1999

Consumer adoption of the Internet for apparel shopping

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Consumer adoption of the Internet for apparel shopping

by

Eunah Yoh

A dissertation submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of
DOCTOR OF PHILOSOPHY

Major: Textiles and Clothing
Major Professor: Mary Lynn Damhorst

Iowa State University
Ames, Iowa
1999

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ABSTRACT

The study explored the relationships among attitudinal, social, and behavioral variables associated with Internet apparel shopping. Study objectives were: 1) to examine consumers' experience with the Internet, in-home apparel shopping, and Internet apparel shopping, 2) to propose theoretical models explaining consumer adoption of the Internet for apparel shopping by incorporating two social psychological theories—the theory of reasoned action and the theory of innovation adoption, and 3) to test the proposed models for respondents and subset groups (mail order shoppers and non-mail order shoppers).

A self-administered questionnaire was mailed to a random national sample of 1,600 households. A total of 448 questionnaires were returned, generating a 27.4% return rate. Of these, 355 usable questionnaires were submitted for data analysis using descriptive analysis, exploratory factor analysis, MANOVA, ANOVA, and structural equation modeling via LISREL VII and AMOS.

Although respondents showed a tremendously increased adoption rate of Internet apparel shopping compared to previous research findings, respondents were still hesitant to shop for apparel through the Internet. Respondents indicated that they would shop for apparel more often through the Internet if there were some market incentives for Internet shoppers such as free and easier product returns, innovative functions (e.g., view of how the garment looks on their own body), and ensured credit card safety.

Through causal model analyses, the decision making process of Internet adoption for apparel shopping was explained by three components: 1) belief-attitude-behavioral relationships, 2) social support and social acceptance, and 3) prior experience with the Internet. The hypothesized paths generated from the theory of reasoned action and the theory of innovation adoption were significant across the proposed models. Specifically, prior experience with the Internet had the strongest influence on apparel buying intention through the Internet across all models. No significant differences in parameter estimates were found between mail
order and non-mail order shoppers. Age, education, and household income were important demographic variables affecting consumer adoption of Internet apparel shopping. Implications for industry and academia were generated based on findings.
CHAPTER 1: INTRODUCTION

As the Internet has penetrated into consumers' everyday lives, use of the Internet for shopping has been grabbing more attention as a new medium of in-home shopping. During the last two decades, an increasing number of consumers have adopted in-home shopping through mail order catalogs or TV shopping channels for many kinds of products from books and small electronics to home furnishings and clothing. Previous research predicts that consumers who have in-home shopping experiences through catalog or TV may be more likely to adopt the Internet as a shopping venue in the near future because they are more comfortable with direct marketing as well as they want more time-saving shopping media ("Internet Shopping", 1998). Consumers' increasing engagement in a variety of in-home shopping has been fueled by some demographic trends that were observed throughout the last three decades.

Two demographic trends, the tendency toward more families headed by a single parent and the increasing number of working women, have transformed consumer and family buying patterns during the last decades of the 20th Century (Cooney, 1993). According to the projections that the U.S. Census Bureau (1997) made, one-parent families reached 31% in 1995, up from 13% in 1970. The number of single mothers is expected to grow approximately 18% between 1990 and 2010 ("Single Parent", 1993). In addition, in 1970, only 40.5% of married women were employed; the numbers were projected to increase to 61.2% in 1996 (U.S. Bureau of Census, 1997).

These demographic changes of consumers have resulted in a poverty of time for traditional shopping activities (Carn, Rabinski, & Vernor, 1995). Today's working women and men are suffering from a shortage of shopping time for basic necessities and discretionary items. Therefore, an increasing number of consumers have expressed their interest in time-saving shopping innovations, contributing to the developments of in-home shopping such as catalog and TV home shopping. Paper,
mailing, and advertising costs of in-home shopping methods have increased the
costs of selling items through these media, however.

The simultaneous and rapid rate of consumer adoption of personal computers
and network systems has encouraged marketers to provide Internet retailing sites, a
retail option that has the potential to reduce some costs of direct mail retailing and
offer the time-saving advantages of in-home shopping. The national retail federation
indicates that 26% of U.S. retailers had their own Internet sites in 1998, about three
times more than 8% in 1996 (Holstein, Thomas, & Vogelstein, 1998). Some Internet
retail sites such as Amazon (on-line bookstore), The Gap (national clothing chain
store), and Dell Computer are successful in attracting more and more consumers to
their sites (Holstein et al., 1998). According to Forrester research projections, forty-
million households will purchase some products through the Internet by 2003
(Holstein et al., 1998).

Despite the increasing possibility that Internet shopping could become more
commonplace, there has been little research comprehensively exploring consumers'
adoption of Internet shopping. A few researchers investigated Internet user
demographics (Henrichs, 1995; Mehta & Sivadas, 1995) and further explored their
preferred items for purchasing and satisfaction/dissatisfaction with Internet shopping
(Fram & Grady, 1995, 1997; "Internet Shopping", 1998; Kunz, 1997). However, no
study that focused on apparel shopping through the Internet was found, although
apparel is a frequently purchased product through mail-order catalogs, holding 26%
of catalog market share (Michals, 1997). Apparel is a unique product category that
requires focused study for deeper understanding. Further, only one study (Cowles,
Little, & Kiecker, 1997) that presented a theoretical model describing consumer
adoption of Internet shopping was found even though theoretical models are
beneficial to conceptualize relationships among variables associated with consumer
adoption of Internet shopping. Most previous studies regarding Internet shopping
were descriptive, not theoretical.
Purpose

In the present study, consumer adoption of the Internet for apparel shopping will be explored. Important variables affecting Internet adoption for apparel shopping will be generated from the theoretical and empirical literature. Theoretical models will be developed based on two well-established social psychological theories: the theory of reasoned action (Fishbein & Ajzen, 1975) and the theory of innovation adoption (Rogers, 1995). The theoretical models, integrating important variables impacting consumer adoption of Internet shopping, will be empirically tested through a nation-wide survey.

The results will contribute to the limited literature to date on Internet shopping. Also, the proposed theoretical models will provide insights into belief-attitude-behavioral intention relationships related to Internet apparel shopping. The theoretical model testing will generate meaningful implications for textiles and clothing, marketing, and sociology scholars with a new perspective for studying consumer adoption of technology for shopping. In addition, based on findings, marketers, merchandisers, and product developers involved with the Internet apparel industry will be able to obtain valuable implications to attract more consumers to Internet apparel shopping.

Objectives of the Study

The objectives of the study are to increase understanding of the consumer adoption process of Internet apparel shopping. Specific objectives are:

1. To examine consumers' experience with the Internet, in-home apparel shopping, and Internet apparel shopping.
2. To identify the following variables affecting consumer adoption of Internet apparel shopping.
   a. beliefs about in-home apparel shopping
   b. prior experience with the Internet
   c. beliefs about Internet apparel shopping
   d. attitude toward Internet apparel shopping
3. To propose theoretical models that incorporate the variables affecting consumer adoption of Internet apparel shopping.

4. To test the proposed models on: 1) the total sample, 2) non-mail order shoppers, and 3) mail order shoppers.

Operational Definitions of Terms

**Internet**: "—a network of computer networks, which is capable of providing virtually instant access to a vast storehouse of information spanning the globe" (Henrichs, 1995, p. 4).

**Internet retailing**: a retail format in which the retailer and customer communicate with each other and make a transaction through the Internet system.

**Apparel**: "—a custom for designating body enclosures that cover as clothing" (Roach-Higgins & Eicher, 1995, p. 17).

**Attitude**: "—an internal state of a person in which he or she responds evaluatively to an entity" (Eagley & Chaiken, 1993, p. 1).

**In-home shopping**: "—consists of multiple components: 1) in-home shopping source that is the direct response message sent by a retailer or manufacturer, 2) in-home shopping mode that is the media or channel through which the direct response message is transmitted, such as catalog or television, and 3) the in-home shopping response that occurs when the receiver of the direct response message places an order by mail, telephone or electronic transmission" (McCorkle, Planchon, & James, 1987, p. 6).
CHAPTER 2: LITERATURE REVIEW

Four categories of literature will provide insights into Internet apparel shopping and the conceptual framework of the study. In the first two sections, previous studies regarding trends in Internet shopping and characteristics of Internet shoppers were reviewed. In the third section, previous research regarding the influence of demographic characteristics on Internet apparel shopping was explored. Based on the literature, 13 hypotheses were generated to test the effect of demographic variables. Finally, theoretical models based on two social-psychological models were proposed with hypothesized paths. Theoretical and empirical literature used for model and hypothesis developments was reviewed.

Internet Shopping

Since the Internet was introduced in 1969, consumer adoption of the Internet computer network has been consistently increasing. Today, the Internet is a global on-line network of approximately 35 million users world-wide (Hoffman & Novak, 1996), with an estimated user base of between 200 million and 500 million in the next five years (VanTassel & Weitz, 1997). The Internet benefits people in their everyday lives in many ways, from searching information to shopping at home. Virtual stores and "computerized shopping malls" are growing due to their low-cost systems accessing consumers worldwide.

Internet shopping methods are grabbing more attention as a new form of retailing, and researchers are attempting to profile Internet shoppers. Previous findings (Fram & Grady, 1995, 1997; Gupta, 1995; "Internet Shopping", 1998; Quelch & Klein, 1996) suggested that typical Internet shoppers were well-educated, young males with professional occupations and high levels of income. The majority of Internet shoppers engaged in various social activities (e.g., movie-going, gardening, traveling, performing charity work, attending concerts, plays, and museums, etc.) more frequently than average consumers ("Internet Shopping", 1998). In several surveys (Green & Barrett, 1998; Fram & Grady, 1995, 1997;
"Internet Shopping", 1998), computer hardware/software and books were the two most often purchased items, and apparel/accessories were ranked among top ten items that are most frequently purchased through the Internet.

Despite rapid penetration of the Internet by retail businesses, many retailers are struggling to translate the Internet into a profitable shopping venue. Internet sales were estimated at $500 million in 1996, less than 1% of all non-store retail sales; all nonstore retailing accounted for only 5% to 10% of all retail sales in 1996 (Alba, Lynch, Weitz, Janiszewski, Lutz, Sawyer, & Wood, 1997; Schiesel, 1997). Although Internet shopping methods can provide some unique benefits to consumers (e.g., abundant product information) and to retailers (e.g., quick and inexpensive update of data, no expenses for catalog paper, mailing, or TV broadcasting), prior sales records indicate that Internet shopping is not yet highly profitable overall (Alba et al., 1997; Maignan & Lukas, 1997; Peterson, Balasubramanian, & Bronnenberg, 1997). The low profit may be most due to the lack of access on the part of most consumers to the Internet. According to Ernst and Young's 1998 report, about forty percent of U.S. households have a computer and 20% have a modem. However, only about 10% of the U.S. population uses the Internet regularly for any activity including e-mail, news gathering, and product search (Maney & Dugas, 1997), and only 7% of US households have shopped online ("Internet Shopping", 1998). Nevertheless, literature suggests that the rate of personal computer and Internet adoption will be rapidly growing in the near future due to rapidly decreasing PC prices (Bradley & Jodie, 1996; "Interactive Retailing", 1997). According to Arthur Anderson's report, within the next 10 years, computer prices will probably drop to around $500 while offering far greater sophistication ("Interactive Retailing", 1997). In addition, kiosks (i.e., vendor-provided stand-alone computers) could allow customers without home computers to buy goods on line ("Interactive Retailing", 1997).

Another important factor that makes consumers hesitant to become actively involved with Internet shopping is their concern about credit-card security (Fram & Grady, 1995, 1997; Gupta & Chatterjee, 1996). Actual Internet shoppers are much
more satisfied with security than prospective shoppers, indicating that 52% of present Web buyers, compared to 27% of prospective Web shoppers, are pleased with credit card security ("Internet Shopping", 1998). Moreover, leading electronic companies are developing devices for safe Internet transaction (Morris, 1996), including the secure electronic transaction (SET) protocol ("Internet Shopping", 1998).

Speed of downloading Web information was perceived as another major barrier to consumer adoption of Internet shopping (Fram & Grady, 1997; "Internet Shopping", 1998; Peterson et al., 1997). However, Asymmetric Digital Subscriber Line (ADSL) that is being launched in communities across the U.S. now, is expected to dramatically improve speed in using the Internet with speed of about 1-6 MB/s for downloading and 576 KB/s for uploading, compared to the current modem technology with speed of 56KB/s for downloading and 28.8KB/s for uploading (Lehr, 1997). To overcome the barrier of slow interface, Lands' End provides detailed written information about products in their Web pages with minimal number of pictures, allowing consumers quick and easy navigation ("Interactive Retailing", 1997). Additionally, inefficient site organizations were considered to be a problem in Internet retailing. Consumers were reported to engage in a significant amount of guesswork to locate sites ("Internet Shopping", 1998).

Ease in comparing and examining a variety of products regardless of brands, product categories, and locations were requested among consumers ("Internet Shopping", 1998). Regarding this issue, Alba et al. (1997) suggested four important improvements that Internet shopping methods should have, such as: 1) extensive product information, 2) a greatly expanded universe of offerings, 3) an efficient means of screening the offerings to find the most appealing options, 4) an unimpeded search across stores and brands, and 5) memory for previous purchases, which simplifies information search and purchase decision. For the latter feature, past shopping records stored in a company's file will provide the customer with convenience in selecting new products by making size, color, fabric, and style selection records from previous purchases readily available (Alba et al., 1997).
Some apparel retailers started to serve their consumers with innovative systems to enhance the quality of Internet apparel shopping experiences. For example, Lands' End now provides a system allowing shoppers to see clothing on a three-dimensional electronic mannequin similar in size and shape to a shopper's own body. In addition, Eddie Bauer now offers a service allowing consumers to put together the items that they want and to examine mix-and-match of color, pattern, fabric, and style of the selected items. These innovative functions may enhance consumers' satisfaction with Internet apparel shopping.

Transfer from Catalog and TV Home Shopping to Internet Shopping

In spite of some weaknesses of Internet shopping, researchers presented optimistic views on the future of Internet retailing (Bleecker, 1995; Sheth & Sisodia, 1996). Specifically, current TV home shoppers and catalog shoppers who feel more comfortable with direct marketing may more actively engage in Internet shopping in the future ("Internet Shopping", 1998). Previous empirical findings suggested that the majority of TV shoppers tend to make more purchases than other consumers from catalogs and direct mail (Braun, 1993; Grant, 1996; Stanforth & Lennon, 1996).

Catalog and TV home shopping have rapidly increased market shares in the apparel retail field throughout the 1990s. TV home shopping networks—dominated by Home Shopping Network (HSN) and Quality, Value, and Convenience (QVC)—have leveled off to a $2.5 billion business in recent years ("Interactive Retailing", 1997). QVC alone sold $1.8 billion in goods and services through cable TV with 113,000 average orders per day (Maloof, 1997). About 20% of merchandise sold through QVC is apparel and accessories (Grant, 1996). Mail order catalog retailing is a $52 billion industry ("Interactive Retailing", 1997), fueled by high quality offerings associated with efficient distribution and delivery systems. About 45% of U.S. households purchase products from catalogs each year (Burke, 1996). Apparel is a product that is frequently purchased through catalogs, holding 26% of catalog market share (Michals, 1997).
Catalog and TV home shopping methods have successfully attracted consumers who want to save their time and efforts traveling to stores for shopping and to acquire products that are not available in local stores. Home shopping methods have disadvantages as well as advantages, however. TV shopping channels can reach a broad range of people, but TV shoppers are dissatisfied with the fact that they cannot select times for the sales show and must wait for goods to appear on the screen (Harden, 1996; “Interactive Retailing”, 1997). Perceiving this weakness of TV shopping, major shopping channels are offering Web pages to maintain their existing customers and attract a new Internet user group. For example, based on a well-established infrastructure of direct marketing, QVC is encouraging customers to buy products on QVC Interactive, the company’s Web site (“Internet Shopping”, 1998).

