2006

The Determinants of Consumers' Information Search Patterns in Online Marketing Communication

Youngwon Lee
THE DETERMINANTS OF CONSUMERS’ INFORMATION SEARCH

PATTERNS IN ONLINE MARKETING COMMUNICATION

By

YOUNGWON LEE

A Dissertation submitted to the Department of Communication
In partial fulfillment of the requirements for the degree of Doctor of Philosophy

Degree Awarded:
Spring Semester, 2006
The members of the Committee approve the dissertation of Youngwon Lee defended on December 7, 2005.

__________________________________________________________
Gary R. Heald
Professor Co-Directing Dissertation

_______________________________
Laura M. Arpan
Professor Co-Directing Dissertation

_______________________________
Michael D. Hartline
Outside Committee Member

_______________________________
Barry S. Sapolsky
Committee Member

_______________________________
Steve D. McDowell
Committee Member

Approved:

____________________________________________
Steve D. McDowell, Chairperson, Department of Communication

____________________________________________
John K. Mayo, Dean, College of Communication

The Office of Graduate Studies has verified and approved the above named committee members.
ACKNOWLEDGMENTS

I am deeply grateful to several individuals for their support for the dissertation. First of all, I would like to mention the great names of Dr. Heald and Arpan, who held their faith in me throughout the research. I am especially grateful for their time to share their perspectives on research issues, their enthusiasm for taking on research endeavors, and their encouragement for me to overcome the obstacles during the research. Dr. Heald greatly inspired me by his abiding passions as a teacher and researcher, and Dr. Arpan guided me in becoming a better researcher throughout the collaborative research. I would like to thank to Dr. McDowell who has supported me with his diverse perspectives to broaden the research interests during the coursework, and Dr. Hartline who has supervised me with his professional insights into the research subjects and method by critically advising as an experienced researcher. In addition, Dr. Sapolsky instructed me the aptitude to be a proficient researcher with his scholastic insight. During the Doctoral program, Korean students in the Communication Department have been precious friends of mine and have given me the potency to prevail over the exhausted moments with their compassion.

Next but not less, I would like to acknowledge the supports from my family, especially those from South Korea, which gave me the strength great enough to endure all the procedure during the Doctoral program. My mother and sisters were always with me, and my parents-in-law also supported me in proceeding. One of those whom I have saved for this moment is Sunjae, the only and the best son to me, who has done beautiful endeavors with his sincerity for his aspire. He has been a wonderful fellow of mine during the program, staying in the Strozier library with me and inspiring me with his impressive attitude. Finally, I would like to share the end of a long journey with my husband, Hyoknam Kwon, who has been with me every moment I needed a friend. His implausible support still makes me pursue the magnificent world of academics without an end.
# TABLE OF CONTENTS

LIST OF TABLES ........................................................................................................... vii

LIST OF FIGURES ......................................................................................................... viii

ABSTRACT ...................................................................................................................... ix

CHAPTER 1. INTRODUCTION ......................................................................................... 1

  The use of the Internet ............................................................................................. 4

  Online shopping ....................................................................................................... 5

  The purpose of the study ......................................................................................... 7

CHAPTER 2. LITERATURE REVIEW ............................................................................. 9

  Information Search ................................................................................................... 9

    1) Internal search process ...................................................................................... 12

       Accessibility in information search .................................................................. 12

       Multiple processes in attitude-behavior relationship ..................................... 14

       Accessibility of favored product brands in decision making ...................... 17

    2) External search process ..................................................................................... 18

       Product experience ............................................................................................ 20

       Perceived risk of online purchases ................................................................. 21

       Involvement with online purchases ............................................................... 23

       Need for closure ............................................................................................... 24

       External searches for product information ............................................... 27

  Research hypotheses .............................................................................................. 29

  Hypothesized model ............................................................................................. 30
CHAPTER 5. DISCUSSION ------------------------------------------------------------- 64

Study purpose --------------------------------------------------------------------- 64

Study overview -------------------------------------------------------------------- 65

Result summary -------------------------------------------------------------------- 65

Discussion on the results ---------------------------------------------------------- 66

Product experience and accessibility of favored product brands --------------------- 70

Product experience on external searches for product information ------------------- 72

Perceived risk of online purchases and external searches for product information --- 73

Implications for future research and limitations of the study ------------------------ 74

<APPENDIX A> ---------------------------------------------------------------------- 76

<APPENDIX B> ----------------------------------------------------------------------- 84

<APPENDIX C> ----------------------------------------------------------------------- 92

REFERENCES ------------------------------------------------------------------------ 100

BIOGRAPHICAL SKETCH --------------------------------------------------------------- 109
LIST OF TABLES

Table 1. Demographic characteristics of the survey sample compared to the Pew ----------- 39 study results

Table 2. Means, Standard Deviations (SD), Minimum and Maximum Values for the ------- 40 Predictor and Predicted Variables Corresponding to Each Product Category

Table 3. Confirmatory Factor Analysis for Measurement Model using Three Sample ------- 45 Sub-groups

Table 4. Correlation Matrix for the Six Predictor and Predicted Variables in the ----------- 46 Hypothesized Model- Digital Camera Sub-group

Table 5. Correlation Matrix for the Six Predictor and Predicted Variables in the ----------- 47 Hypothesized Model- Laptop Computer sub-group

Table 6. Correlation Matrix for the Six Predictor and Predicted Variables in the ----------- 48 Hypothesized Model- Plasma TV sub-group

Table 7. Summary Characteristics of the Product Moment Correlations among the ----------- 49 Predictor and Predicted Variables in the Hypothetical Model

Table 8. Standardized Relationships (Causal Effects) for the SEM model in the Digital ------ 53 Camera Sample sub-group

Table 9. Standardized Relationships (Causal Effects) for the SEM model in the Laptop ------ 56 Computer Sample sub-group

Table 10. Standardized Relationships (Causal Effects) for the SEM model in the Plasma ------ 60 TV Sample Sub-group

Table 11. Comparison of the Hypothesized Causal Relationships across the Three Sample ---- 63 Sub-groups
LIST OF FIGURES

Figure 1. Hypothesized Model ----------------------------------------------- 30
Figure 2. The Hypothesized Measurement Model with Multiple Indicators ------- 43
Figure 3. The Causal Model for the Digital Camera Sample Sub-group ----------- 54
Figure 4. The Causal Model for the Laptop Computer Sample Sub-group ---------- 57
Figure 5. The Causal Model for the Plasma TV Sample Sub-group --------------- 59
ABSTRACT

This study investigates consumers’ information search patterns in online purchases. By investigating the information search patterns that precede decision-making, this study provides insights into consumers’ choice behaviors. Using Bettman’s information processing theory, the effects of internal searches, situational factors, and individual differences were investigated in the context of online purchases. In this study, internal search processes were explained using accessibility theory. In addition, for a more in-depth investigation of consumers’ pre-purchase decision processes, three different product categories (digital cameras, laptop computers, and plasma TVs) were examined. Comparisons were made of the three sample sub-groups to document the consistency of the causal relationships among the study variables.

As this study was interested in Internet users who have had experiences with online purchases, an online consumer panel survey was used for data collection. Each respondent was randomly assigned to one of the product categories and asked to answer one of three parallel product questionnaires concerning digital cameras, laptop computers, or plasma TVs. A two-step structural equation model was employed to test the hypothesized relationships in each sample sub-group.

In this study, the relationships among prior product experience and perceived risk of online purchases, accessibility of favored product brands and external searches for product information, involvement with online purchases and external searches for product information, and need for closure and external searches for product information were consistent with the hypotheses. In contrast, the relationships between prior product experience and accessibility of favored product brands, product experience and external searches for product information, and perceived risk of online purchases and external searches for product information were mixed and inconsistent among the three sample sub-groups. The inconsistent results are discussed in depth.
CHAPTER 1. INTRODUCTION

Information is property in our age. But unlike physical property, information has the ability to be easily shared. Widely seen as important in efficient decision-making, searching for vital information can be challenging, depending on the situation. Rice, McCreadie, and Chang (2001) conceptualize information as “a thing (commodity or resource), as data in the environment, as a representation of knowledge, and as a part of the communication process.” (p.4). On a personal level, individuals who actively seek information prior to making a decision are seen as better prepared to make a successful decision than those who seek information less actively.

In general, people seek information for personal, social, and economic needs. Some people, for example, seek information about health or jobs. Others seek information to keep a social connection with other people. Still, others use information as a tool for saving money or making wise financial investments. Proper information searching is an important element of an effective decision-making process. According to Simon (1969), decision makers have limitations on their capacity for processing information; hindrances may include limited working memory and limited computational capabilities. Hence, behavior is shaped by the interaction between the information-processing system and the task environment. Atkin (1973) defined information need as “a function of extrinsic uncertainty produced by a perceived discrepancy between the individual’s current level of certainty about important environmental objects and a criterion state that he seeks to achieve” (p.206). According to Atkin, people constantly compare current levels of knowledge against states that they want to reach and tend to seek information whenever they perceive uncertainty.

Although information searching can be applied to diverse areas, in this study the focus will be on consumer behavior. Specifically, information search patterns relating to online purchases will be investigated. That is, how an individual’s information-processing system interacts with the task environment in an online purchase context.
When considering a potential purchase, in general, people use various communication channels for reliable information on a product or service. When people are considering buying something (whether it is a good or a service), they access information in order to make the best decision. Many factors can influence the pre-purchase information search. People may choose different communication channels as information sources depending on their characteristics. The communication channels can be mass media like TV, newspapers, radio, magazines, and the Internet. Or, these channels can be interpersonal sources such as family and friends. The usage of communication channels can vary depending on a person’s preference, ability, access to information, and personality, to name only a handful of possibilities. For example, some people may select only mass media for objective information, while others may choose interpersonal sources (family or friends) for more personal, experience-based information. Moreover, rapidly growing communication technologies provide more easily available communication channels through the Internet, World Wide Web, and digital communication technologies.

Changes in communication technology bring new patterns of information searching. According to the U.S. Department of Commerce research (2002), 35% of individuals searched for health information online. Although Internet users are skewed by education level, more than one-third of Internet users search for health information over the Internet rather than visiting doctors or consulting with pharmacists. In addition, the Internet replaces many offline activities with e-mail, online chatting, online banking, and even online purchasing. Forrester Research data (2001) reported that in 2000 the amount of online purchases totaled $48.3 billion, representing an annual growth of 45.9%. The next year Department of Commerce (2002) also reported more than one-third of Internet users had made online purchases.

With the changes in communication and new technologies, information search, especially consumers’ information search, can be influenced by the surrounding environment. To make a better purchase choice, people seek information about a product or service using one of several communication channels. When people need information about a good or service, they use mass media as one of information source along with interpersonal sources. In information search pertaining to goods or services, advertising plays a key informational role for consumers. Advertising has different functions as compared to other forms of mass communication. Armstrong (2004) defined advertising as “any paid form of nonpersonal presentation and promotion of ideas, goods, or services by an identified sponsor” (p.494). Sometimes people are
incidentally exposed to advertising in mass media and gain information about a new product that
they eventually become interested in. Sometimes they just enjoy entertaining advertising without
gaining brand or product name recognition.

Advertising has the function of providing information about a good or service. Especially, advertising in mass media can have more impact on consumers’ attention and recognition than interpersonal channels in terms of the ability to reach a large number of people (Armstrong, 2004). Moreover, with the advent of the Internet, the promotion of a good or service is more easily possible without space and time limitations. Although use of the Internet requires user skills, it enables us to have more communication channels and information sources than ever before. With no limitations on time and space, the Internet provides more accessible information and communication channels between consumers and companies. As a communication channel, Katz (2002) summarizes the characteristics of the Internet as follows:

The fundamental network form of the Internet is neither the one-to-one (or in some cases one-to-few) communication among pairs of people communicating face to face, by letter, or by telephone nor the one-to-many (or in some cases one-to-few) communication between a mass-medium broadcaster and its audiences. It supports any network from involving one-few-many to one-few-many (p. 347).

With such diverse communication channels, including the Internet, people may have more options in information searches for goods and services. Diverse online activities change the communication and media usage patterns in consumers’ media usage in regard to product information. According to OECD (2002), individuals use the Internet mainly for communication purposes (receiving and sending e-mails), or to find information about products and prices, followed by downloading digitized products, such as news, games, music, and free software. Considering the rapid growth of online purchases and the consumers’ need for information regarding these online purchases, this study will explore consumers’ information search patterns for online purchases.
The use of the Internet

Many studies have explored Internet usage and examined trends in the use of the Internet (OECD, 2002; Pew Internet & American Life, 2003; A Nation Online, 2002). The studies have shown that there are considerable differences in use of the Internet according to income, education, age, family type, and sub-national regions. Moreover, differences in household income, household education, Internet access, and workplace access influence Internet usage (OECD, 2002).

Online skills and resources may also influence Internet use. Hoffman (1998) suggested that access, resources, and skills were important factors in using the Internet. He explored a comparative analysis of Internet and Web usage and access across racial/ethnic groups of Caucasian and African-Americans in the U.S. He concluded that the gap in overall access and use of the Internet and Web between African-American and Caucasian students was attributable to the African-American students’ relative lack of access to the Internet and Web outside of school. Moreover, in online search behavior, Caucasian Web users were more likely to report searching for non-product and non-corporate information, and to find Web sites using directories and search engines.

Among many studies on Internet usage, The UCLA Internet Report (2003), Pew Internet & American Life (2003), and A Nation Online (2002) studies are based on national surveys about the use of the Internet. The ‘UCLA Internet Report’ found that the vast majority of people who use online technology viewed the Internet as an important source of information. Especially, among very experienced Internet users, the Internet ranked higher than books, TV, radio, newspapers, and magazines as an important source of information. With regard to information credibility, more than one-third of Internet users said that about half of the information on the Internet was reliable and accurate. In case of online purchasing, individuals used online sources and retail stores for both browsing and purchasing. Overall, Internet users were most satisfied with the ability to communicate with other people on the Internet and the amount of relevant information available online (UCLA Internet Report, 2003).

Concerning demographic variables of Internet users, ‘Pew Internet & American Life’ found that younger, Caucasian, well-educated, suburban, and urban residents had more access to the Internet than those who were older, African-American or Hispanic, and/or from rural areas of
the country. Lack of need, high cost of computers, lack of time, and low computer literacy, were among some of the reasons identified as causes for non-use of the Internet. ‘A Nation Online’ (2001) conducted by Department of Commerce’s Census Bureau showed that 45% of the population used e-mail and approximately one-third of Americans used the Internet to search for information about goods and services. The study showed that among Internet users, 39% of individuals were making online purchases, and 35% of individuals were searching for health information. In online activities, e-mail was the most frequent usage for the Internet, followed by searching for information on goods/services, health, or government services.

In terms of gender differences in Internet usage, in ‘A Nation Online’ research (2002) found that male and female Internet users participated at different rates in some online activities. However, more men than women used the Internet to check news, weather, and sports. More women than men went online to find information on health services. According to the U.S. Department of Commerce (2002), those households earning more than $75,000 a year were more likely to use the Internet to search for health services or product information. They searched for government services or agency information, news, sports, weather, goods or services, banks, or they simply used e-mail.

As mentioned above, people use the Internet differently, from e-mail to online shopping, and the characteristics of Internet users are considerably distinctive depending on demographic variables. As the Internet is one of the main information sources for consumers, determinants of Internet use are important factors in evaluating communication channels as information sources.

**Online shopping**

People do not only use the Internet for communication and information seeking. Online purchasing is increasingly popular. As shown in Department of Commerce 2002 data, more than one-third of Internet users have experienced online shopping. With respect to online shoppers, Swinyard (2003) explored the lifestyle characteristics of online households. He found that online shoppers were younger, wealthier, better educated, and had more computer literacy. The study indicated that they spent more time on their computers and spent more time on the Internet than non-online shoppers. In addition, many shoppers felt online shopping was easy, safe, and
entertaining. In relation to computer usage, the study also found that shoppers used computers more, were online more, and were more comfortable with both computers and the Internet.

Contrary to findings cited above, Donthu and Garcia (1999) found that Internet shoppers were older and had more income than non-Internet shoppers, and they sought more convenience, were innovative, impulsive, variety seekers, and less afraid of risks than non-Internet shoppers. The contradictory results about online shoppers’ ages may result from product categories. In the case of expensive items, younger people have less chance to buy online because they many times lack the funds. Hence, the product category may be one of the considerations in online shopping. Li (1999) also found that compared to non-online buyers, online buyers were better educated, had higher incomes, and were more convenience oriented. In accordance with the Internet users, online shoppers also are differentiated by demographic variables of age, education, and income. In addition, the product category may be an indicator of online purchase and information search potential.

With respect to online purchasing, according to UCLA Internet Report (2003), people are concerned with the privacy of personal information and credit card numbers (transaction security). Contrary to retail store purchases, online purchases may give rise to concerns regarding what a proper transaction entails, due to the lack of face-to-face interaction. Such concerns may affect online purchases. Joines (2003) found that transactional privacy concerns were negatively associated with the percentage of time spent searching for products, while economic motivations had a positive relationship with searching.

Many factors influence online shopping. Lee (2004) examined the impact of Web site information on consumer choice and psychological states in an online environment. He found that the number of attributes and attribute level distribution predicted the effect of information overload on consumer choice: when the level of attributes was varied equally across alternatives and the number of attributes increased, information overload occurred. When information overload occurred, consumers experienced choice conflicts. That is, increasing the number of product attributes affects consumers’ satisfaction with their choices. Korgoankar (2002) explored the consumer usage pattern of the Web and found that attitudes toward Web advertising, shopping patterns, and demographics were related to Web usage patterns. That is, the stronger and more positive the Web users’ beliefs about and attitudes toward Web advertising, the stronger their purchase intentions.
The purpose of the study

As Janis and Mann (1977) mentioned, a proper information search is obviously an important element of a decision process. Although information searching has been explored as a major research stream, most research has investigated information searching in offline purchasing (Bloch, Sherrell, & Ridgway, 1986; Beihal & Chakravarti, 1986; Kiel & Layton, 1981; Westbrook & Fornell, 1979). Few studies have examined information searching as it relates to online purchases (Bhatnagar & Ghose, 2004; Miyazaki & Fernandez, 2001; Degeratu, Rangaswamy & Wu, 2000).

