, and Rao, 1999; Rohm and Swaminathan, 2004).

2.1.2 Novelty:

Consumers value unique experiences while shopping. The physical stores rely on merchandise and store atmospherics to embed novelty in consumer's shopping, while internet stores rely on website layout, improved technical mechanisms like enhanced search features, shopping lists management etc. to satiate consumers' increasing appetite for novelty (Grewal et al., 2004;). The shoppers opting for online shopping also seek emotional gratification out of such endeavors. Such enjoyment from online shopping has been demonstrated to have a favorable impact on attitude towards this medium (Childers et al., 2001).

2.1.3 Web Atmospherics and Design:

One of the most researched determinant affecting consumer's willingness to shop through internet is the ease of using a website and its navigation comfort. A number of research studies have established a positive link between the perceived ease in navigating the e-store and shopping at the e-store (Eroglu, Machleit and Davis, 2001; Eroglu, Machleit and Davis, 2003). Further, it has been demonstrated that the web atmospherics affect consumers' cognitive as well as affective states i.e. website design leads to utilitarian and hedonic benefits (Childers et al., 2001; Eroglu et al., 2001; 2003; Babin, Darden and Griffin, 1994; Matchwick, Malhotra and Rigdon, 2001). While the utilitarian benefits include the navigation comfort, ease of use, etc. the hedonic or experiential benefits include feeling of flow (Novak, Hoffman and Yung, 2000), enjoyment (Childers et al., 2000) etc. The design elements examined under this stream of research also include aspects like website layout (Vrechopoulos, Keefe, Doukidis and Siomkos, 2001), background design and colors, webpage loading times, etc.

2.1.4 Access to information:

Grewal et al. (2004) suggest that consumers use internet for shopping purposes because they find it easier, convenient, and cheaper to obtain a variety of information relating to product and various alternatives.

2.1.5 Economic Advantages:

The economic advantages of shopping online occur in two ways, on one hand it is less expensive to search for alternatives and related information (Alba et al., 1997; Bakos, 1997; Lynch and Ariely, 2000) on the other hand consumers get better prices for the

similar products because internet eliminates or reduces sellers' opportunities to take advantage of price arbitrage i.e. charging more and getting away with it because consumer will not be able to find the better price that may exist in the market (Biswas, 2004; Shapiro and Varian, 1999).

2.2 Consumer Characteristics Affecting Behavior While Shopping Online:

Numerous research studies have dealt with identifying the consumer characteristics and demographics that are associated with shoppers who shop frequently on internet. The key characteristics delineated by research in this stream include: Need for tactile input, prior internet usage, gender, risk-aversion, need for cognition, attitudes and subjective norms (Cheung et al., 2005). A brief outline of the most examined consumer characteristics by different studies in this research domain is presented hereunder:

2.2.1 Need for tactile input:

People rely on their senses to form the judgments about various objects in their environment. Our cognitions are dependent on the information received through the tactile, visual, olfactory, auditory, and gustatory sensory receptors (Neisser, 1976, Citrin, Stem, Spangenberg, and Clark, 2003). Phillips et al. (1997) found that lack of sensory inputs is one of the reasons why people would not shop online. This importance of sensory inputs, specifically of the tactile input, in consumer decision making, lead researchers to examine whether individuals demonstrate a similar level of need for touch. Peck and Childers (2003) in recent studies show that people differ in terms their inherent need to touch objects so as to evaluate them. They suggest "individuals' confidence in product judgments may be affected by whether or not they can touch a product during

evaluation." Further, it has been demonstrated that as internet does not provide a conducive environmental context to touch the products, individuals' product judgments in online environments vary depending on their need for touch (Peck and Childers, 2003; Citrin et al., 2003). Individuals with higher need for touch show demonstrably lesser acceptance of internet as a shopping medium (Citrin et al., 2003). Also, the individuals who are more haptically oriented are likely to hold their attitudes towards products with greater confidence when they can touch the products as compared to when they cannot touch (Peck and Childers, 2003).

2.2.2 Prior Internet Usage:

Consumers who have had a greater level of experience with internet in general have been found to be using internet for shopping purposes more frequently as compared to those who have had a lesser level of experience with internet. Such experienced users have a better understanding of the utility of the product information available on internet (Hammond, McWilliam and Diaz, 1998) and the proportion of time a shopper spends searching for information on internet directly varies with her duration of internet experience (Klein and Ford, 2003). Further, Citrin et al. (2003) have demonstrated that higher levels of internet usage for non purchase related reasons leads to increased use of internet for product purchase.

2.2.3 Gender, Income etc.:

Bellman et al. (1999) found demographic variables to be poor predictors of buying online. They suggest, and based on panel data show, that lifestyle variables such

as having a ‘wired lifestyle’, having internet access at work, use of e-mail, etc. are better predictors of internet shopping. On the other hand, various studies have explored the role of demographic variables in predicting shopper adoption of internet (Bhatnagar and Ghose, 2004). The existing empirical evidence suggests that gender plays an indirect role in adoption of internet as a shopping destination. Women as compared to men are more likely to need to touch a product before making a purchase (Citrin et al., 2003). Therefore, it should be intuitive to conclude that men are more likely to shop online than the female shoppers. This is corroborated by the fact that about 60% of internet users are male (Caswell, 2000). But the proportion of female users is rising as about half or more than half of new users are female (Weber, 1998; Active Media, 1999). Also, Harris Interactive found that more women intended to shop through internet than men during the holiday season of 1999. Early studies have also found that internet shoppers tend to be higher educated and higher income earners as compared to non-shoppers (Furr and Bonn, 1998; Schonland and Williams, 1996). Later on, Weber (1998) has found that only about 29% of new internet users have a college degree or higher education. So, in near future internet usage should have spread equally across all the segments of education. Thus, the differences between online shoppers and shoppers preferring physical stores based on such demographic variables are likely to disappear or become considerably insignificant.

2.2.4 Perceived Risk:

Mitchell (1999) defines perceived risk as “subjectively determined expectation of loss”. Consumers’ risk perceptions while shopping on internet takes many forms. Shoppers who shop or avoid shopping online are found to be concerned about issues

pertaining to preservation of their privacy, security of their personal, financial and other sensitive information (Bhatnagar and Ghose, 2004; Lee 1999; Kim and Lim, 2001). On the other hand internet shopping also raises a degree of perceived uncertainty and risk associated with product performance and order fulfillment. Forsyth and Shi (2003) have identified four types of consumers' perceived risks associated with internet shopping: financial, product performance, psychological and time loss. People differ in terms of their risk-aversion and it has been shown that internet shoppers tend to be less risk averse as compared to non-internet-shoppers (Donthu and Garcia, 1999; Tan, 1999).

2.2.5 Need for Cognition (NFC):

In numerous prior research studies need for cognition has been studied and found to be an important variable in determination of individual choice processes (Cacioppo and Petty, 1982; 1996). Richard and Chandra (2005) found that NFC affects consumers' attitudes towards a website and determines their exploratory behavior and interactivity with a website. Individuals higher in NFC are more likely to allocate greater efforts in comprehending a task at hand. Consumers who are high on NFC tend to engage in longer evaluation process i.e. take more time thinking over the alternatives and evaluating the information. Also, people with higher NFC relatively perceive higher interactivity on a website as compared to the perceived interactivity of their counterparts with lower NFC (Jee and Lee, 2002).

This brief overview suggests that although a substantial body of literature examines the role of various consumer characteristics in determining internet shopping motivations, these findings do not much investigate the underlying processes. The key

differences and reasons for such differences that exist between online shopping environment and offline shopping environment still need to be delineated. Especially important are those factors that affect consumer choices and decisions due to their shopping environments. In the next section, I describe the third approach researchers have taken to unravel these underlying factors.

2.3 Product Characteristics:

Finally, another track of research studies has differentiated product categories on the basis of their suitability to be bought on internet. McCabe and Nowlis' (2003) divide products between two categories, geometric and material. Geometric products are defined by their shape and size and these key attributes are sufficiently perceived by visual sense (Klatzsky, Lederman, and Matula, 1993). On the other hand, the material products are dominated by the haptic attributes like, temperature, weight, texture, etc. Based on this classification, McCabe and Nowlis (2003) show that consumers are more likely to physically interact with the material products like clothing as against the geometric products like cans of soda. Also, their research demonstrates that products with material properties are more likely to be chosen when the consumers are provided an opportunity to actually touch the products as compared to a scenario when consumers do not have a chance to touch the products. On the other hand for the geometric products consumers' choices are not affected by the availability of tactile interaction with a product. Grewal et al.'s (2004) proposed conceptual model depicts product category as one of the key enablers of e-tailing. They argue that the products that can be standardized and sold on the premises of their unique branding are more likely to be bought online e.g. Books and CDs. Such products also offer tangible benefits to consumers and can be differentiated,

in turn making them more likely to be bought over internet (Peterson et al., 1997). Thus, based on this research studies it should be reasonable to predict that product categories that could be bought and sold based on the geometric properties like shape, size etc. should be easily sold and bought over internet (Degeratu et al., 2003) and the products that are bought based on the material properties like texture, weight, etc. should have hard time finding a market in the online space (Degeratu et al., 2003; Grewal et al., 2004). But, in the last couple of years consistently the material products have been outpacing the geometric products in terms of growth in online commerce. Table 1 gives an idea about the state of ecommerce across a wide range of product categories.

Table 1 Sales Growth For Selected Products (ComScore Networks)

Product Category	**Percentage change between 2004 and 2005**
Apparel and Accessories	41
Computer Software (excluding PC Games)	37
Toys and Games	35
Home and Garden	33
Jewelry and Watches	31
Event Tickets	28
Furniture	25
Flowers, Greetings and Gifts	23

Clearly, the material products like apparels, jewelry and watches are ahead of the geometric products like computer software and event tickets. While the results establish

the fact that even within the material product categories more and more sales is taking place online, it does not mean that the bulk of online shopping that takes place belong to material products. Nevertheless, it is becoming increasingly obvious that consumers are not that averse to buying material products online. The growth of online commerce across various categories necessitates the identification and investigation of the factors that play an influential role in consumers' shopping across the environments but within the same product category. As internet shopping is garnering ever increasing share of consumers' spending in almost all consumer product categories, it is no longer sufficient to understand which product categories are better suitable for being shopped online. In this situation a more meaningful line of inquiry is to understand the consumers' decision making dynamics when she is shopping online vis-à-vis in physical stores. The next section presents a summary of research that examines these issues.

2.4 The effects of consumers' shopping environments:

Even before the internet took of as a robust medium for shopping a variety of products prior studies had revolved around identifying the key differences between the constituents of consumers' decisions between the two shopping mediums i.e. internet and physical stores. Degeratu et al., 2000 have addressed the impacts of brand name, price and other attributes on consumers' decisions across internet and physical stores. Their research also identified the impacts of sensory and non-sensory attributes on consumer decisions across internet and physical stores. But, while they demonstrate the greater impact of non-sensory attributes on consumer choices the predictions for price were basically opposite from those for other non-sensory attributes. They hypothesize that prices will have a smaller impact online as compared to in the physical stores across a

variety of product categories consisting of liquid detergent, margarine, and paper towels. The empirical data for liquid detergent and paper towels indirectly supported those predictions and for margarine the analysis could not be done. Contrary to these findings, it is demonstrated that saving money is one of the primary reasons for online shopping (Wolhandler 1999), weaker bargaining ability is stronger antecedent of shopping through internet (Zettelmeyor, Scott Morton, and Silva-Risso, 2005) and internet usage lowers the prices paid (Zettelmeyor, Scott Morton, and Silva-Risso, 2006). However, various prior studies have found the prices of different products like books, CDs etc. to be higher on internet than in the physical stores (Degeratu, 1999; Bailey, 1998; Lynch and Ariely, 2000). Suri, Long, and Monroe (2003) have addressed these contradictions by analyzing consumers' motivations. They demonstrate that motivated consumers under heavy information loads tend to perceive higher prices as better values while at lesser information loads a lower price is evaluated as a better value for such consumers. But at lower levels of motivation, information load did not have any effect and under both situations (high and less information load) the consumers construed the higher price as a better quality and a better value. In either case, they did not compare the price effects between the shopping environments as those were not something they were investigating.

Further, Degeratu et al. (2000) argue that low price sensitivity in online environment is due to availability of excess information in online environments. On the other hand, Zettelmeyor et al. (2006) present the standard economics argument that consumers would only shop online if it results in some sort of benefit. According to them as internet reduces search costs and thus leads to availability of more purchase-relevant information, the online prices should be lower.

Extending the findings of Suri et al. (2003), I present a conceptual model that not only explicates the differential effects of prices on consumers' choices while shopping online vs. physical stores but also provides a basis to understand the effects of various other product-attributes on consumers' evaluations and choices across online and physical shopping environments.

I have addressed the limitations these studies face and have incorporated experimental control for investigating the differences in consumer decisions in online vs. physical stores. Further, I investigate the role of 'attribute evaluability' as a mediating variable and rule out other plausible explanation. Finally, I test the boundary conditions for these effects of shopping environment on choices and report the moderating effect of web-shopping comfort on these effects.

Next Chapter presents an overview of the theoretical explanations behind the differences in consumer decision making across online and off-line shopping environments.

Chapter 3: Theoretical underpinnings and hypotheses development

3.1 Effects of context in consumer decision making:

The central tenet of most consumer behavior studies have been the analysis of consumers' decisions from a variety of perspectives: the formation of consideration sets, the evaluation of the alternatives, the choice process, the choice, and the effects of contextual factors. More often than not it has been observed and demonstrated that consumers' choices and the choice process are predominantly context dependent. Robertson and Kassarjian (1991) present a three way classification of the contexts underlying consumer decision-making. The first part consists of the variability in the decision-maker's cognitive ability and prior knowledge, the second part relates to task context and the third forms the social context. From the standpoint of present study, the differences underlying the shopping environments could be looked upon as the task context. The constructed preferences paradigm within the consumer research holds that consumer preferences are not always predetermined but more often they are construed on the fly i.e. as the consumer proceeds with the decision task.

Prior research has identified a variety of factors and variables contributing to these differences. It has been demonstrated that consumer preferences are influenced by evaluability (Hsee and Leclerc, 1998), gain and loss perceptions (Tversky and Kahneman 1981, 1986; Puto 1987), information presentation (Russo 1977; Russo et al. 1986), number of alternatives available (Payne 1976; Lussier and Olshavsky, 1979; Johnson and Meyer 1984), similarity and presence of a dominated alternative (Payne 1982; Huber, Payne and Puto, 1982), and attribute task compatibility (Nowlis and Simonson, 1997).

Shopping environment is one of the important task contexts as consumers shopping online are more likely to experience higher information load (Degeratu et al., 2000), greater choice of alternatives, and lack of physical interaction with product (Citrin et al., 2003; McCabe and Nowlis, 2003). Nevertheless, as pointed out in the prior section there has been a limited amount of research that investigates the inherent differences underlying consumers' choice processes between physical stores and internet stores.

3.2 Sensory and Non-sensory attributes:

The key point of difference among the two environments arises from the lack of sensory experience while shopping online. This lack of experience plays a more prominent role for material products like clothing than for geometric products like can of soda (McCabe and Nowlis, 2003). But, as discussed earlier in this paper the consumer markets are witnessing a rapid increase in online shopping for both, geometric and material products. Thus, in this case rather than classifying the products as material and geometric it is more informative to divide the attributes as geometric and material. This is similar to Degeratu and his colleagues (2000) classification of sensory and non-sensory attributes. They distinguish sensory and non-sensory attributes based on the requirement of a sensory interaction for evaluating the given attribute. If an attribute is required to be experienced i.e. touched, smelt, tasted, etc. then it is considered as a sensory attribute. So, for a paper-towel, the feel of the paper, the softness (or the coarseness) are the sensory attributes and the number of paper-towels in the box, the thread count, the price etc. are non-sensory attributes as for these attributes the information can be analyzed without an sort of sensory interaction.

One of the early studies in this line of research (Burke, Harlam, Kahn and Lodish, 1992) compares consumer behavior in a computer simulated shopping environment as compared to real market setting. It demonstrated that for product categories wherein consumer decisions are more influenced by the attributes like price, brand etc the consumer's purchase patterns will be similar under both markets (i.e. simulated and real). They suggest that soft drinks are one of such products and demonstrate that for soft drinks the relative market shares of various brands under study were similar to actual market shares (real physical market). Thus, at aggregate market level simulated environment has been found to be a good predictor of actual environment for these products. Their reasoning for this effect is that the attributes like price and brand are just as suitable to be conveyed in the simulated environment as they could be in the physical (real) environment. This is in line with the prior finding showing increased likelihood of consumers' choosing material products when an opportunity to physically examine the products existed as compared to when consumers were restrained to make those decisions based on pictures and/or written descriptions (McCabe and Nowlis, 2003). As discussed earlier, the material products are the ones with predominant attributes like temperature, texture, hardness, etc. for e.g. clothing. Moreover, the study demonstrates that consumers are more likely to physically handle a product dominated by pleasant material properties than one by the geometric properties (i.e. size, shape etc.). This difference is attributed to the difference in the availability of additional information. For material products, a physical interaction provides additional inputs to all senses like touch, smell, taste, sound, and sight while the absence of such physical interaction only makes available information which is discernible via visual sense.