On the other hand, catalog retailers allow shoppers more freedom in selecting shopping time. However, increasing paper and printing costs and high competition in pricing have squeezed catalog retailers’ profit margins. Therefore, catalog retailers with recognized brand names (e.g., L.L.Bean, Lands’ End, Eddie Bauer) established an early presence on the Web, taking advantage of distribution systems, marketing strategies, and a mix of products appropriate for direct marketing (Bleecker, 1995; “Internet Shopping”, 1998; Philips, Donoho, Keep, Mayberry, McCann, Shapiro, & Smith, 1996). By offering on-line retail sites, catalog retailers will eventually be able to reduce front-end costs involved with catalog paper purchasing, printing, and mailing (“Interactive Retailing”, 1997). Prior studies indicate that catalog shoppers are most likely to be transferred to on-line consumers in the future (“Interactive Retailing”, 1997; “Internet Shopping”, 1998). Currently, two-thirds of J.C. Penny’s on-line customers are also their catalog consumers (“Interactive Retailing”, 1997). Accordingly, MasterCard International reported that 46% of computer users in their survey said that they would probably shop less by mail and telephone if they shopped online (“Interactive Retailing”, 1997).

Brand name and retailer familiarity will be more and more important in purchase decisions through the Internet (“Internet Shopping”, 1998). Researchers
predicted that retailers with strong private brands (e.g., The Limited, The Gap, Eddie Bauer) or designer brands (e.g., DKNY, Ralph Lauren) would be successful in maintaining their current consumer base and attracting new consumers into virtual shopping (Hair & Keep, 1996). In addition, more customization fueled by rapidly advancing technologies will be going on so that consumers will take increasingly active roles in designing and customizing products in the future (Sheth & Sisodia, 1996). Further, the Internet is likely to promote intensive price competition because branded products will be offered by various retailers without any location advantage, allowing consumers to easily compare prices of the same products across retailers (Benjamin & Wigand, 1995; “Internet Shopping”, 1998; Peterson, 1996; Peterson et al., 1997; Sheth & Sisodia, 1996).

Effects of Demographic Characteristics on Internet Apparel Shopping

Demographic variables have been widely used as indicators of consumer lifestyles and personal values reflecting their shopping patterns. There was previous research (Fram & Grady, 1995, 1997; “Internet Shopping”, 1998; Kunz, 1997; Mehta & Sivadas, 1995) that explored some demographics of Internet shoppers. For the present study, thirteen hypotheses about the influence of demographic characteristics on three dependent variables—prior experience with the Internet, attitude toward Internet apparel shopping, and apparel buying intention through the Internet—were generated based on the literature. The three dependent variables for the hypotheses were selected because those are potentially essential variables in the decision making process of Internet adoption for apparel shopping. The demographic variables, sex, marital status, residential location, age, education, and household income will be explored since previous researchers (Eastlick, 1993; Fram & Grady, 1997; Grant, Guthrie, & Ball-Rokeach, 1991; Shim & Kotsiopulos, 1994; Shim & Mahoney, 1991) recognized the importance of these variables in predicting consumer behaviors for in-home (e.g., TV, catalog, Internet) shopping.
Sex

Previous studies (Fram & Grady, 1995; "Internet Shopping", 1998; Kunz, 1997) found that males had more experiences with the Internet, more favorable attitudes toward Internet shopping, and more buying intention through the Internet than do females. Based on these findings, three hypotheses were generated.

$H_{1.1}$: Males have more prior experience with the Internet than do females.

$H_{1.2}$: Males have more positive attitude toward Internet apparel shopping than do females.

$H_{1.3}$: Males have greater intention to purchase apparel through the Internet than do females.

Marital Status

Regarding marital status, another hypothesis was developed based on Kunz's (1997) finding that single consumers were less likely to intend to shop via the Internet than were married consumers.

$H_{1.4}$: Married consumers have greater intention to purchase apparel through the Internet than do single consumers.

Residential Location

Kunz (1997) found a negative relationship between size of area of residence and intention to shop through the Internet. The finding may reflect that metropolitan residents have more local shopping options and tend to be more satisfied with local shopping than are non-metropolitan residents (Bolfing, Hills, & Barnaby, 1981; Reynolds, 1974). Focusing on location effect, a hypothesis was generated.

$H_{1.5}$: Non-metropolitan (rural and small town) residents have greater intention to purchase apparel through the Internet than do metropolitan residents.

Age

Prior literature suggested that younger consumers have more experience with the Internet, more favorable attitude toward Internet shopping, and more intention to purchase through the Internet (Fram & Grady, 1995; Kunz, 1997). The findings support the notion that innovators tend to be younger (Engel, Blackwell, & Miniard, 1995; Rogers, 1995). Based on these findings, three hypotheses were developed.
Education

Previous studies (Fram & Grady, 1995, 1997; "Internet Shopping", 1988; Kunz, 1997) indicated that people who had a higher level of education had more prior experience with the Internet, more positive attitude toward Internet shopping, and greater intention to buy through the Internet. Rogers (1995) also proposed that more educated individuals tend to be early adopters of an innovation. Three hypotheses related to education effects are as follows:

- **H1.9**: Level of education is positively related to prior experience with the Internet.
- **H1.10**: Level of education is positively related to attitude toward Internet apparel shopping.
- **H1.11**: Level of education is positively related to intention to purchase apparel through the Internet.

Household Income

Two hypotheses were generated based on the literature suggesting a positive relationship between level of income and experience with the Internet and buying intention through the Internet (Fram & Grady, 1995, 1997; "Internet Shopping", 1998). Rogers (1995) also supported these notions by saying that innovators tend to be high-income earners.

- **H1.12**: Level of household income is positively related to prior experience with the Internet.
- **H1.13**: Level of household income is positively related to intention to purchase apparel through the Internet.

Theoretical Approach of the Study

Rationale of Theoretical Model Development

Although a few studies have attempted to investigate Internet shoppers' attitudes and behaviors (Fram & Grady, 1995, 1997; "Internet Shopping", 1998;
Kunz, 1997; Mehta & Sividas, 1995), there has been little research involved in theoretical model development for conceptual understanding of Internet shopping. Only one study that proposed a model in relation to Internet shopping was found.

Cowles et al. (1997) developed a model describing factors involved with consumers' Internet use to provide a baseline for retailers' marketing strategy development. In this model, seven factors directly or indirectly influencing customer acceptance/likelihood of Internet use in retail settings were considered including: 1) product characteristics (i.e., involvement, perceived risk/complexity, brand awareness, search characteristics, purchase cycle), 2) stage of purchase process (i.e., pre-acquisition, acquisition, post-acquisition), 3) customer attributes toward technology use (i.e., individual characteristics, experience with technology, involvement with technology, access to technology), 4) individual characteristics (i.e., demographics, psychographics/lifestyle, social/economic needs) and situational variables, 5) availability of alternative retail options, 6) customer involvement with alternative retail options, and 7) strategies/tactics (i.e., effectiveness of retailer Internet use). However, Cowles et al.'s (1997) model is not based completely on theoretical background but is an exploratory model comprising potential factors affecting consumers' Internet adoption. The Cowles et al. (1997) model did not specify clear causal relationships between variables, either. In addition, the Cowles et al.'s (1997) model was not focused on a specific product category but was presented for products in general.

Improving the Cowles et al.'s (1997) model, the present study proposes theoretical models explaining the decision making process of Internet adoption for apparel shopping. Important differences between the Cowles et al. (1997) model and the proposed models for this study are as follows. First, the models proposed in this study were developed based on two well-established social psychological theories—the theory of reasoned action (Fishbein & Ajzen, 1975) and innovation adoption theory (Rogers, 1995), compared to the Cowles et al. (1997) model that was loosely dependent on innovation adoption theory. Specifically, the theory of reasoned action provided a basic structure for the proposed models including belief-
attitude-purchase intention relationships and social normative influences. Second, the proposed models suggested clear causal relationships between variables, which were supported by a substantive amount of literature. These causal relationships will be tested through structural equation modeling in this study. Third, the proposed models focused on the specific product category of apparel. Narrowed focus of the proposed models will help the model better explain the relationships among variables. Apparel was selected as a primary focus of the proposed models because apparel tends to be a product category with which consumers are highly involved (Keith & Belk, 1978). For the assessment of purchase intention for high-involvement products, the theory of reasoned action has been highly recommended (Mowen & Minor, 1998).

Theoretical Framework

Two theories—the theory of reasoned action (Fishbein & Ajzen, 1975) and innovation adoption theory (Rogers, 1995) were selected as theoretical frameworks for this study because: 1) the theory of reasoned action is a well-respected theory explaining consumers’ rational decision making (Mowen & Minor, 1998), and 2) innovation adoption theory well explains diverse aspects of adoption of innovative technology such as the Internet (Henrichs, 1995).

The theory of reasoned action

The theory of reasoned action (TRA) proposed by Fishbein and Ajzen (1975) provides the essential structure of the proposed models. In the TRA, behavioral intentions are explained as a function of two primary determinants: 1) attitude toward the object or behavior such as Internet shopping and 2) an individual’s perception of normative social pressure to perform or not perform the particular behavior. Attitude toward the behavior is measured by the composite of beliefs about a certain behavior and the individual’s evaluation of the outcome resulting from the behavior. Additionally, a social norm component incorporates an individual’s belief that a relevant reference group thinks the person should or should not perform the behavior and the individual’s motivation to comply with the reference group. In the TRA, behavioral intention obtained through a composite of attitude and social norm
components is considered as the best predictor of actual behavior. The TRA can be algebraically expressed as follows:

\[ B - BI = (A_b)w_1 + (SN)w_2 \]

where \( B \) refers to behaviors, \( BI \) refers to behavioral intentions, \( A_b \) represents attitude toward the behavior, \( SN \) represents subjective norm, and \( w_1 \) and \( w_2 \) represent the weights for each factor. Further, attitude toward a behavior and the social norm index are defined in the following formulas:

\[ A_b = \sum b_i e_i \quad \text{and} \quad SN = \sum NB_i MC_i \]

where \( b_i \) indicates beliefs about the behavior, \( e_i \) refers to importance weights for each belief, \( NB_i \) represents normative beliefs that an individual ascribes to particular salient others, and \( MC_i \) represents his or her motivation to comply with those people.

In the initially proposed model, five variables are generated based on the equation presented above, including: 1) beliefs about Internet apparel shopping (\( \Sigma b_i e_i \)), 2) attitude toward Internet apparel shopping (\( A_b \)), 3) social support for Internet apparel shopping (\( \Sigma NB_i MC_i \)), 4) social acceptance of Internet apparel shopping (\( SN \)), and 5) apparel buying intention through the Internet (\( BI \)). From the TRA model, four hypothesized paths were generated to support the causal relationships between: 1) beliefs about Internet apparel shopping and attitude toward Internet apparel shopping (\( \Sigma b_i e_i \rightarrow A_b \)), 2) attitude toward Internet apparel shopping and apparel buying intention through the Internet (\( A_b \rightarrow BI \)), 3) social support for Internet apparel shopping and social acceptance of Internet apparel shopping (\( \Sigma NB_i MC_i \rightarrow SN \)), and 4) social acceptance of Internet apparel shopping and apparel buying intention through the Internet (\( SN \rightarrow BI \)) (see Figure 2.1).
Beliefs about Internet apparel shopping \rightarrow \text{Attitude toward Internet apparel shopping} \rightarrow \text{Apparel buying intention through the Internet}

Social support for Internet apparel shopping \rightarrow \text{Social acceptance of Internet apparel shopping}

Figure 2.1. Model 1: The theory of reasoned action model for Internet apparel shopping

Research hypotheses developed based on these four hypothesized paths are as follows:

\textbf{H}_2.1: Consumers who have more positive beliefs about Internet apparel shopping have more positive attitude toward Internet apparel shopping than do consumers who have less positive beliefs about Internet apparel shopping.

\textbf{H}_2.2: Consumers who have more social support for Internet apparel shopping perceive more social acceptance of Internet apparel shopping than do consumers who have less social support for Internet apparel shopping.

\textbf{H}_2.3: Consumers who have more positive attitude toward Internet apparel shopping have greater intention to purchase apparel through the Internet than do consumers who have less positive attitude toward Internet apparel shopping.

\textbf{H}_2.4: Consumers who perceive more social acceptance of Internet apparel shopping have greater intention to purchase apparel through the Internet than do consumers who perceive less social acceptance of Internet apparel shopping.

\textbf{Innovation adoption theory}

Rogers' (1995) innovation adoption theory provided valuable insights for understanding the decision making process related to Internet apparel shopping adoption. Rogers (1995) proposed a model describing the five-stage process of decision making for innovation adoption. During the first of five stages, \textit{Knowledge}, an individual builds an understanding of an innovation and its functions. Prior conditions such as previous practices (i.e., prior experience with the Internet) and
personal characteristics (i.e., demographic characteristics) will influence knowledge formation. In this stage, consumers start to build their beliefs about the innovation based on their knowledge.

In the second stage, *Persuasion*, consumers develop their beliefs about and attitudes toward the innovation based on their knowledge built in the earlier stage. For this belief and attitude formation stage, the characteristics of innovations that increase adoption of the innovation include: 1) relative advantage of shopping methods (e.g., convenience, credit-card safety, low price), 2) compatibility with values and beliefs of individuals in the social system, 3) low complexity in understanding how to use the innovation, 4) trialability resulting in less uncertainty, and 5) observability of the innovation results (Rogers, 1995).

In the third *Decision* stage, consumers will make decisions regarding whether to adopt or reject Internet shopping based on their emerging attitudes. According to Rogers (1995), most individuals will try out the innovation on a partial basis first, then if they find a certain degree of relative advantage in using it, they will have intention to actually adopt it.

In the fourth *Implementation* stage, consumers finally decide to adopt or reject the Internet for shopping. Consumers who decide to adopt the innovation actually shop for apparel through the Internet. In this implementation stage, consumers may still have a certain degree of uncertainty about the expected consequences of Internet shopping and will continue to actively seek information regarding Internet apparel shopping. Finally, in the *Confirmation* stage, consumers will reconsider Internet apparel shopping based on satisfaction with their Internet shopping experiences and will make decisions regarding whether they will continue to use the Internet for future apparel shopping.

**Application for the present study.** Among these five stages, only the first three stages—*knowledge, persuasion, and decision*—were explored for this study, focusing on the consumer decision making process of innovation adoption before the implementation stage. The three-stage process is compatible with belief-attitude-behavioral intention stages of the theory of reasoned action. The overall
compatibility between these two theories provided a reasonable basis that the research hypotheses developed based on the theory of reasoned action are applicable to the decision making process of Internet shopping innovation adoption.

Some important concepts of the innovation adoption theory (Rogers, 1995) were adopted for the present study. First, prior experience with an innovation was considered to influence the decision making process of the innovation adoption. According to Rogers (1995), prior practice with an innovation is essential in building how-to-knowledge and enhancing trialability and observability of the innovation, which are very important in knowledge and early persuasion (belief formation) stages. Based on prior experience with an innovation, consumers build better knowledge and beliefs about the innovation. Other researchers also found supportive results for the effect of prior experience with a behavior on beliefs about the behavior (Doll & Mallü, 1990, in Doll & Ajzen, 1992; Powell, 1995). From these perspectives, a positive direct effect of prior experience with the Internet on beliefs about Internet apparel shopping was hypothesized as follows.

\[ H_{2.5} \]: Consumers who have more prior experience with the Internet have more positive beliefs about Internet apparel shopping than do consumers who have less prior experience with the Internet.

Rogers (1995) also discussed the potential effect of prior experience with an innovation on the intention to adopt the innovation, explaining consumers' tendency to have a partial trial stage before actual adoption. Therefore, the information generated from the trial stage may influence intention formation regarding adoption of the innovation. A direct effect of prior experience with a behavior on behavioral intention was also found in previous studies (Bentler & Speckart, 1979; Doll & Ajzen, 1992; Fredricks & Dossett, 1983). Specifically, some researchers found that previous experience with computers or the Internet significantly related to their future adoption of the technology (Bear, Richards, & Lancaster, 1987; Henrichs, 1995; Kay, 1993; Moore & Benbasat, 1991). Based on these notions, another hypothesis was developed related to prior experience influence.
**H2.6:** Consumers who have more prior experience with the Internet have greater intention to purchase apparel through the Internet than do consumers who have less prior experience with the Internet.

The second research model (Model 2) adding two paths (H1.5 and H1.6) to Model 1 was developed (see Figure 2.2).