This study aims to investigate the determinants of consumers’ information search patterns prior to an online purchase. For the study, information search patterns will be examined with a hypothesized model. Investigation of search patterns that precede decision making can provide important insights into consumers’ purchasing decision processes. In addition, for an in-depth investigation of consumers’ information search patterns, different product categories (a digital camera, a laptop computer, and a plasma TV) were adopted for testing the relationships among study variables. Consumers’ information search patterns were examined for consistency across product groups. This approach provides further investigation on how product characteristics influence consumers’ pre-purchase decision processes. Furthermore, in an online purchase situation, the influence of situational factors related to online purchase on information search, especially external search for product information, was investigated.

Most research in communication has focused on media effects. This means that media use has been treated as an independent variable, assumed to be a predictor of the interest, not a predicted variable. As media use has been examined as an independent variable, most studies about media effects have investigated the psychological, social, and political effects resulting from individuals’ media use. In this study, however, media use, especially the choice of communication channels use among consumers, will be explored as a dependent variable. This approach can prove the effects of communication channels in terms of product information sources in online purchase.

In addition, this study attempted to investigate individuals’ information search patterns by adopting an interdisciplinary perspective. An attempt was made to integrate the communication
and marketing approaches to explain the process of consumers’ pre-purchase searches. In the process, the effects of internal search, the situational factors related to the purchase context, and individual differences on external searches were explored.

An examination of consumers’ communication channel use for product information may provide market segmentation assistance and give useful guidelines in targeting audiences. Moreover, the examination of information search determinants is fundamental for designing effective marketing communication campaigns. Understanding communication channels utilized when individuals do external information searches is of theoretical interest to academicians, and of practical importance for marketing practitioners. In addition, identification of the critical variables that define search attributes among communication channels enables more comprehensive evaluation of the channels’ effectiveness.

Furthermore, testing of consumers’ information search patterns across product categories provides a more comprehensive perspective on the pre-purchase decision process. That is, how consumers’ decision processes, especially pre-purchase searches are influenced by product categories contributes to an understanding of consumers’ decision process in purchasing.
CHAPTER 2. LITERATURE REVIEW

1. Information Search

Information searching behavior is an integral part of the decision making process and has a wide range of conditions. The subject of information searching has been explored in several areas. As mentioned in Chapter 1, health information about disease or diet, product information, and search strategies for political and social information are some examples of research on information searching.

Although the information search process has been studied in diverse areas, in this study it will be focused on the consumer behavior area. With regard to information searching in consumer behavior, Bettman (1979) asserts that the process of consumer information acquisition consists of internal and external search. He argued that “consumers in general first engage in internal search, examining memory for available information….the major determinants of degree of internal search are the amount of information stored in memory; the suitability of that information or its usefulness for the current choice; and level of decision conflict.” (pp.107-110) He also suggested that external search follows if there is insufficient information in memory to make a decision.

Because an internal search begins with memory retrieval, it relates to the accessibility of relevant information in memory. According to Fazio (1989), “the accessibility of the attitude from memory is postulated to act as a critical determinant of whether the attitude-to-behavior process is initiated” (p.280). That is, attitudes can predict behavior if they can be retrieved from memory in a decision making context. If the attitude comes spontaneously to mind in a decision situation, the attitude affects the perception of an object, and influences behavior. In that case, behavior will be predicted by the attitude and further, accessibility from memory. Thus, in making a decision, choice processing and choice outcomes may be affected by the availability, organization, and accessibility of relevant information in consumers’ memories (Biehal, 1983).

In other words, the information-processing approach helps us understand how consumers make decisions. As mentioned by Simon (1969), people have limitations in processing information for decisions, and have limited memory for computation. Hence, how the decision is
made depends both on the information-processing system and the task environments. The information-processing system includes internal and external searches, and the task environment can be seen as situational factors determined by a decision context.

Based on this perspective, in this study, consumers’ information search patterns were explored in terms of internal and external search including situational factors and individual differences in online purchase situations. For the theoretical framework of the study, Bettman’s information processing theory was adopted, and accessibility theory was applied for a more specific explanation of the internal search process.

With regard to internal search process, the accessibility of favored product brands was adopted as an operationalization of internal search for an online purchase situation. In a purchase situation, in general, a consumer’s search begins with one’s memory; accessible brands will be the most easily remembered. In addition, with respect to situational factors, involvement with online purchases, perceived risk of online purchases, and product experience were considered relevant to the decision context.

Besides situational factors, individual differences were considered one of determinants of information searching in pre-purchase decision. In relation to individual differences, need for closure was adopted for the study. To investigate consumers’ information search patterns in online purchase, a hypothetical model was tested across product categories (a digital camera, a laptop computer, and a plasma TV). The consistency of causal relationships among study variables was examined with sample sub-groups comparison.

Many studies have explored consumer’s information search processes in marketing (Peterson 2003; Webster 1992; Urbany 1989). With regard to ongoing search, which means search occurring outside of the purchase process, Bloch (1986) found that recreational or hedonic motives had significant effects on ongoing search, and product involvement was positively associated with ongoing search. In information source selection, Westbrook (1979) found that the higher the need for information and the greater knowledge about available information sources, the greater the information searching. In contrast, those who do not have familiarity with available information sources and have a limited ability to compare product or brand comparisons tended to select personal channels over other sources. In the case of car purchases,
Kiel (1981) found that consumers’ perception of obtaining a cheaper price for the trade-in deal increased the intensity of searching. Additionally, consumers’ past experiences and purchase self-confidence were negatively associated with the intensity of searching behavior.

Previous studies have investigated the determinants of external search, such as product categories (Beatty & Smith, 1987; Brucks, 1985), knowledge (Brucks, 1985; Radecki, 1995), perceived risk (Mitchell, 1999; Dholakia, 2001; Gemunden, 1985; Dowling, 1986; Murray, 1990), time pressure (Dickson, 1990), personality (Wilson, 1991), and so forth. Bettman (1979) categorizes the determinants of external search into four categories: “properties of the choice situation, costs versus benefits of information, conflict and conflict response strategies, and individual differences” (p.124). Moore and Lehmann (1980) additionally classified the determinants of external search as “market environment, situational variables, potential payoff, knowledge and experience, individual differences, and conflict and conflict-resolution strategies” (p.278).

In this study, the determinants of information search were selected based on Bettman’s (1979) categories, with the assumption that consumers’ information search processes are determined by situational factors related to the decision context as well as by individual differences. In addition, the internal search process is explained by the accessibility concept. With regard to properties of the choice situation, involvement with online purchases was adopted as a situational factor, and perceived risk of online purchases was considered as corresponding to “conflict and conflict response strategies”, in that consumers seek information to reduce the risk of experiencing conflict in the purchase situation. Regarding product knowledge and experience, product experience was considered, and need for closure was adopted to explain individual differences in a purchase decision. Hence, the determinants of information search in this study, more specifically, external searches for product information, were accessibility of favored product brands, product experience, involvement with online purchases, perceived risk of online purchases, and need for closure.
1) Internal search process

Accessibility in information search

As mentioned above, the process of consumer information acquisition consists of internal and external search. Internal search is usually performed initially and is followed by external search if there is insufficient information in memory to make a decision. According to Bettman (1979), internal search begins with retrieving the relevant information from memory, and determinants of internal search are the amount of information stored in memory, the suitability of that information or its usefulness for the current choice, and level of decision conflict.

Because of the reliance on memory, internal search may be explained by the concept of accessibility. Accessibility is “the degree to which an attitude or belief is automatically activated from memory” (Fazio, 1990, p.80). In relation to attitude, Fazio (1990) views an attitude as “an association between an object and one’s evaluation of that object” (p.80). According to Fazio, highly accessible attitudes are quickly retrieved from memory, whereas the less accessible attitudes are difficult to retrieve from memory. Roskos-Ewoldsen (1997) asserts that “the accessibility of an attitude from memory plays an integral role in when attitudes are likely to influence attention, perception, and behavior” (p.186).

According to accessibility theory, the more often people mentally rehearse the association between an object and evaluation, the stronger the connection becomes. That results in strong attitudes characterized by “well-learned associations” and “strong linkages between the object and an evaluation” (Fazio, 1990). For example, in a choice situation among alternatives, it may be possible that once attitudes are formed, a consumer will tend to rely on previous evaluations of objects rather than carefully considering and adding new pieces of information to the evaluation. It may result in inflexible information processing about alternatives and may lead to a memory-based choice. Therefore, it can reduce the amount and intensity of information search about alternatives.

In the attitude-behavior relationship, attitude accessibility moderates the relationship between attitudes and subsequent behaviors toward the attitude object (Fazio, 1990). In accessibility theory, it is assumed that attitudes will predict behavior if they can be activated
from memory at the time of a decision. In a purchase situation, for example, if a person has a specific brand in mind, he/she may choose the specific brand without considering alternatives. In that case, a person’s attitude toward a specific brand may cause inflexible processing of information about alternatives, which results in being closed-minded in choosing alternatives.

This process can explain brand loyalty in terms of reducing the intensity of a search for alternatives. Brand loyalty can be defined as “repeat purchase behavior of a specific brand and/or the expression of a favorable attitude toward such behavior” (Jacoby & Chestnut, 1978, p. 25). Brand loyalty for a product can be associated with reduced cognitive efforts in a choice situation. That is, with highly accessible attitudes toward a specific brand, which are based on the strong association between product brand and evaluation, choices can be made automatically without considering alternatives brands. As Newman and Staelin (1972) mentioned, brand loyalty is reinforced by positive experiences with product brands, and this reduces the amount of search for alternatives.

With respect to information search, it can be assumed that highly loyal consumers of a product are more likely to choose a specific brand because they likely have a highly accessible and positive attitude toward a specific brand. In contrast, low or non-loyal consumers have less accessible and positive attitudes toward brands, and this may enhance the cognitive efforts to search alternatives. That is, increasing alternatives considered in a choice may enhance the intensity of information search.

In purchase situations, with respect to brand effect, Posavac, Sanbonmatsu, Kardes, & Fitzsimons (2004) found that “brand positivity effects occur when the initial evaluation of a target brand is positive” (p.650). If a decision context includes specified alternatives and involvement is high, consumers may engage in comparative processing, which reduces the likelihood of the brand positivity effect. That is, individuals may compare multiple attributes of brands (alternatives), if alternatives are specified in an important or involving decision making situation.

In the attitude-behavior relationship, if the association between the object and the evaluation is strong, the attitude-to-behavior process is more spontaneous and more predictable than when associations are weak. Fazio (1990) explains that “if the relevant association is too weak to be activated, then behavior will follow from a definition of the event that is not attitudinally based. Instead, the behavior may be determined by whatever features of the situation
and the attitude object are sufficiently salient to influence immediate perceptions” (p.85). Applying this to a purchase situation, when a person has low accessibility of attitudes toward product brands, one’s external search might depend on situational factors of a decision context, such as availability of information about alternatives and involvement with the purchase situation.

The features of situations are related to situational factors in information search. If a consumer has a less accessible attitude toward a product, his/her behavior is less predictable than one possessing a high accessible attitude toward a product, because his/her behavior is more likely to be influenced by the features of situations. Whereas, if a person has a highly accessible attitude toward a product brand(s), his/her behavior is more predictable and spontaneous based on one’s pre-existing and accessible attitude toward product brands.

This also explains why highly accessible attitudes are more efficient. Fazio (1990) insists that the highly accessible attitude is functional for daily life. The impulsive processing of the attitude and behavior relation can occur when an individual has the strong association with the attitude object in the confronting context. That is, “if the attitude is highly accessible, then it’s likely to be activated automatically from memory upon observation of the attitude object and is likely to result” (p.86) in consistent behaviors toward the object that don’t require consideration of additional information.

In summary, concerning information search in purchasing, it can be said that a highly accessible attitude is efficient in decision making. That is, individuals with highly accessible attitudes toward product brand(s), can be reluctant to process new information about alternative brands, which should result in reduced information searching in a choice situation.

**Multiple processes in attitude-behavior relationship**

As mentioned in the prior section, attitudes that are accessible are more likely to be activated in response to the attitude objects. With repetitive associations between attitude objects and evaluations, the probability of retrieving attitudes from memory is more likely to be high. This can reduce the need for information for a decision in terms of reliance on pre-existing attitudes. This is the “spontaneous processing” mode in the attitude–behavior relationship.
Spontaneous processing occurs “when one encounters an attitude object, one’s attitude can guide perceptions of the object in the immediate situation. These immediate perceptions, congruent as they are with one’s attitude, can then prompt attitudinally consistent behavior.” (p.81). That is, the attitudes toward the object depend on the associations between attitude objects and evaluations from memory. As the attitudes are retrieved from memory, their relationship with behavior is more immediate and predictable than those with weak associations.

In contrast, “deliberative processing” in the attitude-behavior relationship is characterized by substantial cognitive work. Fazio (1990) explained that “deliberative processing includes the scrutiny of available information, analysis of characteristics of features, and of costs and benefits” (p.89) That is, “deliberative processing” occurs when one considers the features of the decision context. When this is applied to a purchase situation, “deliberative processing” suggests a need for more information to compare characteristics of features and benefits of a choice.

Roskos-Ewoldsen (1997) asserts that in the attitude-behavior relationship, when certain situations motivate processing, behavior occurs through more introspective processes, as in Fishbein and Ajzen’s (1975) Theory of Reasoned Action. In the Theory of Reasoned Action, Fishbein and Ajzen assert that behavior is regarded as a “function of the behavioral intention” which, in turn, is based on two antecedent variables of a person’s attitude toward the behavior and the subjective norms associated with performing the behavior. They explained the framework of Theory of Reasoned Action as follows:

Generally speaking, the theory is based on the assumption that human beings are usually quite rational and make systematic use of the information available to them…. We argue that people consider the implications of their actions before they decide to engage or not engage in a given behavior. For this reason we refer to our approach as ‘a theory of reasoned action’…. We make the assumption that most actions of social relevance are under volitional control and, consistent with this assumption, our theory views a person’s intention to perform (or to not perform) a behavior as the immediate determinant of the action (Ajzen & Fishbein, 1980, p.5).
Therefore, taking into account subjective norms and motivational condition, one’s behavior can be predicted, explained, and influenced. Based on these arguments, accessible attitude may influence both “spontaneous” and “deliberative” behaviors to some degree. According to Fazio’s MODE Model, whether an individual’s behavior is “deliberative” or “spontaneous” depends on “if that person is motivated and has the opportunity to be deliberative” (p.89) in behavior. That means, when people are highly motivated and are given sufficient opportunity to consider the basis of their attitudes and relevant situational factors, their behavior is more likely to be deliberative. But when a person is not motivated and has no opportunity to consider, his/her behavior is more likely to be impulsive and to rely on attitudes accessible from memory.

In decision making, the accessibility of attitudes from memory may have great influence on decisions among alternatives. Posavac, Sanbonmatsu & Fazio (1997) found that “the strength of the association between the alternatives and the superordinate choice category may be the important determinant of the accessibility of a choice of alternatives” (p.259). For example, alternatives (e.g., product brands) that are strongly associated with a choice category (e.g., product category) are more likely to be generated upon consideration of the category than those with weak association.

This can apply to purchase situations. For example, experts who have strong associations between categories (TVs) and choice alternatives (Sony, Panasonics, TOSHIBA, etc.), are more likely to be predictable and spontaneous in decision making. In the case of experts, as they routinely engage in generating alternatives for consideration, they may have strong associations between categories and alternatives. The strong association between categories and alternatives results in high accessible attitudes toward the alternatives; leads to more predictable behavior, spontaneous alternative choice, and results in reduced consideration of alternatives in decision making.

Conversely, non-experts (novices) who have weak or no-association between categories and alternatives, are less likely to be spontaneous in decisions, and their behavior tends to be influenced by the salient features of the decision context (sales, advertising, physical prominence of a brand, etc.). Therefore, their behavior is more likely to be deliberative processing and less predictable than that of experts, as they may more rely on the context of decision rather than existing attitudes retrieved from memory, if they are motivated. That is, a weak association
between categories and alternatives can enhance the extent of information search in a motivated situation.

In summary, in a purchase situation, the accessibility of product brands from memory may influence the choice among alternatives. If a person has highly accessible attitudes toward a product brand(s), which are retrieved from memory, this may reduce the intensity of information search and may result in spontaneous choice. But if a person has low accessibility of a product brand (or brands), he/she may engage in deliberative processing while considering alternatives, if motivated. This may increase the need for information when choosing a product brand.

**Accessibility of favored product brands in decision making**

In the consumer behavior area, accessibility has been explored as a moderator between attitudes and decision making. For example, Fazio et al. (1989) found that “the accessibility of an attitude from memory moderated the extent to which that attitude guided product selection behavior” (p.30). In addition, Biehal (1983) found that accessibility manipulated by learning was positively associated with brand choice. These findings support the fact that accessibility from memory can influence decision making in terms of providing relevant information with its availability.

In relation to consumer knowledge, Park (1994) has found that product-related experience has a positive relationship with self-assessed knowledge judgments, and this effect resulted from accessibility in memory. Highly accessible attitudes can also lead to selection of a specific alternative in a choice situation. As seen in Posavac et al. (1997), in a choice of alternatives (charities), “the accessibility the alternatives from memory, and hence, the likelihood that any given possibility will be considered, depend on the strength of the association in memory between a given item and the category” (p.259). That is, the probability of making attitude-congruent decisions is more likely to be high when the association between the object and category is strong. So in a purchase decision context, consumers may choose the product brand(s) that are accessible from memory and are positively evaluated. In this process, accessibility may produce the functional value and may make decisions quicker and easier through reducing external search.
In this study, in a product brand choice situation, it can be assumed that the accessible attitude toward a product brand(s) may affect the intensity of information search, especially external searches for product brands. That is, if a person has highly accessible attitude toward a specific brand (or brands), he/she may be more spontaneous in decision making which may lead to less external searching for product brands. In the process, if the accessible attitudes are positive, the probability of selecting those brands is high. Whereas, if a person has a less accessible attitude toward product brands, he/she may be more deliberative in decision making, especially if he/she is motivated. This may lead to a search for more information about product brands and enhance the extent of external searches for products.

In summary, accessibility theory suggests that the more frequently people mentally rehearse the association between an object and evaluation, the stronger the linkage becomes. In a choice situation among alternatives, it may be possible that once attitudes are formed, a consumer will tend to rely on pre-existing evaluations of objects (attitudes) rather than carefully consider and seek new pieces of information to the previous evaluation. More specifically, in a purchase situation, accessibility of favored product brands, which is based on the positive evaluations and is retrieved from memory, has the function of making decisions easier and quicker through reducing the extent of information search.