Based on the discussion presented so far, it should be expected that consumers' evaluations and decisions relating to various attributes will vary depending on the inherent characteristics of an attribute. There is abundant research about attribute typologies and classification. Apart from geometric-material (McCabe and Nowlis, 2003) and sensory-non-sensory (Degeratu et al., 2000) typologies attributes have been classified based on their function or utility as hedonic and utilitarian (Batra and Ahtola, 1990; Dhar and Wertenbroch, 2000). One of the oldest and most popular typology divides attributes as search, experience and credence (Darby and Karni, 1973). This classification is based on the opportunity that is available to a consumer to obtain useful attribute related information while purchasing a product. As per the original description of this tripartite typology, search attributes are those which can be ascertained before purchase, experience attributes are the ones that can be assessed after purchase and credence attributes are very difficult to judge even after purchase. In a recent analysis, Mittal (2004) has contended that in the current marketing context, it is difficult to exclusively classify various attributes among these three categories for e.g. consider the difference between search and experience attribute. For a car, some of the search attributes could be conveyed verbally like interior dimensions, horse power, price, colors etc. But some of the attributes are sensory i.e. they can only be analyzed via some kind of sensory interaction like the feel of a seat's upholstery, the sound of an engine, etc. In the context of present study the distinguishing feature of two shopping environments is the availability of physical interaction and therefore it will not be feasible to use this typology and hence, I propose to use sensory and non-sensory classification of attributes.

Sensory product attributes are not easy to evaluate in online shopping domains as there is a lack of physical interaction. As per the information availability paradigm the information that is unavailable for the decision task is relegated in the decision task and the decisions are more based on the available information. The accessibility-diagnosticity (Feldman and Lynch, 1988) model demonstrates relatively greater use of an information source which is readily accessible and is perceived more diagnostic as compared to the one that is not. The model presents the effects accessibility as independent from those of the diagnosticity of particular information. Moreover, as per the subsequently developed mere-accessibility framework (Menon and Raghubir, 2003) the effects of diagnosticity are more likely to be subsumed under the effects of accessibility. This lends greater credence to the effects of accessibility of information in the overall decision task. As the online environment is not conducive for making available the information pertaining to sensory attributes, these attributes will not be much relied upon while product evaluations take place online. Therefore, while shopping online consumers will form their evaluations predominantly based on non-sensory attributes rather than sensory attributes. On the other hand, when consumers are shopping in physical stores they will primarily take into account sensory attributes as compared to non-sensory attributes.

Formally, I hypothesize

H1: In online stores, consumers will place greater importance on non-sensory attributes than sensory attributes.

H2: In physical stores consumer will place greater importance on sensory attributes than non-sensory attributes.

Further, the process of evaluating a product on sensory aspects in an online environment is similar to evaluating a product when information on some of the attributes is missing. In such situations consumers discount the evaluations for the attributes with incomplete or missing information (Huber and McCann, 1982; Jaccard and Wood, 1988; Johnson, 1989). Such discounting is not found to be a result of any negative inferences (Jaccard and Wood, 1988; Simmons and Lynch, 1991). This could be because of consumers' higher perceived risk. It has been suggested that perceived risk associated with purchase of intangible products (like services) is higher than that associated with purchase of tangible products (Finn 1985; Zeithaml and Bitner, 2000; Mitchell and Greatorex, 1993). Laroche et al. (2005) show that aspects of intangibility that increase evaluation difficulty also lead to higher perceived risk. Based on this discussion, it should be expected that consumers' evaluations of sensory attributes of a product should be less favorable in online stores as compared to their evaluations of a product on sensory attributes in physical stores because even though words can describe the sensory attributes they are not a complete substitute for a physical interaction. On the other hand, the information on non-sensory attributes does not much differ with the shopping environments because this information is possible to convey without any loss in online environments, for e.g. package size, price, etc. Therefore, evaluating, non-sensory attributes is equally easy in both environments and as such there should be no discounting effect for them. Based on this discussion I further present following hypotheses,

H3: Consumers' evaluations of sensory attributes (relating to a product) will be less favorable in online environments as compared to physical environments.

H4: Consumers' evaluations of non-sensory attributes (relating to a product) will not be different between online environments and physical environments i.e. the evaluations of non-sensory attributes across both environments will not be different.

Chapter 4: Empirical Analysis: Effects of Environment on Product Evaluations

Purpose: The objective of Study 1 is to test the four hypotheses presented in the preceding section. This study aims to show that shopping environments (internet based stores and physical stores) affects attribute importance and evaluations.

Participants: Sixty seven undergraduate students at a north eastern American university participated in this experiment in partial fulfillment of course requirements. Such student participation as subjects is a common practice in consumer behavior research.

Stimulus product: Backpack was selected as the stimulus product as students are more likely to be involved with backpack purchase and it had a reasonable number of sensory as well as non-sensory attributes.

Design: A cross tabulation with a 2x2 design was conducted with two categorical variables: Shopping environment and attribute importance categorized by type. The shopping environment had two categories namely, internet and physical store. And attribute type also had two categories i.e. sensory and non-sensory. Further, one way ANOVA with shopping environment as the treatment variable and product evaluations on various attributes as the dependent variable was conducted.

Variables: The shopping environment and the attribute types were the independent variables. The attribute evaluation for the back pack was the dependent variable.

Procedure: Subjects were invited to a dedicated behavioral research lab. The lab had different rooms for keeping the subjects separate. Shopping environment was

manipulated by either providing subjects the actual products to evaluate (in physical store condition) or providing a printed webpage with a photograph of the backpack (in online condition). In both the conditions similar set of information was supplied along with the actual backpack or the photo of the backpack as the case may be. All the subjects filled out a paper pencil questionnaire.

Measures and Data Analysis: The questionnaire contained an open-ended question for recording the attributes that subjects thought to be important for evaluating the backpack. The attribute weights were also obtained, and the Table is presented hereunder.

Table 2 Attribute Importance Measure

Attributes of a 'Laptop Backpack' / Laptop Bag	Importance Points	Remarks
Total	100	

The attribute evaluations were measured via seven point itemized ratings scale. For e.g. please rate the fabric of the laptop bag:

Inferior Fabric 1--2--3--4--5--6--7 Superior Fabric.

The first two hypotheses were tested by analyzing the attributes mentioned and the corresponding weights provided by subjects. Based on the attribute typology proposed by Degeratu et al. (2000), the attributes reported by subjects as important for

evaluating the backpack were divided as either sensory or non-sensory. Next, the weights of all sensory and non-sensory attributes were calculated so as to determine for each subject if they thought sensory attributes were more important or non-sensory attributes were more important. If the combined total weights allocated by a subject for sensory and non-sensory attributes turned out to be equal then the most important attribute, the one with the highest allocated weight, was used to determine whether sensory or non-sensory attributes played a greater role in product evaluation. Even after the second criteria if there was a tie between sensory and non-sensory attributes then the number of sensory attributes mentioned was compared with that of non-sensory attribute and the greater number was used as an indicator of the type of attributes that played a larger role. For the third and fourth hypotheses one way ANOVA with shopping environment condition was run on measures of attribute evaluations. The results of this analysis are as follows.

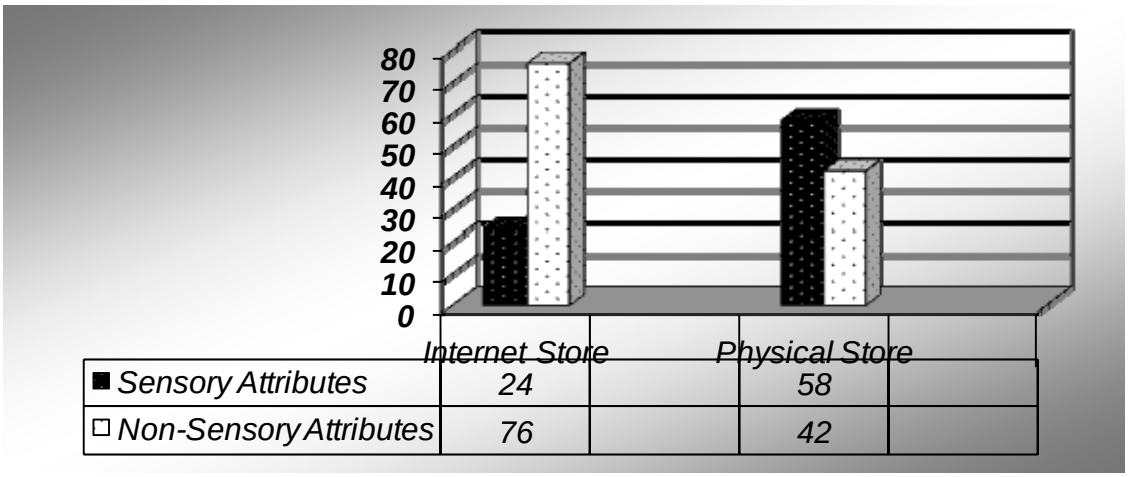
Results: The cross tabulations for testing the first two hypotheses are presented in Table 3.

Table 3 Cross Tabulations

	Internet Store	Physical Store
Sensory attribute more important	24%	58%
Non-sensory attribute more important	76%	42%
Pearson Chi-Square = 6.5; Significance: p = 0.01; N=57		

Out of the total 67 participants, 10 participants either did not complete this question or it was not possible to allocate them to one of the two levels of attribute importance. Out of the remaining 57 participants, 38 participants had been the part of online store condition and 19 participated in physical store condition. As, the participants were not equally distributed across both environments, as ideally they should have been, the appropriateness of the frequency distribution across the cells was tested. The expected values of each of the four cells were measured and the minimum expected count for a cell was 6.67. A conservative rule for using chi-square test (p. 167, Norusis 2003) suggests that the expected value of each of the cell should be greater than 1 and not more than 20% of cells should have an expected value of less than 5. The preliminary analysis of expected values in the current cross tabulations fulfill these requirements and hence further analysis was conducted. As shown in the Table 2, only 24% of the participants in online shopping environment considered sensory attributes to be important for evaluating the backpack and 76% considered non-sensory attributes to be important for evaluating the backpack. As compared to this in the physical store environment a completely different picture emerges. 58% of the total participants in this condition considered sensory attributes to be important and 42% thought non-sensory attributes were important for evaluating the backpacks. The Pearson chi-square value for the cross tabulations was 6.5 and the observed significance level was 0.01. Although not universally accepted, there is a viewpoint that considers the continuity corrected chi-square to provide a better estimate of the observed significance level for 2x2 tables (p. 168, Norusis 2003). In the present analysis the continuity corrected chi-square value turned out to be 5.1 with a significance level of 0.02. The results are summarized graphically in the Figure 2.

Figure 2: Attribute Importance



The second part of analysis involved running a one-way ANOVA test to analyze the effects of shopping environment on the product evaluations. The results obtained from running a one-way ANOVA with shopping environment condition on backpack evaluations for different attributes is presented in Table 4.

Table 4 ANOVA: Effects of Shopping Environment on Attribute Evaluations

	Internet Store	Physical Store	Significance
Sensory Attribute Evaluation (Built Quality)	3.26	3.86	p = 0.02
Sensory Attribute Evaluation (Fabric Quality)	3.02	3.43	p = 0.12
Sensory Attribute Evaluation (Carrying Comfort)	3.65	4.10	p = 0.16
Non-sensory Attribute Evaluation (Size/Volume)	2.98	2.95	p = 0.949
Non-sensory Attribute Evaluation (Number of compartments)	3.22	3.38	p = 0.568
Non-sensory Attribute Evaluation (Price)	2.83	3.20	p = 0.358

Mean differences for each of the attribute across both environments were studied. As hypothesized, for sensory attributes the mean evaluations of the backpack were significantly higher (favorable) when subjects had an opportunity to physically touch the backpacks as compared to when the subjects merely viewed the photographs of the backpack. But, for non-sensory attributes such mean differences were not significant across the environments (Table 4).

The mean evaluations for sensory attributes were as follows: For built quality subjects under physical store condition evaluated the backpack as $M_{PS} = 3.86$ and under internet store condition as $M_{IS} = 3.26$, $F(1, 61) = 5.53$, $p = 0.02$; for fabric quality $M_{PS} =$

3.43 and M_{IS} = 3.02, F (1, 61) = 2.49, p = 0.12; and for carrying comfort M_{PS} = 4.10 and M_{IS} = 3.65, F (1, 62) = 2.06, p = 0.16. This analysis shows that for sensory attributes the subjects who interacted with the backpack (as one would in a physical store) evaluated it better than those who did not get to touch it (as would be the case when shoppers are shopping online). Although for carrying comfort the results do not show significant difference across the conditions the direction of mean difference is as per the prediction. Similarly, as predicted, the evaluations of backpacks on non-sensory attributes were not significantly different across the environments as is evident from the following results. The mean evaluations for size were, M_{PS} = 2.95 and M_{IS} = 2.98, F (1, 62) = 0.004, p = 0.949, for # of compartments M_{PS} = 3.38 and M_{IS} = 3.22, F (1, 60) = 0.33, p = 0.568 and for price were M_{PS} = 3.20 and M_{IS} = 2.83, F (1, 53) = 0.86, p = 0.358. Thus, none of the attributes displayed significant differences. As noted earlier none of these differences were significant.

Discussion: Study 1 supports the basic premise that consumers' shopping environments affect their product evaluations. The consumers who make product evaluations online are likely to be more conservative in their assessments of a product's sensory attributes as compared to those evaluating the products in physical stores. An important outcome of this experiment is the finding that such differences in attribute evaluations do not take place for the non sensory attributes. Based on the empirical results obtained and protocol of the Study 1 a couple of limitations of this study must be noted. First, study 1 is based on a single product category i.e. backpacks and there too it does not present a choice scenario to the subjects and only relies on product evaluations of just one alternative in a consumer's potential consideration set. Second, Study 1 does

not explain why and how the shopping environments affect consumer decision making process. Moreover, the results do not explicate any process variables. Next, this study is a laboratory experiment and hence the conclusions are to that extent lack a strong external validity. Finally, the empirical support for the hypotheses is limited and not all hypotheses are fully supported. It should be noted that the product evaluations for one of the sensory attributes (Carrying Comfort) did not have sufficient statistical significance ($p = 0.16$) and for another, Fabric Quality, the significance was very weak ($p = 0.12$). Nevertheless, the absolute mean values for the product evaluations were higher in physical store condition as compared to in online condition.

These limitations are addressed in subsequent studies. First, to strengthen the validity of results in subsequent studies different stimuli products are selected. Second, in subsequent studies subjects are presented with choices scenarios rather than mere evaluations. And more importantly, in both these studies process variables are included in the empirical analyses. Finally, in order to hold on to internal validity of the experiments and in light of other practical compulsions the research was continued on the basis of laboratory experiments.

Chapter 5: Role of Evaluability in effects of Shopping Environments

The first experiment showed the main effects of shopping environments on consumers' considerations of different attributes and the product evaluations on those attributes. But, it does not throw much light on the reasons underlying such effects. In this chapter, I present a case for 'attribute evaluability' as explanation for these effects and report the results of empirical analysis.

The concept of 'evaluability' was introduced by Hsee (1996) while analyzing the consumers' preference reversals. Prior research has provided two broad sets of explanations for preference reversals. First, the preference reversals are explicated as a result of differences in consumers' evaluation scales (Goldstein and Einhorn, 1987). Goldstein and Einhorn (1987) presented subjects with tasks involving either judging the alternatives or choosing among the alternatives. They study a variety of preference reversals in a series of laboratory experiments and identify response method as one of the key contributing factor for such preference reversals. The response methods as explicated by those studies are choice and judgment. One is operationalzed by measuring how much is an option's worth for a consumer and other is measured by the option one is likely to choose. The other factor explaining preference reversals was differences in the worth scales used by subjects to report their preferences i.e. setting a minimum price of the option versus reporting their attractiveness of an option on an interval scale.

On other hand, preference reversals are also observed between the evaluation modes (Bazerman et al., 1992; Hsee 1996, 1999). In this type of preference reversals the preference for an alternative changes depending on whether the alternative is being

evaluated (judged) along with another comparable alternative or is evaluated alone. Hsee (1996) presents a theory of 'evaluability hypothesis' as an explanation for preference reversals between such joint and separate evaluations of alternatives. According to Hsee, evaluability is the ease in evaluating an attribute based on the information pertaining to that attribute alone i.e. when a consumer is able to evaluate an alternative based on some given information about an attribute of the alternative with ease then that attribute is considered to be easy to evaluate and hence its evaluability is considered to be higher. Thus, for easy to evaluate attributes consumer can evaluate the attribute values independent of comparing them with other alternatives. Hsee has defined attribute evaluability with respect to the decision mode i.e. joint or separate evaluations. In that respect, if attribute evaluations can only be facilitated by comparing their values across alternatives then they are considered difficult to evaluate because they are difficult to evaluate independent of such comparisons. Extending on Hsee' concept of evaluability, Yeung and Soman (2005) define the attribute evaluability as "the degree of difficulty associated with evaluation of a product based solely on the level of the attribute alone independent of any contextual information." Hsee shows the joint evaluation mode as more evaluable for difficult to evaluate attributes than the separate evaluation mode.