Another variable was added to Model 2 to better explain beliefs about Internet apparel shopping. According to Rogers (1995), people evaluate relative advantages of the innovation in early persuasion stage (belief-formation stage). Since relative advantages of Internet apparel shopping such as convenience and credit-card safety considerably overlap with those of in-home (catalog) apparel shopping, consumers who perceive more relative advantages about in-home apparel shopping may perceive more relative advantages of Internet apparel shopping. The perceived relative advantages are represented as beliefs about diverse aspects of the innovation—Internet apparel shopping. Model 3 adding a new hypothesis (H2.7) to Model 2 was proposed in Figure 2.3.

**H2.7:** Consumers who have more positive beliefs about in-home apparel shopping have more positive beliefs about Internet apparel shopping than do consumers who have less positive beliefs about in-home apparel shopping.

For the present study, the influence of prior experience on innovation adoption process (Rogers, 1995) was also applied as a covariate related to mail order apparel shopping. Previous studies suggested that consumers who have shopped through one kind of non-store formats are more likely to be involved with
different kinds of non-store shopping because they feel more comfortable with direct marketing and non-store shopping fits their lifestyles (Braun, 1993; Grant, 1996; Stanforth & Lennon, 1996). These findings imply that mail order shoppers may be different from non-mail order shoppers in terms of their Internet adoption process for apparel shopping. Prior experience with mail order apparel shopping is considered as a factor comprehensively affecting all relationships among variables explaining the adoption process of Internet apparel shopping. In the last step of causal model analysis, the sample was divided into two groups according to prior experience with mail order apparel shopping, then Model 3 was tested for the two groups: non-mail order shoppers and mail order shoppers, generating Models 4 and 5. To compare the two model testing results, a hypothesis was developed. The following hypothesis is non-directional due to lack of theoretical base.

\[ H_{2.5} \] There is at least one significantly different parameter estimate in the proposed model for non-mail order shoppers and mail order shoppers.

In addition, Rogers (1995) described the importance of communication channels (i.e., interpersonal channels, mass media channels) on the innovation adoption process. According to Rogers (1995), due to some degree of uncertainty of innovations, people feel a need for social reinforcement of his or her attitude toward the idea of innovation adoption. Social reinforcement is usually sought from interpersonal channels with near-peers, not from mass-media messages that are too general to provide that specific kind of reinforcement (Rogers, 1995). Rogers (1995)
argued that adoption may not occur until the individual has interpersonal communication with a satisfied adopter, even though an individual has favorable attitudes toward the innovation. The social norm-related notions support hypotheses 2.2 and hypotheses 2.4 that were previously presented.

Rogers (1995) also emphasized the importance of demographic effects on the early stage (knowledge) of consumers’ innovation adoption. To explore the effect of consumer demographic characteristics on their Internet apparel shopping adoption, analysis of variance and correlation analysis will be conducted for diverse demographic characteristics such as age, income, education, sex, marital status, and residential location. Specific hypotheses for the effect of demographic variables on Internet apparel shopping (H1.1 through H1.8) were discussed in the previous section.

**Research Hypotheses**

Research hypotheses for the present study were summarized as the following.

**Hypotheses for the effects of demographic characteristics**

H1.1: *Males have more prior experience with the Internet than do females.*

H1.2: *Males have more positive attitude toward Internet apparel shopping than do females.*

H1.3: *Males have greater intention to purchase apparel through the Internet than do females.*

H1.4: *Married consumers have greater intention to purchase apparel through the Internet than do single consumers.*

H1.5: *Non-metropolitan (rural and small town) residents have higher apparel buying intention through the Internet than do metropolitan residents.*

H1.6: *Age is negatively related to prior experience with the Internet.*

H1.7: *Age is negatively related to attitude toward Internet apparel shopping.*

H1.8: *Age is negatively related to intention to purchase apparel through the Internet.*

H1.9: *Level of education is positively related to prior experience with the Internet.*
H1.10: Level of education is positively related to attitude toward Internet apparel shopping.

H1.11: Level of education is positively related to intention to purchase apparel through the Internet.

H1.12: Level of household income is positively related to prior experience with the Internet.

H1.13: Level of household income is positively related to intention to purchase apparel through the Internet.

**Hypotheses for causal model analyses**

H2.1: Consumers who have more positive beliefs about Internet apparel shopping have more positive attitude toward Internet apparel shopping than do consumers who have less positive beliefs about Internet apparel shopping.

H2.2: Consumers who have more social support for Internet apparel shopping perceive more social acceptance of Internet apparel shopping than do consumers who have less social support for Internet apparel shopping.

H2.3: Consumers who have more positive attitude toward Internet apparel shopping have greater intention to purchase apparel through the Internet than do consumers who have less positive attitude toward Internet apparel shopping.

H2.4: Consumers who perceive more social acceptance of Internet apparel shopping have greater intention to purchase apparel through the Internet than do consumers who perceive less social acceptance of Internet apparel shopping.

H2.5: Consumers who have more prior experience with the Internet have more positive beliefs about Internet apparel shopping than do consumers who have less prior experience with the Internet.

H2.6: Consumers who have more prior experience with the Internet have greater intention to purchase apparel through the Internet than do consumers who have less prior experience with the Internet.
$H_{2.7}$: Consumers who have more positive beliefs about in-home apparel shopping have more positive beliefs about Internet apparel shopping than do consumers who have less positive beliefs about in-home apparel shopping.

$H_{2.8}$: There is at least one significantly different parameter estimate in the proposed model for non-mail order shoppers and mail order shoppers.
A description of procedures and methods used for data collection and analysis is included in Chapter 3. To test the theoretical models proposed in the previous chapter, mail survey methods were used for data collection, incorporating national random sampling. Data were first analyzed using descriptive statistics, factor analysis, MANOVA, ANOVA, and Pearson correlation. Structural equation modeling was used to test the proposed models.

**Techniques**

To generate responses from a wide variety of consumers residing in the continental U.S., a mail survey with a large random sample was selected as an appropriate method. As well as obtaining nationwide data, mail survey methods also allow respondents to work at their own pace (Churchill, 1995; Frankel & Wallen, 1993). A random sample of 1,600 households was purchased from a nationally recognized sampling company. Anyone above the age of 18 living in the household was asked to complete the survey.

**Questionnaire**

The survey questionnaire was developed based on the background literature and objectives of the study. The questionnaire contains items that measure exogenous and endogenous variables in the proposed models. The questionnaire consists of four sections and is presented in Appendix A. Two experts, one in Sociology and one in Textiles and Clothing revised the questionnaire before and after pretesting of the instrument.

**Section 1**

The first section of the questionnaire asked about: 1) consumers' experience with mail order (in-home) apparel shopping, 2) consumers' beliefs about in-home apparel shopping, 3) importance of beliefs related to apparel shopping in general, 4)
social support for Internet apparel shopping, and 5) social acceptance of Internet apparel shopping.

Prior experience with mail order apparel shopping

Four items measured experience with mail order apparel shopping. The items asked about: 1) the ways the consumer had shopped, 2) number of apparel product orders through mail order apparel shopping, 3) number of apparel items purchased through mail order shopping, and 4) amount of money spent for apparel mail order shopping during the past 12 months. The number of apparel orders through mail order shopping channels will be used to divide respondents into two groups of consumers who have and have not had experience with mail order apparel shopping for group-based tests of the causal model.

Beliefs about in-home apparel shopping in general

Five 7-point semantic differential items (risky/safe for credit card use, inconvenient/convenient, not expensive/expensive, difficult/easy, not enjoyable/enjoyable) were used to measure beliefs about in-home apparel shopping. These items were adopted from a previous study (Settle, Alreck, & McCorkle, 1994). In order to supplement the five belief-measuring items, 7-point Likert scale items measuring value, service, and price of in-home apparel shopping were added, with endpoints "strongly disagree" (1) and "strongly agree" (7).

Importance of beliefs related to apparel shopping

Importance of each belief (i.e., credit card safety, convenience, price, service, ease in use, enjoyment, value, personal safety) was asked related to general apparel shopping with 7-point Likert scales having endpoints "very unimportant" (1) and "very important" (7). To calculate belief scores recommended by Fishbein and Ajzen (1975), each importance weight was multiplied by each belief about in-home apparel shopping to generate a score for beliefs about in-home apparel shopping.

Because the importance weight items asked about importance of each characteristic related to apparel shopping in general, these items will also be multiplied by respective belief about Internet apparel shopping to generate a score for beliefs about Internet apparel shopping. The means of the sums of weighted
belief scores were used to generate the research variables: beliefs about in-home apparel shopping and beliefs about Internet apparel shopping.

Social support for Internet apparel shopping

Social influence on Internet apparel shopping was measured by two 7-point scales that were developed based on Fishbein and Ajzen (1975), with endpoints "strongly disagree" (1) and "strongly agree" (7). Also, one likely/unlikely 7-point scale item asking about the degree of willingness to comply with salient others was included. This willingness weight item was multiplied by the two measures of social influence on Internet apparel shopping. The mean of the sums of weighted scores were used to generate the social support for Internet apparel shopping score that is a social norm component in the theory of reasoned action (Fishbein & Ajzen, 1975).

Social acceptance of Internet apparel shopping

Social acceptance of Internet apparel shopping was assessed by a question asking about the degree of likeliness that some of my friends or family shop for apparel on the Internet”, with a 7-point scale from highly unlikely (1) to highly likely (7). The social acceptance variable was developed by modifying the social norm index in the theory of reasoned action (Fishbein & Ajzen, 1975).

Section 2

Section 2 consisted of items asking about: 1) apparel buying intention through the Internet, 2) beliefs about Internet apparel shopping, 3) attitude toward Internet apparel shopping, 4) reasons for using the Internet for apparel shopping, and 5) apparel shopping intention through the Internet with market incentives.

Apparel buying intention through the Internet

One 7-point highly likely/highly unlikely bi-polar scale was used to ask about apparel buying intention through the Internet within the next six months.

Beliefs about Internet apparel shopping

Beliefs about Internet apparel shopping were measured by five 7-point semantic differential bi-polar scales (risky/safe for credit card use, inconvenient/convenient, not expensive/expensive, difficult/easy, not enjoyable/enjoyable) adopted from Settle et al. (1994). Following Fishbein and Ajzen (1975), each belief
score was multiplied by the importance weight of each belief measured for general apparel shopping in Section 1. The mean of the sums of weighted belief scores were used to generate the research variable: beliefs about Internet apparel shopping.

**Attitude toward Internet apparel shopping**

For a global measure of attitude, four 7-point semantic differential items (good/bad, desirable/undesirable, beneficial/useless, positive/negative) were used. The mean of four items was used as the variable, attitude toward Internet apparel shopping.

**Reasons for using the Internet for apparel shopping**

Five highly likely/unlikely 7-point Likert scales were used for questions asking about purpose of using the Internet for apparel shopping. Purposes investigated were: 1) to find out about the latest fashions offered through non-local retailers, 2) to find out about the latest fashions offered by designers throughout the world, 3) to find out about current offerings of local retailers, and 4) to order clothing for purchase from local and non-local retailers.

**Market incentives**

Twenty six items describing potential innovations in Web catalog features in the future were included to measure market incentives needed to attract more consumers to Internet apparel shopping. The market incentives were generated from the literature and focus group discussion (see Table 3.1). The effects of market incentives were measured by the leading question, "I would be more likely to shop for apparel via the Internet if —", with 7-point scales of highly unlikely (1) and highly likely (7).

**Section 3**

The third section asked questions about prior experience with computers, Internet, and Internet shopping. Four questions were used to investigate respondents' access to computers and the Internet from home, work place, and other locations. Time spent with the Internet for any reason other than work was also measured. Number of visits to Internet retail sites was also asked. Items about
Table 3.1. Market incentives tested in the questionnaire

I would be more likely to shop for apparel via the Internet if:

- I had a computer
- I had a modem and Internet hook-up
- the company sent me a catalog by mail
- the company included its Web address in a mail order catalog sent to me
- the Web site was easy to use
- credit card security was insured
- product return was easier
- product return was free
- a more extensive number of styles were available on the Web retail site than in the catalog or store
- more extensive descriptions of items were included
- faster delivery was insured
- faster downloading of catalog images was possible
- more discounts were available on the Web site
- information about new styles, sales, and special offers appeared on a daily basis on the Web site
- the pictures of clothing items were clearer
- information about actual measurements of the garment (i.e., length, width) were available
- a view of how the garment looks on a body with my measurements could be available
- a view of how the garment would look on an image of myself could appear
- the back, front, and sides of the garment could be viewed
- an enlargement of the fabric could be viewed
- the garment could be viewed in every available color
- the computer showed me other items color matched with an item selected
- a system showing how different items looked together was available
- information about availability of size and color I want was available
- a listing of previous purchases I have made through that site was available to me
- an index service could search across many catalogs for the item I want
types of products that respondents have seen and have purchased via Internet were included in this section.

Section 4

The last section included demographic items asking about sex, marital status, ethnicity, age, education, household income, occupation, and number of children and adults living in the household. All questions were closed-ended, except for the questions asking about age, number of people living in the household, and occupation. Scales for education and occupation were adopted from Coleman's study of socio-economic status (1983). Residential location of respondents were determined by zipcodes, referring to Metropolitan Statistical Areas (1998).

Pretest Focus Groups

The data collection questionnaire was pretested on undergraduate students who also participated in focus groups that discussed Internet apparel shopping. In April 1998, forty-four students from a wide variety of majors were recruited from an introductory Textiles and Clothing course in exchange for extra credit in the course. The participants attended one of three focus group sessions. Each group of 13 to 15 students completed a consent form (see Appendix B) and a questionnaire and then discussed: 1) difficulties in understanding and filling out the questionnaire, 2) prior experiences with Internet shopping, 3) feelings and impressions about existing Internet apparel sites, 4) suggestions to improve Internet apparel retailing, and 5) suggestions for the present study. The focus group questions are summarized in Appendix C. Each group spent 10 to 15 minutes to complete the questionnaire and participated in focus group discussion for 25 to 40 minutes. Each focus group was tape-recorded and later listened to by the researcher for data confirmation.

The majority of participants were female (77%) and between 18 and 25 years old (91%). Majors of the students were varied, including textiles and clothing, marketing, sociology, and statistics. Although 32 out of the 44 students regularly visited any Internet apparel retail site, there were only four people who ever purchased apparel products through the Internet. Eighteen students reported that
they have purchased several products including apparel, shoes, recorded music, airplane tickets, computer-related products, books, concert/sport tickets, home furnishings, automobile parts, farm machines, and medical products through the Internet. Based on focus group discussion, the data collection questionnaire was modified.

**Statement on the Use of Human Subjects**

The data collection questionnaire (Appendix A), consent form for the pretest (Appendix B), and letters requesting responses (Appendix D, E, & F) were submitted to and approved by the Iowa State University Human Subject Review Committee on the use of human subjects for this study (see Appendix G). The Committee ensured that the rights and welfare of the human subjects were adequately protected, any possible risks to the subjects were avoided, and the confidentiality of data from voluntary participants was assured.

**Data Collection Procedure**

The initial mail survey was conducted in November 1998. Three items sent to the 1,600 selected households were: 1) a letter including purpose and potential implications of the study as well as request for participation in the survey (Appendix D), 2) the questionnaire exploring consumers' adoption process of Internet apparel shopping (Appendix A), and 3) a stamped return envelope. No monetary incentive was offered to survey participants. However, a report of study results was sent to participants who checked interest in receiving one.

Following a modified Salant and Dillman's (1994) Total Design Method, a postcard reminder (Appendix E) was sent one week after the initial mailing. Three weeks after the first mailing, the third mailing was conducted by sending a cover letter, a questionnaire, and a stamped reply envelope to the non-respondents. The cover letter used for the third mailing is presented in Appendix F.

The last surveys were returned by early January in 1999. Delivery rate was 93.75%. A total of 448 questionnaires were returned to the researcher, indicating
27.38% of return rate. Of these returns, 355 usable questionnaires (22.19%) were included in the data analyses for the study.

Data Analysis

Data analysis consisted of two stages: 1) preliminary analysis and 2) analysis of causal models. Preliminary analysis included descriptive analysis, factor analysis, and analysis of variance, using Statistical Package for Social Science (SPSS) Version 5.0. For causal model analysis, five different models were tested by structural equation modeling using LISREL VII (Jöreskog & Sörbom, 1989) and AMOS Version 3.6 (Arbuckle, 1997).