2) External Search Process

Bettman (1979) explained external search as “the acquisition of information from sources other then memory, such as friends, packages or other in-store displays, advertisements, magazines such as Consumer Reports, and so forth....A brief internal search may suffice for the consumer to ascertain what is not known, or an interrupt of internal search due to a lack of information or conflict may lead to external search” (p.111). That is, when individuals do not have enough information in memory, they tend to seek information to make a decision. While internal search focuses on the accessibility from the memory, external search stresses the relative importance of situational factors. During external search, consumers examine the environment to see if relevant information is available.
With respect to the determinants of external search, product categories (Beatty & Smith, 1987; Brucks, 1985), product knowledge (Brucks, 1985; Radecki, 1995), perceived risk (Mitchell, 1999; Dholakia, 2001; Gemunden, 1985; Dowling, 1986; Murray, 1990), time pressure (Dickson, 1990), and personality (Wilson, 1991) have been explored. Beatty and Smith (1987) found that purchase involvement, attitude toward shopping, and time availability, were positively associated with external search, whereas product class knowledge was negatively related to external search. In relation to consumers’ memory and external search in choice, Biehal (1986) found that individuals’ using information from memory was positively associated with its accessibility. Moreover, it was shown that “consumers tended to simplify by compartmentalizing and by using less complex processing operations that reduce momentary demands on attentive capacity, adding to the number and variety of processing operations used to complete the choice” (p.12). That means, in a decision process, accessibility from memory influences a decision (a choice situation), along with external search with a variety of sources. It explains that to make a better decision, a consumer needs more information about products and this process is influenced by a consumer’s memory about products and external search which is influenced by internal search and situational factors. More discussion about determinants of external search is provided in next section.

In the process of information search, people select communication channels as information sources. Communication channels can be mass media such as TV, newspaper, radio, magazines, including neutral sources (e.g., Consumer Reports), the Internet, or interpersonal sources such as family and friends. Communication channel usage may be influenced by many factors such as personal preference, channel credibility, convenience, or availability.

With respect to communication channels, Westmyer (1998) found that when given a choice, individuals tended to perceive the oral channel as more efficient than the written channel when attempting to satisfy interpersonal needs. In addition, perceptions of friends’ knowledge influenced an individuals’ assessments of their own knowledge which, influenced information search (Radecki, 1995). In dyad situations, Topi (2002) found that individual differences had effects on the technology selections. That is, in conflict situations, individuals’ perceptions of face-to-face and computer-mediated conditions varied as a function of individuals’ personalities.
As seen above, the patterns and amount of external search are influenced by internal search, which is retrieved from memory, and can be as a function of confronting situations. In relation to situation factors, the determinants of external search considered in this study are provided in below.

**Product experience**

Consumers’ product experience has been considered to be one of the determinants of information search in consumer behavior research about product knowledge (Guo, 2001; Schmidt & Spreng, 1996). With respect to product experience, it can be summarized that knowledge or experience with a product, which explains how much information a consumer has, and a purchase decision situation (whether a consumer is under pressure to make a purchase decision) can be determinants of external search for information about a product. For example, if a consumer has more experience or knowledge about a product, he/she will search for less information than those with less experience or knowledge about a product.

However, it may be possible that an expert who has more information about and experience with a product may search for more information about a product than those with less information and experience about a product, because he/she will need more specific information about product attributes to make the best choice. That is, because an expert knows more attributes of a product, he/she may seek more information for a detailed comparison. Therefore, knowledge of or experience with a product may result in more or less information search. With respect to the relationship between product experience and information search, Moorthy, Ratchford, & Talukdar (1997) found that “relative brand uncertainty exhibits an inverted U-shaped relationship with experience while individual brand uncertainty decreases with experience” (p.275). That is, individuals who had little or much product experience had little relative brand uncertainty, whereas the same groups had as much individual brand uncertainty. Product experience which brings information about a product can enhance search efficiency in terms of decreasing search cost. Therefore, increasing product experience may reduce the extent of information search through an increase in the efficiency of search.

This argument is consistent with Punj’s (1983) finding, in that the higher product knowledge, the lower external search. In addition, it showed that the higher the cost of search,
the lower external search, whereas the greater external search, the higher cost savings. In relation to product category, Dodd (1996) found that wine consumers sought information through several sources such as print media, interpersonal sources, and information from trials. Depending on the decision situation, people use different and sometimes more channels for product information for better decision-making.

Hence, it can be assumed that product experience, which provides product information and knowledge may influence the extent of information search in purchase. In terms of providing product information, product experience can reduce the intensity of information search, especially external searches for product information in purchase.

**Perceived risk of online purchases**

Perceived risk may also be considered as one determinant of external search about alternatives (Guo, 2001; Schmidt & Spreng, 1996; Laroche, Bergeron & Goutaland, 2003, Garbarino & Strahilevitz, 2004). Perceived risk is thought to increase information search because one way of reducing risk is to obtain more information.

With respect to uncertainty and risk, Mitchell (1999) discussed the relationship between objective and subjective risk and the difference between risk and uncertainty. He explained that “objective risk must exist in theory. What is lacking is the ability to measure it…. so all that can be easily measured is subjective or perceived risk” (p.165). Knight (1948) defines risk as a known probability and uncertainty is related to the state of lacking precise knowledge. In a purchasing situation, consumers’ uncertainty may result from lack of product information, which can be gained from product experience, whereas, perceived risk may relate to the confronting situation (e.g., online purchase) in terms of considering the outcome. That is, while uncertainty is more likely to relate to the object, perceived risk is more likely to be associated with the behavioral outcome.

Considering the each definition, perceived risk is more appropriate than uncertainty as a situational factor in terms of being relevant to the outcome and the confronting situation. When buying a product, for instance, if a person has little confidence with purchasing, he/she may perceive risk in the purchasing due to lack of knowledge. This may result in seeking more information to reduce perceived risk. But if a person has confidence in purchasing and has
enough product experience, he/she may perceive no or little risk in purchase and may be reluctant to search for more information.

In relation to perceived risk and information search, Murray (1991) found that consumers’ channel selection indicated different patterns according to the level of perceived risk in information searching for services. That is, consumers tended to select formal channels (impersonal advocate and impersonal independent) and personal channels (personal independent and personal advocate) over informal channels (personal experience) when perceived risk is high enough to search information for services. Moreover, it also showed that in a perceived risk situation, the most important channel was word-of-mouth in terms of feedback.

With regard to the relationship between perceived risk and information search, however, research has produced some inconsistent findings. According to Gemunden (1985), 51% of over 100 studies that examined the relationship between perceived risk and information search showed a non-significant or negative relationship. He explains that low-involvement tasks may not induce enough motivation to search for information if the perceived risk remains below a critical level of tolerated risk. Routine decisions are usually below the threshold of tolerated risk, so no motivation to search for information was ever activated. That is, even though a person has perceived risk about a decision, if the perceived risk does not exceed the threshold and motivate a person to seek information, it may not lead to more information search. In relation to measurement of perceived risk, Dowling (1986) asserted that “when measuring psychological phenomena, such as perceived risk, it is desirable to standardize subjects’ understanding of the construct” (p.202). It implies that a more reliable measurement for perceived risk is needed for investigation of the relationship between perceived risk and information search.

In summary, perceived risk can be considered a situational factor determining information search in terms of motivating search behavior to reduce risk. That is, gaining more information is one way to reduce risk. It can be assumed that perceived risk is positively associated with information search in motivating search behavior. Considering the study context, perceived risk of online purchases was adopted one of the situational factors determining information search in an online purchase situation.
Involvement with online purchases

In information search about a product, a consumer’s involvement may influence external search as a property of the choice situation. Involvement can be viewed as the motivation to process information. Krugman (1965) views involvement as the “perceived personal relevance” of the object or situation to the consumer, and Bloch and Richins (1983) define involvement as “a motivational state resulting from perceptions of importance and as predecessors of overt action” (p.72). In addition, Zaichkowsky (1985) interprets involvement as “a person's perceived relevance of the object based on inherent needs, values and interests” (p.342).

With regard to external search, Newman (1977) claims that information searching increases when individuals perceive that the purchase is important, there is a need to learn more, and they can easily obtain and utilize information. That is, information search, especially external search, is influenced by motivation, availability of information, and its usability. In a purchasing situation, in general, consumers’ involvement can motivate them to seek information for better choice, in that consumers engage in more searches when involvement is high.

Regarding the relationship between involvement and information search, Chaiken (1982) suggested that individuals with low involvement tended to use “simple schemas” or “cognitive heuristics” (mental shortcuts) in order to arrive at quick decisions. This explains the fact that in low involvement, individuals are more likely to engage in minimal search, while in high involvement, individuals have a tendency to engage in extensive search (Engel & Blackwell 1982; Hawkins, Best, & Coney, 1986).

However, Beatty and Smith (1987) found that the effect of involvement on information search varies depending on types of involvement. They found that purchase involvement, which explains the degree of concern felt toward the purchase decision or choice, was positively associated with searching efforts across product categories. This finding is consistent with Schmidt and Spreng (1996). Schmidt and Spreng (1996) defined situational involvement as “the linkage between a product or situation and the outcomes or consequences of the situations” (p.250), which enhances attention and searching efforts because of the belief that these efforts will generate favorable outcomes. This implies that the different level of involvement may have a differential influence on searching effort. That is, when consumers are involved with the situation (purchasing) rather than the product itself, they tend to exert more cognitive efforts. In
other words, in a purchasing situation, a consumer’s involvement with purchase which considers about the outcome, may bring about more extensive search than involvement with the object itself. This is because consumers tend to be anxious about the outcome of behavior in a confronting situation. In the process, searching efforts can increase the number of channels used for information. Based on these findings, involvement with online purchases was adopted as a situational variable reflecting the study context.

In summary, involvement can be viewed as the motivation to search information. Based on the literature, it can be assumed that as individuals’ involvement increases, they will devote more attention to the situation and exert more cognitive effort to search for information. Moreover, in relation to information search, involvement with a situation is more likely to affect the information search effort rather than the involvement with a product itself in terms of producing favorable outcomes. Hence, considering the study context, involvement with online purchases was adopted as one of situational factors that might determine information search, especially external searches for product information.

**Need for closure**

As individual differences, consumers’ personality traits can be considered as one determinant of external search. In consumer behavior research, many studies have explored the effects of individual differences on information search (e.g., Klein & Ford, 2003; Guo, 2001; Moore & Lehmann, 1980; Schmidt & Spreng, 1996). In relation to individual characteristics, need for cognition (Cacioppo and Petty, 1982) has been mainly considered to determine information search (Cleveland, 2003; Petty and Cacioppo, 1986; Hauftvedt, 1992). Need for cognition refers to “the tendency for individuals to engage in and enjoy thinking” (Cacioppo and Petty, 1982, p.1). But, explanations of the effect of need for cognition on information search have been focused mainly on message processing (Petty and Cacioppo, 1986; Martin, 2003) rather than information searching behavior.

While need for cognition measures individuals’ tendency to enjoy thinking, need for closure measures “the desire for clear, definite, or unambiguous knowledge” (Kruglanski & Freund, 1983, p. 448). Need for closure was developed by Kruglanski and Freund (1983) to
measure a dimension of individual differences, which is related to a person’s motivation concerning decision making and judgment. As Webster and Kruglanski (1994) stated, it also explains “a desired cognitive end state that might be obtained by either extensive processing or by limited processing…. Individuals high in need for closure would engage in limited processing in pursuit of a quick closure” (p.1055). However, they also asserted that, if individuals fail to reach closure in initial processing, they tend to engage in extensive processing to reach the desired end state.

In using need for closure as an individual characteristic, Webster and Kruglanski (1994) argued its representativeness of a dimension of stable individual differences in a social psychological perspective. Vermeir & Kenhove (2005) summarized the main idea of need for closure as follows:

A negative feeling is induced when closure is threatened or undermined, and a positive feeling is evoked when closure is attained or facilitated. The motivation to avoid these negative feelings prompts activities aimed at the acquisition of closure, and consequently biases the individual’s choices and preferences toward closure-bound pursuits (p.73).

According to Webster and Kruglanski (1994), high levels of need for closure may lead to the “urgency tendency” and the “permanency tendency”. They explained each tendency as follows:

The urgency tendency refers to the inclination to seize on closure quickly, and the permanence tendency refers to the desire to perpetuate closure, giving rise to (a) the dual inclination to preserve, or freeze on past knowledge and (b) to safeguard future knowledge. Both rest on the assumption that people with a high need for closure experience closure absence as aversive (p.1052).

That is, when individuals with high need for closure confront with a new situation, they will begin searching for more information to make a clear decision. Whereas, when individuals with low need for closure confront with a new situation, they seek and use a limited amount of
information that satisfies them. This amount of information is not large because they do not tend to exert cognitive efforts in a low involvement situation.

Kruglanski and Freund (1983) also found that high need for closure individuals tended to rely on information gained in an early stage of information seeking. Consequently, they were likely to be reluctant to process new information and based their judgments more on “pre-existing schemas”. That is, individuals with high need for closure were more likely to rely on their attitudes rather than to add new information. In addition, they displayed “cognitive impatience”, which this led to reduced searching efforts.

But, Kruglanski and Webster (1996) explained that although in some circumstances individuals may strive to reach closure, in other situations they may avoid it. That is, although need for closure may represent a dimension of individual differences, “it may vary as a function of the situation” (Webster & Kruglanski, 1994, p.1049). According to Kruglanski and Webster (1996), the conditions to induce a motivation toward closure are those that emphasize the “perceived benefits or desirability of closure”.

In addition, Kruglanski, Peri and Zakai (1991) found that individuals with high need for closure tended to seek extensively to reach and form a “crystallization point” which attains closure. In relation to searching for information, Vermeit et al. (2002) found that individuals with high need for closure seek more information when they are confronted with a new situation. But, once they have formed a decision rule in which they are confident, they reduce searching efforts for information. That is, individuals with high need for closure tended to use the routine rules more frequently in decision-making situations, and were more certain about their decisions than those with low need for closure.

As seen above, individuals with high need for closure tend to use more information than those with low need for closure, in general, before gaining closure. This phenomenon also occurs when confronting a new situation for those with a high level of need for closure. This argument is consistent with the finding that individuals with high need for closure are more likely to use many cues to satisfy their decision making needs (Punj & Staelin, 1983). In contrast, Houghton and Grewal (2000) found that a high level of need for closure results in less searching if the individual has a prior attitude regarding a brand or product category. That is, if one has attitudes (pre-existing schema), one tends to rely on attitudes for the decision rather than searching for new information. This finding is consistent with Kruglanski and Freund (1983) in terms of
relying on information to be attained in early stages. Therefore, one’s decision is more likely to depend on pre-existing schemas for high need for closure individuals. But, when individuals with high need for closure have no prior attitude toward the objects, they are more likely to seek information to make a decision quickly and to reach closure. In relation to information processing, Klein and Webster (2000) found that individuals with high need for closure processed information via either the peripheral or central route, based on the availability of heuristic cues to reach closure, whereas those with low need for closure were unlikely to engage in central route processing if they were not motivated simultaneously.

In summary, previous research on the effect of need for closure on information search has shown inconsistent findings. In the decision process, the amount of information and information cues used may vary as a function of a need for closure and conflicting situations. In general, individuals with high need for closure tend to engage in less processing of new information and base their judgments more on pre-existing attitudes, which is indicative of reluctance to process relevant information extensively.

However, some studies (Vermeir & Kenhove, 2005; Vermeir et al. 2002) found that individuals with high need for closure tend to use more information and information cues than those with low need for closure when confronting a new situation. That is, when they have no prior attitude toward the objects, individuals with high need for closure tend to search for more information to make a decision quickly and to reach closure. However, once they have formed decision schemas, they reduce searching information for decision. Hence, the effect of need for closure on information search may vary as a function of the decision contexts.

In this study, need for closure was considered to be an individual difference in information search in terms of motivating cognitive efforts to make a decision quickly. It can be assumed that in online purchase context, the extent of information search may be influenced by need for closure, in pursuing closure for a decision through cognitive efforts.

**External searches for product information**

In this study, external search was considered as the outcome and defined as external searches for product information. In the process of consumers’ information search, the extent of
external search was determined by internal search, situational factors, and the individual difference of need for closure with a hypothesized model. Moreover, consumers’ information search patterns in online purchase were examined with sub-groups comparisons.

While internal search focuses on the accessibility of product alternatives from the memory, external search stresses the relative importance of situational factors. External search occurs when consumers perceive the need for information and have access to available information. As Bettman (1979) defined, external search is “the acquisition of information from sources other than memory, such as friends, packages or other in-store displays, advertisement, magazines such as Consumer Reports, and so forth” (p.111). To enhance the efficiency and quantity of information, consumers may select multiple channels in information seeking.

Beatty & Smith (1987) defined external search effort, as “the degree of attention, perception, and effort directed toward obtaining environmental data or information related to the specific purchase under consideration” (p. 85). In information seeking, Head (1993) found that the higher individuals’ skills, the greater searching behavior. In addition, the higher skill levels, the greater book reading and the lower television viewing. That is, the more adept one is at collecting information, the more active one’s information seeking behavior is likely to be. Therefore, channel selection and use for information may be influenced by personal needs and skills.

With the advent of the Internet, people can have more access to information; if they are capable of using the Internet, they can have more information sources than ever before. The Internet makes a large volume and variety of information available with a relatively minimal expenditure of time, effort, and money. With regard to media comparison, Gallagher (2001) examined the audience’s perception differences between a web presentation and a print presentation with the same contents, and Stevens, Williams, and Smith (2000) explored organizational communication and information processes in an Internet-based environment. They found that even after a relatively short period of exposure to a media-rich CMC environment, such as World Wide Web, most of a large portion of individuals listed the Internet as their preferred channel of communication. In relation to information search using information sources, Bei, Chen, and Widdows (2004) also found that the extent of offline information usage was positively associated with the usage of online information. The study also found that the Internet
as an “information source” does not replace traditional offline sources, but functions as one of valuable information sources along with other sources.

As the outcome of this study, external searches for product information were investigated by the amount of information search. More specifically, the amount of information search was defined as the range and depth of use of each communication channel. The extent of information search in online purchase was examined with the determinants of external search.

Research Hypotheses

Based on the literature review, the following hypotheses were proposed:

With respect to external information searches about product information, it was proposed that:

**H 1a:** Product experience is positively associated with accessibility of favored product brands.

**H 1b:** Product experience is negatively associated with perceived risks of online purchases.

**H 1c:** Product experience is negatively associated with external searches for product information.

Concerning accessibility of favored product brands, there was a hypothesized negative effect on product information searches:

**H 2:** Accessibility of favored product brands is negatively associated with external searches for product information.