Similarly, in this research I show the differences in consumer's preferences for products across their shopping environments and clearly these differences are similar to those studied in the domain of preference reversal. To this extent, I present a third factor resulting in preference reversals i.e. evaluation context. I contend that apart from evaluation scales (judgment versus choice) and evaluation modes (joint versus separate) the evaluation context (shopping environments: physical stores versus online stores) will

also lead to preference reversals. However, these preference reversals are conceptually different from those studied under preference reversals paradigm. Moreover, in this research I don't predict preferences to reverse across the shopping environments but only to change across the two shopping environments. Thus, the case presented here represents one instance of preference reversals and is not a representative of all preference reversals in general. Nevertheless, such preference reversals or shifts reported in this dissertation will also depend on the evaluability of attributes as is the case for the preference reversals arising from joint and separate evaluation modes. But, there is a difference in the manner in which attribute evaluability is determined in the current context. The difficulty in evaluating a product on a given attribute in the context of varying shopping environments does not arise due to lack of opportunity to compare both alternatives simultaneously. Such difficulty arises due to an environments' intrinsic characteristic feature. Thus, the difference in the attribute evaluability due to evaluation mode (joint and separate) is quite different from the way this difference arises due to evaluation context (online and physical).

Consider an example of a consumer making a purchase decision for a cell phone. It will be difficult for the consumer to assess the absolute value of an attribute like band compatibility. Suppose for a particular cell phone the feature lists dual band compatible and if the consumer does not have precise idea about this attribute then she will use any internally generated reference value for this attribute and will proceed to evaluate the cell phone accordingly. On the other hand, if the consumer sees another cell phone in the evaluation task and that cell phone has tri-band support then she is more likely to rate the first phone unfavorably than what she would have rated it without this reference

information. As per evaluability hypothesis, this attribute will play a greater role in joint evaluation mode than in separate evaluation mode. Now, imagine an alternative scenario wherein the same consumer is purchasing a cell phone from a set of two cell phones. Either she buys the phone online or in physical store. If she is buying the phone online then the texture of the phone's material, the tactile feedback of pressing the phone keys etc attributes are more difficult to evaluate as against reading the information about the dual band or tri band compatibility. And hence, the consumer should pay comparatively more attention to band compatibility if she is buying the phones online because it is the easier to evaluate attribute as compared to other sensory (or non-verbal) attributes. Thus, in the context of present study, it is shown that such evaluability also arises because of the environment of the evaluations. Specifically, it is demonstrated that under online environments, sensory attributes are less evaluable than under physical stores and such a difference in evaluability of the attributes mediates the effects of shopping environments on consumer decisions. As explained earlier, in the next study, 'choice' is taken as the dependent variable rather than only product evaluations. That is, instead of presenting a single alternative for evaluations, in the next study a pair of alternatives is presented under both environments. Also, a direct measure of evaluability is included in the analysis to study the effects of shopping environments on the evaluability. Thus, based on the preceding discussion I present following hypotheses:

> **H5**: Options that are superior on sensory (non-sensory) attributes are more likely to be chosen when choice takes place in physical (internet) stores as compared to when it takes place in online (physical) stores.

H6: The evaluability of sensory attributes will be lesser in online environment as compared to in the physical environment.

H7: The evaluability of non-sensory attributes will not be different across both the environments. And,

H8: The effect of shopping environment (Physical store vs Internet store) on choice will be mediated by the ease in evaluating the sensory attributes.

As discussed above, the evaluability of the sensory attribute will be attenuated in online environments as compared to physical environments. In the next study, I demonstrate these effects empirically.

Purpose: The key purpose of the second study is to test the effects of shopping environments on choices, evaluability of sensory and non-sensory attributes and to test the role of evaluability of sensory attributes as a mediating variable. This study presents the effects of shopping environment on choice and attribute-evaluability. Also, in this study instead of measuring just product evaluations as the dependent variable, I introduce choice as a dependent variable. As explained in the next paragraph subjects' choices were recorded and analyzed by conducting a laboratory experiment.

Participants: 94 undergraduate business students participated in the experiment for a payment of $10.

Procedure and Stimulus Product: Subjects were randomly allocated to one of the two treatment conditions i.e. internet based shopping or physical store shopping. In the first condition subjects were required to buy a bath-towel online and they were presented with the printout of a webpage depicting two bath towels among which they were

required to choose one. In the alternate condition, subjects were required to shop in a physical environment and they were actually presented two actual bath towels on a desk along with a questionnaire to be filled out. In both conditions, the alternatives were described by way of a table comparing the alternatives on a variety of attributes. In the online condition the subjects were also presented the photographs of the bath towels on top of the attribute table. In the physical store condition, the questionnaire was an exact replica of the online version except the mode of stimulus presentation. In physical store conditions subjects were provided the actual samples of bath towels being compared lying alongside the questionnaire while in the online condition they viewed the accompanied photos. The stimulus pair was so selected that one of them was expensive and had better fabric feel than the other one. So, in terms of stated hypotheses, it is predicted that consumers will choose the expensive alternative, which is superior on sensory attribute more often in the condition where in they are presented with actual towels as would happen in a physical store. Finally, sensory and non-sensory attribute classification was obtained by seeking experts' opinion. A panel of experts (marketing professors in a public university located in the mid-Atlantic region) was approached to comment on the attribute classification. They were provided with the definitions of the attribute types. As explained earlier the sensory Attribute was explained as an attribute that is completely sensory if it can only be understood by some sort of physical interaction with the product i.e. either one has to touch, smell or taste the product for evaluating that attribute. Merely reading the information about it will not be sufficient for evaluating the product on that attribute. The non-sensory attribute was defined as: an attribute is completely non-sensory if one can understand it without any sort of physical

interaction with the product i.e. one doesn't have to touch, smell, or taste the product for evaluating that attribute. One can just read the information about it and can evaluate the product on that attribute. The experts on the panel were presented the same table of attributes, which was incorporated in the second experiment as described earlier. These experts indicated on a five point scale the degree to which they felt a particular attribute could be considered sensory or non-sensory. The following table under data analysis section (Table 5) provides mean values of experts' opinions on how much sensory (or non-sensory) an attribute is.

Data Analysis:

Table 5 Expert's Attribute Classification Ratings

	N	Mean	Std. Deviation	Std. Error Mean
Price	8	1.00	.000(a)	.000
Cotton	8	3.00	1.195	.423
Feel	8	5.00	.000(a)	.000
Look	8	3.00	1.604	.567
Color	8	2.50	1.852	.655
Weight	8	3.50	1.309	.463
Drying Surface	8	3.88	.835	.295
Style	8	3.00	1.309	.463
Size	8	3.00	1.604	.567
Brand	8	1.25	.707	.250

(a) t cannot be computed because the standard deviation is 0.
Scale values: 1 Non sensory ….3 Neither sensory nor nonsensory …5 Sensory

It can be observed from the Table 5 that the experts were unanimous in classifying 'Price' as a non-sensory attribute and 'fabric feel' as a sensory attribute. For all the attributes a one sample t-test was conducted with cut off values set at 2 and 4 respectively. The results of this analysis are contained in Table 6 and Table 7.

Table 6 Experts' classification for non sensory attributes

	Test Value = 2					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
	Lower	Upper	Lower	Upper	Lower	Upper
Cotton	2.366	7	.050	1.000	.00	2.00
Look	1.764	7	.121	1.000	-.34	2.34
Color	.764	7	.470	.500	-1.05	2.05
Weight	3.240	7	.014	1.500	.41	2.59
Drying Surface	6.355	7	.000	1.875	1.18	2.57
Style	2.160	7	.068	1.000	-.09	2.09
Size	1.764	7	.121	1.000	-.34	2.34
Brand	-3.000	7	.020	-.750	-1.34	-.16

It is evident from the above table that at cut-off level of 2 for classifying an attribute as non-sensory, only one other variable apart from price qualifies i.e. brand name. As noted earlier brand is not the focus of the current study and as a manipulation check the subjects' were asked about their familiarity with the hypothetical brands used in this study and it was established that subjects were unfamiliar with these brand names. Moreover, as shown in Table 7 apart from 'Feel', 'no other variable appeared as completely sensory to the panel. On a sensory scale 'Feel' had a mean value of 5.

Table 7 Experts' classification for non sensory attributes

	Test Value = 4					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
	Lower	Upper	Lower	Upper	Lower	Upper
Cotton	-2.366	7	.050	-1.000	-2.00	.00
Look	-1.764	7	.121	-1.000	-2.34	.34
Color	-2.291	7	.056	-1.500	-3.05	.05
Weight	-1.080	7	.316	-.500	-1.59	.59
Drying Surface	-.424	7	.685	-.125	-.82	.57
Style	-2.160	7	.068	-1.000	-2.09	.09
Size	-1.764	7	.121	-1.000	-2.34	.34
Brand	-11.000	7	.000	-2.750	-3.34	-2.16

Next step was to test the prediction that the odds of shoppers choosing a bath towel, which is better on non-sensory attributes, will be higher in online environments. This hypothesis (H5) was tested by running a binary logistic regression on choice ('0' CM i.e. better on sensory attributes; '1' Entice i.e. better on non-sensory attributes) as the dependent variable and the shopping environment ('0' physical store; '1' online store) as the independent variable. The results of this analysis are presented in Table 8a and 8b as under. Also, as the equation only has two category variables, the same results could have been obtained by performing a cross tabulation analysis. Table 8c, 8d and 8e depict the results of such cross tabulations.

Table 8 Effects of Shopping Environment on Choice

Table 8 a Classification Table

Observed			Predicted		
			Choice		Percentage Correct
			CM-Better on Sensory	Entice-Better on Non-Sensory	CM-Better on Sensory
Step 1	Choice	CM-Better on Sensory	0	31	.0
		Entice-Better on Non-Sensory	0	63	100.0
	Overall Percentage				67.0

(a) The cut value is .500

Table 8 b Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1(a)	Store	.879	.448	3.843	1	.050	2.408
	Constant	.245	.315	.607	1	.436	1.278

Table 8 c Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Store *Choice	94	100.0%	0	.0%	94	100.0%

Table 8d Store * Choice Cross tabulation

		Choice		Total
		Better on Sensory	Better on Non-Sensory	CM-Better on Sen
Store	Physical	18	23	41
	Online	13	40	53
Total		31	63	94

Table 8e

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.204	.048
	Cramer's V	.204	.048
	Contingency Coefficient	.200	.048
N of Valid Cases		94	

a Not assuming the null hypothesis.
b Using the asymptotic standard error assuming the null hypothesis.

The model is statistically significant (Chi-Sq (1) = 3.919, p = 0.48). The Classification table provides us with the observed and predicted values of the dependent variable based on the full logistic regression model. This table shows how many cases are correctly predicted (63 cases are observed to be 1 and are correctly predicted to be 1), and how many cases are not correctly predicted (31 cases are observed to be 0 but are predicted to be 1). Thus we were able to correctly predict 67% cases through this model, which is a moderately well-fitting model. Thus, for every one-unit increase in "Store", we expect a 0.879 (S.E. = 0.448, $p<0.05$) increase in the log-odds of "Choice", holding all other independent variables constant. Alternatively we can observe the Exp(B). "Exp(B) is the predicted change in odds for a unit increase in the predictor. When Exp(B) is less than 1, increasing values of the variable correspond to decreasing odds of the event's occurrence. When Exp(B) is greater than 1, increasing values of the variable correspond to increasing odds of the event's occurrence." (SPSS Results Guide). In this case the respective value of Exp(B) is 2.408, which suggests that odds of consumers choosing entice towel (one that is better on non-sensory attributes) are likely to go up as consumers shop online as compared to in physical stores.

To test the next set of hypotheses i.e. 6 and 7, evaluability of various attributes was measured by 4 point itemized ratings scales as follows:

It was difficult to evaluate the price of these towels

Strongly Disagree 1-------2-------3------4 Strongly Agree

The subjects gave their ratings for each attribute based on the degree of difficulty experienced by them in evaluating the alternatives on a given attribute during the choice task. Next, expert panel's classification was used to determine the sensory and non-sensory attributes. However, as per the experts' opinion only one attribute qualified under each of the category. So, for testing H6, i.e. the hypothesis that evaluability of sensory attributes will be lesser in the online environments as compared to in physical environments, a one way ANOVA on 'Evaluability of Fabric Feel (fabric quality)' was run and the results are reported in Table 9.

Table 9 Evaluability of Sensory Attributes

Store	N	Mean (Evaluability of fabric)
Internet Store	53	3.43
Physical Store	40	2.48
Total	93	2.90

As hypothesized by H6, the experienced difficulty in evaluating the feel of the towel fabric was significantly greater, $M_{IS} = 3.43$, in case of online shopping environment as compared to that of physical store, $M_{PS}=2.48$; $F(1, 93) = 15.99$, $p = 0.00$.

Similarly, H7 was tested by analyzing the mean differences among the non-sensory attributes. Again, the classification by expert panel was used to determine the non-sensory attributes. As price was the only non-sensory attribute classified by the panel a one way ANOVA on the evaluability of price was run. As hypothesized, the mean difference between the evaluability scores of price under both environments was not significantly different. The mean scores under internet and physical stores were 1.94 and 2.07 respectively and the difference was not significant ($p = 0.50$).

Thus, shoppers experience more difficulty in evaluating the sensory attributes of a product in online environments as compared to in physical environments and they are found to be at equal ease in evaluating products on non-sensory attributes under both, internet stores and physical stores.

Finally, a mediation analysis as suggested by Baron and Kenny (1986) was conducted to test the prediction that attribute evaluability mediates the effect of shopping environment on choice (H8). As the first step the earlier prediction (H5) that options that are superior on sensory attributes are more likely to be chosen when choice takes place in physical stores as compared to when it takes place on online stores is tested and the relationship between store environment and choice is established. In the next step, a binary logistic regression was run on the evaluability of the sensory attribute i.e. the feel of the fabric with Store (internet vs physical) as the independent variable. For this purpose a dummy variable with categorical values 0 (more difficult i.e. less evaluable)

and 1 (less difficult i.e. more evaluable) for fabric feel was created from the interval scaled values of the original variable.

Table 10 The Effect of Shopping Environment on Evaluability

Table 10 a Classification Table (a)

Observed			Predicted		
			Evaluability of Fabric		Percentage Correct
			more difficult-less evaluable	less difficult - more evaluable	more difficult-less evaluable
Step 1	Evaluability of Fabric	more difficult-less evaluable	42	19	68.9
		less difficult - more evaluable	11	21	65.6
	Overall Percentage				67.7

(a) The cut value is .500

Table 10 b Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1(a)	Store	-1.440	.464	9.644	1	.002	.237
	Constant	.100	.317	.100	1	.752	1.105

(a) Variable(s) entered on step 1: Store

The model is statistically significant Chi Sq (1) = 0.001 and the 'Store' is a predictor of evaluability with p =0.002.

Finally, a binary logistic regression was run with store and evaluability as the covariates and choice as the dependent variable. The result of this final step is summarized in Table 11.

Table 11 The Effect of Store and Fabric Evaluability on Choice

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1(a)	Store	.935	.478	3.832	1	.050	2.547
	Evaluability of Fabric	.036	.496	.005	1	.942	1.037
	Constant	.182	.411	.196	1	.658	1.199

(a) Variable(s) entered on step 1: Store, Evaluability of Fabric

As per the mediation requirements store variable should not be significant in the model and the evaluability should have been significant. However, as can be seen from the Table 11 the mediation analysis cannot be proven. The discussion section following the data analysis of this study addresses possible reasons for lack of empirical support and also outlines some of the limitations of this study.

Finally, a post hoc analysis was conducted to analyze the effects of Gender. As discussed earlier, research has shown that woman tend be higher in their need for touching a product before making the purchase decision (Citrin et al., 2003). So, it could be argued that in online stores woman are more likely to need to touch the products to ascertain its sensory properties. As internet is not conducive to provide haptic feedback, female are more likely to rely on non-sensory attributes when making purchases online. The binary logistic regression on choice with Gender and Gender by store interaction did not reveal any significant effects for either Gender (b coefficient: -0.45; p-value < 0.432) or Gender*Store (b coefficient: 1.269; p-value < 0.06) variables. Another logistic regression on choice with Gender, Store, and Gender*Store as predictors was also run but once again no significant effects for any variables was found. For Gender the ‘b’ coefficient was -0.219 (p-value < 0.732), ‘b’ coefficient for Store was 0.490 (p-value <

0.425) and the store by gender interaction variable had a ‘b’ coefficient of 0.778 (p-value < 0.390). Hence, gender’s role in the effects of shopping environment could not be established and in subsequent study gender was not analyzed.

Discussion:

Study 2 supports the hypothesis that the probability of an alternative, which is superior on sensory attributes is more likely to be chosen in physical stores as compared to in online stores. And, the probability of choosing an alternative that is superior on non-sensory attributes is greater in internets stores than in physical stores. Thus, the results clearly support the notion that price sensitivity in online environment is likely to be greater than in physical environment. Moreover, the results also corroborate the predictions that evaluability of sensory attributes will be comparatively higher in physical stores than in internet stores and the evaluability of non-sensory attributes will not differ across the environments. In this study the main effects of shopping environment are empirically proven but mediation prediction was not supported.