Preliminary Analysis

Descriptive analysis

Descriptive analysis focused on respondents': 1) demographic profile, 2) prior experience with mail order apparel shopping, 3) prior experience with computer technology and Internet shopping, and 4) apparel shopping intention through the Internet with market incentives. Frequency, percent, mean, and standard deviation were used for descriptive analysis.

Construct validity and internal reliability

Construct validity was assessed using factor analysis (Cronbach & Meehl, 1955). Factor analysis was conducted to determine whether multiple indicators for each variable comprised one factor dimension. Factor loadings above .55 (Nunnally, 1967) and not lower than .30 (Kline, 1994) were considered as evidence for construct validity. Internal reliability was determined using Cronbach standardized alpha (Cronbach, 1951). High alpha values were evidence of high reliability among multiple indicators for a factor. After examining dimensionality of multiple item measures, the means of the sums of multiple items were entered into data analysis of some research variables (i.e., prior experience with the Internet, beliefs about in-home apparel shopping, beliefs about Internet apparel shopping, attitude toward Internet apparel shopping, social support for Internet apparel shopping).
Descriptive analysis of research variables

Means and standard deviations of attitudinal, social and behavioral variables related to Internet apparel shopping were examined. The t-tests between the means of research variables were used for further analyses.

Effects of demographic characteristics on Internet apparel shopping

Multivariate and univariate analyses of variance (MANOVA and ANOVA) were conducted to determine differences in responses among demographic groups for categorical variables such as sex, marital status, and location. Also, Pearson correlation coefficients were used to explore response difference related to continuous demographic variables such as age, education, and income. Dependent variables for these analyses were three research variables: 1) prior experience with the Internet, 2) attitude toward Internet apparel shopping, and 3) intention to purchase apparel through the Internet. Based on results, 13 research hypotheses (H₁₋₁ to H₁₋₁₃) were tested.

Analysis of Causal Models

The proposed models were tested through structural equation modeling (SEM) because SEM can be applied where there is measurement error and correlation residuals (Pedhazur, 1982). The maximum-likelihood estimation was analyzed through LISREL VII (Jöreskog & Sörbom, 1989). The analysis of causal models followed four steps: 1) test of a basic Fishbein and Ajzen's model (Model 1), 2) test of Model 2 adding prior experience with the Internet to Model 1, 3) test of Model 3 adding beliefs about in-home apparel shopping to Model 2, and 4) test of Model 3 on two groups of consumers who had or had no experience with mail order apparel shopping, generating Models 4 and 5. In addition to the model test, parameter estimates for the both groups were evaluated using multi-group analysis via AMOS 3.6 (Arbuckle, 1997) to determine whether there was a significantly different parameter estimate in the proposed model for the two groups: non-mail order shoppers and mail order shoppers (H₂₋₈). The AMOS was used for analysis because LISREL VII, a sub program of SPSS 5.0, does not provide an option for multiple-group analysis.
Based on causal model analysis, seven hypotheses (H2.1 to H2.7) were tested. Fit of the causal model was examined through a chi-square statistic, goodness-of-fit index, adjusted goodness-of-fit index, and root mean square residual. In addition, improvement of model fit was assessed by chi-square statistics and the normed fit index (Bentler & Bonett, 1980). These fit indices are further discussed in Chapter 5.
CHAPTER 4: PRELIMINARY ANALYSIS

This chapter consists of sample description, factor analysis, descriptive statistics of research variables, and test of the demographic effects on Internet apparel shopping. In the sample description section, demographic profile, experience with mail order apparel shopping, and experience with Internet apparel shopping of respondents were addressed. Results of factor analysis conducted for research variables measured by multiple indicators were included. Also, descriptive statistics were examined focusing on attitudinal, social, and behavioral variables related to Internet apparel shopping. Finally, effects of demographic characteristics of the sample on research variables were examined using MANOVA, ANOVA, and Pearson correlation coefficients.

Sample Description

Out of 1,600 households randomly selected from the continental U.S., 355 consumers mailed back a usable questionnaire. Description of the sample includes respondents': 1) demographic profile, 2) prior experience with mail order apparel shopping, 3) prior experience with computer technology and Internet shopping, and 4) apparel shopping intention through the Internet.

Demographic Profile of the Sample

A demographic profile of the sample is summarized in Table 4.1. There was almost an equal number of male and female respondents. The ages of respondents ranged from 18 to 88; one half of the respondents were between the age of 35 and 54, coinciding with the middle-aged consumer group that currently has the most buying power in the U.S. About two thirds of the respondents were married. Fifty-eight percent of respondents were living with another adult in the same household; almost 67% of respondents said that they do not have children under 18, living in the same household. The majority of respondents were White or European American (89%). About 53.8% of respondents had some college education or undergraduate diplomas; about seventeen percent of the sample had a graduate degree.
Table 4.1. Demographic characteristics of the sample (N=355)

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<td>85</td>
<td>23.9</td>
<td>10.0</td>
</tr>
<tr>
<td>55-64</td>
<td></td>
<td>52</td>
<td>14.6</td>
<td>8.5</td>
</tr>
<tr>
<td>65-74</td>
<td></td>
<td>83</td>
<td>23.4</td>
<td>7.3</td>
</tr>
<tr>
<td>75 and over</td>
<td></td>
<td>11</td>
<td>3.1</td>
<td>5.2</td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td>Married</td>
<td>242</td>
<td>67.9</td>
<td>61.9</td>
</tr>
<tr>
<td></td>
<td>Non-married</td>
<td>106</td>
<td>29.9</td>
<td>41.4</td>
</tr>
<tr>
<td><strong>Location&lt;sup&gt;d&lt;/sup&gt;</strong></td>
<td>Metropolitan area</td>
<td>118</td>
<td>33.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non-metropolitan area</td>
<td>237</td>
<td>66.8</td>
<td></td>
</tr>
<tr>
<td><strong>Education&lt;sup&gt;e&lt;/sup&gt;</strong></td>
<td>Some grade school</td>
<td>3</td>
<td>0.8</td>
<td>11.2</td>
</tr>
<tr>
<td></td>
<td>Some high school</td>
<td>15</td>
<td>4.2</td>
<td>24.8</td>
</tr>
<tr>
<td></td>
<td>Completed high school or equivalent</td>
<td>51</td>
<td>14.4</td>
<td>30.0</td>
</tr>
<tr>
<td></td>
<td>Some college/vocational or</td>
<td>120</td>
<td>33.8</td>
<td>24.9</td>
</tr>
<tr>
<td></td>
<td>technical school</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Undergraduate college degree</td>
<td>71</td>
<td>20.0</td>
<td>&gt; 13.1&lt;sup&gt;f&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>Some graduate school</td>
<td>26</td>
<td>7.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Graduate degree</td>
<td>61</td>
<td>17.2</td>
<td>7.2</td>
</tr>
<tr>
<td><strong>Household income</strong></td>
<td>Less than $10,000</td>
<td>3</td>
<td>0.8</td>
<td>12.5</td>
</tr>
<tr>
<td></td>
<td>$10,000 to $14,999</td>
<td>17</td>
<td>4.8</td>
<td>8.1</td>
</tr>
<tr>
<td></td>
<td>$15,000 to $24,999</td>
<td>29</td>
<td>8.2</td>
<td>15.5</td>
</tr>
<tr>
<td></td>
<td>$25,000 to $34,999</td>
<td>44</td>
<td>12.4</td>
<td>14.4</td>
</tr>
<tr>
<td></td>
<td>$35,000 to $49,999</td>
<td>49</td>
<td>13.8</td>
<td>17.7</td>
</tr>
<tr>
<td></td>
<td>$50,000 to $74,999</td>
<td>71</td>
<td>20.0</td>
<td>17.6</td>
</tr>
<tr>
<td></td>
<td>$75,000 to $99,999</td>
<td>49</td>
<td>13.8</td>
<td>&gt; 14.2&lt;sup&gt;f&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>$100,000 to $149,999</td>
<td>38</td>
<td>10.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$150,000 and over</td>
<td>12</td>
<td>3.4</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> Sum of percents may not be equal to 100 due to missing data.
<sup>b</sup> U.S. population data were based on 1990 data (U.S. Bureau of Census, 1993).
<sup>c</sup> The percent was for 20-24 year-old category; therefore, the percent for 18-24 year-old population may be higher than this figure.
<sup>d</sup> Residential location of the respondents was determined by zipcodes, referring to Metropolitan Statistical Areas (1998).
<sup>e</sup> Education and occupation categories were adopted from Coleman (1983) and modified for this study.
<sup>f</sup> It indicates summed percent of all categories followed by the figure.
<sup>g</sup> Respondents could check more than one category.
<sup>h</sup> Persons of Hispanic origin may be of any race (U.S. Bureau of Census, 1993).
Table 4.1. (continued)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Frequency</th>
<th>Percent</th>
<th>U.S. Population (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupation</td>
<td>Marginal semi-skilled jobs</td>
<td>5</td>
<td>1.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Average skilled jobs</td>
<td>13</td>
<td>3.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skilled craftsmen, factory foremen, or low-pay salesclerks</td>
<td>44</td>
<td>12.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Owners of a very small firm, technicians, salespeople, or office workers</td>
<td>61</td>
<td>17.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Middle management, teachers, or lesser professionals</td>
<td>60</td>
<td>16.9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Owners of middle-sized businesses, moderate-success professionals</td>
<td>25</td>
<td>7.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Top corporate executives, leading doctors and lawyers</td>
<td>1</td>
<td>0.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Retired</td>
<td>97</td>
<td>27.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Student</td>
<td>7</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Housewives</td>
<td>24</td>
<td>6.8</td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td>White or European ethnicity</td>
<td>316</td>
<td>89.0</td>
<td>80.3</td>
</tr>
<tr>
<td></td>
<td>Black or African ethnicity</td>
<td>8</td>
<td>2.3</td>
<td>12.1</td>
</tr>
<tr>
<td></td>
<td>Hispanic or Latino ethnicity</td>
<td>3</td>
<td>0.8</td>
<td>9.0</td>
</tr>
<tr>
<td></td>
<td>Asian ethnicity</td>
<td>9</td>
<td>2.5</td>
<td>2.9</td>
</tr>
<tr>
<td></td>
<td>Native American</td>
<td>7</td>
<td>2.0</td>
<td>0.8</td>
</tr>
<tr>
<td>Number of children living</td>
<td>0</td>
<td>236</td>
<td>66.5</td>
<td>51.0</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>45</td>
<td>12.7</td>
<td>20.0</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>45</td>
<td>12.7</td>
<td>19.0</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>10</td>
<td>2.8</td>
<td>7.0</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>7</td>
<td>2.0</td>
<td>&gt; 3.0</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>2</td>
<td>0.6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>3</td>
<td>0.8</td>
<td></td>
</tr>
<tr>
<td>Number of adults living</td>
<td>1</td>
<td>81</td>
<td>22.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>207</td>
<td>58.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>44</td>
<td>12.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>12</td>
<td>3.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>3</td>
<td>0.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>2</td>
<td>0.6</td>
<td></td>
</tr>
</tbody>
</table>

Household income of the respondents was normally distributed with median of the category: $50,000-$74,999. About two thirds of the sample were living in non-metropolitan areas in the U.S., indicating that: 1) rural or small town residents were more active in participating in national mail surveys than were metropolitan residents, and/or 2) rural or small town residents were more interested in using the
Internet and Internet shopping than were metropolitan residents. The largest reported category of occupation was retired (27.3%), indicating strong involvement of this group in national mail surveys. The next two largest reported categories of occupation were: 1) owners of very small firms, technicians, sales people, or office workers (17.2%), and 2) middle management, teachers, or other professionals (16.9%).

To address possible non-response biases, the demographics of the respondents were compared to the 1990 U.S. population (U.S. Bureau of Census, 1993). The respondents' demographic profile resembled the U.S. population figures on sex, age, marital status, number of children, ethnicity, education, and household income; however, the study sample had more people who were over 65, who were married, who were White, who had a graduate degree, and who had household income more than $75,000. In addition, there were fewer people who have less than $10,000 of household income and who did not complete high school or lower educational degrees. The results suggest that the findings may not be fully generalized to the U.S. population although national random sampling was attempted for data collection.

To further determine non-response biases, responses of early respondents were compared with those of late respondents. Persons responding later are assumed to be more similar to non-respondents (Armstrong & Overton, 1977). About 25% of first responses and 25% of last responses were compared by t-tests for independent samples focusing on seven research variables that will be used for causal model analyses. Those variables were: 1) beliefs about in-home apparel shopping, 2) prior experience with the Internet, 3) beliefs about Internet apparel shopping, 4) attitude toward Internet apparel shopping, 5) social support for Internet apparel shopping, 6) social acceptance of Internet apparel shopping, and 7) apparel buying intention through the Internet. In results, no statistically significant difference of means between the two groups was found on any of variables listed above (p>.05). Therefore, it was assumed there was no significant bias related to time period of response.
Prior Experience with Mail Order Apparel Shopping

Respondents' prior experience with mail order apparel shopping was explored. Table 4.2 provides a specific description of mail order shopping experience of respondents. To the question asking about the ways that the respondent shops for apparel, 136 respondents (38.3%) answered that they patronized only stores for apparel shopping; 212 consumers (59.8%) said that they have shopped apparel through mail-order in the past 12 months. About 57% of the respondents have purchased apparel products through any mail order shopping methods (i.e., catalog, TV, Internet shopping) in the past 12 months. The largest reported category of the number of apparel items purchased through mail order shopping was 2-4 items (22.5%). To the question asking about money amount spent on mail order apparel shopping in the past 12 months, 81 respondents

Table 4.2. Experience with mail order apparel shopping

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methods for apparel shopping</td>
<td>In-store shopping</td>
<td>136</td>
<td>38.3</td>
</tr>
<tr>
<td></td>
<td>In-store &amp; mail order shopping</td>
<td>200</td>
<td>56.4</td>
</tr>
<tr>
<td></td>
<td>Mail order shopping only</td>
<td>5</td>
<td>1.4</td>
</tr>
<tr>
<td></td>
<td>In-store, mail order, &amp; personal trade</td>
<td>7</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>None</td>
<td>5</td>
<td>1.4</td>
</tr>
<tr>
<td>Numbers of apparel items purchased through mail order shopping</td>
<td>None</td>
<td>150</td>
<td>42.3</td>
</tr>
<tr>
<td></td>
<td>One item</td>
<td>35</td>
<td>9.9</td>
</tr>
<tr>
<td></td>
<td>2-4 items</td>
<td>80</td>
<td>22.5</td>
</tr>
<tr>
<td></td>
<td>5-7 items</td>
<td>47</td>
<td>13.2</td>
</tr>
<tr>
<td></td>
<td>8-10 items</td>
<td>15</td>
<td>4.2</td>
</tr>
<tr>
<td></td>
<td>More than 10 items</td>
<td>25</td>
<td>7.0</td>
</tr>
<tr>
<td>Money spent on mail order apparel shopping ($)</td>
<td>None</td>
<td>150</td>
<td>42.3</td>
</tr>
<tr>
<td></td>
<td>1-50</td>
<td>33</td>
<td>9.3</td>
</tr>
<tr>
<td></td>
<td>51-100</td>
<td>48</td>
<td>13.5</td>
</tr>
<tr>
<td></td>
<td>101-150</td>
<td>23</td>
<td>6.5</td>
</tr>
<tr>
<td></td>
<td>151-200</td>
<td>31</td>
<td>8.7</td>
</tr>
<tr>
<td></td>
<td>201-300</td>
<td>29</td>
<td>8.2</td>
</tr>
<tr>
<td></td>
<td>301-400</td>
<td>16</td>
<td>4.5</td>
</tr>
<tr>
<td></td>
<td>401-500</td>
<td>6</td>
<td>1.7</td>
</tr>
<tr>
<td></td>
<td>More than 500</td>
<td>17</td>
<td>4.8</td>
</tr>
</tbody>
</table>

* Answers were based on experience in the previous 12 months.

b Sum of percents may not be equal to 100 due to missing data.
(22.8%) said that they spent 1-100 dollars; 54 people (15.2%) said that they spent $101-200.