In relation to perceived risk of online purchases and involvement with online purchases, it was hypothesized that:
H 3: Perceived risk of online purchases is positively associated with external searches for product information.

H 4: Involvement with online purchases is positively associated with external searches for product information.

With respect to need for closure, the following non-directed hypothesis was proposed:

H 5: Need for closure is associated with external searches for product information.

Figure 1. Hypothesized Model
CHAPTER 3. METHODOLOGY

The following chapter includes the overview of the methodology using this study, including a discussion of the predictor and predicted variables.

This study examines the factors determining online shoppers’ information searches. As the focus of this study was online shoppers, an online survey was used for data collection.

*Online users*

While studies have shown that online users are skewed in terms of education and income levels (Pew Internet & American Life, 2003; A Nation Online, 2002), the characteristics of online users, especially those of online shoppers, are hard to estimate due to lack of a complete population frame. In 2001, it was reported that about 143 million U. S. residents (more than half of the population) were using the Internet (U.S. Department of Commerce, 2002). The same survey also showed that the rate of growth of Internet use in the U.S. was about two million new users per month. Therefore, it is not feasible to precisely estimate the population characteristics of Internet users and online shoppers in the United States.

*Online panel and online survey procedures.*

The study sample was drawn from ‘The Survey Professional’ online panel containing individuals who previously had agreed to be contacted and to receive online surveys. The online survey procedure began by sending an invitation letter to panel members with the study link. By filling in their e-mail address, and by accepting the invitation, the panel members consented to participate and thus to become part of this study. The study used three different questionnaires. Questionnaires consisted of three product categories: digital cameras, laptop computers, and plasma TVs. These categories were selected to differentiate the price and product experience, and help test and potentially differentiate the hypothesized relationships in the study. Each respondent was randomly assigned to a product category, and this resulted in three online panel sub-groups: a digital camera group, a laptop computer group, and a plasma TV group. The three
samplesub-groups received the same basic questionnaire with items and situations inserted to reflect the product categories.

In the case of digital cameras, the respondents were asked to imagine they were going to buy a new digital camera, costing about $400. For laptop computers, the hypothetical situation was repeated for a laptop computer costing about $1,500. The plasma TV subgroup was asked to consider a new plasma TV for their living room, with a $4,500 estimated cost. In all hypothetical cases, the respondents were asked if they would consider specific brands for each product category in making a purchase decision. Then they were asked the same survey questions adjusted only to reflect the product categories.

**Measurement**

The samples were selected to include online users who had previously made online purchases. The survey was conducted in June, 2005. The final sample contained 987 respondents. Each respondent was randomly assigned to a product category, resulting in a digital camera sub-sample (n=330), a laptop computer sub-sample (n=335), and a plasma TV sub-sample (n=288). Ultimately, 34 respondents were excluded because they provided incomplete data.

Based on the literature review, product experience, accessibility of favored product brands as internal search, perceived risk of online purchases, involvement with online purchases, and individuals’ need for closure were considered determinants of external information searches. When possible each variable was measured with items based on prior studies. In some cases variables were modified or developed specifically for this study.

**Product experience**

The following questions were used to measure product experience:

If you have purchased or used a [digital camera, laptop computer, or plasma TV] before, please indicate its brand (if more than one brand, please indicate them all).
If you have sought information about a [digital camera, laptop computer, or plasma TV] (even though you might not have or used those brands), please indicate them.

The total number of brands purchased and used was used to measure product experience. Respondents who indicated more brands had more product experience. In addition, for a more reliable measurement of product experience, the following items were added:

“I lack sufficient knowledge about [digital cameras, laptop computers, or plasma TVs].”
“I don’t have much experience with [digital cameras, laptop computers, or plasma TVs].”
“Compared with my friends and acquaintances, my knowledge of [digital cameras, laptop computers or plasma TVs] is weaker.”

Respondents were asked to respond on a scale of 1 (“strongly disagree”) to 7 (“strongly agree”) for each question. These measurement items were based on the study by Laroche, Bergeron, and Goutaland (2003) and modified for this study.

Accessibility of favored product brands

In this study, accessibility of favored product brands was defined as the degree to which evaluation of product brands was automatically retrieved from memory when considering purchase. To measure accessibility of favored product brands, top-of-mind-awareness (TOMA) was adopted. Top-of-mind-awareness (TOMA) measures automatic cognitive processing and it measures “awareness-accessibility” in a consumer’s memory (Woodside & Trappey, 1996). The basic assumption is that as top-of-mind-awareness (TOMA) increases consumers’ recognition and preference among alternatives reflects brand favorability.

To measure accessibility of favored product brands, the following questions were adopted:

If you were to consider the purchase of a [digital camera, laptop computer, or plasma TV], would you have specific brands in mind?
If you have any specific brands, please indicate all of them.
If a respondent indicated more product brands, he/she had higher accessibility of favored product brands.

Perceived risk of online purchases

Consumers mainly use information in situations where perceived risk has not been reduced sufficiently, and when perceived risk is high enough to justify information seeking (Murray, 1991). This implies that if a person perceives risk about the object or situation, which stems from uncertainty, he/she will need more information to reduce the perceived risk and this will lead to searching behaviors. In this study, perceived risk of online purchases was defined as the amount of risk a consumer might anticipate in buying a product online. The following five items from Dholakia’s (2001) study, with slight modifications, were used:

“I would feel safe completing commercial transactions over the Internet.”
“There is too much uncertainty associated with shopping on the Internet.”
“Compared with other ways of shopping, buying on the Internet would be more risky.”
“When I thought about buying a [digital camera, laptop computer, or plasma TV] online, I experienced tension.”
“Buying a [digital camera, laptop computer, or plasma TV] online is more uncomfortable than buying it in retail store.”

Respondents used a seven-point scale ranging from (1) “strongly disagree” to (7) “strongly agree”.

Involvement with online purchases

According to Beatty and Smith (1987) and Schmidt and Spreng (1996), involvement with a situation is more likely to influence total search efforts rather than involvement with a product itself. Hence, in this study, involvement with online purchases was considered. Involvement with online purchases was measured with the items from Zaichkowsky (1985), which were reduced and modified for the study context. The following items were used:
“Buying a [digital camera, laptop computer, or plasma TV] online is useful to me.”
“I have a strong interest in buying a [digital camera, laptop computer, or plasma TV] online.”
“I value buying a [digital camera, laptop computer, or plasma TV] online as an important part of my lifestyle.”

For these questions, respondents were asked to respond on a scale of 1 (“strongly disagree”) to 7 (“strongly agree”).

**Need for closure**

Need for closure measured a dimension of individual differences, which is related to a person’s motivations concerning decision making and judgment. Scales from Vermeir (2005), which shortened Kruglanski and Webster (1994), were adopted and modified for this study. The need for closure construct contains five sub-dimensions of “preferences for order and structure”, “preferences for predictability”, “tendencies toward decisiveness”, “discomfort with ambiguity”, and “closed-mindedness” (Webster & Kruglanski, 1994). The following items were used:

“I enjoy having a clear and structured mode of life.”
“I don’t like to go into a situation without knowing what I can expect from it.”
“When I go shopping, I have difficulty deciding exactly what it is that I want.”
“When faced with a problem I usually see the one best solution very quickly.”
“I usually make important decisions quickly and confidently.”
“I dislike it when a person’s statement is unclear to me.”
“Even after I’ve made up my mind about something, I am always eager to consider a different opinion.”
“I stick to my opinion even though others come up with plausible arguments.”

Each item was measured with seven-point Likert-type scale of (1) “strongly disagree” to (7) “strongly agree”.

35
External searches for product information

External search is the acquisition of information from sources outside of memory, such as from advertisements, mass media, interpersonal channels, in-store displays, and consumer magazines, the Internet, and other online sources. In this study, external searches for product information were adopted reflecting online purchase situations. It was defined as the range and depth of each communication channel use for obtaining information related to online purchase. This approach was adopted from Beatty and Smith’s study (1987) and the items were adopted from Murray’s (1991). The adopted items were as follows:

“I will ask the opinion of the salesperson.”
“I will pay attention to magazine ads about the product before buying.”
“I will ask a member of my family or a friend for their opinion.”
“I will pay attention to radio commercials for the product or services.”
“I will check some type of printed consumer information source for objective product ratings, i.e., Consumer Reports, etc.”
“I will pay attention to newspaper ads about the product before buying.”
“I will pay attention to TV commercials about the product before buying.”
“I will pay attention to what previous customers had to say about the product.”
“I will use the Internet for product information.”
“I will visit [digital camera, laptop computer, or plasma TV] company website for information.”
“I will pay attention to newspaper articles about the product before buying.”
“I will pay attention to Web articles about the product before buying.”

Each item had a seven point scale, ranging from (1) “would not use at all” to (7) “definitely would use”. The items for external searches for product information were summed and then divided by the number of items to create an index.
The effects of the predictors on external searches were tested with a structural equation modeling (SEM) technique based on the hypothesized model. Structural equation modeling (SEM) is a “multivariate technique combining aspects of multiple regression and factor analysis to estimate a series of interrelated dependence relationships simultaneously” (Hair et al., 1998, p.584). Structural equation modeling (SEM) can identify the direct and indirect effects among variables, and it includes a determination of whether the variances and covariances logically implied by the model are reasonably close to those observed from the data (Tate, 1998). Hence, SEM tests whether a hypothesized model is consistent with the data. In addition, SEM estimates “multiple and interrelated dependence relationships and represents unobserved concepts in these relationships and accounts for measurement error in the estimation process” (Hair et al., 1998, p.584). For estimation purposes, the maximum likelihood procedure is commonly used. Maximum likelihood estimation summarizes in a single number the discrepancies between the observed variances and covariances and the corresponding reproduced values resulting from the model estimates (Tate, 1998). It provides the best fit between the matrix of observed variances and covariances, and the corresponding reproduced matrix.
CHAPTER 4. RESULTS

The hypothesized model was tested with three different products. A “two-step process” was used, beginning with a confirmatory factor analysis procedure. This was followed by tests of the three structural equation models. While these steps were taken for each of the three product sub-groups, emphases are played on the results, overall.

Characteristics of the Sample

The final sample of 953 respondents was randomly assigned to one of the product categories. The sample respondents initially were compared to the population estimates reported in the Pew Internet & American Life study (2003). The Pew estimates were based on a national telephone survey using a random digit sample of U. S. telephone households. The telephone sample included 3,553 respondents and was conducted in March and May of 2002.

The characteristics of the respondents in this study were generally similar to those reported in the Pew project (Table 1). Respondents in this study were highly educated, with more than 65% attending some college or having completed a college degree, and represented a range of age groups with most sample respondents in the 30-49 age group (M=36.6, SD=10.1). The study sample consisted of slightly more females (53.7%) than males (46.3%). About half (51.5%) of the respondents had annual incomes between $20,000 and $59,999, and 22% had incomes of less than $20,000. Additional comparative sample details are provided in Table 1.
Table 1: Demographic Characteristics of the Survey Sample Compared to the Pew Study Results

<table>
<thead>
<tr>
<th>Demographic Variables</th>
<th>Survey Sample (n=953)</th>
<th>Pew Study (2003)² (n=3,553)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>46.3%</td>
<td>48%</td>
</tr>
<tr>
<td>Female</td>
<td>53.7%</td>
<td>52%</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-29</td>
<td>24.5%</td>
<td>29%</td>
</tr>
<tr>
<td>30-49</td>
<td>55.4%</td>
<td>47%</td>
</tr>
<tr>
<td>50+</td>
<td>20.1%</td>
<td>22%</td>
</tr>
<tr>
<td><strong>Income</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than $20,000</td>
<td>22.0%</td>
<td>-</td>
</tr>
<tr>
<td>$20,000 - $39,999</td>
<td>29.4%</td>
<td>41%</td>
</tr>
<tr>
<td>$40,000 - $59,999</td>
<td>22.1%</td>
<td>18%</td>
</tr>
<tr>
<td>$60,000 - $79,999</td>
<td>15.4%</td>
<td>26%</td>
</tr>
<tr>
<td>$80,000 - $99,999</td>
<td>5.3%</td>
<td>-</td>
</tr>
<tr>
<td>more than $100,000</td>
<td>5.9%</td>
<td>-</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Middle school</td>
<td>1.0%</td>
<td>5%</td>
</tr>
<tr>
<td>High school</td>
<td>26.7%</td>
<td>22%</td>
</tr>
<tr>
<td>Some college</td>
<td>37.0%</td>
<td>32%</td>
</tr>
<tr>
<td>College degree</td>
<td>26.4%</td>
<td>36%</td>
</tr>
<tr>
<td>Graduate school</td>
<td>8.9%</td>
<td>-</td>
</tr>
<tr>
<td><strong>Race / Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>76.7%</td>
<td>77%</td>
</tr>
<tr>
<td>Asian</td>
<td>5.3%</td>
<td>-</td>
</tr>
<tr>
<td>Hispanic</td>
<td>3.4%</td>
<td>9%</td>
</tr>
<tr>
<td>African American</td>
<td>9.8%</td>
<td>9%</td>
</tr>
<tr>
<td>Native American</td>
<td>1.3%</td>
<td>-</td>
</tr>
<tr>
<td>Others</td>
<td>3.5%</td>
<td>-</td>
</tr>
</tbody>
</table>

a. Numbers in the ‘Pew Study’ do not add to 100% due to sample non-responses.

Descriptive analyses

Table 2 details the descriptive statistics for the predictors and predicted variables in this study, summarized according to product categories. Overall, the summary descriptive measures are comparable, though the digital camera and laptop computer subgroup results tend to be somewhat more similar in terms of product experience and perceived risk of online purchases.
### Table 2: Means, Standard Deviations (SD), Minimum and Maximum Values for the Predictor and Predicted Variables Corresponding to Three Product Categories

<table>
<thead>
<tr>
<th>Product Categories</th>
<th>Digital Camera (n = 330)</th>
<th>Laptop Computer (n = 335)</th>
<th>Plasma TV (n = 288)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predictor / Predicted Variables</td>
<td>Mean</td>
<td>SD</td>
<td>Min</td>
</tr>
<tr>
<td>Product Experience</td>
<td>4.34</td>
<td>2.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Accessibility of favored product brands</td>
<td>1.42</td>
<td>0.98</td>
<td>0.00</td>
</tr>
<tr>
<td>Perceived risk of online purchases</td>
<td>4.11</td>
<td>1.60</td>
<td>1.00</td>
</tr>
<tr>
<td>Involvement with online purchases</td>
<td>3.73</td>
<td>1.60</td>
<td>1.00</td>
</tr>
<tr>
<td>Need for closure</td>
<td>4.68</td>
<td>0.74</td>
<td>2.71</td>
</tr>
<tr>
<td>External searches for product information</td>
<td>5.03</td>
<td>0.80</td>
<td>1.67</td>
</tr>
</tbody>
</table>

### Preliminary analyses

Before conducting a two-step structural equation modeling, preliminary analyses were employed to identify any problematic observations or violations of assumptions. PRELIS (a pre-LISREL analysis program) was used to investigate potential distorting influences resulting from outliers, and to test the univariate and multivariate normality of the observed variables. These analyses indicated that there were no problematic observations in the study variables. Missing data appeared to be random, and the distributions were reasonably normal.
Data Analyses

Data analyses were conducted employing a two-step structural equation modeling process using LISREL 8.7. The first step was a confirmatory factor analysis to assess whether the measurement items had the appropriate properties to represent each construct. Step two tested the structural equations models. According to Anderson and Gerbing (1988), a “two-step approach” has the strengths of allowing significance tests for all pattern coefficients, assessing whether the structural model provide an acceptable fit to the data, and permitting asymptotically independent tests of the substantive theoretical model of interest.

Both the confirmatory factor analyses and structural equation models were assessed using LISREL 8.7 with the maximum likelihood method. The maximum likelihood method provides “model parameter estimates that minimize a fitting function representing the degree of discrepancy between the observed variances and covariances and the corresponding reproduced values” (Hair et al. 1998, p.562).

Among the study variables, perceived risk of online purchases and need for closure were measured with three indicators, and product experience and involvement with online purchases were measured with two indicators. With respect to product experience, the attempt was made to measure more reliable product experience by combining open-ended questions and some items measured with scales. However, due to high rates of non-responses (45%) to open-ended questions, items with scales were only used for analyses.

Regarding need for closure, as Webster & Kruglanski (1994) mentioned, it has five sub-dimensions of “preferences for order and structure”, “preferences for predictability”, “tendencies toward decisiveness”, “discomfort with ambiguity”, and “closed-mindedness”. In this study, “tendencies toward decisiveness”, “discomfort with ambiguity”, and “closed-mindedness” dimensions were used considering the study interest of information search.

More specifically, each indicator of the latent variables was as follows.

The indicators of product experience were:

- product knowledge (x1)
- level of product use (x2)
Perceived risk of online purchases was measured with:
  insecurity of online transactions (x3)
  uncertainty of online purchase (x4)
  product / purchase comfort (x5)

Indicators of involvement with online purchases included:
  interest in product online purchases (x6)
  usefulness of product online purchase (x7)

need for closure was measured using:
  disliking unclerarness of a situation (x8)
  disliking unclerarness of a person’s meaning (x9)
  consulting various opinions (x10).

Accessibility of favored product brands and external searches for product information were measured using single item indicators.

The measurement model in this study contains three exogenous variables (i.e., product experience, involvement with online purchases, and need for closure) and one endogenous variable (i.e., perceived risk of online purchases). Furthermore, in order to examine the differences in the effects of the determinants on the predicted outcome (external searches for product information), the sample respondents were randomly assigned to the three sub-groups (digital camera, laptop computer, and plasma TV).

The hypothesized model was tested separately using each sample sub-group. All sub-groups had the same measurement model. Excluding accessibility of favored product brands and external searches for product information which had a single indicator, the hypothesized measurement model with multiple indicators is presented in Figure 2.
Several fit indices were employed to evaluate the hypothesized model (Bollen and Long, 1993, in Baumgartner and Homburg, 1996). As mentioned above, the analyses were conducted for each sample sub-group. The analyses included the Chi-square test, and summary measures of the Root Mean Square Error of Approximation (RMSEA), the Adjusted Goodness-of-fit Index (AGFI), and the Comparative Fit Index (CFI). In these analyses, the conventional criteria of RMSEA ($\leq .05$), AGFI ($\geq .90$), and CFI ($\geq .90$) were applied (Hair et al., 1998).
Confirmatory factor analysis procedures were used to verify the proposed factor structures and to explore if any significant modifications were needed (Hair et al., 1998). Table 3 provides the standardized factor loadings and reliability of each indicator in the Confirmatory Factor Analyses. Overall, the fit indices of each sample sub-group showed acceptable fits for the measurement models. The hypothesized model was acceptable in each product sub-group. All of the standardized factor loadings were statistically significant and the indicators demonstrated that the underlying constructs were acceptable.