Although the overall results of Study 2 support most of the predictions there are a few limitations of this study which also need to be noted along with the results. One of those limitations is the use of unknown brand names for stimulus products. The towel superior on sensory attributes was named ‘Chris Madden’ and the one superior on non-sensory attributes was named ‘Entice’. In order to ensure that subjects were indeed unfamiliar with the brand names a manipulation check item was included in the questionnaire. A dichotomous question with yes/no options was presented individually for each brand name. It was worded: Have you heard about the brand Chris Madden / Entice before? The responses revealed that out of 94 subjects only 14 had heard about

Chris Madden as a brand name but a further cross tabulation also revealed that out of these 14 subjects 7 were in online condition and exactly 7 were in physical conditions. On the other hand, only 4 subjects out of 94 (2 in each environment) indicated that they had heard of the brand ‘Entice’. So, it is reasonable to assume that brand names have not played any role in the findings reported here. Nevertheless, to the extent these brand name effects may have impacted the results it should be considered one of the limitations of this study.

Another limitation of this study appeared to be the choice of bath towels as the stimuli products. Moreover, there seemed to be a lack of interest for this product category among the subject population. My observations revealed that during the experiments not all of the subjects in the physical store condition opened up and fully touched both sets of towels. This could have influenced some of the subjects in physical store condition to make their choices based primarily on non-sensory attribute like price even though they had access to the actual towels. Moreover, the attribute classification did not make available enough number of attributes under sensory and non-sensory categories. Thus, another experiment was conducted with paper towels as stimuli products. Paper towels are easier for the subjects in the experimental environment to handle and prior research studies in the similar domain have also used paper towels as product stimuli (Degeratu et al. 2000).

Chapter 6: Analyzing Effects of Attribute Evaluability and Web-shopping Comfort

The two studies discussed so far have demonstrated that consumer choices are influenced by environmental context. Specifically, it has been shown that products superior on sensory attributes are chosen more often in physical stores than in online stores. The studies also show that evaluability of sensory attributes is perceived to be higher when there is an opportunity to physically interact with products. In this final study I have addressed the limitations of prior studies and presented empirical support for the attribute evaluability as the underlying explanation. Moreover, I have also discussed a plausible alternate explanation and have empirically ruled it out.

6.1 Role of Web-shopping Comfort:

Further, this study investigates the role of web-shopping comfort on the effects of shopping environment. It has been demonstrated that experienced users have a better understanding of the utility of the product information available on internet (Hammond, McWilliam and Diaz, 1998) and hence they are more likely to use internet as a shopping tool in a better way than the non-experienced users. It has also been shown that the peripheral cues on a web page are more likely to affect novices than experts (Mandel and Johnson, 1999). In a discussion of the effects of visual representation on decision making, Lurie and Mason (2007) argue that consumer expertise (experience) should be considered as in important moderator. The novices are more likely to be influenced by the contextual factors like default visualization. The novices are more likely to treat the default values on the represented variables as the best options and may not engage in recalibration of the values. Similarly, when novices (less experienced web shoppers) are making their

choices on internet they may be more persuaded by the readily available information i.e. pertaining to non sensory attributes. According to Grewal et al. (2003) the consumers who are engaging in first time purchases of a product requiring some sort of trial, experience or judgment are less likely to shop on internet. So it can be reasonably expected that such less experienced (or novice) shoppers will focus even harder on the non-sensory attributes if faced with a situation of buying online. And, as a reverse corollary of this argument, it can be expected that when experienced consumers are making their choices on line they will not be afraid of basing their decisions on the sensory attributes along with the non-sensory attributes. Moreover, Carlson and Bond (2003) demonstrate that pre-exposure to attribute levels attenuates the effect of contexts on the choices. They show that attribute primes were unsuccessful to bias choices in favor of cheaper backpacks for the participants who were merely exposed to a list of possible levels of the key backpack attributes. Thus, the experienced shoppers are more likely to be aware of the various levels of sensory attributes, which are difficult to ascertain in online shopping scenario. Hence they are not likely to be biased by the overriding effect of non-sensory attributes even when there is a lack of opportunity to properly evaluate sensory attributes. Further, Bart et al. (2005) show that consumers' online savvy and prior online shopping experiences are reliable predictors of their trust towards a website. They suggest that consumers use their comfort levels in shopping online as a psychological protection against any feelings of future regret that may arise from an unfavorable transaction outcome on a website. Similarly, the experienced consumers are more likely to feel comfortable in relying on sensory attribute information in making their choices in online environments.

Thus, the effect of shopping environment should be attenuated in case of shoppers who are more comfortable with internet as a shopping medium. So,

H9: Consumers' online shopping comfort will moderate the effect of shopping environment on choice.

The analysis of the third experiment is presented in the following part of this section.

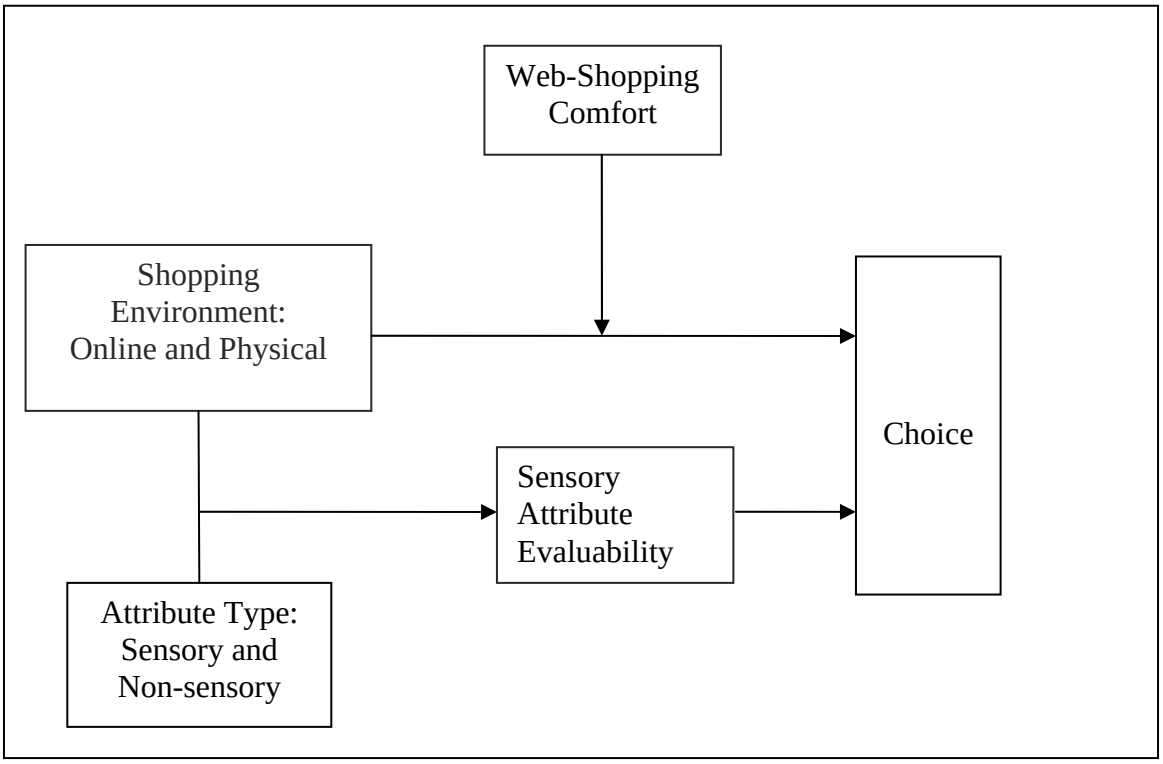


Figure 3: Moderating Effect of Web Shopping Comfort

Purpose: This study has twofold objectives: First to explain and test the roles of evaluability of attribute as a mediating variable.

And second to demonstrate the effects of consumers' comfort with online shopping on the effect of shopping environment on their choices.

Participants: 149 undergraduate business students at a north eastern American college participated in this experiment in return for a partial course credit.

Design and Procedure: This experiment also followed a similar set up like previous experiments. This time, paper towels were selected as the stimulus product. As with the previous studies the paper towels were selected to differ on sensory and non-sensory attributes such that one of the two was superior on non-sensory attributes like price and the other one was superior on sensory attributes. Subjects were randomly assigned to one of the two treatment conditions i.e. online store or physical store. Subjects in the physical store treatment condition were supplied a set of two paper towels attached to a questionnaire and product information page (Annexure 5). Subjects in the online store condition were only provided with the same product information along with exactly same questionnaire as was used for the other treatment condition. Photographs of the packages were not supplied to avoid the brand recognition and also in physical condition only paper towels were attached not the package. The product information in both conditions was presented in tabulated form. The list of attributes was selected based on all the information found on the pack of paper towels in physical as well as online stores.

The same panel of experts, which classified the attributes as sensory or non-sensory in the previous study was approached to classify the attributes of paper towels between sensory and non-sensory. They classified the attributes on a rating scale of 5 points with 1 being 'Completely Non-sensory' and 5 being 'Completely Sensory'. Based

on their classification following table containing the sensory and non-sensory attributes of paper towels was created.

Measures:

As described in the prior section, attributes were classified as sensory and non-sensory by the expert panel. Based on this classification and experts' comments, feel, absorption and cleaning comfort were identified as sensory attributes while price and number of paper towels in the pack were treated as non-sensory attributes for further analysis. Brand names were not provided with the product samples and photos. The classification is given in Table 12.

Table 12 Attribute Classification for Paper Towels

Attributes of Paper Towels	Mean Scores	Standard Deviation
Price	1.00	0
Feel	5.00	0
Look	2.88	1.808
Style	3.00	1.512
Number of Paper Towels in the pack	1.50	.756
Color	2.88	1.808
Weight	3.50	1.309
Thickness	3.50	1.309
Absorption	4.00	1.069
Cleaning Comfort	4.50	.535
Brand	1.38	.744

Sensory Attribute evaluability was measured by asking subjects to rate how easy it was to evaluate the paper towels on a given attribute. Subjects revealed their ease in

evaluating the paper towels on a 7 point scale with ‘1’ being not easy at all to ‘7’ being very easy. The overall sensory attribute evaluability score was computed by averaging the scores of all three sensory attributes (feel, absorption, and cleaning comfort) on this scale.

Data Analysis:

Next, as a first step the main effect of shopping environment on choice (H5) was tested by running a binary logistic regression on choice as the dependent variable and shopping environment as the independent variable. I expect to see increase in the odds of subjects choosing a paper towel that is better on sensory attributes in physical stores as compared to internet stores. Choice was categorized as ‘0’ when the paper towel better on sensory attributes was chosen and ‘1’ when the paper towel better on non-sensory attributes was chosen. Shopping environment was categorized as ‘0’ for physical store and ‘1’ for online store (internet store). The analysis revealed that the probability of choosing a paper towel superior on non-sensory attribute was significantly higher when the choice was being made in the online environment (‘b’ coefficient: 1.629 and $p = 0.00$).

Now, to test the mediating effect of the sensory attribute evaluability, the methodology recommended by Baron and Kenny (1986) was used.

As per Baron and Kenny (1986) the mediation test involved a three stage process. The first step involved demonstrating the direct effects of independent variable on the dependent variable. The effects of shopping environment on the choice have already been shown ahead. Next, the dependency of attribute evaluability on shopping environment needs to be shown. As evaluability is a scaled variable a regression analysis on attribute

evaluability was run with shopping environment as the independent variable. The shopping environment (store) proved to be a statistically significant predictor of the evaluability ('b' coefficient: -0.684, p = 0.002, SE=0.216). The negative sign of the beta coefficient clearly supports the theoretical prediction. It shows that as the subjects move from physical environment to online environment their perceived evaluability of sensory attributes declines.

Next, another binary logistic regression on choice was run with attribute evaluability as the independent variable. Again evaluability was a significant predictor of choice ('b' coefficient -0.465, p = 0.001 and SE = 0.137). The negative sign of coefficient supports the hypothesis that as the consumers' perceived ease in evaluating sensory attribute goes up their likelihood of choosing the paper towel superior on non-sensory attribute declines.

Finally, sensory attribute evaluability and shopping environment both were simultaneously regressed on the choice as the dependent variable in another binary logistic regression. The result of this analysis also supports the mediation hypothesis. The beta coefficient of sensory attribute evaluability is -0.369 (p = 0.01 and SE = 0.144) and beta coefficient of shopping environment (store) is 1.460 (p = 0.0001 and SE = 0.367). As store is still a significant predictor of the choice this is a case of partial mediation and not complete mediation. It should be noted that the strength of beta coefficient associated with store variable reduced from 1.629 to 1.460, in the presence of the mediator variable i.e. attribute evaluability.

The magnitude of the indirect effect of this mediation model is 0.32, which is obtained by multiplying the beta coefficients of store on evaluability (-0.684) and of

evaluability on choice (-0.465). Lastly, the significance of the mediation model was tested using the Sobel Test. The Sobel test statistic for the mediation model is 2.32 and is statistically significant ($p = 0.01$ for single-tailed and two-tailed $p = 0.02$). It should be noted that the magnitude of indirect effect is 0.32, which suggests that this model demonstrates partial mediation and not complete mediation.

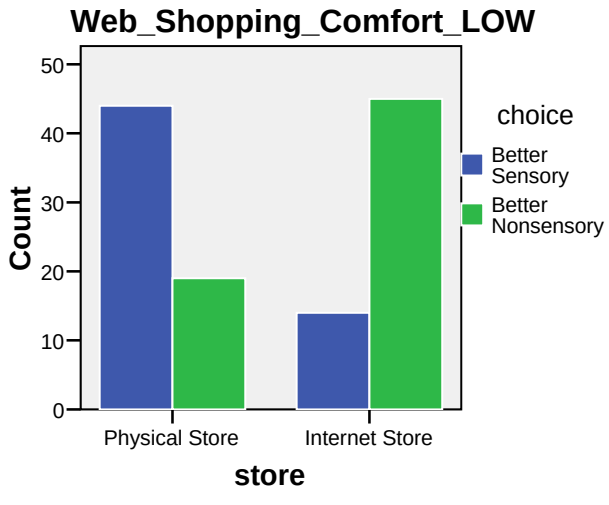
Next, in order to test the interaction effect of web-shopping comfort and shopping environment two analyses were conducted. First, cross tabulations were analyzed and then a binary logistic regression was used to test the significance of interaction between shopping environment and web-shopping comfort on the choice.

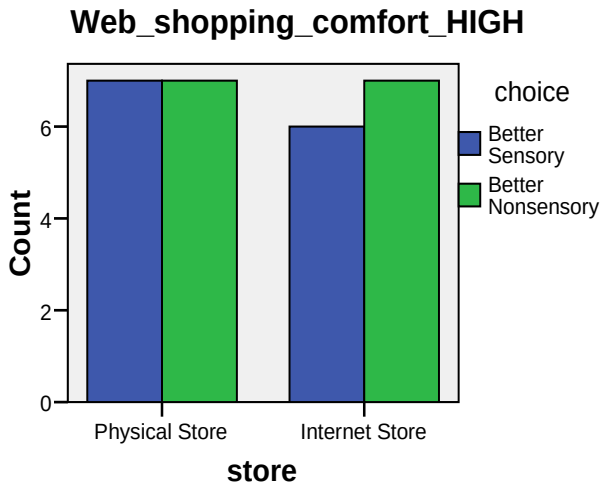
The web-shopping comfort was measured by a single item 7 point scale (How comfortable would you be shopping for a paper towel on a website?) with '1' denoting not at all comfortable and '7' denoting extremely comfortable. The effect of store environment on choice will only be attenuated in case of those who depict a very high level of comfort with online shopping. Therefore, the scale was categorized in two categories. The first category consisted of the respondents who showed extremely higher levels of comfort with online shopping i.e. those indicating scores of more than 5. The remaining respondents were classified as having low to moderate levels of comfort in shopping online. The results of cross tabulations are presented in Table 13 and Figure 3.

Table 13 Cross-tabulations Analyzing The Effects of Web-shopping Comfort

Web Shopping Comfort	Shopping Environment	Choice		
		Better on Sensory	Better on Non-sensory	Total
LOW	Physical Store	44	19	63
	Internet Store	14	45	59
	Total	58	64	122
HIGH	Physical Store	7	7	14
	Internet Store	6	7	13
	Total	13	14	27

Figure 4: Cross Tabulations for Effects of Web Shopping Comfort





The Pearson chi-square test statistic for low level of shopping comfort is 25.98 (p = 0.00) and for high level of shopping comfort it is 0.04 (p = 0.84). In order to understand the strength and significance of relationships between the choice and shopping environment at different levels of web-shopping comfort, Cramer's V and the respective significance levels were also observed. Cramer's V indicates the strength of association between the two variables and the associated significance values indicate the likely hood of observing such an association on a random basis i.e. without the presence of any actual association. In case of shoppers with lower levels of web-shopping comfort the Cramer's V was 0.461 (p = 0.00) and for those with a very high levels of web-shopping comfort Cramer's V was 0.038 (p = 0.842). This supports the hypothesis that at low levels of web-shopping comfort the shopping environment (web or physical store) affects the choices but for those who have very high levels of comfort with shopping online the effect of shopping context on their product choices almost disappears. As can be observed, apart from the significance levels, the strength of the associations also suggests a strong support for these predictions.