Prior Experience with Computer Technology and Internet Shopping

Respondents' prior experiences with computer, Internet, and Internet shopping were also studied and summarized in Table 4.3. Almost 60% of respondents had home computers and Internet access. One hundred eighty six consumers (52.4%) used the Internet weekly for reasons other than work; about one half of these people used the Internet for one to five hours per week. There were

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home computer ownership</td>
<td>Owned</td>
<td>212</td>
<td>59.7</td>
</tr>
<tr>
<td></td>
<td>Not owned</td>
<td>142</td>
<td>40.0</td>
</tr>
<tr>
<td>Internet access at home or at work</td>
<td>Accessible</td>
<td>209</td>
<td>58.9</td>
</tr>
<tr>
<td></td>
<td>Not accessible</td>
<td>142</td>
<td>40.0</td>
</tr>
<tr>
<td>Time using the Internet for reasons other than work per week</td>
<td>Don't use</td>
<td>169</td>
<td>47.6</td>
</tr>
<tr>
<td></td>
<td>Less than 1 hour</td>
<td>45</td>
<td>12.7</td>
</tr>
<tr>
<td></td>
<td>1-5 hours</td>
<td>90</td>
<td>25.4</td>
</tr>
<tr>
<td></td>
<td>5-10 hours</td>
<td>32</td>
<td>9.0</td>
</tr>
<tr>
<td></td>
<td>More than 10 hours</td>
<td>19</td>
<td>5.4</td>
</tr>
<tr>
<td>Frequency visiting any Internet retail sites for any kind of merchandise</td>
<td>Never</td>
<td>217</td>
<td>61.1</td>
</tr>
<tr>
<td></td>
<td>Once or twice a year</td>
<td>39</td>
<td>11.0</td>
</tr>
<tr>
<td></td>
<td>Once every few months</td>
<td>43</td>
<td>12.1</td>
</tr>
<tr>
<td></td>
<td>Every month</td>
<td>27</td>
<td>7.6</td>
</tr>
<tr>
<td></td>
<td>At least once a week</td>
<td>29</td>
<td>8.2</td>
</tr>
<tr>
<td>Frequency visiting any Internet apparel retail site</td>
<td>Never</td>
<td>278</td>
<td>78.3</td>
</tr>
<tr>
<td></td>
<td>Once or twice a year</td>
<td>31</td>
<td>8.7</td>
</tr>
<tr>
<td></td>
<td>Once every few months</td>
<td>25</td>
<td>7.0</td>
</tr>
<tr>
<td></td>
<td>Every month</td>
<td>12</td>
<td>3.4</td>
</tr>
<tr>
<td></td>
<td>At least once a week</td>
<td>7</td>
<td>2.0</td>
</tr>
<tr>
<td>Experience purchasing any products from Internet retail site</td>
<td>Purchased</td>
<td>98</td>
<td>27.6</td>
</tr>
<tr>
<td></td>
<td>Not purchased</td>
<td>255</td>
<td>71.8</td>
</tr>
<tr>
<td>Experience purchasing any clothing products from Internet retail site</td>
<td>Purchased</td>
<td>30</td>
<td>8.5</td>
</tr>
<tr>
<td></td>
<td>Not purchased</td>
<td>323</td>
<td>91.0</td>
</tr>
</tbody>
</table>

* Sum of percents may not be equal to 100 due to missing data.
138 respondents (38.9%) who had visited Internet retail sites for any kind of merchandise; however, only 75 people (21.1%) had ever visited any Internet apparel retail site. Ninety-eight respondents (27.6%) had ever purchased any product from Internet retail sites; only 30 people (8.5%) had purchased any clothing item through the Internet.

Product categories purchased by respondents through the Internet are summarized in Table 4.4. The two largest categories of product purchased by respondents through the Internet were computer-related products and books. Also, clothing, recorded music, and travel services were among product categories that were more frequently purchased by respondents. In addition, respondents reported that they have purchased other items such as collectibles (i.e., antiques, sports products, crafts, toys), supplies/equipment for hobbies (i.e., art, golf, aquarium), and gifts (i.e., flowers, gift baskets). There was one respondent who purchased an automobile.

Table 4.4. Product categories purchased by respondents through the Internet a

<table>
<thead>
<tr>
<th>Product category</th>
<th>Number of purchasers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer-related products</td>
<td>50</td>
</tr>
<tr>
<td>Books</td>
<td>45</td>
</tr>
<tr>
<td>Clothing</td>
<td>30</td>
</tr>
<tr>
<td>Travel service</td>
<td>23</td>
</tr>
<tr>
<td>Recorded music</td>
<td>21</td>
</tr>
<tr>
<td>Home electronics</td>
<td>15</td>
</tr>
<tr>
<td>Home furnishings</td>
<td>8</td>
</tr>
<tr>
<td>Jewelry</td>
<td>8</td>
</tr>
<tr>
<td>Shoes</td>
<td>7</td>
</tr>
<tr>
<td>Antiques</td>
<td>3</td>
</tr>
<tr>
<td>Sports collectible</td>
<td>3</td>
</tr>
<tr>
<td>Toys</td>
<td>3</td>
</tr>
<tr>
<td>Flower</td>
<td>3</td>
</tr>
<tr>
<td>Art supplies</td>
<td>1</td>
</tr>
<tr>
<td>Golf equipment</td>
<td>1</td>
</tr>
<tr>
<td>Aquarium products</td>
<td>1</td>
</tr>
<tr>
<td>Craft</td>
<td>1</td>
</tr>
<tr>
<td>Gift basket</td>
<td>1</td>
</tr>
<tr>
<td>Automobile</td>
<td>1</td>
</tr>
<tr>
<td>Automobile</td>
<td>1</td>
</tr>
<tr>
<td>Genealogical supplies</td>
<td>1</td>
</tr>
</tbody>
</table>

* Respondents selected as many items as they purchased.
Apparel Shopping Intention through the Internet with Market Incentives

Table 4.5 provides descriptive statistical results of: 1) apparel buying intention through the Internet within the next six months, and 2) apparel shopping intention through the Internet in the future with market incentives. For the question asking about intention to purchase apparel within the next six months, respondents very negatively responded (M=1.83). However, responses were far more positive when

Table 4.5. The effects of market incentives (N=355)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intention to purchase apparel (without market incentives)</td>
<td>1.83</td>
<td>1.61</td>
</tr>
<tr>
<td>Intention to shop for apparel if:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>product return was free</td>
<td>4.84</td>
<td>2.32</td>
</tr>
<tr>
<td>a view of how the garment looks on a body with my measurements could be available</td>
<td>4.64</td>
<td>2.37</td>
</tr>
<tr>
<td>product return was easier</td>
<td>4.52</td>
<td>2.24</td>
</tr>
<tr>
<td>information about availability of size and color I want was available</td>
<td>4.50</td>
<td>2.15</td>
</tr>
<tr>
<td>a view of how the garment would look on an image of myself could appear</td>
<td>4.49</td>
<td>2.22</td>
</tr>
<tr>
<td>the back, front, and sides of the garment could be viewed</td>
<td>4.47</td>
<td>2.14</td>
</tr>
<tr>
<td>credit card security was insured</td>
<td>4.43</td>
<td>2.25</td>
</tr>
<tr>
<td>more discounts were available on the Web site</td>
<td>4.41</td>
<td>2.18</td>
</tr>
<tr>
<td>the garment could be viewed in every available color</td>
<td>4.41</td>
<td>2.11</td>
</tr>
<tr>
<td>information about actual measurements of the garment (i.e., length, width) were available</td>
<td>4.40</td>
<td>2.14</td>
</tr>
<tr>
<td>a system showing how different items looked together was available</td>
<td>4.27</td>
<td>2.07</td>
</tr>
<tr>
<td>an enlargement of the fabric could be viewed</td>
<td>4.26</td>
<td>2.11</td>
</tr>
<tr>
<td>an index service could search across many catalogs for the item I want</td>
<td>4.24</td>
<td>2.09</td>
</tr>
<tr>
<td>the computer showed me other items color matched with an item selected</td>
<td>4.20</td>
<td>2.04</td>
</tr>
<tr>
<td>more extensive descriptions of items were included</td>
<td>4.10</td>
<td>2.10</td>
</tr>
<tr>
<td>the pictures of clothing items were clearer</td>
<td>4.09</td>
<td>2.08</td>
</tr>
<tr>
<td>a more extensive number of styles were available on the Web retail site</td>
<td></td>
<td></td>
</tr>
<tr>
<td>than in the catalog or store</td>
<td>3.95</td>
<td>2.11</td>
</tr>
<tr>
<td>the Web site was easy to use</td>
<td>3.92</td>
<td>2.10</td>
</tr>
<tr>
<td>faster delivery was insured</td>
<td>3.89</td>
<td>1.97</td>
</tr>
<tr>
<td>faster downloading of catalog images was possible</td>
<td>3.88</td>
<td>2.06</td>
</tr>
<tr>
<td>the company sent me a catalog by mail</td>
<td>3.85</td>
<td>2.02</td>
</tr>
<tr>
<td>the company included its Web address in a mail order catalog sent to me</td>
<td>3.77</td>
<td>2.04</td>
</tr>
<tr>
<td>information about new styles, sales, and special offers appeared</td>
<td></td>
<td></td>
</tr>
<tr>
<td>on a daily basis on the Web site</td>
<td>3.75</td>
<td>1.97</td>
</tr>
<tr>
<td>I had a modem and Internet hook-up</td>
<td>3.58</td>
<td>2.10</td>
</tr>
<tr>
<td>I had a computer</td>
<td>3.54</td>
<td>2.08</td>
</tr>
<tr>
<td>a listing of previous purchases I have made through that site was</td>
<td></td>
<td></td>
</tr>
<tr>
<td>available to me</td>
<td>3.31</td>
<td>1.84</td>
</tr>
</tbody>
</table>

*All individual items were measured with 7-point scales with end points 1 (highly unlikely) and 7 (highly likely).
shopping intention was asked with hypothetical market incentives. The score of the apparel buying intention through the Internet within the next six months and the mean score of apparel shopping intention with market incentives were significantly different based on F-test results ($F=12.51, p<.001$). The results indicate that respondents who are offered more market incentives will get involved with Internet apparel shopping. In addition, respondents may be more comfortable with shopping for apparel through the Internet, not necessarily purchasing apparel through the Internet.

Twenty-six market incentives were described and rated to identify the most desirable changes or improvements in current Internet apparel retail sites. The most attractive market incentives related to: 1) free and easier product returns, 2) innovative functions (e.g., "view of how the garment looks on a body with my measurements", "view of how the garment looks on an image of myself"), 3) ensured credit card security, 4) more extensive information about products, 5) technical improvements of current systems (e.g., clear picture, enlargement of fabrics), and 6) more discounts and sales (see Table 4.5). The least attractive item to respondents was "a listing of previous purchases I have made through that site was available to me", reflecting respondents’ concerns about privacy and security of personal information.

As reasons for using Internet apparel shopping in the future, more respondents wanted to use the Internet to find out about current clothing items in stock at local retailers than to directly order clothing for purchase. Means and standard deviations for various reasons to use the Internet for apparel shopping were summarized in Table 4.6.

**Factor Analysis**

Exploratory factor analysis was conducted for the research variables assessed with multiple items: 1) beliefs about in-home apparel shopping, 2) prior experience with the Internet, 3) beliefs about Internet apparel shopping, 4) attitude toward Internet apparel shopping, and 5) social support for Internet apparel
Table 4.6. Reasons for using Internet apparel shopping in the future (N=355)\textsuperscript{a}

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>To find out about current clothing items in stock at local retailers</td>
<td>3.49</td>
<td>2.08</td>
</tr>
<tr>
<td>To find out about the latest clothing style offerings through non-local retailers</td>
<td>3.19</td>
<td>2.01</td>
</tr>
<tr>
<td>To order clothing for purchase from non-local retailers</td>
<td>3.17</td>
<td>1.92</td>
</tr>
<tr>
<td>To order clothing for purchase from local retailers</td>
<td>3.02</td>
<td>1.80</td>
</tr>
<tr>
<td>To find out the latest clothing styles offered by designers throughout the world</td>
<td>2.86</td>
<td>1.98</td>
</tr>
</tbody>
</table>

\textsuperscript{a} All individual items were measured with 7-point scales.

shopping. Principle components analysis was run to observe dimensionality and relationships among multiple items within measures and for data reduction into a smaller number of variables. For all five variables, only one factor was identified for each variable, indicating uni-dimensionality of multiple-item measurement constructs. Reliabilities for the combinations of multiple items in each variable were tested with a measure of internal consistency, Cronbach's \textit{alpha}. Reliabilities for the five variables were above .75 and in an acceptable range (see Appendix H).

The multi-item variables created through factor analysis were: 1) beliefs about in-home apparel shopping, 2) prior experience with the Internet, 3) beliefs about Internet apparel shopping, 4) attitude toward Internet apparel shopping, and 5) social support for using the Internet for apparel shopping. The means of sums of multiple indicators were used to generate a single indicator for each variable. Specifically, two belief variables (beliefs about in-home apparel shopping and beliefs about Internet apparel shopping) and a social support variable were assessed by the means of sums of weighted scores according to Fishbein and Ajzen (1975). Two other research variables measured with a single item—social acceptance of Internet apparel shopping and apparel buying intention through the Internet—were used for single indicators for the variables as they were.

Beliefs about In-home Apparel Shopping

Following Fishbein and Ajzen (1975), beliefs about in-home apparel shopping was assessed by multiplying each of five bi-polar items asking about safety, convenience, price, ease in use, and enjoyment of in-home shopping by an intensity component asking about importance of each belief (see Table H.1). Factor loading
values were between .67 and .85 with reliability of .82. The eigenvalue was 2.95; the factor explained 59.1% of the variance.

**Prior Experience with the Internet**

Two items were used to measure prior experience with the Internet, including 1) time length spent on using the Internet for any reason other than work and 2) frequency of visiting retail sites for any kind of merchandise (see Appendix, Table H.2). Factor loading of items for this variable were above .85 with reliability of .82. The eigenvalue was 1.69 with the factor explaining 84.5% of variance.

**Beliefs about Internet Apparel Shopping**

The five bi-polar scales about safety, convenience, price, ease in use, and enjoyment of Internet shopping were used to measure beliefs about Internet apparel shopping variable (see Appendix, Table H.3). Scores for each belief were multiplied by the respective intensity measure asking about importance of each belief, based on Fishbein and Ajzen's formula (1975). The weighted scores were factor-analyzed. Factor loading ranged from .56 and .84 with an eigenvalue of 2.89, which explained 57.9% of total variance. Cronbach alpha for the variable was .81.

**Attitude toward Internet Apparel Shopping**

Four bi-polar scales (i.e., bad/good, undesirable/desirable, useless/beneficial, negative/positive) were used to measure general attitude toward Internet apparel shopping (see Appendix, Table H.4). Factor loading values were between .93 and .95 with Cronbach's alpha of .95. The eigenvalue was 3.52; and the factor explained 88.1% of total variance.

**Social Support for Internet Apparel Shopping**

Social support for Internet apparel shopping was measured by two items based on Fishbein and Ajzen's (1975) social norm concepts (see Appendix, Table H.5). Scores for support of friends or family on using the Internet for apparel shopping were multiplied by the willingness to comply with family or friends item. The weighted scores were submitted for factor analysis. Factor loading values for the two scores were .97 with Cronbach alpha of .95. The eigenvalue was 1.90 with the factor explaining 95.0% of total variance.
Descriptive Statistics of Attitudinal, Social and Behavioral Variables

Overall responses for research variables were summarized in Table 4.7. Descriptive statistics of variables suggested that the means of beliefs about in-home and Internet apparel shopping were above mid-point. Beliefs about in-home apparel shopping were significantly more positive than beliefs about Internet apparel shopping in t-test results ($t=2.045$, $p<.001$). The mean scores for attitude, social support, social acceptance, and buying intention variables related to Internet apparel shopping were below mid-point. Beliefs about Internet apparel shopping ($F=5.113$, $p<.001$) and attitude toward Internet apparel shopping ($F=7.360$, $p<.001$) were significantly more positive than apparel buying intention through the Internet. Social support for Internet apparel shopping ($F=9.305$, $p<.001$) and social acceptance of Internet apparel shopping ($F=12.856$, $p<.001$) were also more positive than apparel buying intention through the Internet.