The correlations among the exogenous variables and endogenous variables in each product sub-group are shown in Table 4 through Table 6. Looking across the matrices, the Pearson Product Moment correlations among the study variables demonstrated similar patterns. The strongest correlations were typically found among three variables. In the digital camera group, the correlations between product experience and perceived risk of online purchases, perceived risk of online purchases and involvement with online purchases, and product experience and need for closure were -0.49, -0.38, and -0.36, respectively (Table 4). In the laptop computer group (Table 5), the correlations between product experience and perceived risk of online purchases, and involvement with online purchases indicated relatively high negative relationships (-0.64 and -0.50). The relationship between product experience and need for closure was weaker (-0.26). Finally, in the plasma TV group (Table 6), the correlations between product experience and perceived risk of online purchases, perceived risk of online purchases and involvement with online purchases, and product experience and need for closure indicated negative relationships (-0.42, -0.32, and -0.22, respectively).
Table 3: Confirmatory Factor Analysis for the Measurement Model Using Three Sample Sub-groups

<table>
<thead>
<tr>
<th>Factors/ Variables</th>
<th>Standardized loadings</th>
<th>Construct Reliabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Laptop computer</td>
<td>Digital camera</td>
</tr>
<tr>
<td>Product experience</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X1</td>
<td>0.982*</td>
<td>0.989*</td>
</tr>
<tr>
<td>X2</td>
<td>0.868*</td>
<td>0.761*</td>
</tr>
<tr>
<td>Perceived risk of online purchases</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X3</td>
<td>0.716*</td>
<td>0.775*</td>
</tr>
<tr>
<td>X4</td>
<td>0.877*</td>
<td>0.961*</td>
</tr>
<tr>
<td>X5</td>
<td>0.819*</td>
<td>0.726*</td>
</tr>
<tr>
<td>Involvement with online purchases</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X6</td>
<td>0.877*</td>
<td>0.868*</td>
</tr>
<tr>
<td>X7</td>
<td>0.831*</td>
<td>0.913*</td>
</tr>
<tr>
<td>Need for closure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X8</td>
<td>0.560*</td>
<td>0.650*</td>
</tr>
<tr>
<td>X9</td>
<td>0.959*</td>
<td>0.700*</td>
</tr>
<tr>
<td>X10</td>
<td>0.600*</td>
<td>0.660*</td>
</tr>
</tbody>
</table>

Digital camera (n=330): $X^2 = 143.71$ (df=45, p<.01), RMSEA = 0.03, AGFI = 0.89, CFI = 0.94
Laptop computer (n=335): $X^2 = 158.52$ (df=46, p<.01), RMSEA = 0.07, AGFI = 0.91, CFI = 0.96
Plasma TV (n=288): $X^2 = 165.59$ (df=44, p<.01), RMSEA = 0.01, AGFI = 0.86, CFI = 0.89

* z-statistic > 2
Table 4: Correlation Matrix for the Six Predictor and Predicted Variables in the Hypothesized Model - Digital Camera Sub-group (n=330)

<table>
<thead>
<tr>
<th></th>
<th>Product experience</th>
<th>Accessibility of favored product brands</th>
<th>Perceived risk of online purchases</th>
<th>Involvement with online purchases</th>
<th>Need for closure</th>
<th>External searches for product information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Experience</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accessibility of favored product brands</td>
<td>0.09</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived risk of online purchases</td>
<td>-0.49</td>
<td>-0.09</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Involvement with online purchases</td>
<td>0.13</td>
<td>0.12</td>
<td>-0.38</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Need for closure</td>
<td>-0.36</td>
<td>-0.06</td>
<td>0.03</td>
<td>0.11</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>External searches for product information</td>
<td>-0.11</td>
<td>0.25</td>
<td>-0.05</td>
<td>0.25</td>
<td>0.15</td>
<td>1.00</td>
</tr>
</tbody>
</table>
Table 5: Correlation Matrix for the Six Predictor and Predicted Variables in the Hypothesized Model - Laptop Computer sub-group (n=335)

<table>
<thead>
<tr>
<th></th>
<th>Product experience</th>
<th>Accessibility of favored product brands</th>
<th>Perceived risk of online purchases</th>
<th>Involvement with online purchases</th>
<th>Need for closure</th>
<th>External searches for product information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Experience</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accessibility of favored product brands</td>
<td>0.03</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived risk of online purchases</td>
<td>-0.64</td>
<td>-0.09</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Involvement with online purchases</td>
<td>0.31</td>
<td>0.12</td>
<td>-0.50</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Need for closure</td>
<td>-0.26</td>
<td>0.15</td>
<td>0.22</td>
<td>0.02</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>External searches for product information</td>
<td>0.09</td>
<td>0.18</td>
<td>-0.05</td>
<td>0.23</td>
<td>0.13</td>
<td>1.00</td>
</tr>
</tbody>
</table>
Table 6: Correlation Matrix for the Six Predictor and Predicted Variables in the Hypothesized Model - Plasma TV sub-group (n=288)

<table>
<thead>
<tr>
<th></th>
<th>Product experience</th>
<th>Accessibility of favored product brands</th>
<th>Perceived risk of online purchases</th>
<th>Involvement with online purchases</th>
<th>Need for closure</th>
<th>External searches for product information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Experience</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accessibility of favored</td>
<td>0.09</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>product brands</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived risk of online</td>
<td>-0.42</td>
<td>-0.08</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>purchases</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Involvement with online</td>
<td>0.24</td>
<td>0.09</td>
<td>-0.32</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>purchases</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Need for closure</td>
<td>-0.22</td>
<td>0.07</td>
<td>0.14</td>
<td>0.05</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>External searches for</td>
<td>0.19</td>
<td>0.18</td>
<td>0.13</td>
<td>0.19</td>
<td>0.19</td>
<td>1.00</td>
</tr>
<tr>
<td>product information</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 7 presents the overall relationships among study variables across the three sample sub-groups. The average correlations among study variables were calculated using procedures recommended by Wolf (1986). Overall, the strongest average observed relationships were found among the following variables: Product experience and perceived risk of online purchases (-0.52), perceived risk of online purchases and involvement with online purchases (-0.40), and product experience and need for closure (0.28), followed by product experience and involvement with online purchases (0.22), perceived risk of online purchases and need for closure (0.22), and involvement with online purchases and external searches for product information (0.22)
Table 7: Summary Characteristics of the Product Moment Correlations Among the Predictor and Predicted Variables in the Hypothetical Model

<table>
<thead>
<tr>
<th>Product experience x Perceived risk of online purchases</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Average r (Avg. based on converted $Z_r$ values)</th>
<th>Average Standard Deviation (s.d. avg. based on converted $Z_r$ values)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived risk of online purchases x Involvement with online purchases</td>
<td>-0.32</td>
<td>-0.50</td>
<td>-0.40</td>
<td>0.09</td>
</tr>
<tr>
<td>Product experience x Need for closure</td>
<td>-0.22</td>
<td>-0.36</td>
<td>0.28</td>
<td>0.08</td>
</tr>
<tr>
<td>Product experience x Involvement with online purchases</td>
<td>0.13</td>
<td>0.31</td>
<td>0.22</td>
<td>0.10</td>
</tr>
<tr>
<td>Perceived risk of online purchases x Need for closure</td>
<td>0.14</td>
<td>0.31</td>
<td>0.22</td>
<td>0.07</td>
</tr>
<tr>
<td>Involvement with online purchases x External searches for product information</td>
<td>0.19</td>
<td>0.25</td>
<td>0.22</td>
<td>0.03</td>
</tr>
<tr>
<td>Accessibility of favored product brands x External searches for product information</td>
<td>0.18</td>
<td>0.25</td>
<td>0.20</td>
<td>0.04</td>
</tr>
<tr>
<td>Table 7: Continued</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Need for closure x External searches for product information</td>
<td>0.13</td>
<td>0.19</td>
<td>0.17</td>
<td>0.04</td>
</tr>
<tr>
<td>Product experience x External searches for product information</td>
<td>-0.11</td>
<td>0.19</td>
<td>0.13</td>
<td>0.05</td>
</tr>
<tr>
<td>Accessibility of favored product brands x Involvement with online purchases</td>
<td>0.09</td>
<td>0.12</td>
<td>0.11</td>
<td>0.02</td>
</tr>
<tr>
<td>Accessibility of favored product brands x Need for closure</td>
<td>-0.06</td>
<td>0.15</td>
<td>0.09</td>
<td>0.05</td>
</tr>
<tr>
<td>Accessibility of favored product brands x Perceived risk of online purchases</td>
<td>-0.08</td>
<td>-0.09</td>
<td>0.06</td>
<td>0.01</td>
</tr>
<tr>
<td>Involvement with online purchases x Need for closure</td>
<td>0.02</td>
<td>0.11</td>
<td>0.06</td>
<td>0.03</td>
</tr>
</tbody>
</table>
The initial average correlation results for the hypothesized relationships, though relatively weak, are generally consistent with the hypotheses. There are two exceptions, however. The positive bivariate relationships for accessibility of favored product brands and external searches for product information (0.20), and product experience and external searches for product information (0.13) are counter to the original hypotheses.

In sum, preliminary analyses showed no problematic observations and missing cases appeared to be at random in the hypothesized model sample sub-groups. In addition, the model fit indices indicated that the hypothesized model was acceptable and the model fit the sample data. In each product sub-sample, the items in the measurement model generally had good construct validity and reliability. Thus, the initial analyses supported the use of the measurement model as part of the second step testing the overall structural equation model.

**Structural (causal) equation model results**

To test the causal relationships in the hypothesized model, LISREL 8.7 was employed again. In the hypothesized model, product experience, involvement with online purchases, and need for closure were set as exogenous variables, and accessibility of favored product brands, perceived risk of online purchases, and external searches for product information were set as endogenous variables (see Figure 1, p. 30).

Tables 8-10 and Figures 3 – 5 summarize the results for the hypothesized relationships, and the corresponding Chi-square tests, the Root Mean Square Error of Approximations (RMSEA), the Adjusted Goodness-of- Fit Indices (AGFI), and the Comparative Fit Indices (CFI).

As mentioned in Chapter 3, respondents were randomly assigned to one of three product categories – digital camera, laptop computer, and plasma TV. Each product sub-group was assumed to be independent, and the hypothesized model was tested separately in each group. For purposes of this study, however, the overall consistency of the results are considered most important.
Digital camera group

The result of the structural equation modeling obtained for the hypothesized model in the digital camera sample sub-group (Table 8) indicated $X^2 = 143.71$, (df = 45, p<.001). While the initial $X^2$ value was statistically significant (indicating a less than adequate fit), the $X^2$/df value of 3.19 was less than the recommended criterion of $X^2$/df ≤ 5, which therefore represented an acceptable fit (Hair et al., 1998). In addition, the RMSEA was approximately 0.03 and the other indices (AGFI= 0.886 and CFI=0.940) and thus indicated an acceptable fit.

The causal model for the digital camera sub-group is presented in Figure 3. The findings in Table 8 and Figure 3 provide support for the hypothesized relationships, with two exceptions. A negative relationship between product experience and accessibility of favored product brands was counter hypothesis (H1a). Similarly, a positive relationship between product experience and external search for product information was inconsistent with the hypothesis (H1c).

With regard to external searches for product information, which was the outcome of ultimate interest, the determinant with the largest total causal effect (0.65) was need for closure. This is entirely a direct effect. The relationship was positive and indicates that the greater the need for closure, the greater the external searches for product information in the digital camera sub-group. The next important determinant of external searches for product information was involvement with online purchases, which had a direct effect of 0.61. The effect of accessibility of favored product brands’ on external searches for product information was -0.43 which was also due to the direct effect. Finally, perceived risk of online purchases had total direct effect of 0.32. Counter to what was originally hypothesized, product experience was positively correlated with external searches for product information (0.58). Overall, approximately 56% of the variance of external searches for product information was explained by the five determinants: need for closure, involvement with online purchases, product experience, accessibility of favored product brands, and perceived risks of online purchases.
Table 8: Standardized Relationships (Causal Effects) for the SEM model in the Digital Camera Sample Sub-group (n=330)

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Determinant</th>
<th>Direct effect</th>
<th>Indirect effect</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessibility of favored product brands</td>
<td>Product experience</td>
<td>-.28*</td>
<td></td>
<td>-.28*</td>
</tr>
<tr>
<td>(R^2=.08)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived risk of online purchases</td>
<td>Product Experience</td>
<td>-.23*</td>
<td></td>
<td>-.23*</td>
</tr>
<tr>
<td>(R^2=.05)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>External searches for product information</td>
<td>Product Experience</td>
<td>.58*</td>
<td>-.01*</td>
<td>.57*</td>
</tr>
<tr>
<td>(R^2=.56)</td>
<td>Accessibility of favored product brands</td>
<td>-.43*</td>
<td></td>
<td>-.43*</td>
</tr>
<tr>
<td></td>
<td>Perceived risk of online purchases</td>
<td>.32*</td>
<td></td>
<td>.32*</td>
</tr>
<tr>
<td></td>
<td>Involvement with online purchases</td>
<td>.61*</td>
<td></td>
<td>.61*</td>
</tr>
<tr>
<td></td>
<td>Need for closure</td>
<td>.65*</td>
<td></td>
<td>.65*</td>
</tr>
</tbody>
</table>

X^2 = 143.71 (df=45, p<.001)
X^2/df = 3.19
RMSEA = 0.03
AGFI = 0.886
CFI = 0.940

* Effect statistically significant (Z statistic >2)
a. The indirect value of product experience on product information searches is the total of the indirect effects through accessibility of favored product brands and perceived risk of online purchases.
Figure 3: The Causal Model for the Digital Camera Sample Sub-group
Laptop computer group

The result of structural equation modeling obtained for the hypothesized model in laptop computer sub-group indicated a $X^2 = 158.52$, (df = 46, p < .001); the $X^2$/df ratio was 3.45 (Table 9). In addition, the RMSEA was 0.067, which is close to the criterion value, and the other indices (AGFI=0.884 and CFI = 0.942) indicated acceptable levels of fit.

Modification indices, however, suggested that the addition of a path from involvement with online purchases to perceived risk of online purchases would decrease the Chi-square and result in a better model fit. This implies that involvement with online purchases may influence perceived risk of online purchases, and thus directly and indirectly affect external searches for product information. Subsequently, the model was changed and the modified structural model indicated an improved fit, decreasing the Chi-square value from 158.52 to 120.46. The other fit indices showed goodness of fit levels of: RMSEA=0.068, AGFI= 0.909, and CFI =0.961. Table 9 and Figure 4 provide the results of the structural equation modeling for the laptop computer sample sub-group.

The findings in Table 9 and Figure 4 provide support for the hypothesized relationships, again with two exceptions. A negative relationship between product experience and accessibility of favored product brands was counter to hypothesis (H1a). Correspondingly, a positive relationship between product experience and external search for product information was inconsistent with the original hypothesis (H1c).
### Table 9: Standardized Relationships (Causal Effects) for the SEM model in the Laptop Computer Sample Sub-group (n=335)

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Determinant</th>
<th>Direct effect (Initial model)</th>
<th>Direct effect (Modified model)</th>
<th>Indirect effect</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessibility of favored product Brands ($R^2=.05$)</td>
<td>Product experience</td>
<td>-.21*</td>
<td>-.22*</td>
<td>-.22*</td>
<td></td>
</tr>
<tr>
<td>Perceived risk of online purchases ($R^2=.07$)</td>
<td>Product Experience</td>
<td>-.31*</td>
<td>-.23*</td>
<td>-.23*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Involvement with online purchases</td>
<td></td>
<td></td>
<td>-.15*</td>
<td></td>
</tr>
<tr>
<td>External searches for product information ($R^2=.58$)</td>
<td>Product experience</td>
<td>.37*</td>
<td>.49*</td>
<td>-.08*b</td>
<td>.41*</td>
</tr>
<tr>
<td></td>
<td>Accessibility of favored product brands</td>
<td>-.32*</td>
<td>-.32*</td>
<td>-.32*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Perceived risk of online purchases</td>
<td>.59*</td>
<td>.63*</td>
<td>.63*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Involvement with online purchases</td>
<td>.57*</td>
<td>.65*</td>
<td>-.10*</td>
<td>-.57*</td>
</tr>
<tr>
<td></td>
<td>Need for closure</td>
<td>-.63*</td>
<td>-.61*</td>
<td>-.61*</td>
<td></td>
</tr>
</tbody>
</table>

Initial Model: $X^2 = 158.52$ (df=46, p<.001), $X^2$/df= 3.45, RMSEA= 0.08, AGFI=0.88, CFI=0.94
Revised Model: $X^2 = 120.46$ (df=45, p<.001), $X^2$/df=2.67, RMSEA= 0.07, AGFI = 0.91, CFI =0.96

* Effect statistically significant ($Z$ statistic >2)

a. The path from involvement with online purchases to perceived risk of online purchases was added in the modified model.

b. The indirect value of product experience on external search for product information is the total of the indirect effects through accessibility of favored product brands and perceived risk of online purchases.
With regard to external searches for product information, the determinant with the largest total causal effect (0.63) was perceived risk of online purchases. In addition, the effect of need for closure on external searches for product information indicated a negative relationship (-0.61), which was, entirely a direct effect. The next important determinant of external searches for product information was involvement with online purchases, with a total effect of 0.57, including the direct and indirect effects (Table 9, modified model). The total effect of product experience on external searches for product information was 0.41, with the direct and indirect effects. The positive relationship between the two variables indicated that the greater the product experience, the greater the propensity for external searches for product information.
experience, the greater the external searches for product information. This is inconsistent with the hypothesized direction. The effect of accessibility of favored product brands on external searches for product information showed a standardized direct effect of -0.32. In total, approximately 58% of the variance of external searches for product information was explained by the five determinants.

**Plasma TV group**

The result of the structural equation modeling obtained for the hypothesized model in plasma TV sample sub-group indicated a $X^2 = 181.22$, (df = 45, p<.01) and a $X^2$/df ratio of 4.03. The RMSEA of approximately 0.02 and the other indices of AGFI=0.85 and CFI=0.94 indicated an acceptable fit between the hypothesized model and the observed data.