Next, a binary logistic regression on choice as the dependent variable and shopping environment (stores), web-shopping comfort and interaction variable for store and web shopping comfort was run. As predicted the results of the regression also show significant interaction effects (Table 14).

Table 14 Binary Logistic Regression on Choice

('0' better on sensory attributes and '1' better on non-sensory attributes)

	B	S.E.	Wald	df	Sig.	Exp(B)
Store ('0' Physical; '1' Internet)	2.007	.411	23.842	1	.000	7.444
Web Shopping Comfort	.840	.601	1.953	1	.162	2.316
Store*Web Shopping Comfort	-1.853	.874	4.494	1	.034	.157
Constant	-.840	.275	9.358	1	.002	.432

Based on Table 14 the roles of the parameters in the model can be investigated. It is apparent that store, estimated coefficients of store 2.007 (Wald statistic 23.84; p = 0.00), and interaction variable, coefficient -1.853 (Wald statistic 4.49; p = 0.034) are statistically significant predictors of the choice. And Web shopping comfort by itself is not a significant predictor of choice (p = 0.162). Also the predicted change in the odds of choosing a paper towel, which is better on non-sensory attributes, clearly follows the hypothesized relationship. The Exp (B) for Store is 7.44, which suggests that shoppers who go online for shopping are more likely to buy paper towels superior on non-sensory attributes. And for the interaction variable the Exp (B) is 0.157, which indicates that the odds of shoppers choosing a paper towel better on non-sensory attributes are lesser when they go online for shopping and are very comfortable with online shopping environments.

Finally, the effects of web-shopping comfort were also analyzed by treating it as a continuous variable, as it was originally measured. The results of the binary logistic regression on choice revealed no significant effects of web shopping comfort. It was evident that without the categorization between very comfortable and less comfortable

groups, web-shopping comfort does not affect choices (b = -0.076, p = 0.574). Nevertheless, store remained a significant predictor of choice (b = 2.03, p = 0.014) but the interaction effect of store and web shopping comfort on choice (b = -0.10, p = 0.604) was not significant.

6.2 Alternative Explanation (Role of NFT):

It follows from the hypotheses presented here that certain individual characteristics like 'Need for Touch' (NFT) could be a plausible explanation for the proposed effects on choice. In order to strengthen the 'evaluability' explanation, it should be demonstrated that NFT does not explain the differences in choices. Therefore, multiple scales for NFT had been included in the questionnaires.

The NFT Effects:

The research on human decision making has conclusively shown that the information received through our sensory receptors to a large extent determines our cognitive responses (Neisser, 1976; Citrin et al., 2003). Specifically, one of the key reasons for shoppers' reluctance to buy online can be attributed to the lack of sensory inputs (Philips et al., 1997). Further, research has shown that individuals differ in terms of their need for touch (Peck and Childers, 2003) and those who have higher need for touch show lesser inclination to shop online (Citrin 2003). In light of these findings it could be assumed that those with higher NFT may heavily rely on non-sensory attributes while shopping for products online and hence they are more likely to choose alternatives that are superior on non-sensory attributes for e.g. price.

The NFT scale included 6 items and for each item it recorded subjects' agreement or disagreement on a 5 point scale. Some of the scale items were: 'I need to touch a product in order to evaluate its quality'; I feel it necessary to touch a product in order to access its physical characteristics'; I need to touch a product in order to create a general evaluation of it'. NFT variable was computed by averaging the six scale items.

To rule out the alternative explanations, first a regression on NFT was conducted with store as the predictor variable. The results show a beta coefficient of '-0.097' and p-value < 0.44. Apparently, NFT does not depend on the store environments. Next, a binary logistic regression on 'Choice' was conducted with NFT as the predictor variable. The analysis revealed no significant effects of NFT on choice (p-value < 0.295; Exp (B) = 1.254). Finally, what remains to be ruled out is a possibility of any interaction effects of NFT and store. It could be argued that NFT becomes important only in the internet domains and not in physical stores. So, a binary logistic regression on Choice with NFT, Store and Store*NFT interaction as predictor variables was run. Once again, the results depict no significant effects for any of the predictors (NFT: p = 0.172, Exp (B) = 1.547; Store: p = 0.214, Exp (B) = 12.958; NFT*Store: p = 0.667, Exp (B) = 0.805).

Finally, another post hoc analysis was conducted. The purpose of this final analysis was to explore the effects of web shopping comfort, NFT and shopping environment on choices in the presence of each other. So, a binary logistic regression on choice was run with web shopping comfort, NFT, store and their interactions as the predictors. Once again, the results revealed no effects of any of the predictors. Overall, the goodness-of-fit test revealed a significance of 0.00 indicating that the model does not

adequately fit the data. The significance levels for individual variables are reported are reported in Table 15.

Table 15 Effects of NFT with Web Shopping Comfort

	B	S.E.	Wald	df	Sig.	Exp(B)
Store	7.331	5.129	2.043	1	.153	1526.372
WebComfort	.223	.672	.109	1	.741	1.249
Average_NFT	.700	.762	.843	1	.359	2.014
Store*NFT	-1.262	1.209	1.091	1	.296	.283
WebComfort*Store	-1.122	1.100	1.041	1	.308	.325
WebComfort*NFT	-.064	.157	.168	1	.682	.938
WebComfort*Store*NFT	.246	.264	.866	1	.352	1.278
Constant	-3.419	3.299	1.074	1	.300	.033

Chapter 7: General Discussion

7.1 Overview:

Since the onset of 21st century the consumers' shopping landscape has increasingly gotten revolutionized. Increasingly larger number of consumers at an ever increasing rate is shopping for a variety of products and services online as well as in physical stores. Mixed with this dynamic change in shopping environment is the increasing popularity of multi channel retailing (Kumar and Venkatesan, 2005; Baal and Dach, 2005). Understanding consumers' product evaluations and decision making across these different shopping environments is of critical importance for all marketers and especially more so for the multi channel marketers. This research demonstrates that consumers' choices may differ across their shopping environments. Through a series of experimental studies, I present and test a possible explanation for the reversals in consumers' choices. The findings of the conducted behavioral experiments suggest that these differences arise because consumers perceive differences in the ease (or difficulty) in evaluating different types of attributes. The demonstrated effects and the empirical evidence of the explanation are further strengthened by systematic ruling out of potential alternative explanations. Moreover, the finding that consumers' web shopping comfort weakens the effect of the shopping environment on their choices is significant as it suggests that experienced consumers are likely to be guided in their decisions equally by sensory and non-sensory attributes of products.

In the next section I provide a summary of the results of this dissertation, their managerial and theoretical implications. Finally, I outline the limitations of the research and some of the potential directions for future research that this research may lead to.

7.2 Theoretical Implications:

First, this dissertation demonstrates effects of attribute evaluability in a different context. The original theorization of attribute evaluability (Hsee 1996, 1999) treats attribute evaluability as the difficulty in evaluating an attribute while evaluating products jointly or separately. I too treat attribute evaluability as the consumers' perceived ease in evaluating a product on a given attribute but the attribute evaluability in this research is posited in the type of attribute and the context of evaluation task. The results support the predictions that attribute evaluability goes down as consumers attempt to evaluate a product's sensory attributes in internet environments. Also, study 3 presents an empirical evidence that attribute evaluability plays a mediating role in the effect of shopping environment on consumer choices.

Second theoretical implication of this research contributes to the research relating to preference reversals. Prior research contains ample evidence that suggests that preference reversals occur due to differences in evaluation scales and evaluation modes. This research provides another demonstration of preference reversals. Based on the findings reported here, it can be claimed that preference reversals also take place in light of differences in the evaluation environments. Both choice experiments Study 2 and Study 3, show that consumers choose one alternative in physical stores and another alternative in the online stores. In order to further generalize these findings future studies should be conducted to investigate the role of evaluation context.

Third, important theoretical finding of this research is the limitation of currently popular dyadic classification of attributes into sensory and non-sensory. Mittal (2004) also suggests that the currently accepted triadic attribute classification into search,

experience and credence needs to be revisited and updated. The experts' classification of attributes presents interesting implications. It is evident that many attributes were not clearly classified as sensory or non-sensory attributes and had to be left out of the analysis. Moreover, studying the subjects' responses on these attributes it seems that sometimes there is apparent contradiction in the way they responded and what the prior research suggests. It is suggested that size is a non-sensory attribute but many subjects felt difficulty in evaluating (visualizing) the sizes of the various stimulus products (particularly for bath towels) even when they were provided with size in writing. It seemed they could not confidently tell if a specific size would be sufficient for their purpose or they would want to have a smaller or larger towel. Even the experts agreed with this possibility. Without being privy to the research, original questionnaires and subjects' responses the experts too felt that size cannot be clearly classified as either strictly sensory or non-sensory. The theoretical implication of this finding provides a viable research opportunity to explore the possibility of a third type of attributes, which is neither completely sensory nor completely non-sensory.

Further, to an extent this research provides a resolution of the contrary findings about price sensitiveness in online environments. As pointed out at the beginning, many studies addressing price effects in internet domain have painted quite contrary pictures. Degeratu et al. (2000) show that price will have a lesser effect in online stores as compared to physical stores. Although their study does not specifically test any explanation for the effects they do present a possible explanation in the form of information integration paradigm. The information integration theory postulates that as information on more attributes become available the relative importance of each attribute

falls down. Now, as it is easier to consider more information online (more attributes along with price) the importance of price in the overall decision reduces, which in turn leads to lesser price sensitivity in online stores. On the other hand, Lee (1998) argues that as it is easier to search prices on internet, online retailers will have to be aggressive on pricing to be effective. Degeratu et al. (2000) too suggest that their study lacked sufficient control as would be possible in an experimental setup. However, my study provides a simple explanation. The results of Study 3 suggest that those shoppers who are comfortable shopping online do not display price sensitivity in online environments. In case of Degeratu and his colleagues' research the online sample had come from those shoppers who are registered shoppers with the online grocer peapod.com. Although their study had controlled the demographic variables like age, education, family composition, and income an important variable that of web shopping comfort was not studied. It is quite reasonable to assume that those registered peapod.com shoppers would have been comfortable shopping online and as pointed earlier this is the variable, web shopping comfort, that possibly explains why the online shoppers were not found to be price sensitive in that study. Thus, it could be concluded that it is the perceived difficulty (or evaluability) in evaluating sensory attributes that leads to increased sensitivity towards the non-sensory attributes of a product in internet stores as compared to such sensitivity in physical stores. Moreover, price being a completely non-sensory attribute the online shoppers will tend to be more price-sensitive. Until online shoppers become comfortable with web site based shopping such price sensitivity will remain. Alternatively, technological advances that make it easier to evaluate sensory attributes online will also attenuate these effects. So, in summary rather than information quantity, I demonstrate

that information processing comfort is a stronger predictor of consumer choice in response to their shopping environments.

7.3 Managerial Implications:

First, this research provides a better understanding of consumers' evaluations of products and features in online as well as physical store environments. The findings suggest that consumers are more likely to focus on sensory attributes of a product in physical stores rather than in online stores. As already noted earlier most retailers like, Walmart, Best Buy, Circuit City etc. and manufacturers like Dell, Sony, BMW Mini etc. sell their products through internet as well as through physical distribution channels. Thus, the notion that consumers may differentially weigh the product attributes in both these environments suggests that these companies will be better-off selling different product lines for both environments or at the least they may fill their product lines with products offering different attribute combinations. Specifically, products that are superior on non-sensory attributes will do well in online channels and products superior on sensory attributes will be more suitable for physical stores.

Another implication of this research can be found in fine tuning promotional and communication messages across channels. Although not specifically tested here but coupled with prior findings (Degeratu et al. 2000) it can be ascertained that in online domains the communication (or promotional) message directed towards non-sensory attributes will have a greater impact than the one focused on sensory attributes.

Thirdly, the findings of this research can be applied to reduce product returns for online retailers. The online retailers' second biggest expense is purchase returns (Nantel 2004). Nantel (2004) further suggests that on an average an apparel retailer incurs

approximately $10 on each piece of clothing that's returned. My research shows that consumers find it difficult to evaluate the sensory attributes of a product in online environments. Hence online retailers, particularly those selling products with many sensory attributes, should make it easier for shoppers to evaluate the sensory attributes of the product. In this way this dissertation provides increasing justification for investing in technologies and interfaces that make it easier for consumers to analyze the sensory attributes on web site stores. Prior research evidence also supports this contention. For e.g., Nantel (2004) reports that the return rates for consumers who used virtual models while shopping for clothes online were reduced on an average from 35% to 21% . This is an average drop in return rates of 40%. So, on one hand my research presents a rationale for using such technologies and interface tools and on the other hand it also suggests that such tools could be made more effective by investigating their impact on consumers' perceived ease (of difficulty) in evaluating the sensory attributes of the products being sold.

Finally, the companies who sell their product lines in both channels (environments) have another concern, that of dealing with free riding customers. The free riding customers are those who use one channel during pre-purchase stages of the consumer decision making process but buy from another channel (Baal and Dach, 2005; Bakos, 2001). For the multi channel retailers who sale goods through internet and physical stores, the biggest negative effect of such free riding customers arises when customers use physical stores to experience and / or to evaluate various product attributes in a physical store but then go on to buy the product online. The present research tangentially throws light on one of the possible explanation for the behavior of such free

riders. This happens largely because most consumers find it difficult to evaluate the sensory attributes of a product on a website. So, they are more likely to be using physical stores to compare alternative products on sensory attributes and subsequently use internet to price shop among the alternatives.

7.4 Limitations and Future Directions:

Like most research projects, this research also has its own set of limitations. First of all the empirical evidence that supports the hypotheses is based on experimental studies. Thus, all the limitations of a laboratory experiment also apply over here. While the treatment conditions were controlled, a couple of things out of my control could have affected the studies. First, subjects who were in physical store conditions were provided actual products to make evaluations and choices. Those subjects were observed to have touched the products for different times and in different manners. Especially, during Study 1 some subjects took more time in perusing the backpacks. They thoroughly examined every compartment, zippers and put them on their shoulders while some other subjects merely touched the backpack. Such differences mean that some of the subjects may have felt higher difficulty in evaluating sensory attributes of the products. But, as the predicted results are likely to be negatively affected by this, I feel this limitation in a way does not jeopardize the findings in any significant manner. Second limitation relates to the operationalization of internet condition. In order to minimize the effects of information structure and presentation, the subjects in both conditions were provided exactly similar questionnaire and attribute by alternatives table. The stimulus products in case of internet conditions were presented as printout of photos of the products. This would be an extreme case of an internet store becoming applicable only when an online

retailer uses a completely static webpage to provide product descriptions. In fact, as the webpage interactivity is enhanced the evaluability of processing sensory attributes online should increase and to that extent the differences observed across shopping environments could reduce. But, it should be noted that both these limitations affect the results in opposite ways and hence to some extent they cancel out each other. Moreover, Study 3 used paper towels as product stimulus and there is little difference in presenting paper towels online vis-à-vis in print outs and it was easier for subjects to get a feel of attached paper towels in physical store conditions. Thus, both the aforementioned limitations to a great extent were limited in Study 3. The results of this study too suggest that the predictions of this research have robust support even in near-to-real world settings.

Second limitation is rooted in the sample composition for the studies. For practical and budgetary concerns I could only approach university students to invite their participation as subjects for all the studies. There are some problems with having only students as research participants. First, as sample constituents, students are highly homogenous group especially in terms of availability of disposable incomes and affordability. This has an important effect on the findings. It is possible that on their student budgets they may be more price-sensitive and such price sensitivity will permeate across both environments. Thus, leading to more price based choices in both environments. Second, the current experimental procedure did not have anything to increase the involvement of students towards the tasks. They may not be as motivated as actual buyers would be. However, it is a common practice to use students in behavioral research, more so in consumer research. Also, for most research questions and theoretical inquiries such subject pool basically does not take away anything from the findings.

As mentioned here above, in a future study the experiments could be better designed and treatment conditions could be more realistically operationalized such that instead of printouts of photos actual web pages should be used with appropriate blocking of subjects' surfing and for physical conditions subjects should be better motivated to interact with the stimulus products just as they would in real world conditions.

Next limitation of this dissertation actually arises from the findings. Although the main effects of shopping environments are proven in all three studies with different product categories, the process explanation is not fully supported in the Study 2 and Study 3, which supports mediating role of the evaluability of sensory attributes, only demonstrates a partial mediation. It means there is a possibility of another mediator explaining some effects of shopping environment on choices. But it is also possible that the distinction between sensory and non-sensory attributes may not be quite accurate. As noted ahead, identifying a more precise way to distinguish between sensory and non-sensory attributes is an important research opportunity. Meanwhile, if some of the sensory attributes were not classified as sensory then the evaluability of sensory attribute as a construct could not have been fully captured.