The results indicate that respondents' psychological perception (beliefs about and attitude toward Internet apparel shopping) and social factors (social support and social acceptance) related to Internet apparel shopping were inconsistent with their

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mid-point</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLF/IHA</td>
<td>25.37</td>
<td>8.66</td>
<td>3.8</td>
<td>49</td>
<td>16</td>
</tr>
<tr>
<td>BLF/ITA</td>
<td>20.44</td>
<td>8.95</td>
<td>3.4</td>
<td>49</td>
<td>16</td>
</tr>
<tr>
<td>ATT/ITA</td>
<td>3.81</td>
<td>1.56</td>
<td>1</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>SS</td>
<td>6.53</td>
<td>5.83</td>
<td>1</td>
<td>39</td>
<td>16</td>
</tr>
<tr>
<td>SA</td>
<td>2.76</td>
<td>1.74</td>
<td>1</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>BI/ITA</td>
<td>1.83</td>
<td>1.61</td>
<td>1</td>
<td>7</td>
<td>4</td>
</tr>
</tbody>
</table>

*BLF/IHA: beliefs about in-home apparel shopping, BLF/ITA: beliefs about Internet apparel shopping, ATT/ITA: attitude toward Internet apparel shopping; SS: social support for Internet apparel shopping, SA: social acceptance of Internet apparel shopping, BI/ITA: apparel buying intention through the Internet; SA and BI/ITA were measured by one item and other variables were measured by means of multiple items explaining a factor; BLF/IHA and BLF/ITA were measured by multiplying each belief by the importance of the belief; SA was measured by multiplying social pressure on Internet apparel shopping by motivation to comply with the salient others; all measures were based on 7-point Likert scales.
behavioral intentions toward Internet apparel shopping. Respondents may still be hesitant in buying apparel through the Internet in spite of somewhat positive beliefs and attitude that the respondents hold for Internet apparel shopping and interpersonal influence that respondents receive for Internet apparel shopping.

**Effects of Demographic Variables on Internet Apparel Shopping**

Possible influences of respondents' demographic characteristics were examined focusing on three dependent variables: 1) prior experience with the Internet, 2) attitude toward Internet apparel shopping, and 3) apparel buying intention through the Internet. To investigate the effects of categorical demographic variables (i.e., sex, marital status, location), multivariate analysis of variance (MANOVA) and analysis of variance (ANOVA) were used. Pearson correlation was used to test the mean differences in results of the dependent variables due to continuous demographic variables (i.e., age, education, household income, number of children living in the households, number of adults living in the households).

**Effects of Categorical Demographic Variables**

For categorical variables such as sex, marital status and location, Hotelling-Lawley Trace $t$-test from MANOVA was used to examine comprehensive effect of demographic characteristics on dependent variables. Then, one-way ANOVA was used to test effects of significant demographic characteristics on each dependent variable. The effect of ethnic background was not examined due to the unbalanced number of cases across categories (i.e., white: 316, Asian: 9, Black: 8). For categorical variables generating significant differences in means of dependent variables, the results between demographic groups were compared.

In MANOVA, no difference in means of dependent variables was found due to sex ($p=.083$) and marital status ($p=.384$), failing to support hypotheses 1-1, 1-2, 1-3, and 1-4. Metropolitan and non-metropolitan residents were not different in responses overall ($p=.059$). However, due to the near significance of MANOVA, differences between metropolitan and non-metropolitan residents were examined through univariate analysis. In ANOVA, the effect of residential location was observed in
attitude toward Internet apparel shopping ($p<.05$). However, no location difference was found on apparel buying intention through the Internet, failing to support hypothesis 1.5. The results of MANOVA and ANOVA for categorical variable effects are summarized in Table 4.8 and 4.9.

Table 4.8. MANOVA results for categorical demographic variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Hotelling-Lawley Trace test</th>
<th>df</th>
<th>$F$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEX</td>
<td>.022</td>
<td>(3, 309)</td>
<td>2.242</td>
<td>.083</td>
</tr>
<tr>
<td>MARITAL STATUS</td>
<td>.010</td>
<td>(3, 303)</td>
<td>1.019</td>
<td>.384</td>
</tr>
<tr>
<td>LOCATION</td>
<td>.024</td>
<td>(3, 309)</td>
<td>2.511</td>
<td>.059</td>
</tr>
</tbody>
</table>

Table 4.9. ANOVA results for location effects *

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Hypoth. SS</th>
<th>Error SS</th>
<th>Hypoth. MS</th>
<th>Error MS</th>
<th>$F$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE/IT</td>
<td>.001</td>
<td>434.114</td>
<td>.001</td>
<td>1.396</td>
<td>.001</td>
<td>.979</td>
</tr>
<tr>
<td>ATT/ITA</td>
<td>11.737</td>
<td>664.028</td>
<td>11.737</td>
<td>2.135</td>
<td>5.497</td>
<td>.020*</td>
</tr>
<tr>
<td>BI/ITA</td>
<td>.794</td>
<td>837.571</td>
<td>.795</td>
<td>2.693</td>
<td>.295</td>
<td>.588</td>
</tr>
</tbody>
</table>

* PE/IT: prior experience with the Internet, ATT/ITA: attitude toward Internet apparel shopping, BI/ITA: apparel buying intention through the Internet, $df (1, 311)$, *$p<.05$.

Effects of Continuous Demographic Variables

Pearson correlations were examined for patterns of relationships between continuous demographic variables and research variables. The continuous demographic variables of age, income, education, number of children living in the same household, and number of adults living in the same household were examined. Correlation results among variables were summarized in Table J.

Age did affect the responses to three variables: 1) prior experience with the Internet ($p<.001$), 2) attitude toward Internet apparel shopping ($p<.01$), and 3) apparel buying intention through the Internet ($p<.01$), supporting hypotheses 1.6, 1.7, and 1.8. All three relationships were negative, indicating that younger respondents had more experience with the Internet and more positive opinions about using Internet shopping than did older respondents.
The level of education positively related to: 1) prior experience with the Internet ($p<.001$), 2) attitude toward Internet apparel shopping ($p<.01$), and 3) apparel buying intention through the Internet ($p<.001$), supporting hypotheses 1.9 through 1.11. Positive relationships suggested that respondents who had a higher level of education had more experience with the Internet, more positive attitude toward Internet apparel shopping, and greater apparel buying intention through the Internet than did respondents who had a lower level of education.

The level of household income affected prior experience with the Internet ($p<.001$) and apparel buying intention through the Internet ($p<.01$), supporting hypotheses 1.12 and 1.13. These relationships were positive, indicating that respondents with a higher level of income had more experience with the Internet and more intention to buy apparel through the Internet than did respondents with a lower level of income.

**Summary of Hypothesis Test Results for Demographic Effects**

Out of 13 hypotheses testing demographic differences in research variables, eight hypotheses were supported. Results of hypothesis tests for demographic differences were summarized in Table 4.10.

**Unhypothesized Exploratory Analyses**

Although no hypothesis related to number of children and adults living in the household was included in the study, number of children and adults was also examined for exploratory purposes. In correlation results, it was found that consumers who have a larger number of children living in the same household had more prior experience with the Internet ($p<.001$). In addition, positive relationships were found between number of children and apparel buying intention through the Internet ($p<.05$).

No significant relationships between number of adults living in the household and research variables were found at the level of .01. However, there were some positive relationships between number of adults living together and social support for Internet apparel shopping ($p<.05$), suggesting that respondents living with a larger
Table 4.10. Results of hypothesis tests for demographic differences

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>$H_{1.1}$: Males have more prior experience with the Internet than do females.</td>
<td>Not supported</td>
</tr>
<tr>
<td>$H_{1.2}$: Males have more positive attitude toward Internet apparel shopping than do females.</td>
<td>Not supported</td>
</tr>
<tr>
<td>$H_{1.3}$: Males have greater intention to purchase apparel through the Internet than do females.</td>
<td>Not supported</td>
</tr>
<tr>
<td>$H_{1.4}$: Married consumers have greater intention to purchase apparel through the Internet than do single consumers.</td>
<td>Not supported</td>
</tr>
<tr>
<td>$H_{1.5}$: Non-metropolitan (rural and small town) residents have greater intention to purchase apparel through the Internet than do metropolitan residents.</td>
<td>Not supported</td>
</tr>
<tr>
<td>$H_{1.6}$: Age is negatively related to prior experience with the Internet.</td>
<td>Supported</td>
</tr>
<tr>
<td>$H_{1.7}$: Age is negatively related to attitude toward Internet apparel shopping.</td>
<td>Supported</td>
</tr>
<tr>
<td>$H_{1.8}$: Age is negatively related to intention to purchase apparel through the Internet.</td>
<td>Supported</td>
</tr>
<tr>
<td>$H_{1.9}$: Level of education is positively related to prior experience with the Internet.</td>
<td>Supported</td>
</tr>
<tr>
<td>$H_{1.10}$: Level of education is positively related to attitude toward Internet apparel shopping.</td>
<td>Supported</td>
</tr>
<tr>
<td>$H_{1.11}$: Level of education is positively related to intention to purchase apparel through the Internet.</td>
<td>Supported</td>
</tr>
<tr>
<td>$H_{1.12}$: Level of income is positively related to prior experience with the Internet.</td>
<td>Supported</td>
</tr>
<tr>
<td>$H_{1.13}$: Level of income is positively related to intention to purchase apparel through the Internet.</td>
<td>Supported</td>
</tr>
</tbody>
</table>

$H_{1.1}$ through $H_{1.5}$ were tested by MANOVA and/or ANOVA at the significant level of .05; $H_{1.6}$ through $H_{1.13}$ were tested by Pearson correlation coefficients at the significant level of .05.
number of adults may have more social influence on use of the Internet for apparel shopping than do respondents living with fewer adults.
CHAPTER 5: ANALYSIS OF CAUSAL MODELS

This chapter presents the results from the analysis of causal models describing consumer adoption of the Internet for apparel shopping. The 4-step model development was designed to test the theory of reasoned action model (Fishbein & Ajzen, 1975) and to explore the influence of components (e.g., prior experience with the Internet, beliefs about in-home apparel shopping) from the theory of innovation adoption (Rogers, 1995) on the decision making process of Internet adoption for apparel shopping.

Before model analysis, correlation coefficients among research variables were examined for potential relationships among research variables for each hypothesized path. After correlation examination, a causal model based on Fishbein and Ajzen (1975) was tested for Internet apparel shopping (Model 1). In the second stage, an expanded Fishbein and Ajzen's model including prior experience with the Internet was tested (Model 2). Third, a more expanded model adding a belief component (i.e., beliefs about in-home apparel shopping) to Model 2 was tested (Model 3). Finally, the sample was divided into two groups according to their experience with mail order for apparel shopping in the previous 12 months. Model 3 was tested on two groups: 1) non-mail order apparel shoppers (consumers who had not shopped for apparel through mail order in the previous 12 months) and 2) mail order apparel shoppers (consumers who shopped for apparel through mail order at least once in the previous 12 months), generating Models 4 and 5.

The causal model analyses were conducted by a maximum-likelihood estimation procedure using LISREL VII (Jöreskog & Sörbom, 1989). For each analysis, list-wise correlation was used to obtain correlation coefficients after deleting missing values (Bollen, 1989). Therefore, the number of cases used in each data analysis was slightly different depending on missing variables. Among various measures judging overall fit of the model, a chi-square statistic, goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), and root mean squared residual (RMSR) were used. Since a chi-square statistic measures the difference
between the sample variance-covariance matrix and the one reproduced through model estimation, a smaller chi-square was adopted as a sign of better fit. However, the chi-square statistic is not a good indicator of fit when the sample is large (N≥200) (Bagozzi & Yi, 1988). Therefore, other indicators (i.e., GFI, AGFI, RMSR) were considered as more reliable indicators of fit for Models 1, 2, and 3 due to a large sample size (N=300) for these models. Generally, models with a good fit have GFI>.95, AGFI>.90, and RMRS<.05 (Jöreskog & Sörbom, 1989). However, Kline (1998) suggested more relaxed standards for an indicator of good model fit as GFI>.90 and RMSR<.10.

For each model, a decomposition table was presented including the direct, indirect, and total effects of variables. A total effect of an independent variable on a dependent variable consists of its direct and indirect effects (Pedhazur, 1982). A direct effect shows effects occurred by a direct path between variables. An indirect effect indicates an effect between an independent and a dependent variable mediated by an intervening variable. Therefore, a significant indirect path implies the importance of an intervening variable in measuring the relationships between the independent and dependent variables (Bryman & Cramer, 1994).

**Preliminary Correlation Examination**

Pearson correlation coefficients were examined for each path (see Table I). Potential relationships among variables were supported for each hypothesized path with path coefficients higher than .20 (p<.001). For each variable, hypothesized relationships indicated the highest correlations between variables. For example, the correlations between beliefs about Internet apparel shopping and attitude toward Internet apparel shopping were higher than the correlations between beliefs about Internet apparel shopping and any other research variables.

**Step 1: Testing the Theory of Reasoned Action Model**

The model testing the theory of reasoned action (Fishbein & Ajzen, 1975) (Model 1) includes coefficients and t-values for each path, coefficient of
determination for each dependent variable, and fit indices of the model (see Figure 5.1). For this model, all paths were significant, indicating causal relationships between: 1) beliefs about Internet apparel shopping and attitude toward Internet apparel shopping ($t=13.62, p<.001$), 2) attitude toward Internet apparel shopping and apparel buying intention through the Internet ($t=5.01, p<.001$), 3) social support for Internet apparel shopping ($t=8.68, p<.001$), and 4) social acceptance of Internet apparel shopping and apparel buying intention through the Internet ($t=6.91, p<.001$).

Table 5.1 shows the direct, indirect, and total effects of the model. The decomposition results indicated that all variables did significantly relate to apparel buying intention through the Internet ($p<.001$). Specifically, social acceptance was the variable that had the strongest total effect on Internet apparel buying intention ($p<.001$). In addition, beliefs about Internet apparel shopping and social support variables had significant but indirect effects on Internet apparel buying intention, suggesting the important intervening variable effects of attitude toward Internet apparel shopping and social acceptance.

The $R^2$s of the model was relatively high ($R^2=.51$). The $R^2$s of attitude toward Internet apparel shopping, social acceptance of Internet apparel shopping, and apparel buying intention through the Internet were .38, .20, and .20, respectively. The chi-square score of the model was 23.32 ($p<.001$) with 5 degrees of freedom, indicating lack of good model fit to data. However, the chi-square statistic was not a good indicator of fit for Model 1 because of a large sample (N=300) (Bagozzi, & Yi, 1988). Other indicators of model fit were acceptable (GFI=.972, AGFI=.916, RMSR=.076).

Based on these results, it is concluded that the Fishbein and Ajzen's (1975) theory of reasoned action explains some of consumers' Internet adoption for apparel shopping. However, the relatively small $R^2$ of apparel buying intention through the Internet—the most comprehensive endogenous variable of this model—suggests that the model can possibly be improved by including other variables. Therefore, in the second step, prior experience with the Internet was added as another exogenous variable in this model.
Figure 5.1. Model 1: The theory of reasoned action model for Internet apparel shopping
(path coefficients are indicated, \( t \)-values are in parentheses, ***\( p < .001 \), one-tailed)
Table 5.1. Decomposition of direct, indirect, and total effects for Model 1*

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Total Effects</th>
<th>Indirect Effects</th>
<th>Direct Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATT/ITA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BI/ITA</td>
<td>.26 (5.01)**</td>
<td></td>
<td>.26 (5.01)***</td>
</tr>
<tr>
<td>ATT/ITA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BI/ITA</td>
<td>.35 (6.92)**</td>
<td></td>
<td>.35 (6.92)***</td>
</tr>
<tr>
<td>ATT/ITA</td>
<td></td>
<td>.16 (4.68)**</td>
<td></td>
</tr>
<tr>
<td>BI/ITA</td>
<td>.16 (5.48)**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R²</td>
<td>.62 (13.62)**</td>
<td>.62 (13.62)***</td>
<td></td>
</tr>
<tr>
<td>ATT/ITA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BLF/ITA</td>
<td>.62 (13.62)**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R²</td>
<td>.38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATT/ITA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS</td>
<td>.45 (8.68)**</td>
<td></td>
<td>.45 (8.68)***</td>
</tr>
<tr>
<td>R²</td>
<td>.20</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* BLF/ITA: beliefs about Internet apparel shopping, ATT/ITA: attitude toward Internet apparel shopping, SS: social support for Internet apparel shopping, SA: social acceptance of Internet apparel shopping, BI/ITA: apparel buying intention through the Internet; df=5, ***p<.001 (one-tailed), t-values are in parentheses.