The findings in Table 10 and Figure 5 provide support for the hypothesized relationships, with one exception. A negative relationship between perceived risk of online purchases and external searches for product information is counter to the hypothesis (H4). As seen in Table 10, product experience had the hypothesized direct effect (-.65) on the outcome of accessibility of favored product brands. About 43% of the variance of accessibility of favored product brands was explained by the product experience determinant.

With regard to external searches for product information, the determinant with the largest total causal effect (-0.85) was product experience (Table 10), with most of the total effect due to the direct effect of -0.65. The next important determinant of the hypothesized outcome was involvement with online purchases (0.53), due entirely to the direct effect. The effect of accessibility of favored product brands on external searches for product information was -0.35 which was due to the corresponding direct effect. The effect of need for closure on external searches for product information was relatively weak (-0.09), and entirely a direct effect.
Figure 5: The Causal Model for the Plasma TV Sample Sub-group
Table 10: Standardized Relationships (Causal Effects) for the SEM model in the Plasma TV Sample Sub-group (n=228)

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Determinant</th>
<th>Direct effect</th>
<th>Indirect effect</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessibility of favored product brands (R²=.43)</td>
<td>Product experience</td>
<td>.65*</td>
<td></td>
<td>.65*</td>
</tr>
<tr>
<td>Perceived risk of online purchases (R²=.07)</td>
<td>Product Experience</td>
<td></td>
<td>-.23*</td>
<td>-.23*</td>
</tr>
<tr>
<td>External searches for product information (R²=.46)</td>
<td>Product Experience</td>
<td>-.65*</td>
<td>-.20*a</td>
<td>-.85*</td>
</tr>
<tr>
<td></td>
<td>Accessibility of favored product brands</td>
<td></td>
<td>-.35*</td>
<td>-.35*</td>
</tr>
<tr>
<td></td>
<td>Perceived risk of online purchases</td>
<td></td>
<td>-.12*</td>
<td>-.12*</td>
</tr>
<tr>
<td></td>
<td>Involvement with online purchases</td>
<td></td>
<td>.53*</td>
<td>.53*</td>
</tr>
<tr>
<td></td>
<td>Need for closure</td>
<td></td>
<td>-.09*</td>
<td>-.09*</td>
</tr>
</tbody>
</table>

X² = 181.22 (df =45, p<.05)  
X²/df = 4.03  
RMSEA = 0.02  
AGFI = 0.85  
CFI = 0.94

* Effect statistically significant (Z statistic >2)

a. The indirect value of product experience on external searches for product information is the total of the indirect effects through accessibility of favored product brands and perceived risk of online purchases.
Summary Results

Hypothesis 1a:
Hypothesis 1a predicted a positive relationship between product experience and accessibility of favored product brands. Two of the survey results were inconsistent with this hypothesis. In the case of the digital camera and laptop computer sub-groups, negative relationships were relatively small and counter hypothesis. In contrast, the relationship observed for the plasma TV sub-group was substantive (β= .65) and consistent with H1a.

Hypothesis 1b:
Hypothesis 1b proposed that product experience would be negatively associated with perceived risk of online purchases. The results were consistent for this hypothesis in all product sub-groups.

Hypothesis 1c:
Hypothesis 1c indicated that product experience would be negatively associated with external searches for product information. Two of the sample sub-groups indicated inconsistent relationships with this hypothesis. In the case of the digital camera and laptop computer sub-groups, the positive relationships were substantive and counter to the hypothesis, whereas the relationship observed for the plasma TV sub-group was supportive of the hypothesis.

Hypothesis 2:
Hypothesis 2 argued that accessibility of favored product brands would be negatively associated with external searches for product information. The survey results were consistent for this hypothesis in all three product sub-groups samples.

Hypothesis 3:
Hypothesis 3 posited that perceived risk of online purchases would be positively associated with external searches for product information. While the results of digital camera and laptop computer sub-groups were consistent with the hypothesis, the relationship observed for the plasma TV sub-group was counter hypothesis.
Hypothesis 4:

Hypothesis 4 proposed that involvement with online purchases would be positively associated with external searches for product information. In all three sample sub-groups, the relationships were consistent with the hypothesis.

Hypothesis 5:

Hypothesis 5 indicated that need for closure would be associated with external searches for product information. In the laptop computer and plasma TV sub-groups, the relationships were negative. The observed relationship was positive for the digital camera sub-group. These variable findings are in line with previous studies that have found both positive and negative results.

Sample sub-group summary comparisons

Table 11 summarizes the causal relationships between the exogenous and endogenous variables according to the three product categories. As seen below, several of the hypothesized causal relationships (product experience $\rightarrow$ perceived risk of online purchases, accessibility of favored product brands $\rightarrow$ external searches for product information, and involvement with online purchases $\rightarrow$ external searches for product information) were consistent across the sample sub-groups. In contrast, various other hypothesized causal relationships (product experience$\rightarrow$ accessibility of favored product brands, product experience$\rightarrow$ external searches for product information, and perceived risk of online purchases $\rightarrow$ external searches for product information) were inconsistent. The findings for the digital camera and the laptop computer sub-samples deviate from the hypotheses in terms of H1a which predicted a positive relationship between product experience and accessibility of favored product brands, and H1c which predicted a negative relationship between product experience and external searches for product information. The plasma TV sub-sample results differ from hypothesis H3, indicating a positive relationship between perceived risk and external searches for product information. More details on these findings will be discussed in the following section.
Table 11: Comparison of the Hypothesized Causal Relationships across the Three Sample Sub-groups

<table>
<thead>
<tr>
<th>Causal relationship</th>
<th>Digital Camera sub-group (n=330)</th>
<th>Laptop computer sub-group (n=335)</th>
<th>Plasma TV sub-group (n=288)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product experience → Accessibility of favored product brands (H1a: Positive)</td>
<td>B= -.28</td>
<td>B= -.22</td>
<td>B= .65</td>
</tr>
<tr>
<td>Product experience → Perceived risk of online purchases (H1b: Negative)</td>
<td>B= -.23</td>
<td>B= -.23</td>
<td>B= -.23</td>
</tr>
<tr>
<td>Product experience → External searches for product information (H1c: Negative)</td>
<td>B= .58</td>
<td>B= .49</td>
<td>B= -.65</td>
</tr>
<tr>
<td>Accessibility of favored product brands → External searches for product information (H2: Negative)</td>
<td>B= -.43</td>
<td>B= -.32</td>
<td>B= -.35</td>
</tr>
<tr>
<td>Perceived risk of online purchases → External searches for product information (H3: Positive)</td>
<td>B= .32</td>
<td>B= .63</td>
<td>B= -.12</td>
</tr>
<tr>
<td>Involvement with online purchases → External searches for product information (H4: Positive)</td>
<td>B= .61</td>
<td>B= .65</td>
<td>B= .53</td>
</tr>
<tr>
<td>Need for closure → External searches for product information (H5: Non-directional)</td>
<td>B= .65</td>
<td>B= -.61</td>
<td>B= -.09</td>
</tr>
</tbody>
</table>
CHAPTER 5. DISCUSSION

This chapter summarizes the major findings of this study. These results are then discussed, along with the implications for future research and the limitations of the study. Before starting the summary of findings, the study’s purpose and a study overview are provided.

Study purpose

This study investigated consumers’ information search patterns in relation to online purchases. Previous research has shown that information searches are important components of effective decision-making processes. Moreover, in the case of product purchases, adequate information searches can reduce risks and help consumers make better choices. That is, increasing the intensity of searches can reduce the uncertainty and potential errors surrounding choices.

Based on Bettman’s information processing theory, the effects of internal search, situational factors, and individual characteristics on external search, more specifically, external searches for product information were investigated in the online purchase context. Furthermore, to test the consistency of the relationships, the patterns of the causal relationships among study variables were examined across product categories (digital cameras, laptop computers, and plasma TVs).

Investigating the information search patterns that precede decision making can therefore provide useful insights into consumers’ choice behaviors. Moreover, examining the effects of determinants of external search in terms of the causal relationships across product categories (with sample sub-groups) can give in-depth investigation into consumers’ searching behaviors. In addition, identifying the determinants of consumers’ information search behaviors can be useful in targeting audiences. Specifically, the examination of consumers’ information search patterns may provide details that can help in market segmentation. Furthermore, an understanding of information search determinants can be fundamental for developing promotional strategies and for designing effective marketing communication campaigns.
Study overview

Focusing on consumers’ information searches in online purchase situations, the hypothesized model was tested across three product categories (digital cameras, laptop computers, and plasma TVs). The hypothesized model was based on Bettman’s framework for determinants of external search, and modified for the context of this study.

As this study was interested in Internet users who have had experiences with online purchases, an online consumer panel was used for data collection. The online respondents were randomly assigned to answer one of three parallel product questionnaires concerning digital cameras, laptop computers, or plasma TVs. The three questionnaires included the same basic questions, emphasizing items and situations to reflect the product categories. The resulting subgroup sample sizes were as follows: digital camera (n=330), laptop computer (n=335), and plasma TV (n=288).

A two-step structural equation modeling technique was employed to test the hypothesized model in each sample sub-group. After testing the hypothesized model in each sub-group, the causal relationships were compared across the three study groups. These analyses yielded the following results:

Results summary

The hypothesized model was tested using a two-step structural equation procedure. The fit indices indicated acceptable model fits in the digital camera, the laptop computer, and the plasma TV sub-groups overall. However, in the laptop computer sub-group, even though the fit indices indicated an acceptable model fit, the modification index suggested that a better fit would result with the addition of a path from involvement with online purchases to perceived risk of online purchases.

Hypothesis 1a predicted a positive relationship between product experience and accessibility of favored product brands. The survey results were inconsistent for this hypothesis. In the case of the digital camera and laptop computer sub-groups, the negative relationships were relatively small and counter hypothesis. The relationship observed for the plasma TV sub-group was substantive (β = .65) and consistent with H1a.
Hypothesis 1b proposed that product experience would be negatively associated with perceived risk of online purchases. The results were consistent for this hypothesis in all sample sub-groups.

Hypothesis 1c indicated that product experience would be negatively associated with external searches for product information. The sample sub-groups indicated inconsistent relationships for this hypothesis. In the case of the digital camera and the laptop computer sub-groups, the observed positive relationships were substantive and inconsistent with the hypothesis, whereas the relationship observed for the plasma TV sub-group was supportive of the hypothesis.

Hypothesis 2 argued that accessibility of favored product brands would be negatively associated with external searches for product information. The survey results were consistent for this hypothesis in all three sample sub-groups.

Hypothesis 3 posited that perceived risk of online purchases would be positively associated with external searches for product information. While the relationships of the digital camera and the laptop computer sub-groups were consistent with the hypothesis, the relationship observed for the plasma TV sub-group was counter hypothesis.

Hypothesis 4 proposed that involvement with online purchases would be positively associated with external searches for product information. In all sample sub-groups, the relationships were consistent with the hypothesis.

Finally, hypothesis 5 indicated that the need for closure would be associated (positive/negative) with external searches for product information. In the case of the laptop computer and the plasma TV sub-groups, the relationships were negative, whereas the relationship observed for the digital camera sub-group was positive.

Discussion on the results

With regard to the study results, several of the observed relationships were consistent with the hypotheses in all sub-groups. First, the relationship between product experience and perceived risk of online purchases was consistent with the hypothesis (H1b) in all sample sub-groups. This suggests that product experience is negatively associated with the perceived risk of online purchases regardless of product categories. This finding relates to Havlena and DeSarbo’s (1990) research indicating that perceived risks associated with the purchase of new products are
often high because of consumers’ lack of information and prior experiences. That is, as a situational factor of determining external searches for product information, perceived risk of online purchase can be reduced from product experience, as it brings about the confidence to the consumers in terms of providing product information.

Second, the relationship between accessibility of favored product brands and external searches for product information was in the hypothesized direction in all sub-groups. This supports the argument that in the association between product brands and evaluations, it may be possible that once attitudes are formed, a consumer will tend to rely on previous evaluations of product brands rather than carefully considering and adding new information to the evaluation of alternatives. In relation to information search, this study also suggests that internal search which was measured with accessibility of favored product brands in this study, can affect external search in terms of reducing external searching efforts with being retrieved from memory. That is, accessibility of favored product brand, which may be considered the outcome of the repeated associations between product brands and positive evaluations, may bring heuristic or spontaneous decisions which reduce the intensity of external searches for product information. In that case, a person’s attitude toward a specific brand may bring inflexible processing of information about alternatives, which may reduce the searching efforts. The amount of information stored in memory determines the extent of need for information in deciding a product brand.

This finding is consistent with Fazio (1990), in that highly accessible attitudes are functional. That is, if the attitude toward the product brand(s) is highly accessible, then it is more likely to be activated automatically from memory, which reducing the cognitive efforts for external search. In this study, highly accessible attitude was measured with highly favored and accessible attitude toward product brand(s), which was considered in purchasing. In a brand choice in purchasing, highly accessible and favored attitude toward product brand(s) can lead to a spontaneous decision which is attitude-congruent, and this can limit the alternatives. This behavior can be functional in terms of reducing external search.

Third, the relationship between involvement with online purchases and external searches for product information was consistent with the hypothesis in all sub-groups. This finding is consistent with Schmidt and Spreng (1996), in which individuals tended to engage in more searching when they believed searching behaviors could bring about the beneficial outcomes.
The finding also supports the argument that consumers’ search activities increases when the consumer believes that the purchase is important, and thus there is a need to learn more (Newman, 1977). This study suggests that involvement with online purchases, which was considered as a situational factor, leads to extensive searches across product categories. If consumers have the interests and are motivated to the situation (online purchases), they are likely to exert cognitive efforts which lead to do more searching for information. This is based on the fact that information searching behavior can bring the beneficial outcome.

Finally, with regard to the effect of need for closure on external searches for product information, while the laptop computer and the plasma TV sub-groups indicated a negative relationship, the digital camera sub-group indicated a positive relationship. The inconsistent results across sample sub-groups (product categories) are in line with previous studies. Kruglanski and Webster (1996) argued that in some circumstances people tended to seek closure, while in other situations they avoided it. That is, although the need for closure may represent a dimension of individual differences, it may also “vary as a function of the situation” (Webster & Kruglanski, 1994, p.1049). Furthermore, according to Kruglanski and Webster, when individuals with high needs for closure confront a new situation, they immediately begin to search for more information to help make a clear decision. Whereas, when individuals with low need for closure confronted with a new situation, they seek and use the limited information that satisfies them. This is because they do not want to exert additional cognitive effort in a low involvement situation.

In contrast, Kruglanski and Freund (1983) found that individuals with a high need for closure tended to rely on information gained in early stages. They were reluctant to process new information extensively and made their judgments based on prior attitudes. That is, individuals with a high need for closure tended to have “cognitive impatience” and to be at times less likely to search information extensively compared to those with low need for closure. Conversely, some studies (Vermeir & Kenhove, 2005; Vermeir et al. 2002) found that individuals with high need for closure tended to use more information and information cues to reach clear point which they attain closure compared to individuals with low need for closure, especially with no prior attitude toward the object. However, once they had formed a decision rule in which they are confident, they reduced their searches for information (Vermeir & Kenhove, 2005). This clearly implies that the effects of individual differences on search efforts are not always consistent.
With respect to product categories, the relationship between need for closure and external searches for product information indicated the different patterns among sample sub-groups compared to the other causal relationships. While most of the causal relationships among study variables showed the similar directions between the laptop computer and the digital camera sub-groups, the causal relationship between need for closure and external searches for product information, indicated the inconsistent patterns between two sub-groups. That is, while the effects of situational factors (product experience, perceived risk of online purchases, and involvement with online purchases) on external searches for product information indicated the similar patterns between the laptop computer and digital camera sub-groups, the effect of an individual difference (need for closure) on external searches for product information showed the different patterns between two sub-groups.

This finding suggests that the effect of need for closure on information search can vary similar purchase situations. That is, even with similar product such as digital cameras and laptop computers (products with multi-functions, that are widely spread), the relationships between need for closure and information search can be very different. This is consistent with the fact that individuals with a high need for closure tend to use many cues to heighten the perceived quality or reliability of their decisions (Punj & Staelin, 1983). When applied to information searches prior to purchases, it may be possible that individuals with high needs for closure pursue vary amounts of information before achieving the corresponding necessary levels of confidence. In the process, the level of confidence varies according to the decision contexts.

With respect to sample sub-group (product categories) comparisons, the study results indicated the interesting findings. Among sample sub-groups, the plasma TV sub-group showed the consistent results with the hypothesized causal relationships with one exception. That is, excluding the relationship between perceived risk of online purchases and external searches for product information, other causal relationships indicated the hypothesized directions. Whereas, the digital camera and laptop computer sub-groups had consistent causal relationships among study variables with two exceptions. These two groups had inconsistent causal relationships with the hypothesized direction between product experience and accessibility of favored product brands, and product experience and external searches for product information.

Based on these findings, it can be assumed that consumers tend to seek more information when purchasing an unfamiliar product (plasma TV) compared to familiar products (digital
camera and laptop computer). Moreover, in that case, most of the causal relationships among study variables were consistent with previous studies. That is, the effects of internal search, situational factors, and individual characteristics on external search were consistent with the hypotheses with one exception. The amount of information stored in memory which was available in purchasing, situational factors to relate to online purchase, and individual characteristics to measure with need for closure, influenced the extent of external search as hypothesized.

In contrast, when purchasing familiar products, consumers are likely to have their own decision rules to consider product characteristics and information availability. With increasing product experience, consumers tend to use heuristic and spontaneous decisions based on pre-existing attitudes, and this result in inconsistent results with the hypothesized directions. This finding suggests the next study to explore consumers’ decision rules according to product experience.

The following section reviews various issues raised by the observed inconsistent relationships.

**Product experience and accessibility of favored product brands**

According to the accessibility theory, the more frequently people have an association between an object and evaluation, the stronger the linkage becomes. Therefore, attitudes that have relatively strong associations between objects and evaluations in memory are more likely to be activated in response to the attitude object. The associations between product brands and evaluation can be cumulative from product experiences. In this study, it was hypothesized that product experience would be positively associated with accessibility of favored product brands. Interestingly, the results from the digital camera and the laptop computer sub-group results were negative, whereas the plasma TV sub-group result was positive. That is, the greater product experience in the digital camera and the laptop computer sub-group, the lower accessibility of favored product brands, which was counter hypothesis. This finding implies that even though consumers had more product experience, it may be possible to have lower accessibility of favored product brands in purchasing. This result suggests that accessibility of favored product
brands may need to be differentiated in terms of favorable brands known versus favorable brands considered when making a purchase. That is, even though a consumer has a great deal of experience with a product and both knows and favors different brands, it does not imply that a consumer considers all favored product brands when making a specific purchase. It would seem reasonable that with experience, well informed consumers may consider only a limited number of alternative favored brands containing the critical characteristics when making a purchase decision.