Further, to control the effects of brand names, only fictitious brands and alphabets (A, B, P and Q) were used as brand names. A brand name is a very important non-sensory attribute and plays a pivotal role in understanding consumer choices across the environments (Degeratu et al. 2003). The primary goals of this research, on one hand, were to show the effects of shopping environments on consumers' choices and price-sensitiveness. On other hand was to present an explanation for these effects. Thus, the brand effects were not included in this research and to that extent this study is restricted

in its validity. However, this also presents an opportunity for a future study wherein actual brand effects can also be studied. Brand being a strong non-sensory attribute must play greater role in influencing consumers' choices online as compared to in physical stores. Degeratu et al. (2000) have also shown similar brand effects. But, a more important question is to examine the perceived ease in evaluating unfamiliar (or private retail brands) versus familiar brands (national brands) in online stores versus physical stores. It is more likely that product trials would be more critical for unfamiliar brands before their acceptance in online. Therefore, for private brands promotions based on free trials or sampling will be more helpful than advertising in online domains.

Finally, this study also opens up another avenue for understanding endowment effects. Endowment effect is defined as the increase in the valuation of a product that results due to ownership of that product. One of the widely accepted explanations for endowment effect is loss aversion (Kahneman and Tversky, 1984). A recent study has demonstrated that duration of exposure strengthened the endowment effects (Wolf, Arks, and Muhanna, 2008). Also, a mere exposure to an item increases the liking for that item (Zajonc 1968). Based on all these findings and the effects reported in this dissertation, endowment effect can be predicted to increase when the subjects are exposed to an item through more than one sensory motor systems rather than just one. Specifically, I suggest that mere exposure based endowment effects will increase when subjects are exposed to products in physical environments as compared to online environments.

APPENDIX A: Study 1 Questionnaire (Physical store condition)

Imagine that you are considering purchase of a Laptop Bag / Laptop Backpack.
How much money are you likely to spend on a laptop bag? $_____US Dollars
(Just provide an approximate budget that you could have; we understand that there are many factors that affect this figure.)

1) Please write down in the first column named "Attributes", the features that you would consider (look for) in laptop bag, while buying it. If you would consider more attributes then the space available then please write down the attribute names under that table.

In the second column please allocate a total of 100 points across the various attributes that you have listed in the first column. The more a particular attribute is important for you more the points you should allocate to that attribute. Overall, keep in mind that your total points allocated to all the attributes should add up to a total of '100' points.

Finally, if you want to provide any additional information, clarification, remark etc for any attribute and / or its corresponding rank then use the third column titled 'Remarks'.

Attributes of a 'Laptop Backpack' / Laptop Bag	Importance Points	Remarks
TOTAL	100	

Imagine in your search for a laptop bag you have come across a store selling a laptop bag. Please look at the laptop bag with the information tag that is put besides your desk. Evaluate this laptop bag as if you are considering a purchase.

2) Please, fill out the following table one more time after having seen the laptop bag that was presented to you.

Remember:

While you are filling out this table please do not turn back and look at the earlier table that you filled out in the beginning of the study.

In the first column you have to write down the attributes of a laptop bag that you would consider while buying a laptop bag. If you would consider more attributes then the space available then please write down the attribute names under that table.

In the second column you have to allocate a total of 100 points in a way that more points are given to the attributes that are more important to you and less points to those attributes that are less important to you. Please ensure that the total of the points that you allocate across all the attributes adds up to 100.

Attributes of a 'Laptop Backpack' / Laptop Bag	Importance Points	Remarks
TOTAL	100	

3) Although, you were not suppose to look at the first table while filling out the second table, did you still, out of curiosity or other reasons, look at the first table?

YES_____ NO_____ (Check the appropriate answer)

4) If you were to buy the laptop bag that you are shown, how much money would you be willing to pay for it?

$_____ (US Dollars)

5) On the whole, how likely are you to buy this bag? (Circle your choice)

Extremely Unlikely……..……Somewhat Unlikely...…….Not Sure……....Somewhat Likely……..Extremely Likely

1……..…….2……3…….4…….5

6) If you want to provide any other comments on the money you are willing to pay and / or your willingness to buy this bag then please use this space:

_____

_____

_____

7) Approximately how much time ago have you last purchased a laptop bag / back pack?

Years_____ Months_____

8) Could you briefly describe / enumerate the steps that you took through your purchase process? (How did you go about buying your bag? How and where did you finally buy it?)

1) _____
   _____
2) _____
   _____
3) _____
   _____
4) _____
   _____

.
.
.

9) Suppose to facilitate your laptop bag (back pack) purchase, you have created a table for evaluating different laptop bags like the one that you are seeing.

Please evaluate the laptop bag that is presented to you and fill out the table. Like prior tables fill out the Importance points across the attributes that are provided. Again, more important a particular attribute to you more the points you allocate to it such that the sum of all the points across all the attributes comes to 100.

Additionally, please provide your rating for this laptop bag in terms of each of the attribute that is mentioned. Essentially, you are suppose to be judging how good/bad the laptop bag is on a given attribute.

Bag Evaluation Guideline Scale:

Bag is Very Poor on this attribute……..1
Bag is Poor on this attribute……..…….2
Bag is about OK on this attribute…….……..3
Bag is quite Good on this attribute…….…….4
Bag is Excellent on this attribute…..……5

Attributes of The 'Laptop Backpack' / Laptop Bag	**Importance Points**	**Laptop Bag Evaluation (1 To 5)**
Carrying Comfort		
Fabric		
Look and Style		
Durability		
Size		
Weight		
Organization of compartments		
Built Quality		
Price		
TOTAL	100	

10) Overall Rating of the Laptop Bag: (Circle your choice)

Very Poor	Poor	OK	Good	Very Good
*	**	***	****	*****

11) Keeping in mind your evaluation task please answer the following:

How easy/difficult was it for you, to evaluate the following attributes of the laptop bag?

Attributes	**Not at All Difficult** **1……2……..3……4……5**	**Very Difficult**
Carrying Comfort	1……2……..3……4……	5
Fabric	1……2……..3……4……	5
Look and Style	1……2……..3……4……	5
Durability	1……2……..3……4……	5
Size	1……2……..3……4……	5
Weight	1……2……..3……4……	5
Organization of compartments	1……2……..3……4……	5
Built Quality	1……2……..3……4……	5
Price	1……2……..3……4……	5

12) Keeping in mind your evaluation task please answer the following:

How confident are you that you were correctly able to evaluate each of the given attributes of the laptop bag?

Attributes	**Not at All Confident…….........…… ....……….…………Very Confident** 1……………2…………..3……………4……………5
Carrying Comfort	1……………2…………..3……………4……………5
Fabric	1……………2…………..3……………4……………5
Look and Style	1……………2…………..3……………4……………5
Durability	1……………2…………..3……………4……………5
Size	1……………2…………..3……………4……………5
Weight	1……………2…………..3……………4……………5
Organization of compartments	1……………2…………..3……………4……………5
Built Quality	1……………2…………..3……………4……………5
Price	1……………2…………..3……………4……………5

13)

a) Please rate the fabric of the laptop bag:

Inferior Fabric **Superior Fabric**

1-------2-------3------4-------5------6------7

Please explain your reasoning for this fabric rating:

_____
_____
_____
_____

b) How much comfortable the bag would be to carry over on your shoulders?

Not At All Comfortable **Very Comfortable**

1-------2-------3------4-------5------6------7

Please explain your assessment of the bag's carrying comfort?

_____
_____
_____
_____

c) Rate the price of the bag?

Over Priced **Under Priced**

1-------2-------3------4-------5------6------7

Please explain how did you made the price assessment?

_____
_____
_____
_____

d) The size of the bag:

Not At All Big **Very Big**

1-------2-------3------4-------5------6------7

On what basis did you figure out the size of the bag?

f) The weight of the bag:

Very Light **Very Heavy**

1-------2-------3------4-------5------6------7

Please explain your rating for the weight of this bag:

e) Number of compartments and their layout (organization):

Not at All Appropriate **Very Appropriate**

1-------2-------3------4-------5------6------7

In what manner did you evaluate the compartments of the bag:

14) Demographic Information:

a) Gender Male_____Female_____
b) Ethnicity _____
c) Country of Birth _____

Thank you for your participation in this survey, for any information relating to this study you can contact

Maneesh Thakkar: Maneesh_thakkar@baruch.cuny.edu
Or Prof. Stephen Gould: Stephen_Gould@baruch.cuny.edu

APPENDIX B: Study 1 Questionnaire (Online condition i.e. Internet/Web Store)

Imagine that you are considering purchase of a Laptop Bag / Laptop Backpack.

How much money are you likely to spend on a laptop bag? $_____US Dollars
(Just provide an approximate budget that you could have; we understand that there are many factors that affect this figure.)

1) Please write down in the first column named "Attributes", the features that you would consider (look for) in laptop bag, while buying it. If you would consider more attributes then the space available then please write down the attribute names under that table.

In the second column please allocate a total of 100 points across the various attributes that you have listed in the first column. The more a particular attribute is important for you more the points you should allocate to that attribute. Overall, keep in mind that your total points allocated to all the attributes should add up to a total of '100' points.

Finally, if you want to provide any additional information, clarification, remark etc for any attribute and / or its corresponding rank then use the third column titled 'Remarks'.

Attributes of a 'Laptop Backpack' / Laptop Bag	Importance Points	Remarks
TOTAL	100	

Imagine in your search for a laptop bag you have come across a website selling laptop bags. Please, look at the bag presented on this page and the related information taken from the website. Evaluate this laptop bag as if you are considering a purchase.

Copied from the webpage:

Trans Equal Backpack

- **Fabric:** 600 Denier Poly / 420 Denier Nylon (Backpack made of 600D polyester)
- **Dimensions:** 20”x12”x10”
- 2 Large main compartments
- Front pocket with organizer
- Foam padded mesh back panel
- Side compression straps
- Padded shoulder straps with Ascender® cushion technology
- Sternum strap
- **Capacity:** 1700 cu. in./28L
- Dual mesh water bottle pockets

Trans Equal Backpack Item: B000BR0H00
Price: $49.99

2) Please, fill out the following table one more time after having seen the laptop bag that was presented to you.

Remember:

While you are filling out this table please do not turn back and look at the earlier table that you filled out in the beginning of the study.

In the first column you have to write down the attributes of a laptop bag that you would consider while buying a laptop bag. If you would consider more attributes then the space available then please write down the attribute names under that table.

In the second column you have to allocate a total of 100 points in a way that more points are given to the attributes that are more important to you and less points to those attributes that are less important to you. Please ensure that the total of the points that you allocate across all the attributes adds up to 100.

Attributes of a 'Laptop Backpack' / Laptop Bag	Importance Points	Remarks
TOTAL	100	

3) Although, you were not suppose to look at the first table while filling out the second table, did you still, out of curiosity or other reasons, look at the first table?

YES_____ NO_____ (Check the appropriate answer)

4) If you were to buy the laptop bag that you are shown, how much money would you be willing to pay for it?

$_____ (US Dollars)

5) On the whole, how likely are you to buy this bag? (Circle your choice)

Extremely Unlikely……..……Somewhat Unlikely...…….Not Sure……....Somewhat Likely……..Extremely Likely

1……..…….2……3…….4…….5

6) If you want to provide any other comments on the money you are willing to pay and / or your willingness to buy this bag then please use this space:

_____

_____

_____

7) Approximately how much time ago have you last purchased a laptop bag / back pack?

Years_____ Months_____

8) Could you briefly describe / enumerate the steps that you took through your purchase process? (How did you go about buying your bag? How and where did you finally buy it?)

5) _____
_____
6) _____
_____
7) _____
_____
8) _____
_____
.
.
.

9) Suppose to facilitate your laptop bag (back pack) purchase, you have created a table for evaluating different laptop bags like the one that you are seeing.

Please evaluate the laptop bag that is presented to you and fill out the table. Like prior tables fill out the Importance points across the attributes that are provided. Again, more important a particular attribute to you more the points you allocate to it such that the sum of all the points across all the attributes comes to 100.

Additionally, please provide your rating for this laptop bag in terms of each of the attribute that is mentioned. Essentially, you are suppose to be judging how good/bad the laptop bag is on a given attribute.

Bag Evaluation Guideline Scale:

Bag is Very Poor on this attribute……..1
Bag is Poor on this attribute……..…….2
Bag is about OK on this attribute…….……..3
Bag is quite Good on this attribute…….…….4
Bag is Excellent on this attribute…..……5

Attributes of The 'Laptop Backpack' / Laptop Bag	**Importance Points**	**Laptop Bag Evaluation (1 To 5)**
Carrying Comfort		
Fabric		
Look and Style		
Durability		
Size		
Weight		
Organization of compartments		
Built Quality		
Price		
TOTAL	100	

10) Overall Rating of the Laptop Bag: (Circle your choice)

Very Poor	Poor	OK	Good	Very Good
*	**	***	****	*****

11) Keeping in mind your evaluation task please answer the following:

How easy/difficult was it for you, to evaluate the following attributes of the laptop bag?

Attributes	**Not at All Difficult** **1……2……..3……4……5**	**Very Difficult**
Carrying Comfort	1……2……..3……4……5	
Fabric	1……2……..3……4……5	
Look and Style	1……2……..3……4……5	
Durability	1……2……..3……4……5	
Size	1……2……..3……4……5	
Weight	1……2……..3……4……5	
Organization of compartments	1……2……..3……4……5	
Built Quality	1……2……..3……4……5	
Price	1……2……..3……4……5	

12) Keeping in mind your evaluation task please answer the following:

How confident are you that you were correctly able to evaluate each of the given attributes of the laptop bag?

Attributes	**Not at All Confident……........…… ....…….….………Very Confident** 1……………2…………..3……………4……………5
Carrying Comfort	1……………2…………..3……………4……………5
Fabric	1……………2…………..3……………4……………5
Look and Style	1……………2…………..3……………4……………5
Durability	1……………2…………..3……………4……………5
Size	1……………2…………..3……………4……………5
Weight	1……………2…………..3……………4……………5
Organization of compartments	1……………2…………..3……………4……………5
Built Quality	1……………2…………..3……………4……………5
Price	1……………2…………..3……………4……………5

13)

a) Please rate the fabric of the laptop bag:

Inferior Fabric **Superior Fabric**

1-------2-------3------4-------5------6------7

Please explain your reasoning for this fabric rating:

_____
_____
_____
_____

b) How much comfortable the bag would be to carry over on your shoulders?

Not At All Comfortable **Very Comfortable**

1-------2-------3------4-------5------6------7

Please explain your assessment of the bag's carrying comfort?

_____
_____
_____
_____

c) Rate the price of the bag?

Over Priced **Under Priced**

1-------2-------3------4-------5------6------7

Please explain how did you made the price assessment?

_____
_____
_____
_____

d) The size of the bag:

Not At All Big **Very Big**

1-------2-------3------4-------5------6------7

On what basis did you figure out the size of the bag?

_____
_____
_____
_____

f) The weight of the bag:

Very Light **Very Heavy**

1-------2-------3------4-------5------6------7

Please explain your rating for the weight of this bag:

_____
_____
_____
_____

e) Number of compartments and their layout (organization):

Not at All Appropriate **Very Appropriate**

1-------2-------3------4-------5------6------7

In what manner did you evaluate the compartments of the bag:

_____
_____
_____
_____

14) Demographic Information:

a) Gender Male_____Female_____
b) Ethnicity _____
c) Country of Birth _____

Thank you for your participation in this survey, for any information relating to this study you can contact

Maneesh Thakkar: Maneesh_thakkar@baruch.cuny.edu
Or Prof. Stephen Gould: Stephen_Gould@baruch.cuny.edu

APPENDIX C: Study 2 Questionnaire (Physical store condition)

Imagine you are shopping for a bath towel in a store and you come across the following options.

Brand	Chris Madden	Entice
Sample shown	Take a look at the sample towels	
Price	Take a look at the label	
Cotton	Samples and information on label	
Color	Take a look at the samples	
Weight	Take a look at the samples	
Drying surface	Samples and information on label	
Size	Samples and information on label	

1) Which towel would you buy? (Or which towel are you more likely to buy?)

Put 'X' in the bracket to indicate your choice, select only one of the two.

Chris Madden ( )
Entice ( )

2) Please provide your reasons for choosing this alternative:

1)	
2)	
More	

3) Do you have any idea how good the size of 30” X 56” against 30” X 54” is for a bath towel?

No Idea at All 1-------2-------3------4 Very Clear Idea

4) Do you have any idea how good is Ring-spun soft cotton against Zero – Twist Cotton Terry for a bath towel?

No Idea at All 1-------2-------3------4 Very Clear Idea

5) Do you have any idea how good the weight of 1.50 lbs is against 1.46 lbs for a bath towel?

No Idea at All 1-------2-------3------4 Very Clear Idea

6) Do you have any idea how good the price of $ 10 vs. $ 14 is for a bath towel?

No Idea at All 1-------2-------3------4 Very Clear Idea

7) Do you have any idea how good the drying surface of 11.25 sq. ft. is against 11.66 sq. ft. for a bath towel?