Step 2: Addition of Prior Experience with the Internet

As previously discussed, prior experience with the Internet was considered as a variable that may improve explicability of apparel buying intention through the Internet based on previous theoretical research (Bentler & Speckart, 1979; Doll & Mallü, 1990; Fredricks & Dossett, 1983; Rogers, 1995). Two paths were added, connecting prior experience with the Internet to: 1) beliefs about Internet apparel shopping and 2) apparel buying intention through the Internet.

Figure 5.2 illustrates path coefficients, t-values, R²'s, and model fit indices for Model 2. All paths were significant, indicating causal relationships between: 1) prior experience with the Internet and beliefs about Internet apparel shopping (t=3.52, p<.001), 2) prior experience with the Internet and apparel buying intention through the Internet (t=8.53, p<.001), 3) social support for Internet apparel shopping and social acceptance of Internet apparel shopping (t=8.68, p<.001), 4) beliefs about Internet apparel shopping and attitude toward Internet apparel shopping (t=13.62, p<.001), 5) attitude toward Internet apparel shopping and apparel buying intention.
Figure 5.2. Model 2: Addition of prior experience with the Internet to Model 1
(path coefficients are indicated, t-values are in parentheses, ***p<.001, one-tailed)
through the Internet \( (t=4.22, p<.001) \), and 6) social acceptance of Internet apparel shopping and apparel buying intention through the Internet \( (t=5.81, p<.001) \).

The decomposition results presented in Table 5.2 showed prior experience with the Internet had the strongest total and direct effect on apparel buying intention through the Internet \( (p<.001) \). The second strongest variable affecting buying intention was social acceptance based on total effect \( (p<.001) \). Similarly to Model 1, all other variables (attitude toward Internet apparel shopping, beliefs about Internet apparel shopping, and social support) had significant total effects \( (p<.001) \) on Internet apparel buying intention. Prior experience with the Internet had a significant, indirect effect on attitude toward Internet apparel shopping.

The \( R^2 \)s of Model 2, beliefs about Internet apparel shopping, social acceptance of Internet apparel shopping, attitude toward Internet apparel shopping, and apparel buying intention through the Internet are presented in Table 5.2.

### Table 5.2. Decomposition of direct, indirect, and total effects for Model 2

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Total Effects</th>
<th>Indirect Effects</th>
<th>Direct Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>BI/ITA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATT/ITA</td>
<td>.20 (4.22)**</td>
<td></td>
<td>.20 (4.22)**</td>
</tr>
<tr>
<td>SA</td>
<td>.27 (5.81)**</td>
<td></td>
<td>.27 (5.81)**</td>
</tr>
<tr>
<td>BLF/ITA</td>
<td>.12 (4.03)**</td>
<td>.12 (4.03)**</td>
<td></td>
</tr>
<tr>
<td>SS</td>
<td>.12 (4.84)**</td>
<td>.12 (4.84)**</td>
<td></td>
</tr>
<tr>
<td>PE/IT</td>
<td>.42 (8.98)**</td>
<td>.02 (2.67)**</td>
<td>.41 (8.53)**</td>
</tr>
<tr>
<td>( R^2 )</td>
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<td>.12 (3.44)**</td>
<td></td>
</tr>
<tr>
<td>( R^2 )</td>
<td>.38</td>
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<th>Social Support</th>
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</tr>
</thead>
<tbody>
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<td>.45 (8.68)**</td>
<td></td>
<td>.45 (8.68)**</td>
</tr>
<tr>
<td>( R^2 )</td>
<td>.20</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Blanche</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PE/IT</td>
<td>.20 (8.53)**</td>
<td></td>
<td>.20 (8.53)**</td>
</tr>
<tr>
<td>( R^2 )</td>
<td>.04</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**PE/IT:** prior experience with the Internet, BLF/ITA: beliefs about Internet apparel shopping, ATT/ITA: attitude toward Internet apparel shopping, SS: social support for Internet apparel shopping, SA: social acceptance of Internet apparel shopping, BI/ITA: apparel buying intention through the Internet; \( df=8 \), \( **p<.001 \) (one-tailed), \( t \)-values are in parentheses.
and apparel buying intention through the Internet were .38, .04, .20, .38, and .33, respectively. The chi-square score for this model was 28.05 with 8 degrees of freedom ($p<.001$). For this model, GFI was .971; AGFI was .924; and RMSR was .088. Although model fit indices of Model 2 were not much different from those of Model 1, the $R^2$ for apparel buying intention variable in Model 2 was increased to .38, suggesting that apparel buying intention through the Internet was better explained in Model 2 due to addition of a new variable: prior experience with the Internet.

However, the overall $R^2$ was decreased to .38 in Model 2, compared to that of Model 1, because of a very inferior $R^2$ for the beliefs about Internet apparel shopping variable in Model 2. To improve the $R^2$ of beliefs about Internet apparel shopping variable, another variable—beliefs about in-home apparel shopping—was added in step 3.

**Step 3: Addition of Beliefs about In-home Apparel Shopping**

Beliefs about in-home apparel shopping was considered as a potentially important variable affecting consumer beliefs about Internet apparel shopping because of similar characteristics between mail catalog and Internet apparel shopping. It was assumed that consumers who perceive more relative advantages about in-home apparel shopping may perceive more relative advantages of Internet apparel shopping due to notably similar structures between the two. The perceived relative advantages are represented as beliefs about diverse aspects of the innovation—Internet apparel shopping. Taken together with these perspectives, a new path from beliefs about in-home apparel shopping to beliefs about Internet apparel shopping was added to the previous model (Model 2), generating the proposed Model 3.

As shown in Figure 5.3, all paths for Model 3 were significant, suggesting relationships between: 1) beliefs about in-home apparel shopping and beliefs about Internet apparel shopping ($t=9.97, p<.001$), 2) prior experience with the Internet and beliefs about Internet apparel shopping ($t=3.24, p<.001$), 3) prior experience with the
Beliefs about in-home apparel shopping .49 (9.97***)

Prior experience with the Internet .16 (3.24***)

Beliefs about Internet apparel shopping .62 (13.55***)

Attitude toward Internet apparel shopping $R^2=.38$

Apparel buying intention through the Internet $R^2=.33$

Social support for Internet apparel shopping .46 (8.88***)

Social acceptance of Internet apparel shopping $R^2=.21$

$N=298$, Total $R^2=.544$

$F(11) = 43.37^{***}$

GFI=.961, AGFI=.901, RMRS=.082

Figure 5.3. Model 3: Addition of beliefs about in-home apparel shopping to Model 2
(path coefficients are indicated, $t$-values are in parentheses, **$p<.01$, ***$p<.001$, one-tailed)
Internet and apparel buying intention through the Internet (t=8.44, p<.001), 4) social support for Internet apparel shopping and social acceptance of Internet apparel shopping (t=8.88, p<.001), 5) beliefs about Internet apparel shopping and attitude toward Internet apparel shopping (t=13.55, p<.001), 6) attitude toward Internet apparel shopping and apparel buying intention through the Internet (t=4.11, p<.001), and 7) social acceptance of Internet apparel shopping and apparel buying intention through the Internet (t=5.80, p<.001).

The decomposition in Table 5.3 showed similar results to Model 2. Prior experience with the Internet was the variable having the strongest total effect on apparel buying intention through the Internet (p<.001). Social acceptance was the

Table 5.3. Decomposition of direct, indirect, and total effects for Model 3

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Total Effects</th>
<th>Indirect Effects</th>
<th>Direct Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATT/ITA</td>
<td>.19 (4.11)**</td>
<td>—</td>
<td>.19 (4.11)**</td>
</tr>
<tr>
<td>SA</td>
<td>.28 (5.80)**</td>
<td>—</td>
<td>.28 (5.80)**</td>
</tr>
<tr>
<td>BLF/ITA</td>
<td>.12 (3.97)**</td>
<td>.12 (3.97)**</td>
<td>—</td>
</tr>
<tr>
<td>SS</td>
<td>.12 (4.77)**</td>
<td>.12 (4.77)**</td>
<td>—</td>
</tr>
<tr>
<td>PE/IT</td>
<td>.42 (8.85)**</td>
<td>.02 (2.38)**</td>
<td>.41 (8.44)**</td>
</tr>
<tr>
<td>BLF/IHA</td>
<td>.06 (3.69)**</td>
<td>.06 (3.69)**</td>
<td>—</td>
</tr>
<tr>
<td>R²</td>
<td>.33</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

| ATT/ITA | — | — | — |
| PE/IT | .10 (3.13)** | .10 (3.13)** | — |
| BLF/IHA | .31 (8.05)** | .31 (8.05)** | — |
| R² | .38 | — | — |

| SA | — | — | — |
| SS | .46 (8.88)** | — | .46 (8.88)** |
| R² | .21 | — | — |

| BLF/ITA | — | — | — |
| PE/IT | .20 (8.53)** | — | .20 (8.53)** |
| BLF/IHA | .49 (9.97)** | — | .49 (9.97)** |
| R² | .29 | — | — |

* BLF/IHA: beliefs about in-home apparel shopping, PE/IT: prior experience with the Internet, BLF/ITA: beliefs about Internet apparel shopping, ATT/ITA: attitude toward Internet apparel shopping, SS: social support for Internet apparel shopping, SA: social acceptance of Internet apparel shopping, BI/ITA: apparel buying intention through the Internet; df=11, **p<.01, ***p<.001 (one-tailed), t-values are in parentheses.
second strongest variable affecting apparel buying intention ($p<.001$). The newly added variable—beliefs about in-home apparel shopping—had a significant, indirect effect on buying intention ($p<.001$) and on attitude toward Internet apparel shopping ($p<.001$).

The $R^2$s of Model 3, beliefs about Internet apparel shopping, social acceptance of Internet apparel shopping, attitude toward Internet apparel shopping, and apparel buying intention through the Internet were .54, .29, .21, .38, and .33, respectively. The chi-square score for Model 3 was 43.37 with 11 degrees of freedom ($p<.001$). For this model, GFI was .961; AGFI was .901; and RMSR was .082. Overall fit of Model 3 was similar to the previous models; however, Model 3 had the highest $R^2$ for the whole model ($R^2=.54$) among all three models (Models 1 through 3), meaning that respondents' Internet adoption process for apparel shopping is best explained by Model 3 among the three models.

**Step 4: Mail Order Shoppers versus Non-Mail Order Shoppers**

Previous studies suggested that consumers who have shopped using one kind of non-store format are more likely to be involved with different kinds of non-store shopping because they feel more comfortable with direct marketing and their lifestyles better fit to the non-store shopping (Braun, 1993; Grant, 1996; Stanforth & Lennon, 1996). These findings imply that mail order apparel shoppers may be different from non-mail order shoppers in terms of their beliefs, attitude, and intentions related to Internet apparel shopping. Based on this perspective, Model 3 was separately tested with two groups: mail order shoppers and non-mail order shoppers.

For these analyses, the sample was divided into two groups according to their experience with mail order apparel shopping. The non-mail order shopper group consisted of 114 consumers who have not shopped for any apparel through mail order in the past 12 months; the mail order shopper group consisted of 177 who have shopped for apparel through mail order at least once in the past 12 months. The number of consumers for this analysis was smaller than the actual number of
consumers who did or did not make apparel orders through mail order channels since some cases (32 for the non-mail order shopper group; and 30 for the mail order shopper group) were not used for the analysis due to missing variables that are automatically deleted in list-wise correlation analysis.

**Non-Mail Order Shoppers**

Figure 5.4 shows non-mail order shoppers' Internet adoption process for apparel shopping (Model 4). Of seven paths, one path turned out insignificant with a probability level greater than .05. The insignificant path was prior experience with the Internet to beliefs about Internet apparel shopping ($t=.76$). The other six paths were significant, indicating the causal relationships between: 1) beliefs about in-home apparel shopping and beliefs about Internet apparel shopping ($t=6.85$, $p<.001$), 2) prior experience with the Internet and apparel buying intention through the Internet ($t=3.18$, $p<.001$), 3) social support for Internet apparel shopping and social acceptance of Internet apparel shopping ($t=6.39$, $p<.001$), 4) beliefs about Internet apparel shopping and attitude toward Internet apparel shopping ($t=9.73$, $p<.001$), 5) attitude toward Internet apparel shopping and apparel buying intention through the Internet ($t=2.45$, $p<.01$), and 6) social acceptance of Internet apparel shopping and apparel buying intention through the Internet ($t=1.74$, $p<.05$).

Through the decomposition examination (see Table 5.4), it was found that overall total effects of all variables on apparel buying intention through the Internet were decreased compared to Model 3 testing across all respondents. Although all variables had significant total effects on Internet apparel buying intention, effects of social acceptance and social support were somewhat weak ($p<.05$).

The overall $R^2$ for Model 4 was .54. The $R^2$s of beliefs about Internet apparel shopping, social acceptance of Internet apparel shopping, attitude toward Internet apparel shopping, and apparel buying intention through the Internet were .32, .27, .46, and .17, respectively. The chi-square score for Model 4 was 15.52 ($df=11$, $p=.160$). For this model, GFI was .963; AGFI was .906; and RMSR was .071.
Figure 5.4. Model 4: Non-mail order shoppers' Internet adoption for apparel shopping
(path coefficients are indicated, t-values are in parentheses, *p<.05, **p<.01, ***p<.001, one-tailed, dotted arrow indicates insignificant path)
Table 5.4. Decomposition of direct, indirect, and total effects for Model 4

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Total Effects</th>
<th>Indirect Effects</th>
<th>Direct Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>BI/ITA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATT/ITA</td>
<td>.21 (2.45)**</td>
<td>—</td>
<td>.21 (2.45)**</td>
</tr>
<tr>
<td>SA</td>
<td>.15 (1.74)*</td>
<td>—</td>
<td>.16 (1.74)*</td>
</tr>
<tr>
<td>BLF/ITA</td>
<td>.14 (2.38)**</td>
<td>.14 (2.38)**</td>
<td>—</td>
</tr>
<tr>
<td>SS</td>
<td>.08 (1.70)*</td>
<td>.08 (1.70)**</td>
<td>—</td>
</tr>
<tr>
<td>PE/IT</td>
<td>.28 (3.26)***</td>
<td>.01 (.75)</td>
<td>.27 (2.51)**</td>
</tr>
<tr>
<td>BLF/IHA</td>
<td>.08 (2.26)*</td>
<td>.08 (2.26)*</td>
<td>—</td>
</tr>
<tr>
<td>R²</td>
<td>.17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATT/ITA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BLF/ITA</td>
<td>.68 (9.72)***</td>
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<td>.68 (9.72)***</td>
</tr>
<tr>
<td>PE/IT</td>
<td>.04 (.76)</td>
<td>.04 (.76)</td>
<td>—</td>
</tr>
<tr>
<td>BLF/IHA</td>
<td>.07 (.18)</td>
<td>.07 (.18)</td>
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<tr>
<td>R²</td>
<td>.46</td>
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<td></td>
</tr>
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<tr>
<td>R²</td>
<td>.27</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BLF/ITA</td>
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<tr>
<td>PE/IT</td>
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<tr>
<td>R²</td>
<td>.32</td>
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</tbody>
</table>

* BLF/IHA: beliefs about in-home apparel shopping, PE/IT: prior experience with the Internet, BLF/ITA: beliefs about Internet apparel shopping, ATT/ITA: attitude toward Internet apparel shopping, SS: social support for Internet apparel shopping, SA: social acceptance of Internet apparel shopping, BI/ITA: apparel buying intention through the Internet; df=11, *p<.05, **p<.01, ***p<.001 (one-tailed), t-values are in parentheses.