This limited consideration of alternatives in purchase may explain brand loyalty. With the widespread availability and use of digital cameras and laptop computers, consumers have more chances to associate between product brands (digital cameras and laptop computers) and evaluations. This can bring about well developed prior attitudes toward product brands. In that case, prior attitude toward product brands can affect the choice among alternatives. In general, consumers tend to rely on previous attitudes toward the product brands when considering the alternatives. In the process, if a consumer has positive attitudes toward product brand(s), which are gained from prior experience, this may be reluctant to consider and add new information about alternatives. As was reported by Newman and Staelin (1972), brand loyalty resulted from repetitive learning, and increased positive experiences with a favored brand decreased the search for information about alternative brands.

In sharp comparison, low or non-loyal consumers who do not have prior attitudes toward the specific brand(s) are less likely to be spontaneous in choosing a brand. This may enhance the intensity of searches for alternatives, especially if a consumer is motivated. Interestingly, in the case of plasma TVs, which have not been widely used, consumers have had fewer chances to develop strong attitudes toward the various brands. That is, as consumers do not have prior attitudes toward the plasma TV brands due to low product diffusion, this may reduce the chance of having favored plasma TV brands.

The inconsistent results across the sample sub-groups also may be explained by at least two issues. The first is the varying product characteristics. When a consumer purchases a widely used product and the consumer has a great deal of experience with the products (e.g., a digital camera, or a laptop computer), he/she may consider a limited number of alternative (product brands) which are based on association between product brands and positive evaluations. In contrast, when a consumer purchases a new product where there is a weak association between
brands and evaluations, he/she may consider all the brands available in order to reduce the risks of making a bad choice. Similarly, when a product is expensive, consumers may consider all the brands available to minimize the risks and maximize the benefits. Therefore, the relationship between product experience and accessibility of favored product brands may reflect the brand preference, and this is accumulated from positive brand evaluations.

In addition, it may be possible that in the cases of digital cameras and laptop computers, as they have several different models in terms of functions and features within one brand category, the number of brands considered in purchasing might be limited (or reduced) due to various models in the same brand. That is, even though consumers consider several models for digital cameras or laptop computers, they might be the same brand. This may reduce the number of brands considered in purchasing. In contrast, as a plasma TV has the limited models differentiated by sizes, consumers’ brand choice might reflect consumers’ brand preference. The limited number of product models in one brand increases the number of brands considered in a choice. Therefore, product market characteristics (diverse models in one brand) affect the number of product brands considered in purchasing.

This study also suggests that accessibility of favored product brands in purchasing needs to be sharply differentiated from consumers’ known brands in terms of excluding the brands which have the negative associations. That is, even though consumers have much product experience and result in the strong associations between product brands and evaluations, accessible product brands in purchasing is limited to the positive ones based on consumers’ prior experience.

**Product experience and external searches for product information**

The hypothesized negative relationship between product experience and external searches for product information was positive in the digital camera and the laptop computer sub-groups, whereas it was consistent for the plasma TV sub-group. The inconsistent results may be related to the product characteristics. That is, compared to plasma TVs, digital cameras and laptop computers have multi-functions and have more product attributes to consider when making purchase decisions. With increased product complexity, a consumer may need more
information to compare product attributes among alternatives, even though he/she has a great deal of experience with the products.

In addition, this result suggests an interesting issue. This finding is inconsistent with Moorthy et al. (1997), who reported that as product experience increased, the information searches decreased. This resulted from the fact that the experts who had more product experience tended to need less new information. In this study, two sets of findings indicated that even following a high level of product-experience, consumers may need more information for attribute comparisons. That is, increasing product experience may enhance search efforts for alternatives to compare product attributes, especially in the case of multi-function products.

Moreover, it is also feasible that the diverse promotions of digital cameras and laptop computers in consumer markets may lead consumers to search for lower costs and better choices. That is, the variety of product models and promotions may encourage consumers to seek better deals and the product circumstances may lead to increased search efforts.

**Perceived risk of online purchases and external searches for product information**

In relation to perceived risk and information search, Murray (1991) found that consumers tended to use formal and personal channels for information when they did not reduce the risk and uncertainty through informal channels. This parallels the finding in Boze (1987), in that as perceived risks increased, consumers were more likely to shop around to compare alternatives and to ask friends and relatives for advice.

With regard to the relationship between perceived risk of online purchases and external searches for product information, while the digital camera and laptop computer sub-groups findings were consistent with the hypothesis, the negative relationship observed for the plasma TV sub-group was counter hypothesis. Gemunden (1985) argued that low-involvement tasks may not induce enough motivation to search for information if the perceived risk remains below a critical tolerated risk level. Considering this study’s results, the hypothetical scenario of buying a plasma TV online may have been a low involvement task, and not have induced enough motivation to search for information. That is, the perceived risk did not exceed the critical threshold with a low involvement task, and it, therefore, did not motivate searching behaviors.
This result may also relate to the perceived availability of product information. Compared to laptop computers and digital cameras, plasma TVs have been available for a short period. This may cause a perception of limited product information. While information on laptop computers and digital cameras is widely available, information concerning plasma TVs is limited, especially with respect to interpersonal channels involving family and friends. This may prompt perceptions of limited information sources to consumers. Considering the definition of external searches in this study, which was measured with the range and depth of information source usage (communication channels), the limited interpersonal channel may influence the extent of searching efforts.

**Implications for future research and limitations of the study**

This study investigated consumers’ information search patterns when making online purchases. The determinants of consumers’ information searches were examined across three different sub-groups using a hypothesized causal model. Identifying consumers’ information search determinants can provide details that facilitate the development of fundamental strategies for effective marketing communication campaigns. Moreover, defining the critical variables that determine search attributes can also provide understanding of consumers’ decision process and investigate consumers’ choice tendencies in product purchases.

In this study, consumers’ information searches were measured in terms of the amount and depth of each communication channel used, including offline and online sources. The next step is to investigate the differences of consumers’ communication channel use, and the alternative patterns of using offline and online sources. Future studies should include consumers’ communication channel selection patterns in searching for product information. In addition, an investigation of what factors influence consumers’ channel choices (between offline and online sources) may provide useful insight concerning consumers’ channel usage patterns.

Furthermore, the examination of more diverse product categories may provide a better understanding of consumers’ decision processes. In particular, the relationship between different product categories and accessibility of favored product brands is worthy of future research. In addition, consumers’ brand choice processes should be investigated according to product categories. Overwhelmingly increasing information about products is more likely to make
consumers use heuristics decision rules in purchasing to save time and efforts. In the brand choice, what kind of decision strategies are used by consumers according to product categories, especially according to level of product experience, should be interesting topics for future research.

In this study, the effects of product experience on accessibility of favored product brands in the digital camera and laptop computer sub-groups were relatively small ($\beta=.28$ and $\beta=.22$) compared to that of the plasma TV sub-group ($\beta=.65$). This finding implies that even though a great deal of product experience, it may be possible to have the limited number of brands considered in purchasing due to negative, prior experience. Therefore, future studies should explore the relationship between consumers’ used brands which reflect their positive evaluations for brands and accessibility of favored product brands for better understanding of consumers’ attitudes toward product brands. In addition, the next study should further investigate the effects of situational variables, and the effects of intervening variables associated with individual differences on external search. In relation to the need for closure, it should explore that how prior attitudes (pre-existing schemas) are intervened by levels of need for closure in influencing information search.

Finally, future research should be conducted in real purchase situations. Adopting real consumers for a study sample may provide greater insights into consumers’ decision processes in online purchase.

This study has several limitations, mainly encompassing the nature of the sample. As the study sample was not randomly selected from a known population, readers should be cautious when attempting to generalize the results to the general population of online shoppers. The population of online shoppers is difficult to identify since the characteristics of online shoppers are changing rapidly. This represents a major ongoing sampling problem for studies involving online purchases.

With respect to the study condition, as it was a survey of hypothetical purchases, this exploratory study was limited in its abilities to control alternative explanatory variables. Testing consumers’ online behaviors through experiments could greatly increase the control of potential confounding factors.
<APPENDIX A> -QUESTIONNAIRE FOR THE DIGITAL CAMERA SUB-GROUP

Please indicate your opinion below statements.

1. Computers make work more interesting.
   (strongly disagree) 1 2 3 4 5 6 7 (strongly agree)

2. Working with computers makes me feel comfortable.
   (strongly disagree) 1 2 3 4 5 6 7 (strongly agree)

3. I mostly use computers for work.
   (strongly disagree) 1 2 3 4 5 6 7 (strongly agree)

4. Computers make work more efficient.
   (strongly disagree) 1 2 3 4 5 6 7 (strongly agree)

5. I would feel somewhat unsafe in completing commercial transactions over the Internet.
   (strongly disagree) 1 2 3 4 5 6 7 (strongly agree)

6. There is too much uncertainty associated with shopping on the Internet.
   (strongly disagree) 1 2 3 4 5 6 7 (strongly agree)

7. Compared with other ways of shopping, buying on the Internet would be more risky.
   (strongly disagree) 1 2 3 4 5 6 7 (strongly agree)

8. How long have you been using the computer? __________ years

9. How often do you purchase online?
   Never ___ Rarely ____ Sometimes ____ Often ____ Very often ____

10. If you have purchased online, are you satisfied with the online purchase?
    0 1 2 3 4 5 6 7 8 9 10
    dissatisfied satisfied
11. When I think about buying a digital camera online, I would experience tension.

1 2 3 4 5 6 7
(strongly disagree) (neutral) (strongly agree)

12. Buying a digital camera online is more uncomfortable than buying it in a retail store.

1 2 3 4 5 6 7
(strongly disagree) (neutral) (strongly agree)

13. I would be concerned that I may not get my money’s worth from the digital camera when buying it online.

1 2 3 4 5 6 7
(strongly disagree) (neutral) (strongly agree)

14. I would be afraid that buying a digital camera online would not provide me with the level of benefits that I expected it to.

1 2 3 4 5 6 7
(strongly disagree) (neutral) (strongly agree)

15. I lack sufficient knowledge about digital cameras.

1 2 3 4 5 6 7
(strongly disagree) (neutral) (strongly agree)

16. I don’t have much experience with digital cameras.

1 2 3 4 5 6 7
(strongly disagree) (neutral) (strongly agree)
17. Compared with my friends and acquaintances, my knowledge of digital cameras is weaker.

1  2  3  4  5  6  7  
(strongly disagree)  (neutral)  (strongly agree)

18. When buying a digital camera online, I would worry about how reliable a digital camera will be.

1  2  3  4  5  6  7  
(strongly disagree)  (neutral)  (strongly agree)

19. I have a strong interest in purchasing digital cameras online.

1  2  3  4  5  6  7  
(strongly disagree)  (neutral)  (strongly agree)

20. I value purchasing digital cameras online as an important part of my lifestyle.

1  2  3  4  5  6  7  
(strongly disagree)  (neutral)  (strongly agree)

21. Buying a digital camera online is useful to me.

1  2  3  4  5  6  7  
(strongly disagree)  (neutral)  (strongly agree)

22. My friends’ and co-workers’ opinions about my buying a digital camera online would cause me to feel concern.

1  2  3  4  5  6  7  
(strongly disagree)  (neutral)  (strongly agree)

23. Before buying a digital camera online, I would obtain substantial information about the different makes and models of digital cameras.

1  2  3  4  5  6  7  
(strongly disagree)  (neutral)  (strongly agree)

24. I would acquire a great deal of information about the different makes and models before buying a digital camera online.

1  2  3  4  5  6  7  
(strongly disagree)  (neutral)  (strongly agree)
25. If you want to seek information about digital camera brands for purchase, which sources are you going to choose first? Please rank order (i.e., 1st, 2nd, 3rd) the following sources in terms of their usefulness to you.

___ television
___ newspapers
___ magazines
___ the Internet
___ family and friends
___ retail store visit
___ unbiased sources (e.g., Consumer Reports)
___ other sources (Explain: ____________________________)

26. Among sources, which source do you think the most reliable? Please rank order (i.e., 1st, 2nd, 3rd) the following sources in terms of their reliability.

___ television
___ newspapers
___ magazines
___ the Internet
___ family and friends
___ retail store visit
___ unbiased sources (e.g., Consumer Reports)
___ other sources (Explain: ____________________________)

27. As you consider the purchase of a digital camera, do you have a specific brand of digital camera in mind?

Yes ____   No ____
28. Please check the specific brand(s) of digital cameras that you would consider.

Canon ___ Samsung ___ Sony ___ Casio ___ Fuji ___ HP ___
Kodak ___ Konica Minolta ___ Nikon ___ Olympus ___ Others ___

29. Please indicate your opinion about using information from each of the following sources when considering the purchase of a digital camera online.

<table>
<thead>
<tr>
<th>Source</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales person</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(would not use at all)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>magazine ads.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(would not use at all)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>family and friends opinion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(would not use at all)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>radio commercials</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(would not use at all)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>magazines articles</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(would not use at all)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumer Reports</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(would not use at all)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>newspaper ads.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(would not use at all)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TV commercials</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(would not use at all)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>previous customers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(would not use at all)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internet</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(would not use at all)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
30. If you have purchased or used a digital camera before, please indicate its brand (if more than one brand, please indicate them all).

_____________________________________________________________

31. If you have sought information about digital camera brands (even though you might not have used those brands), please indicate them all.

____________________________________________________________________________________

32. If you have purchased a digital camera, which brands do you recommend for others? (if more than one, please indicate them all).

____________________________________________________________________________________

The statements below concern your personal reactions to a number of different situations. No two statements are exactly alike, so consider each statement carefully before answering. You should respond to each item in a way that best describes your typical behavior. However, be sure to respond to all of the items.

33. I find that a well-ordered life with regular hours suits my temperament.

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

(strongly disagree) (strongly agree)

34. I enjoy having a clear and structured mode of life.

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

(strongly disagree) (strongly agree)
35. I don’t like to go into a situation without knowing what I can expect from it.

1 --------- 2 --------- 3 --------- 4 --------- 5 --------- 6 --------- 7
(strongly disagree) (strongly agree)

36. I dislike unpredictable situations.

1 --------- 2 --------- 3 --------- 4 --------- 5 --------- 6 --------- 7
(strongly disagree) (strongly agree)

37. When I go shopping, I have difficulty deciding exactly what it is that I want.

1 --------- 2 --------- 3 --------- 4 --------- 5 --------- 6 --------- 7
(strongly disagree) (strongly agree)

38. When faced with a problem I usually see the one best solution very quickly.

1 --------- 2 --------- 3 --------- 4 --------- 5 --------- 6 --------- 7
(strongly disagree) (strongly agree)

39. I usually make important decisions quickly and confidently.

1 --------- 2 --------- 3 --------- 4 --------- 5 --------- 6 --------- 7
(strongly disagree) (strongly agree)

40. I tend to put off making important decisions until the last possible moment.

1 --------- 2 --------- 3 --------- 4 --------- 5 --------- 6 --------- 7
(strongly disagree) (strongly agree)

41. I dislike it when a person’s statement is unclear to me.

1 --------- 2 --------- 3 --------- 4 --------- 5 --------- 6 --------- 7
(strongly disagree) (strongly agree)

42. Even after I’ve made up my mind about something, I am always eager to consider a different opinion.

1 --------- 2 --------- 3 --------- 4 --------- 5 --------- 6 --------- 7
(strongly disagree) (strongly agree)
43. I stick to my opinion even though others come up with plausible arguments.

1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
(strongly disagree) (strongly agree)

44. What is your gender? Male ____ Female ____

45. What year were you born? __________

46. What is your ethnicity?
Caucasian ____ Asian ____ Hispanic ____ Native American ____ African American ____
Others ____

47. What was the highest grade or year of school you have completed?
Middle school ____ High school ____ Some college ____
College degree ____ Graduate school ____

48. What is your average annual household income?
less than $20,000 ____ $20,001 – 29,999 ____
$30,000 – 39,999 ____ $40,000 – 49,999 ____
$50,000 – 59,999 ____ $60,000 – 69,999 ____
$70,000 – 79,999 ____ $80,000 or more ____
<APPENDIX B> - QUESTIONNAIRE FOR THE LAPTOP COMPUTER
SUB-GROUP

Please indicate your opinion below statements.

1. Computers make work more interesting.
   (strongly disagree) 1 2 3 4 5 6 7 (strongly agree)
2. Working with computers makes me feel comfortable.
   (strongly disagree) 1 2 3 4 5 6 7 (strongly agree)
3. I mostly use computers for work.
   (strongly disagree) 1 2 3 4 5 6 7 (strongly agree)
4. Computers make work more efficient.
   (strongly disagree) 1 2 3 4 5 6 7 (strongly agree)
5. I would feel somewhat unsafe in completing commercial transactions over the Internet.
   (strongly disagree) 1 2 3 4 5 6 7 (strongly agree)
6. There is too much uncertainty associated with shopping on the Internet.
   (strongly disagree) 1 2 3 4 5 6 7 (strongly agree)
7. Compared with other ways of shopping, buying on the Internet would be more risky.
   (strongly disagree) 1 2 3 4 5 6 7 (strongly agree)
8. How long have you been using the computer? ___________ years
9. How often do you purchase online?

   Never ___  Rarely ____  Sometimes ____  Often ____  Very often ____
10. If you have purchased online, are you satisfied with the online purchase?