No Idea at All 1-------2-------3------4 Very Clear Idea

8) Which attributes of the beach towels played a key role in your decision:

	Put 'x' in front of the attribute(s) that played a key role in making your choice.
Price	
Cotton	
Feel	
Look	
Colors	
Weight	
Drying Surface	
style	
Size	

9) Please evaluate the Chris Madden towel in terms of the following attributes:

Price : **Very Poor** **1-------2-------3------4------5** **Very Good**

Cotton : **Very Poor** **1-------2-------3------4------5** **Very Good**

Feel : **Very Poor** **1-------2-------3------4------5** **Very Good**

Look : **Very Poor** **1-------2-------3------4------5** **Very Good**

Color : **Very Poor** **1-------2-------3------4------5** **Very Good**

Weight : **Very Poor** **1-------2-------3------4------5** **Very Good**

Drying Surface **Very Poor** **1-------2-------3------4------5** **Very Good**

Style : **Very Poor** **1-------2-------3------4------5** **Very Good**

Size : **Very Poor** **1-------2-------3------4------5** **Very Good**

10) Please evaluate the Entice towel in terms of the following attributes:

Price : **Very Poor** **1-------2-------3------4------5** **Very Good**

Cotton : **Very Poor** **1-------2-------3------4------5** **Very Good**

Feel : **Very Poor** **1-------2-------3------4------5** **Very Good**

Look : **Very Poor** **1-------2-------3------4------5** **Very Good**

Color : **Very Poor** **1-------2-------3------4------5** **Very Good**

Weight : **Very Poor** **1-------2-------3------4------5** **Very Good**

Drying Surface **Very Poor** **1-------2-------3------4------5** **Very Good**

Style : **Very Poor** **1-------2-------3------4------5** **Very Good**

Size : **Very Poor** **1-------2-------3------4------5** **Very Good**

11) Please indicate whether you agree or disagree with each of the following statements by circling or putting (x) mark in front of the appropriate number on the scale associated with the statement. There are no 'right or wrong' answers – we are only interested in your views.

I need to touch a product in order to evaluate its quality.

Strongly Disagree **1-------2-------3------4-------5** **Strongly Agree**

I need to touch a product in order to evaluate how much I will like the product.

Strongly Disagree **1-------2-------3------4-------5** **Strongly Agree**

I feel it necessary to touch a product in order to evaluate its physical characteristics.

Strongly Disagree **1-------2-------3------4-------5** **Strongly Agree**

I feel it is necessary to touch a product in order to evaluate its quality.

Strongly Disagree 1-------2-------3------4-------5 Strongly Agree

I need to touch a product in order to evaluate its physical characteristics.

Strongly Disagree 1-------2-------3------4-------5 Strongly Agree

I need to touch a product in order to create a general evaluation of it.

Strongly Disagree 1-------2-------3------4-------5 Strongly Agree

12) Write in the number that best fits your view:

1	2	3	4
completely false	mostly false	mostly true	completely true

_____1. I would prefer complex to simple problems.

_____2. I like to have the responsibility of handling a situation that requires a lot of thinking.

_____3. Thinking is not my idea of fun.

_____4. I would rather do something that requires little thought than something that is sure to challenge my thinking abilities.

_____5. I try to anticipate and avoid situations where there is likely chance I will have to think in depth about something.

_____6. I find satisfaction in deliberating hard and for long hours.

_____7. I only think as hard as I have to.

_____8. I prefer to think about small, daily projects to long-term ones.

_____9. I like tasks that require little thought once I've learned them.

_____10. The idea of relying on thought to make my way to the top appeals to me.

_____11. I really enjoy a task that involves coming up with new solutions to problems.

_____12. Learning new ways to think doesn't excite me very much.

_____13. I prefer my life to be filled with puzzles that I must solve.

_____14. The notion of thinking abstractly is appealing to me.

_____15. I would prefer a task that is intellectual, difficult, and important to one that is somewhat
important but does not require much thought.

_____16. I feel relief rather than satisfaction after completing a task that required a lot of mental
effort.

_____17. It's enough for me that something gets the job done; I don't care how or why it works.

_____18. I usually end up deliberating about issues even when they do not affect me personally.

13) Demographic Information:

a) Gender Male_____Female_____
b) Ethnicity _____
c) Country of Birth _____

14) Have you heard about the brand Chris Madden before?

Yes ___ No___

15) Have you heard about the brand Entice before?

Yes ___ No___

16) Please indicate your level of agreement with the following statements with respect to your task today

It was difficult to evaluate the prices of these towels

Strongly Disagree 1-------2-------3------4 Strongly Agree

It was difficult to evaluate the fabric quality of these towels

Strongly Disagree 1-------2-------3------4 Strongly Agree

It was difficult to evaluate the sizes of these towels

Strongly Disagree 1-------2-------3------4 Strongly Agree

It was difficult to evaluate the weights of these towels

Strongly Disagree 1-------2-------3------4 Strongly Agree

It was easy to compare these towels in terms of prices

Strongly Disagree 1-------2-------3------4 Strongly Agree

It was easy to compare these towels in terms of sizes

Strongly Disagree 1-------2-------3------4 Strongly Agree

It was easy to compare these towels in terms of fabric quality

Strongly Disagree 1-------2-------3------4 Strongly Agree

It was easy to compare these towels in terms of weights

Strongly Disagree 1-------2-------3------4 Strongly Agree

17) Take a look at the towels and state which of the two is better in terms of the various attributes by circling or putting (x) mark in front of the appropriate number on the scale associated with the attribute.

Attribute	Chris Madden is much better	Chris Madden is better	Both are equal	Entice is better	Entice is much better	Can not Compare
Price	1	2	3	4	5	6
Cotton	1	2	3	4	5	6
Feel	1	2	3	4	5	6
Look	1	2	3	4	5	6
Color	1	2	3	4	5	6
Weight	1	2	3	4	5	6
Drying Surface	1	2	3	4	5	6
style	1	2	3	4	5	6
Size	1	2	3	4	5	6

APPENDIX D: Study 2 Online condition Web store/internet store

Imagine you are shopping for a bath towel on a website and you come across the following options.

Brand	Chris Madden	Entice
Sample shown		
Price	$ 14.00	$ 10.00
Cotton	Ring-spun Soft cotton	Zero-twist cotton terry
Color	White	White
Weight	1.50 lbs.	1.46 lbs.
Drying Surface	11.25 sq. ft.	11.66 sq. ft.
Size	30" X 54"	30" X 56"

1) Which towel would you buy? (Or which towel are you more likely to buy?)

Put 'X' in the bracket to indicate your choice, select only one of the two.

Chris Madden ( )
Entice ( )

2) Please provide your reasons for choosing this alternative:

1)	
2)	
More	

3) Do you have any idea how good the size of 30” X 56” against 30” X 54” is for a bath towel?

No Idea at All 1-------2-------3------4 Very Clear Idea

4) Do you have any idea how good is Ring-spun soft cotton against Zero – Twist Cotton Terry for a bath towel?

No Idea at All 1-------2-------3------4 Very Clear Idea

5) Do you have any idea how good the weight of 1.50 lbs is against 1.46 lbs for a bath towel?

No Idea at All 1-------2-------3------4 Very Clear Idea

6) Do you have any idea how good the price of $ 10 vs. $ 14 is for a bath towel?

No Idea at All 1-------2-------3------4 Very Clear Idea

7) Do you have any idea how good the drying surface of 11.25 sq. ft. is against 11.66 sq. ft. for a bath towel?

No Idea at All 1-------2-------3------4 Very Clear Idea

8) Which attributes of the beach towels played a key role in your decision:

	Put 'x' in front of the attribute(s) that played a key role in making your choice.
Price	
Cotton	
Feel	
Look	
Colors	
Weight	
Drying Surface	
style	
Size	

9) Please evaluate the Chris Madden towel in terms of the following attributes:

Price : **Very Poor** **1-------2-------3------4------5** **Very Good**

Cotton : **Very Poor** **1-------2-------3------4------5** **Very Good**

Feel : **Very Poor** **1-------2-------3------4------5** **Very Good**

Look : **Very Poor** **1-------2-------3------4------5** **Very Good**

Color : **Very Poor** **1-------2-------3------4------5** **Very Good**

Weight : **Very Poor** **1-------2-------3------4------5** **Very Good**

Drying Surface **Very Poor** **1-------2-------3------4------5** **Very Good**

Style : **Very Poor** **1-------2-------3------4------5** **Very Good**

Size : **Very Poor** **1-------2-------3------4------5** **Very Good**

10) Please evaluate the Entice towel in terms of the following attributes:

Price : **Very Poor** **1-------2-------3------4------5** **Very Good**

Cotton : **Very Poor** **1-------2-------3------4------5** **Very Good**

Feel : **Very Poor** **1-------2-------3------4------5** **Very Good**

Look : **Very Poor** **1-------2-------3------4------5** **Very Good**

Color : **Very Poor** **1-------2-------3------4------5** **Very Good**

Weight : **Very Poor** **1-------2-------3------4------5** **Very Good**

Drying Surface **Very Poor** **1-------2-------3------4------5** **Very Good**

Style : **Very Poor** **1-------2-------3------4------5** **Very Good**

Size : **Very Poor** **1-------2-------3------4------5** **Very Good**

11) Please indicate whether you agree or disagree with each of the following statements by circling or putting (x) mark in front of the appropriate number on the scale associated with the statement. There are no 'right or wrong' answers – we are only interested in your views.

I need to touch a product in order to evaluate its quality.

Strongly Disagree **1-------2-------3------4-------5** **Strongly Agree**

I need to touch a product in order to evaluate how much I will like the product.

Strongly Disagree **1-------2-------3------4-------5** **Strongly Agree**

I feel it necessary to touch a product in order to evaluate its physical characteristics.

Strongly Disagree 1-------2-------3------4-------5 Strongly Agree

I feel it is necessary to touch a product in order to evaluate its quality.

Strongly Disagree 1-------2-------3------4-------5 Strongly Agree

I need to touch a product in order to evaluate its physical characteristics.

Strongly Disagree 1-------2-------3------4-------5 Strongly Agree

I need to touch a product in order to create a general evaluation of it.

Strongly Disagree 1-------2-------3------4-------5 Strongly Agree

12) Write in the number that best fits your view:

1	2	3	4
completely false	mostly false	mostly true	completely true

_____1. I would prefer complex to simple problems.

_____2. I like to have the responsibility of handling a situation that requires a lot of thinking.

_____3. Thinking is not my idea of fun.

_____4. I would rather do something that requires little thought than something that is sure to challenge my thinking abilities.

_____5. I try to anticipate and avoid situations where there is likely chance I will have to think in depth about something.

_____6. I find satisfaction in deliberating hard and for long hours.

_____7. I only think as hard as I have to.

_____8. I prefer to think about small, daily projects to long-term ones.

_____9. I like tasks that require little thought once I've learned them.

_____10. The idea of relying on thought to make my way to the top appeals to me.

_____11. I really enjoy a task that involves coming up with new solutions to problems.

_____12. Learning new ways to think doesn't excite me very much.

_____13. I prefer my life to be filled with puzzles that I must solve.

_____14. The notion of thinking abstractly is appealing to me.

_____15. I would prefer a task that is intellectual, difficult, and important to one that is somewhat important but does not require much thought.

_____16. I feel relief rather than satisfaction after completing a task that required a lot of mental effort.

_____17. It's enough for me that something gets the job done; I don't care how or why it works.

_____18. I usually end up deliberating about issues even when they do not affect me personally.

13) Demographic Information:

a) Gender Male_____Female_____
b) Ethnicity _____
c) Country of Birth _____

14) Have you heard about the brand Chris Madden before?

Yes ___ No___

15) Have you heard about the brand Entice before?

Yes ___ No___

16) Please indicate your level of agreement with the following statements with respect to your task today

It was difficult to evaluate the prices of these towels

Strongly Disagree 1-------2-------3------4 Strongly Agree

It was difficult to evaluate the fabric quality of these towels

Strongly Disagree 1-------2-------3------4 Strongly Agree

It was difficult to evaluate the sizes of these towels

Strongly Disagree 1-------2-------3------4 Strongly Agree

It was difficult to evaluate the weights of these towels

Strongly Disagree 1-------2-------3------4 Strongly Agree

It was easy to compare these towels in terms of prices

Strongly Disagree 1-------2-------3------4 Strongly Agree

It was easy to compare these towels in terms of sizes

Strongly Disagree 1-------2-------3------4 Strongly Agree

It was easy to compare these towels in terms of fabric quality

Strongly Disagree 1-------2-------3------4 Strongly Agree

It was easy to compare these towels in terms of weights

Strongly Disagree 1-------2-------3------4 Strongly Agree

17) Take a look at the towels and state which of the two is better in terms of the various attributes by circling or putting (x) mark in front of the appropriate number on the scale associated with the attribute.

Attribute	Chris Madden is much better	Chris Madden is better	Both are equal	Entice is better	Entice is much better	Can not Compare
Price	1	2	3	4	5	6
Cotton	1	2	3	4	5	6
Feel	1	2	3	4	5	6
Look	1	2	3	4	5	6
Color	1	2	3	4	5	6
Weight	1	2	3	4	5	6
Drying Surface	1	2	3	4	5	6
style	1	2	3	4	5	6
Size	1	2	3	4	5	6

APPENDIX E: Study 3 Questionnaire (Physical Store condition)

Marketing Research Study:

Imagine you are shopping for a paper towel in a retail store and you come across the following options. Please take a minute to study the sample papers.

Brand	A	B
Price	2.99 for a pack of 3 Rolls	3.49 for a pack of 3 Rolls
# of Towels per roll	80	70
Size Of each Towel	11" x 11"	11" x 11"
Color	White: Self Print	White: Self Print
Thickness	Two Ply Paper	Strongest Two Ply Paper
Absorption	Very Good Absorption;	Best Absorption;
Cleaning comfort	Cleans better	Thick and durable paper, Rinse wring and finish the job

Which paper towel would you buy? (Or which paper towel are you more likely to buy?)

Put 'X' in the bracket to indicate your choice, select only one of the two.

A ( )
B ( )

2) Please provide your reasons for choosing this alternative:

1)	
2)	
More	

4) How important a role did the following attributes play in your decision:

1) Price:

None at all 1-------2-------3------4-----5------6-----7 A lot

2) Feel:

None at all 1-------2-------3------4-----5------6-----7 A lot

3) Look:

None at all 1-------2-------3------4-----5------6-----7 A lot

4) Style:

None at all 1-------2-------3------4-----5------6-----7 A lot

5) Number of towels in each roll:

None at all 1-------2-------3------4-----5------6-----7 A lot

6) Size of each towel:

None at all 1-------2-------3------4-----5------6-----7 A lot

7) Color:

None at all 1-------2-------3------4-----5------6-----7 A lot

8) Weight:

None at all 1-------2-------3------4-----5------6-----7 A lot

9) Thickness:

None at all 1-------2-------3------4-----5------6-----7 A lot

10) Absorption:

None at all 1-------2-------3------4-----5------6-----7 A lot

11) Cleaning Comfort:

None at all 1-------2-------3------4-----5------6-----7 A lot

4) Take a look at the towels and state which of the two is better in terms of the various attributes by circling or putting (x) mark in front of the appropriate number on the scale associated with the attribute.

Attribute	A is much better	A is better	Both are equal	B is better	B is much better	Can not Compare
Price	1	2	3	4	5	6
Feel	1	2	3	4	5	6
Look	1	2	3	4	5	6
style	1	2	3	4	5	6
# of Towels per roll	1	2	3	4	5	6
Size of each Towel	1	2	3	4	5	6
Color	1	2	3	4	5	6
Weight	1	2	3	4	5	6
Thickness	1	2	3	4	5	6
Absorption	1	2	3	4	5	6
Cleaning comfort	1	2	3	4	5	6

5) How confident are you about your comparison/evaluation of both the towels in the previous question on following attributes:

1) Price:

Not at all Confident 1-------2-------3------4-----5------6-----7 Extremely Confident

2) Feel:

Not at all Confident 1-------2-------3------4-----5------6-----7 Extremely Confident

3) Look:

Not at all Confident 1-------2-------3------4-----5------6-----7 Extremely Confident

4) Style:

Not at all Confident 1-------2-------3------4-----5------6-----7 Extremely Confident

5) Number of towels in each roll:

Not at all Confident 1-------2-------3------4-----5------6-----7 Extremely Confident

6) Size of each towel:

Not at all Confident 1-------2-------3------4-----5------6-----7 Extremely Confident

7) Color:

Not at all Confident 1-------2-------3------4-----5------6-----7 Extremely Confident

8) Weight:

Not at all Confident 1-------2-------3------4-----5------6-----7 Extremely Confident

9) Thickness:

Not at all Confident 1-------2-------3------4-----5------6-----7 Extremely Confident

10) Absorption:

Not at all Confident 1-------2-------3------4-----5------6-----7 Extremely Confident

11) Cleaning Comfort:

Not at all Confident 1-------2-------3------4-----5------6-----7 Extremely Confident

6) Please state how easy it was to evaluate the paper towels on the following attributes:

1) Price:

Not Very Easy 1-------2-------3------4-----5------6-----7 Very Easy

2) Feel:

Not Very Easy 1-------2-------3------4-----5------6-----7 Very Easy

3) Look:

Not Very Easy 1-------2-------3------4-----5------6-----7 Very Easy

4) Style:

Not Very Easy 1-------2-------3------4-----5------6-----7 Very Easy

5) Number of towels in each roll:

Not Very Easy 1-------2-------3------4-----5------6-----7 Very Easy

6) Size of each towel:

Not Very Easy 1-------2-------3------4-----5------6-----7 Very Easy

7) Color:

Not Very Easy 1-------2-------3------4-----5------6-----7 Very Easy

8) Weight:

Not Very Easy 1-------2-------3------4-----5------6-----7 Very Easy

9) Thickness:

Not Very Easy 1-------2-------3------4-----5------6-----7 Very Easy

10) Absorption:

Not Very Easy 1-------2-------3------4-----5------6-----7 Very Easy

11) Cleaning Comfort:

Not Very Easy 1-------2-------3------4-----5------6-----7 Very Easy

7) Overall please state your impression of both the towels:

Towel A

Dislike 1-------2-------3------4-----5------6-----7 Like

Good 1-------2-------3------4-----5------6-----7 Bad

How certain are you that the ratings you gave above are accurate?

Not at all Certain 1-------2-------3------4-----5------6-----7 Extremely Certain

Towel B

Dislike 1-------2-------3------4-----5------6-----7 Like

Good 1-------2-------3------4-----5------6-----7 Bad

How certain are you that the ratings you gave above are accurate?

Not at all Certain 1-------2-------3------4-----5------6-----7 Extremely Certain

8) Have you ever shopped for/ purchased paper towels before?

Yes ( ) No ( )

If yes then approximately how many months ago? _____

9) Based on your paper towel usage, what kind of user are you?

Heavy User: uses 2 or more rolls (150 paper towels) in a month _____

Moderate User: Uses less than 2 but at least 1 roll of paper towels in a month _____

Occasional User: Uses less than 1 but at least ½ a roll of paper towels in a month _____

Rare User: Uses paper towels very rarely, 1 roll may last more than 3 months _____

Other: _____(Please describe your usage rate)

10)

a) In your opinions which are the three most easy to evaluate attributes while choosing a paper towel?

_____ ; _____ ; _____

b) In your opinions which are the three most difficult to evaluate attributes while choosing a paper towel?

_____ ; _____ ; _____

11) Please indicate whether you agree or disagree with each of the following statements:

I need to touch a product in order to evaluate its quality.

Strongly Disagree 1-------2-------3------4-------5 Strongly Agree

I need to touch a product in order to evaluate how much I will like the product.

Strongly Disagree 1-------2-------3------4-------5 Strongly Agree

I feel it necessary to touch a product in order to evaluate its physical characteristics.

Strongly Disagree 1-------2-------3------4-------5 Strongly Agree

I feel it is necessary to touch a product in order to evaluate its quality.

Strongly Disagree 1-------2-------3------4-------5 Strongly Agree

I need to touch a product in order to evaluate its physical characteristics.

Strongly Disagree 1-------2-------3------4-------5 Strongly Agree

I need to touch a product in order to create a general evaluation of it.

Strongly Disagree 1-------2-------3------4-------5 Strongly Agree

12) Write in the number that best fits your view:

1	2	3	4
completely false	mostly false	mostly true	completely true

_____1. I would prefer complex to simple problems.

_____2. I like to have the responsibility of handling a situation that requires a lot of thinking.

_____3. Thinking is not my idea of fun.

_____4. I would rather do something that requires little thought than something that is sure to challenge my thinking abilities.

_____5. I try to anticipate and avoid situations where there is likely chance I will have to think in depth about something.

_____6. I find satisfaction in deliberating hard and for long hours.

_____7. I only think as hard as I have to.

_____8. I prefer to think about small, daily projects to long-term ones.

_____9. I like tasks that require little thought once I've learned them.

_____10. The idea of relying on thought to make my way to the top appeals to me.

_____11. I really enjoy a task that involves coming up with new solutions to problems.

_____12. Learning new ways to think doesn't excite me very much.

_____13. I prefer my life to be filled with puzzles that I must solve.

_____14. The notion of thinking abstractly is appealing to me.

_____15. I would prefer a task that is intellectual, difficult, and important to one that is somewhat
important but does not require much thought.

_____16. I feel relief rather than satisfaction after completing a task that required a lot of mental
effort.

_____17. It's enough for me that something gets the job done; I don't care how or why it works.

_____18. I usually end up deliberating about issues even when they do not affect me personally.

13) How comfortable would you be shopping for a paper towel on a website?

Not at all comfortable 1-------2-------3------4-----5------6-----7 Extremely comfortable

How comfortable would you be shopping for a paper towel in a store?

Not at all comfortable 1-------2-------3------4-----5------6-----7 Extremely comfortable

14)

I believe purchasing products online is

Useless 1-------2-------3------4-----5------6-----7 Useful

I believe purchasing products online is

Worthless 1-------2-------3------4-----5------6-----7 Valuable

I believe purchasing products online is

Harmful 1-------2-------3------4-----5------6-----7 Beneficial

I believe purchasing products online is

Foolish **1-------2-------3------4-----5------6-----7** **Wise**

I believe purchasing products online is

Unpleasant **1-------2-------3------4-----5------6-----7** **Pleasant**

I believe purchasing products online is

Awful **1-------2-------3------4-----5------6-----7** **Nice**

I believe purchasing products online is

Disagreeable **1-------2-------3------4-----5------6-----7** **Agreeable**

I believe purchasing products online is

Sad **1-------2-------3------4-----5------6-----7** **Happy**

15) Demographic Information:

a) Gender Male_____Female_____
b) Ethnicity _____
c) Country of Birth _____
d) Age _____

APPENDIX F: Study 3: Online Internet/Web store condition

Marketing Research Study:

Imagine you are shopping for a paper towel on a website and you come across the following options.

Brand	A	B
Price	2.99 for a pack of 3 Rolls	3.49 for a pack of 3 Rolls
# of Towels per roll	80	70
Size Of each Towel	11” x 11”	11” x 11”
Color	White: Self Print	White: Self Print
Thickness	Two Ply Paper	Strongest Two Ply Paper
Absorption	Very Good Absorption;	Best Absorption;
Cleaning comfort	Cleans better	Thick and durable paper, Rinse wring and finish the job

Which paper towel would you buy? (Or which paper towel are you more likely to buy?)

Put ‘X’ in the bracket to indicate your choice, select only one of the two.

A ( )
B ( )

2) Please provide your reasons for choosing this alternative:

1)	
2)	
More	

4) How important a role did the following attributes play in your decision:

1) Price:

None at all 1-------2-------3------4-----5------6-----7 A lot

2) Feel:

None at all 1-------2-------3------4-----5------6-----7 A lot

3) Look:

None at all 1-------2-------3------4-----5------6-----7 A lot

4) Style:

None at all 1-------2-------3------4-----5------6-----7 A lot

5) Number of towels in each roll:

None at all 1-------2-------3------4-----5------6-----7 A lot

6) Size of each towel:

None at all 1-------2-------3------4-----5------6-----7 A lot

7) Color:

None at all 1-------2-------3------4-----5------6-----7 A lot

8) Weight:

None at all 1-------2-------3------4-----5------6-----7 A lot

9) Thickness:

None at all 1-------2-------3------4-----5------6-----7 A lot

10) Absorption:

None at all 1-------2-------3------4-----5------6-----7 A lot

11) Cleaning Comfort:

None at all 1-------2-------3------4-----5------6-----7 A lot

4) Take a look at the towels and state which of the two is better in terms of the various attributes by circling or putting (x) mark in front of the appropriate number on the scale associated with the attribute.

Attribute	A is much better	A is better	Both are equal	B is better	B is much better	Can not Compare
Price	1	2	3	4	5	6
Feel	1	2	3	4	5	6
Look	1	2	3	4	5	6
style	1	2	3	4	5	6
# of Towels per roll	1	2	3	4	5	6
Size of each Towel	1	2	3	4	5	6
Color	1	2	3	4	5	6
Weight	1	2	3	4	5	6
Thickness	1	2	3	4	5	6
Absorption	1	2	3	4	5	6
Cleaning comfort	1	2	3	4	5	6

5) How confident are you about your comparison/evaluation of both the towels in the previous question on following attributes:

1) Price:

Not at all Confident 1-------2-------3------4-----5------6-----7 Extremely Confident

2) Feel:

Not at all Confident 1-------2-------3------4-----5------6-----7 Extremely Confident

3) Look:

Not at all Confident 1-------2-------3------4-----5------6-----7 Extremely Confident

4) Style:

Not at all Confident 1-------2-------3------4-----5------6-----7 Extremely Confident

5) Number of towels in each roll:

Not at all Confident 1-------2-------3------4-----5------6-----7 Extremely Confident

6) Size of each towel:

Not at all Confident 1-------2-------3------4-----5------6-----7 Extremely Confident

7) Color:

Not at all Confident 1-------2-------3------4-----5------6-----7 Extremely Confident

8) Weight:

Not at all Confident 1-------2-------3------4-----5------6-----7 Extremely Confident

9) Thickness:

Not at all Confident 1-------2-------3------4-----5------6-----7 Extremely Confident

10) Absorption:

Not at all Confident 1-------2-------3------4-----5------6-----7 Extremely Confident

11) Cleaning Comfort:

Not at all Confident 1-------2-------3------4-----5------6-----7 Extremely Confident

6) Please state how easy it was to evaluate the paper towels on the following attributes:

1) Price:

Not Very Easy 1-------2-------3------4-----5------6-----7 Very Easy

2) Feel:

Not Very Easy 1-------2-------3------4-----5------6-----7 Very Easy

3) Look:

Not Very Easy 1-------2-------3------4-----5------6-----7 Very Easy

4) Style:

Not Very Easy 1-------2-------3------4-----5------6-----7 Very Easy

5) Number of towels in each roll:

Not Very Easy 1-------2-------3------4-----5------6-----7 Very Easy

6) Size of each towel:

Not Very Easy 1-------2-------3------4-----5------6-----7 Very Easy

7) Color:

Not Very Easy 1-------2-------3------4-----5------6-----7 Very Easy

8) Weight:

Not Very Easy 1-------2-------3------4-----5------6-----7 Very Easy

9) Thickness:

Not Very Easy 1-------2-------3------4-----5------6-----7 Very Easy

10) Absorption:

Not Very Easy 1-------2-------3------4-----5------6-----7 Very Easy

11) Cleaning Comfort:

Not Very Easy 1-------2-------3------4-----5------6-----7 Very Easy

7) Overall please state your impression of both the towels:

Towel A

Dislike 1-------2-------3------4-----5------6-----7 Like

Good 1-------2-------3------4-----5------6-----7 Bad

How certain are you that the ratings you gave above are accurate?

Not at all Certain 1-------2-------3------4-----5------6-----7 Extremely Certain

Towel B

Dislike 1-------2-------3------4-----5------6-----7 Like

Good 1-------2-------3------4-----5------6-----7 Bad

How certain are you that the ratings you gave above are accurate?

Not at all Certain 1-------2-------3------4-----5------6-----7 Extremely Certain

8) Have you ever shopped for/ purchased paper towels before?

Yes ( ) No ( )

If yes then approximately how many months ago? _____

9) Based on your paper towel usage, what kind of user are you?

Heavy User: uses 2 or more rolls (150 paper towels) in a month _____

Moderate User: Uses less than 2 but at least 1 roll of paper towels in a month _____

Occasional User: Uses less than 1 but at least ½ a roll of paper towels in a month _____

Rare User: Uses paper towels very rarely, 1 roll may last more than 3 months _____

Other: _____(Please describe your usage rate)

10)

a) In your opinions which are the three most easy to evaluate attributes while choosing a paper towel?

_____ ; _____ ; _____

b) In your opinions which are the three most difficult to evaluate attributes while choosing a paper towel?

_____ ; _____ ; _____

11) Please indicate whether you agree or disagree with each of the following statements:

I need to touch a product in order to evaluate its quality.

Strongly Disagree 1-------2-------3------4-------5 Strongly Agree

I need to touch a product in order to evaluate how much I will like the product.

Strongly Disagree 1-------2-------3------4-------5 Strongly Agree

I feel it necessary to touch a product in order to evaluate its physical characteristics.

Strongly Disagree 1-------2-------3------4-------5 Strongly Agree

I feel it is necessary to touch a product in order to evaluate its quality.

Strongly Disagree 1-------2-------3------4-------5 Strongly Agree

I need to touch a product in order to evaluate its physical characteristics.

Strongly Disagree 1-------2-------3------4-------5 Strongly Agree

I need to touch a product in order to create a general evaluation of it.

Strongly Disagree 1-------2-------3------4-------5 Strongly Agree

12) Write in the number that best fits your view:

1	2	3	4
completely false	mostly false	mostly true	completely true

_____1. I would prefer complex to simple problems.

_____2. I like to have the responsibility of handling a situation that requires a lot of thinking.

_____3. Thinking is not my idea of fun.

_____4. I would rather do something that requires little thought than something that is sure to challenge my thinking abilities.

_____5. I try to anticipate and avoid situations where there is likely chance I will have to think in depth about something.

_____6. I find satisfaction in deliberating hard and for long hours.

_____7. I only think as hard as I have to.

_____8. I prefer to think about small, daily projects to long-term ones.

_____9. I like tasks that require little thought once I've learned them.

_____10. The idea of relying on thought to make my way to the top appeals to me.

_____11. I really enjoy a task that involves coming up with new solutions to problems.

_____12. Learning new ways to think doesn't excite me very much.

_____13. I prefer my life to be filled with puzzles that I must solve.

_____14. The notion of thinking abstractly is appealing to me.

_____15. I would prefer a task that is intellectual, difficult, and important to one that is somewhat important but does not require much thought.

_____16. I feel relief rather than satisfaction after completing a task that required a lot of mental effort.

_____17. It's enough for me that something gets the job done; I don't care how or why it works.

_____18. I usually end up deliberating about issues even when they do not affect me personally.

13) How comfortable would you be shopping for a paper towel on a website?

Not at all comfortable 1-------2-------3------4-----5------6-----7 Extremely comfortable

How comfortable would you be shopping for a paper towel in a store?

Not at all comfortable 1-------2-------3------4-----5------6-----7 Extremely comfortable

14)

I believe purchasing products online is

Useless 1-------2-------3------4-----5------6-----7 Useful

I believe purchasing products online is

Worthless 1-------2-------3------4-----5------6-----7 Valuable

I believe purchasing products online is

Harmful 1-------2-------3------4-----5------6-----7 Beneficial

I believe purchasing products online is

Foolish 1-------2-------3------4-----5------6-----7 Wise

I believe purchasing products online is

Unpleasant 1-------2-------3------4-----5------6-----7 Pleasant

I believe purchasing products online is

Awful 1-------2-------3------4-----5------6-----7 Nice

I believe purchasing products online is

Disagreeable 1-------2-------3------4-----5------6-----7 Agreeable

I believe purchasing products online is

Sad 1-------2-------3------4-----5------6-----7 Happy

15) Demographic Information:

a) Gender Male_____Female_____
b) Ethnicity _____
c) Country of Birth _____
d) Age _____

APPENDIX G: Experts' Classification of Attributes

We want to know how consumers perceive various attributes of different products in terms of their Sensory and Non Sensory qualities.

Sensory Attribute: An attribute is completely sensory if it can only be **understood by some sort of physical interaction with the product i.e. either you have to touch, smell or taste the product for evaluating that attribute.** Merely reading the information about it will not be sufficient for evaluating the product on that attribute.

Non-sensory Attribute: An attribute is completely non-sensory if you can understand it **without any sort of physical interaction with the product i.e. you don't have to touch, smell, or taste the product for evaluating that attribute.** You can just read the information about it and can evaluate the product on that attribute.

Imagine you are shopping for **paper towels** and following are the attributes you may evaluate a roll of paper towels on. Please state how much 'non-sensory' or 'sensory' each of this attribute is?

	Completely Non-Sensory 1……2……..3……4……5 Completely Sensory
Price	1……2……..3……4……5
Feel	1……2……..3……4……5
Look	1……2……..3……4……5
Style	1……2……..3……4……5
# of Paper towels per roll	1……2……..3……4……5
Color	1……2……..3……4……5
Weight	1……2……..3……4……5
Thickness	1……2……..3……4……5
Absorption	1……2……..3……4……5
Cleaning Comfort	1……2……..3……4……5
Brand	1……2……..3……4……5

Imagine you are shopping for a **bath towel** and following are the attributes you may evaluate a bath towel on. Please state how much 'non-sensory' or 'sensory' each of this attribute is?

	Completely Non-Sensory 1……2……..3……4……5 Completely Sensory
Price	1……2……..3……4……5
Cotton	1……2……..3……4……5
Feel	1……2……..3……4……5
Look	1……2……..3……4……5
Colors	1……2……..3……4……5
Weight	1……2……..3……4……5
Drying Surface	1……2……..3……4……5
style	1……2……..3……4……5
Size	1……2……..3……4……5
Brand	1……2……..3……4……5

Gender: Male ( ) Female ( )

Thank you for sharing your thoughts and helping with this research.

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