    0 1 2 3 4 5 6 7 8 9 10
dissatisfied satisfied
Suppose you are going to buy a new laptop computer for yourself. Considering alternative methods, you decide to buy the laptop online. You have about $1,500 in your budget, and have yet to decide which brand to purchase. With this in mind, please indicate your level of agreement or disagreement with each of the following statements.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. When I think about buying a laptop computer online, I would experience tension.</td>
<td>1-7</td>
</tr>
<tr>
<td>(strongly disagree) (neutral) (strongly agree)</td>
<td></td>
</tr>
<tr>
<td>12. Buying a laptop computer online is more uncomfortable than buying it in a retail store.</td>
<td>1-7</td>
</tr>
<tr>
<td>(strongly disagree) (neutral) (strongly agree)</td>
<td></td>
</tr>
<tr>
<td>13. I would be concerned that I may not get my money’s worth from the laptop computer when buying it online.</td>
<td>1-7</td>
</tr>
<tr>
<td>(strongly disagree) (neutral) (strongly agree)</td>
<td></td>
</tr>
<tr>
<td>14. I would be afraid that buying a laptop computer online would not provide me with the level of benefits that I expected it to.</td>
<td>1-7</td>
</tr>
<tr>
<td>(strongly disagree) (neutral) (strongly agree)</td>
<td></td>
</tr>
<tr>
<td>15. I lack sufficient knowledge about laptop computers.</td>
<td>1-7</td>
</tr>
<tr>
<td>(strongly disagree) (neutral) (strongly agree)</td>
<td></td>
</tr>
<tr>
<td>16. I don’t have much experience with laptop computers.</td>
<td>1-7</td>
</tr>
<tr>
<td>(strongly disagree) (neutral) (strongly agree)</td>
<td></td>
</tr>
<tr>
<td>17. Compared with my friends and acquaintances, my knowledge of laptop computer is weaker.</td>
<td>1-7</td>
</tr>
<tr>
<td>(strongly disagree) (neutral) (strongly agree)</td>
<td></td>
</tr>
</tbody>
</table>
18. When buying a laptop computer online, I would worry about how reliable a laptop computer will be.

   1 ---- 2 ---- 3 ---- 4 ---- 5 ---- 6 ---- 7
   (strongly disagree) (neutral) (strongly agree)

19. I have a strong interest in purchasing laptop computers online.

   1 ---- 2 ---- 3 ---- 4 ---- 5 ---- 6 ---- 7
   (strongly disagree) (neutral) (strongly agree)

20. I value purchasing laptop computers online as an important part of my lifestyle.

   1 ---- 2 ---- 3 ---- 4 ---- 5 ---- 6 ---- 7
   (strongly disagree) (neutral) (strongly agree)

21. Buying a laptop computer online is useful to me.

   1 ---- 2 ---- 3 ---- 4 ---- 5 ---- 6 ---- 7
   (strongly disagree) (neutral) (strongly agree)

22. My friends’ and co-workers’ opinions about my buying a laptop computer online would cause me to feel concern.

   1 ---- 2 ---- 3 ---- 4 ---- 5 ---- 6 ---- 7
   (strongly disagree) (neutral) (strongly agree)

23. Before buying a laptop computer online, I would obtain substantial information about the different makes and models of laptop computers.

   1 ---- 2 ---- 3 ---- 4 ---- 5 ---- 6 ---- 7
   (strongly disagree) (neutral) (strongly agree)

24. I would acquire a great deal of information about the different makes and models before buying a laptop computer online.

   1 ---- 2 ---- 3 ---- 4 ---- 5 ---- 6 ---- 7
   (strongly disagree) (neutral) (strongly agree)
25. If you want to seek information about laptop computer brands for purchase, which sources are you going to choose first? Please rank order (i.e., 1st, 2nd, 3rd) the following sources in terms of their usefulness to you.

___ television
___ newspapers
___ magazines
___ the Internet
___ family and friends
___ retail store visit
___ unbiased sources (e.g. Consumer Reports)
___ other sources (Explain: ____________________________)

26. Among sources, which source do you think the most reliable? Please rank order (i.e., 1st, 2nd, 3rd) the following sources in terms of their reliability.

___ television
___ newspapers
___ magazines
___ the Internet
___ family and friends
___ retail store visit
___ unbiased sources (e.g. Consumer Reports)
___ other sources (Explain: ____________________________)

27. If you consider the purchase of a laptop computer, do you have specific brand for a laptop computer in mind?  Yes ____  No ____
28. If you have any a specific brand(s) for a laptop computer, please indicate them all.

<table>
<thead>
<tr>
<th>Brand</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gateway</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dell</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sony</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compaq</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apple</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Averatec</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>eMachines</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hewlett</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sharp</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toshiba</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IBM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geek Squad</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

29. Please indicate your opinion about using information from each of the following sources when considering the purchase of a laptop computer online.

<table>
<thead>
<tr>
<th>Source</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales person</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(would not use at all)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(definitely would use)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>magazine ads.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(would not use at all)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(definitely would use)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>family and friends opinion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(would not use at all)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(definitely would use)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>radio commercials</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(would not use at all)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(definitely would use)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>magazines articles</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(would not use at all)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(definitely would use)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumer Reports</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(would not use at all)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(definitely would use)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>newspaper ads.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(would not use at all)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(definitely would use)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TV commercials</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(would not use at all)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(definitely would use)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>previous customers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(would not use at all)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(definitely would use)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internet</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(would not use at all)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(definitely would use)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
30. If you have purchased or used a laptop computer before, please indicate its brand (if more than one brand, please indicate them all).

_____________________________________________________________

31. If you have sought information about laptop computer brands (even though you might not have used those brands), please indicate them all.

_____________________________________________________________

32. If you have purchased a laptop computer, which brands do you recommend for others? (if more than one, please indicate them all).

_____________________________________________________________

The statements below concern your personal reactions to a number of different situations. No two statements are exactly alike, so consider each statement carefully before answering. You should respond to each item in a way that best describes your typical behavior. However, be sure to respond to all of the items.

33. I find that a well-ordered life with regular hours suits my temperament.

1       2       3       4       5       6       7
(strongly disagree)  (strongly agree)

34. I enjoy having a clear and structured mode of life.

1       2       3       4       5       6       7
(strongly disagree)  (strongly agree)
35. I don’t like to go into a situation without knowing what I can expect from it.

1 2 3 4 5 6 7
(strongly disagree) (strongly agree)

36. I dislike unpredictable situations.

1 2 3 4 5 6 7
(strongly disagree) (strongly agree)

37. When I go shopping, I have difficulty deciding exactly what it is that I want.

1 2 3 4 5 6 7
(strongly disagree) (strongly agree)

38. When faced with a problem I usually see the one best solution very quickly.

1 2 3 4 5 6 7
(strongly disagree) (strongly agree)

39. I usually make important decisions quickly and confidently.

1 2 3 4 5 6 7
(strongly disagree) (strongly agree)

40. I tend to put off making important decisions until the last possible moment.

1 2 3 4 5 6 7
(strongly disagree) (strongly agree)

41. I dislike it when a person’s statement is unclear to me.

1 2 3 4 5 6 7
(strongly disagree) (strongly agree)

42. Even after I’ve made up my mind about something, I am always eager to consider a different opinion.

1 2 3 4 5 6 7
(strongly disagree) (strongly agree)
43. I stick to my opinion even though others come up with plausible arguments.

1 ------- 2 ------- 3 ------- 4 ------- 5 ------- 6 ------- 7
(strongly disagree)                                (strongly agree)

44. What is your gender? Male ___ Female ___

45. What year were you born? __________

46. What is your ethnicity?

Caucasian ____ Asian ____ Hispanic _____ Native American ___ African American ___
Others ____

47. What was the highest grade or year of school you have completed?

Middle school ___ High school ___ Some college ___
College degree ___ Graduate school ___

48. What is your average annual household income?

less than $20,000 ____ $20,001 – 29,999 ____
$30,000 – 39,999 ____ $40,000 – 49,999 ____
$50,000 – 59,999 ____ $60,000 – 69,999 ____
$70,000 – 79,999 ____ $80,000 or more ____
<APPENDIX C> - QUESTIONNAIRE FOR THE PLASMA TV SUB-GROUP

Please indicate your opinion below statements.

1. Computers make work more interesting.
   (strongly disagree) 1  2  3  4  5  6  7 (strongly agree)

2. Working with computers makes me feel comfortable.
   (strongly disagree) 1  2  3  4  5  6  7 (strongly agree)

3. I mostly use computers for work.
   (strongly disagree) 1  2  3  4  5  6  7 (strongly agree)

4. Computers make work more efficient.
   (strongly disagree) 1  2  3  4  5  6  7 (strongly agree)

5. I would feel somewhat unsafe in completing commercial transactions over the Internet.
   (strongly disagree) 1  2  3  4  5  6  7 (strongly agree)

6. There is too much uncertainty associated with shopping on the Internet.
   (strongly disagree) 1  2  3  4  5  6  7 (strongly agree)

7. Compared with other ways of shopping, buying on the Internet would be more risky.
   (strongly disagree) 1  2  3  4  5  6  7 (strongly agree)

8. How long have you been using the computer? __________ years

9. How often do you purchase online?
   Never ____  Rarely ____  Sometimes ____  Often ____  Very often ____

10. If you have purchased online, are you satisfied with the online purchase?
    0  1  2  3  4  5  6  7  8  9  10
dissatisfied  satisfied
Suppose you are going to buy a new plasma TV for your living room. Considering alternative methods, you decide to buy the plasma TV online. You have about $4,000 in your budget, and have yet to decide which brand to purchase. With this in mind, please indicate your level of agreement or disagreement with each of the following statements.

11. When I think about buying a plasma TV online, I would experience tension.

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

   (strongly disagree) (neutral) (strongly agree)

12. Buying a plasma TV online is more uncomfortable than buying it in a retail store.

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

   (strongly disagree) (neutral) (strongly agree)

13. I would be concerned that I may not get my money’s worth from the plasma TV when buying it online.

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

   (strongly disagree) (neutral) (strongly agree)

14. I would be afraid that buying a plasma TV online would not provide me with the level of benefits that I expected it to.

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

   (strongly disagree) (neutral) (strongly agree)

15. I lack sufficient knowledge about plasma TVs.

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

   (strongly disagree) (neutral) (strongly agree)

16. I don’t have much experience with plasma TVs.

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

   (strongly disagree) (neutral) (strongly agree)

17. Compared with my friends and acquaintances, my knowledge of plasma TV is weaker.

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

   (strongly disagree) (neutral) (strongly agree)
18. When buying a plasma TV online, I would worry about how reliable a plasma TV will be.

1 ---- 2 ---- 3 ---- 4 ---- 5 ---- 6 ---- 7
(strongly disagree) (neutral) (strongly agree)

19. I have a strong interest in purchasing a plasma TV online.

1 ---- 2 ---- 3 ---- 4 ---- 5 ---- 6 ---- 7
(strongly disagree) (neutral) (strongly agree)

20. I value purchasing a plasma TV online as an important part of my lifestyle.

1 ---- 2 ---- 3 ---- 4 ---- 5 ---- 6 ---- 7
(strongly disagree) (neutral) (strongly agree)

21. Buying a plasma TV online is useful to me.

1 ---- 2 ---- 3 ---- 4 ---- 5 ---- 6 ---- 7
(strongly disagree) (neutral) (strongly agree)

22. My friends’ and co-workers’ opinions about my buying a plasma TV online would cause me to feel concern.

1 ---- 2 ---- 3 ---- 4 ---- 5 ---- 6 ---- 7
(strongly disagree) (neutral) (strongly agree)

23. Before buying a plasma TV online, I would obtain substantial information about the different makes and models of plasma TVs.

1 ---- 2 ---- 3 ---- 4 ---- 5 ---- 6 ---- 7
(strongly disagree) (neutral) (strongly agree)

24. I would acquire a great deal of information about the different makes and models before buying a plasma TV online.

1 ---- 2 ---- 3 ---- 4 ---- 5 ---- 6 ---- 7
(strongly disagree) (neutral) (strongly agree)
25. If you want to seek information about plasma TV brands for purchase, which sources are you going to choose first? Please rank order (i.e., 1\textsuperscript{st}, 2\textsuperscript{nd}, 3\textsuperscript{rd}) the following sources in terms of their usefulness to you.

___ television
___ newspapers
___ magazines
___ the Internet
___ family and friends
___ retail store visit
___ unbiased sources (e.g. \textit{Consumer Reports})
___ other sources (Explain: ____________________________)

26. Among sources, which source do you think the most reliable? Please rank order (i.e., 1\textsuperscript{st}, 2\textsuperscript{nd}, 3\textsuperscript{rd}) the following sources in terms of their reliability.

___ television
___ newspapers
___ magazines
___ the Internet
___ family and friends
___ retail store visit
___ unbiased sources (e.g. \textit{Consumer Reports})
___ other sources (Explain: ____________________________)

27. If you consider the purchase of a plasma TV, do you have specific brand for a plasma TV in mind? Yes ____  No ____
28. If you have any specific brand(s) for plasma TV, please indicate them all.

Philips ___ Samsung ___ Panasonic ___ Sony ___ Toshiba ___
JVC ___ LG ___ Pioneer ___ RCA ___ Sharp ___ Others ___

29. Please indicate your opinion about using information from each of the following sources when considering the purchase of a plasma TV online.

<table>
<thead>
<tr>
<th>Source</th>
<th>Scale 1-7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales person</td>
<td>1-7</td>
</tr>
<tr>
<td>magazine ads.</td>
<td>1-7</td>
</tr>
<tr>
<td>family and friends opinion</td>
<td>1-7</td>
</tr>
<tr>
<td>radio commercials</td>
<td>1-7</td>
</tr>
<tr>
<td>magazines articles</td>
<td>1-7</td>
</tr>
<tr>
<td>Consumer Reports</td>
<td>1-7</td>
</tr>
<tr>
<td>newspaper ads.</td>
<td>1-7</td>
</tr>
<tr>
<td>TV commercials</td>
<td>1-7</td>
</tr>
<tr>
<td>previous customers</td>
<td>1-7</td>
</tr>
<tr>
<td>Internet</td>
<td>1-7</td>
</tr>
<tr>
<td>company website</td>
<td>1-7</td>
</tr>
</tbody>
</table>
30. If you have purchased or used a digital camera before, please indicate its brand (if more than one brand, please indicate them all).

__________________________

31. If you have sought information about digital camera brands (even though you might not have used those brands), please indicate them all.

__________________________

32. If you have purchased a digital camera, which brands do you recommend for others? (if more than one, please indicate them all).

__________________________

The statements below concern your personal reactions to a number of different situations. No two statements are exactly alike, so consider each statement carefully before answering. You should respond to each item in a way that best describes your typical behavior. However, be sure to respond to all of the items.

33. I find that a well-ordered life with regular hours suits my temperament.

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

(strongly disagree) (strongly agree)

34. I enjoy having a clear and structured mode of life.

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

(strongly disagree) (strongly agree)

35. I don’t like to go into a situation without knowing what I can expect from it.

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

(strongly disagree) (strongly agree)
36. I dislike unpredictable situations.

1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
(strongly disagree) (strongly agree)

37. When I go shopping, I have difficulty deciding exactly what it is that I want.

1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
(strongly disagree) (strongly agree)

38. When faced with a problem I usually see the one best solution very quickly.

1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
(strongly disagree) (strongly agree)

39. I usually make important decisions quickly and confidently.

1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
(strongly disagree) (strongly agree)

40. I tend to put off making important decisions until the last possible moment.

1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
(strongly disagree) (strongly agree)

41. I dislike it when a person’s statement is unclear to me.

1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
(strongly disagree) (strongly agree)

42. Even after I’ve made up my mind about something, I am always eager to consider a different opinion.

1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
(strongly disagree) (strongly agree)

43. I stick to my opinion even though others come up with plausible arguments.

1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7
(strongly disagree) (strongly agree)
44. What is your gender? Male ___ Female ___

45. What year were you born? __________

46. What is your ethnicity?
   Caucasian ___ Asian ___ Hispanic ___ Native American ___ African American ___
   Others ___

47. What was the highest grade or year of school you have completed?
   Middle school ___ High school ___ Some college ___
   College degree ___ Graduate school ___

48. What is your average annual household income?
   less than $ 20,000 ___ $ 20,001 – 29,999 ___
   $ 30,000 – 39,999 ___ $ 40,000 – 49,999 ___
   $ 50,000 – 59,999 ___ $ 60,000 – 69,999 ___
   $ 70,000 – 79,999 ___ $ 80,000 or more ___
REFERENCES


Brucks, M. (1985). The effects of product class knowledge on information search behavior, *Journal of Consumer Research*, 12(June), 1-16


_______, (1990). Multiple processes by which attitudes guide behavior: The mode model as an integrative framework, Advances in Experimental Social Psychology, 23, 75-109


Li, H., Kuo, C., & Russell, M. G. (1999). The impact of perceived channel utilities, shopping orientations, and demographics on the consumer’s online buying behavior, *Journal of Computer Mediated Communication, 5* (2)


_____ & Staelin, R. (1972). Pre-purchase information seeking for new cars and major household appliances, Journal of Marketing Research, 43(3), 293-300

OECD (2002). Information Technology Outlook

_____ (2002). Measuring the Information Economy


Pew Internet & American Life Project (2003). The ever-shifting Internet population: A new look at Internet access and the digital divide


_____, McCreadie, M., & Chang, S. L. (2001). Accessing and browsing-Information and communication, Massachusetts Institute of Technology


Communication Monographs, 71, 49-69


Trumbo, C. W. (2002). Information processing and risk perception: An adaptation of the
heuristic-systematic model, *Journal of Communication*, June, 367-382


U.S. Department of Commerce (2002). *A Nation Online: How American are expanding their use of the Internet*, Economics and Statistics Administration, National Telecommunications and Information Administration

Urbany, J. E., Dickson, P. R., & Wilkie, W. L. (1989). Buyer uncertainty and information search, *Journal of Consumer Research*, 16(2), 208-215


Vermeir, I., & Kenhove, P. V. (2005). The influence of need for closure and perceived time pressure on search effort for price and promotional information in a grocery shopping context, *Psychology & Marketing*, 22(1), 71-95


Research, 12(3), 341-353
Youngwon Lee was born and raised in Seoul, South Korea for almost 30 years. Lee holds several degrees, including a Bachelor of Art in English Language and Literature from Duksung Women’s University in 1984, a Master of Art in Mass Communication with an emphasis on the Effect of Public Interest Advertising in South Korea from Korea University in 1988, and a Doctor of Philosophy in Communication with an emphasis in Online Marketing Communication and with a minor in Statistics from Florida State University in 2006. Before studying at Florida State University, Lee had taught students at universities in South Korea with the subjects of New Media and Mass Communication Theory for six years. During the Doctoral program at Florida State University, research interests were consumer behavior and news coverage in media, as well as new media studies in communication area. In addition, Lee participated in research projects dealing with local broadcasting and marketing strategy for various companies (e.g., FedEx). Lee’s current research and teaching interests are Online Marketing Communication, New Media Effect, Communication Campaigns, Persuasion, and Research Method. For more effective marketing communication campaigns, integration of communication disciplines and marketing approach is also an interest area.