Mail Order Shoppers

Figure 5.5 shows the Internet adoption process for apparel shopping of mail order shoppers (Model 5). All seven paths were significant, indicating the relationships between: 1) prior experience with the Internet to beliefs about Internet apparel shopping (t=2.05, p<.05), 2) beliefs about in-home apparel shopping and beliefs about Internet apparel shopping (t=8.29, p<.001), 3) prior experience with the Internet and apparel buying intention through the Internet (t=7.33, p<.001), 4) social support for Internet apparel shopping and social acceptance of Internet apparel shopping (t=6.45, p<.001), 5) beliefs about Internet apparel shopping and attitude toward Internet apparel shopping (t=8.22, p<.001), 6) social acceptance of Internet apparel shopping and...
Beliefs about in-home apparel shopping (.53, 8.29***)

Prior experience with the Internet (.13, 2.05*)

Beliefs about Internet apparel shopping (.53, 8.22***)

Attitude toward Internet apparel shopping (.63, 8.22***)

R^2 = .32

Apparel buying intention through the Internet (R^2 = .40)

Social support for Internet apparel shopping (.44, 6.45***)

Social acceptance of Internet apparel shopping (.33, 7.33***)

R^2 = .19

N = 177, Total R^2 = .577

\( \chi^2 (11) = 25.97** \)

GFI = .961, AGFI = .900, RMRS = .085

Figure 5.5. Model 5: Mail order shoppers' Internet adoption for apparel shopping
(path coefficients are indicated, t-values are in parentheses, *p < .05, **p < .01, ***p < .001, one-tailed)
apparel shopping \( (t=5.56, p<.001) \), and 7) attitude toward Internet apparel shopping and apparel buying intention through the Internet \( (t=3.74, p<.001) \).

Decomposition of variable effects is summarized in Table 5.5. Consistent with Model 3, all variables had significant total effects on Internet apparel buying intention \( (p<.01) \). Prior experience with the Internet had the most powerful total effect on Internet apparel buying intention \( (p<.001) \).

The \( R^2 \)'s for Model 5, beliefs about Internet apparel shopping, social acceptance of Internet apparel shopping, attitude toward Internet apparel shopping, and apparel buying intention through the Internet were .58, .32, .19, .28, and .40,

### Table 5.5. Decomposition of direct, indirect, and total effects for Model 5

<table>
<thead>
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<th>Dependent Variable</th>
<th>Total Effects</th>
<th>Indirect Effects</th>
<th>Direct Effects</th>
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<td></td>
</tr>
<tr>
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<td>—</td>
<td>.22 (3.74)**</td>
</tr>
<tr>
<td>SA</td>
<td>.33 (5.56)**</td>
<td>—</td>
<td>.33 (5.56)**</td>
</tr>
<tr>
<td>BLF/ITA</td>
<td>.11 (3.42)**</td>
<td>.11 (3.42)**</td>
<td></td>
</tr>
<tr>
<td>SS</td>
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<td>.14 (4.21)**</td>
<td></td>
</tr>
<tr>
<td>PE/IT</td>
<td>.43 (7.61)**</td>
<td>.02 (1.88)</td>
<td>.41 (5.73)**</td>
</tr>
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<td>.06 (3.16)**</td>
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</tr>
<tr>
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<td></td>
</tr>
<tr>
<td>ATT/ITA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BLF/ITA</td>
<td>.53 (8.28)**</td>
<td>—</td>
<td>.53 (8.28)**</td>
</tr>
<tr>
<td>PE/IT</td>
<td>.07 (1.97)*</td>
<td>.07 (1.97)*</td>
<td>—</td>
</tr>
<tr>
<td>BLF/IHA</td>
<td>.05 (.17)</td>
<td>.05 (.17)</td>
<td>—</td>
</tr>
<tr>
<td>R²</td>
<td>.28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R²</td>
<td>.44 (6.47)**</td>
<td>—</td>
<td>.44 (6.47)**</td>
</tr>
<tr>
<td>BLF/ITA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PE/IT</td>
<td>.07 (1.97)*</td>
<td>—</td>
<td>.07 (1.97)*</td>
</tr>
<tr>
<td>R²</td>
<td>.53 (8.25)**</td>
<td>—</td>
<td>.53 (8.25)**</td>
</tr>
</tbody>
</table>

* BLF/IHA: beliefs about in-home apparel shopping, PE/IT: prior experience with the Internet, BLF/ITA: beliefs about Internet apparel shopping, ATT/ITA: attitude toward Internet apparel shopping, SS: social support for Internet apparel shopping, SA: social acceptance of Internet apparel shopping, BI/ITA: apparel buying intention through the Internet; \( df=11, *p<.05, **p<.01, ***p<.001 \) (one-tailed), \( t \)-values are in parentheses.
respectively. This model had a chi-square score of 25.97 (df=11, p=.007). For Model 5, GFI was .961; AGFI was .900; and RMSR was .085.

Comparison of the Two Models

There was a non-significant path in Model 4, whereas all paths were significant in Model 5. The path showing different results was prior experience with the Internet to beliefs about Internet apparel shopping. The result indicates that non-mail order shoppers' prior experience with the Internet did not affect their beliefs about Internet apparel shopping. In other words, non-mail order shoppers may not have positive beliefs about Internet apparel shopping although they have some experience with the Internet, whereas mail order shoppers' degree of favorableness toward Internet apparel shopping is consistent with their amount of experience with the Internet.

Overall fit of the models was acceptable for both models. However, the model for mail order shoppers (Model 5) indicated the higher R^2s for the whole model and apparel buying intention through the Internet than did the model for non-mail order shoppers (Model 4). The results indicate that mail order apparel shoppers' buying intention through the Internet is better explained by the proposed model than non-mail order shoppers' buying intention through the Internet.

Multiple-group analysis

Multiple-group analysis in AMOS Version 3.6 (Ari3uckle, 1997) was used to evaluate parameter estimates for both models. Multiple-group methods analyze more than one group together, generating combined chi-square scores. The method was applied to investigate chi-square differences between the baseline model and the models with a parameter fixed as the same for both groups: non-mail order shoppers and mail order shoppers. The baseline model without any fixed parameter was run, generating 70.324 of chi-square value with 28 degrees of freedom. The \( \chi^2 \) of the baseline model was compared with \( \chi^2 \)'s of other models with a fixed parameter.

Table 5.6 shows the results of \( \chi^2 \) differences between the baseline model and the models with a fixed parameter. Although three paths: 1) prior experience with
Table 5.6. Evaluation of parameter estimates for non-mail order shoppers and mail order shoppers

<table>
<thead>
<tr>
<th>Model</th>
<th>$\chi^2$</th>
<th>df</th>
<th>$\chi^2$-difference</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline model</td>
<td>70.324</td>
<td>28</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Model fixed: BLF/IHA $\rightarrow$ BLF/ITA</td>
<td>70.368</td>
<td>29</td>
<td>.044</td>
<td>NS</td>
</tr>
<tr>
<td>Model fixed: PE/IT $\rightarrow$ BLF/ITA</td>
<td>70.701</td>
<td>29</td>
<td>.377</td>
<td>NS</td>
</tr>
<tr>
<td>Model fixed: PE/IT $\rightarrow$ BI/ITA</td>
<td>72.187</td>
<td>29</td>
<td>1.863</td>
<td>NS</td>
</tr>
<tr>
<td>Model fixed: BLF/ITA $\rightarrow$ ATT/ITA</td>
<td>72.858</td>
<td>29</td>
<td>2.534</td>
<td>NS</td>
</tr>
<tr>
<td>Model fixed: ATT/ITA $\rightarrow$ BI/ITA</td>
<td>70.325</td>
<td>29</td>
<td>.001</td>
<td>NS</td>
</tr>
<tr>
<td>Model fixed: SS $\rightarrow$ SA</td>
<td>70.904</td>
<td>29</td>
<td>.580</td>
<td>NS</td>
</tr>
<tr>
<td>Model fixed: SA $\rightarrow$ BI/ITA</td>
<td>72.831</td>
<td>29</td>
<td>2.507</td>
<td>NS</td>
</tr>
</tbody>
</table>

* BLF/IHA: beliefs about in-home apparel shopping, BLF/ITA: beliefs about Internet apparel shopping, ATT/ITA: attitude toward Internet apparel shopping, PE/IT: prior experience with the Internet, BI/ITA: apparel buying intention through the Internet, SS: social support for Internet apparel shopping, SA: social acceptance of Internet apparel shopping, NS: non-significant at the level of .05.

the Internet to apparel buying intention through the Internet, 2) beliefs about Internet apparel shopping to attitude toward Internet apparel shopping, and 3) social acceptance for Internet apparel shopping to apparel buying intention through the Internet showed the largest differences in chi-squares between the two groups, none of these parameter estimates were significant ($p>.05$). Therefore, the following hypothesis was not supported.

$H_{2-8}$: There is at least one significantly different parameter estimate in the proposed model for non-mail order shoppers and mail order shoppers.

The results indicate there was no effect of a parameter estimate causing significant differences between the two groups. Therefore, the proposed model was applicable for both groups (mail order shoppers and non-mail order shoppers) in explaining Internet adoption for apparel shopping.

**Comparison of Causal Models**

**Improvement of Model Fit**

Throughout the proposed models, model fit to the data were consistent and acceptable based on GFI, AGFI, and RMRS. To determine whether a model fit was improved in each stage of model expansion, chi-square differences among nested models were assessed. As a baseline model, a null model including seven variables
(beliefs about in-home apparel shopping, prior experience with the Internet, beliefs about Internet apparel shopping, attitude toward Internet apparel shopping, social support, social acceptance, and apparel buying intention through the Internet) and no causal path was used. Chi-square statistics of three nested models including all seven variables and paths from Models 1, 2, and 3 were calculated and compared.

As shown in Table 5.7, the $\chi^2$-differences were significant in each step of model expansion. The results indicate that: 1) Models 1, 2, and 3 had a significantly improved fit of the models compared to the null model, 2) Model 2 had a significantly improved model fit compared to Model 1, and 3) Model 3 had a significantly improved model fit compared to Model 2.

Table 5.7. Improvement of model fit

<table>
<thead>
<tr>
<th>Model</th>
<th>$\chi^2$</th>
<th>df</th>
<th>$\chi^2$-difference</th>
<th>Sig.</th>
<th>$\Delta_1$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Null model</td>
<td>494.21</td>
<td>18</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Addition of paths of Model 1</td>
<td>204.35</td>
<td>14</td>
<td>289.86</td>
<td>S</td>
<td>.59</td>
</tr>
<tr>
<td>Addition of paths of Model 2</td>
<td>129.87</td>
<td>12</td>
<td>74.48</td>
<td>S</td>
<td>.15</td>
</tr>
<tr>
<td>Addition of paths of Model 3</td>
<td>43.37</td>
<td>11</td>
<td>86.50</td>
<td>S</td>
<td>.18</td>
</tr>
</tbody>
</table>

*S: significant chi-square difference at the level of .05.

In addition to chi-square tests, the normed fit index ($\Delta_1$) was assessed to explore improvement of model fit in the proposed models. The normed fit index measures the incremental improvement of model fit relative to the fit of the more restrictive model, as a proportion of the fit of the null model, the most restrictive model (Bollen, 1989). The normed fit index (Bentler & Bonett, 1980) is presented as the following formula:

$$
\Delta_1 = \frac{\chi_r^2 - \chi_m^2}{\chi_b^2}
$$

where, $\chi_b^2$ is a chi-square value for the baseline model (null model), $\chi_r^2$ is a chi-square value for a model that is less restrictive than the baseline model but more...
restrictive than the maintained model, and $\chi_m^2$ is a chi-square value for the maintained model.

The normed fit index indicated some improvement of model fit ($\Delta_1>0$) as models are expanded (see Table 5.7). The cumulative $\Delta_1$ was .92 over the criterion for an adequate fit which is .90 (Bentler & Bonett, 1980). The result indicates that the comprehensive model (Model 3) had a significantly improved fit of the model compared to the null model.

**Summary of Causal Model Tests**

Among all five models, Model 5 testing for mail order shoppers had the highest R$^2$s for the total model and the buying intention variable. All paths tested on the total sample and on the mail order shopper group (Models 1, 2, 3, and 5) were significant ($p<.05$). Specifically, three paths: 1) prior experience with the Internet $\rightarrow$ beliefs about the Internet for apparel shopping, 2) prior experience with the Internet $\rightarrow$ apparel buying intention through the Internet, and 3) beliefs about in-home apparel shopping $\rightarrow$ beliefs about Internet apparel shopping added to Fishbein and Ajzen's (1975) baseline model were significant across models. Also, the three paths contributed to R$^2$-improvements for the total models and the apparel buying intention variable.

Non-mail order shoppers showed an insignificant relationship between prior experience with the Internet and beliefs about Internet apparel shopping, whereas mail order shoppers showed a significant relationship for the same path. The result indicates that non-mail order shoppers may not have positive beliefs about Internet apparel shopping regardless of their experience with the Internet. Comparison of five causal models is summarized in Table 5.8. The results of hypothesis testing are presented in Table 5.9.
Table 5.8. Comparison of causal models

<table>
<thead>
<tr>
<th></th>
<th>Model 1 (Fishbein &amp; Ajzen) N=300</th>
<th>Model 2 (Add PE/IT) N=300</th>
<th>Model 3 (Add BLF/IT; all) N=298</th>
<th>Model 4 (Non-mail order shoppers)</th>
<th>Model 5 (Mail order shoppers) N=177</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standardized path coefficients (t-value)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BLF/IHA→BLF/ITA</td>
<td>---</td>
<td>---</td>
<td>.49 (9.97)**</td>
<td>.55 (6.85)**</td>
<td>.53 (8.29)**</td>
</tr>
<tr>
<td>PE/IT→BLF/ITA</td>
<td>---</td>
<td>.20 (3.52)**</td>
<td>.16 (3.24)**</td>
<td>.06 (.76)</td>
<td>.13 (2.05)*</td>
</tr>
<tr>
<td>PE/IT→BI/ITA</td>
<td>---</td>
<td>.41 (8.53)**</td>
<td>.41 (8.44)**</td>
<td>.28 (3.18)**</td>
<td>.44 (7.33)**</td>
</tr>
<tr>
<td>SS→SA</td>
<td>.45 (8.68)**</td>
<td>.45 (8.68)**</td>
<td>.46 (8.88)**</td>
<td>.52 (6.39)**</td>
<td>.44 (6.45)**</td>
</tr>
<tr>
<td>ATT/ITA→BI/ITA</td>
<td>.26 (5.01)**</td>
<td>.20 (4.22)**</td>
<td>.20 (4.11)**</td>
<td>.21 (2.45)**</td>
<td>.22 (3.74)**</td>
</tr>
<tr>
<td>SA→BI/ITA</td>
<td>.36 (6.92)**</td>
<td>.28 (5.81)**</td>
<td>.28 (5.80)**</td>
<td>.15 (1.74)*</td>
<td>.33 (5.56)**</td>
</tr>
</tbody>
</table>

R² for BI/ITA: .20 .33 .33 .17 .40
Total R²: .51 .38 .54 .54 .58
χ²(df): 23.32 (5) 28.05 (8) 43.37 (11) 15.52 (11) 25.97 (11)
P: .00 .00 .00 .16 .01
GFI: .97 .97 .96 .96 .96
AGFI: .92 .92 .90 .91 .90
RMRS: .08 .09 .08 .07 .09

* BLF/IHA: beliefs about in-home apparel shopping, BLF/ITA: beliefs about Internet apparel shopping, PE/IT: prior experience with the Internet, ATT/ITA: attitude toward Internet apparel shopping, SS: social support for Internet apparel shopping, SA: social acceptance of Internet apparel shopping, BI/ITA: apparel buying intention through the Internet, *p<.05, **p<.01, ***p<.001 (one-tailed).
Table 5.9. Results of hypothesis tests based on causal model analysis

<table>
<thead>
<tr>
<th>Hypothesized Path</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model 3</td>
</tr>
<tr>
<td></td>
<td>all</td>
</tr>
<tr>
<td></td>
<td>O</td>
</tr>
<tr>
<td><strong>H2.1:</strong> Beliefs about Internet apparel shopping → Attitude toward Internet apparel shopping</td>
<td>O</td>
</tr>
<tr>
<td><strong>H2.2:</strong> Social support → Social acceptance</td>
<td>O</td>
</tr>
<tr>
<td><strong>H2.3:</strong> Attitude toward Internet apparel shopping → Apparel buying intention through the Internet</td>
<td>O</td>
</tr>
<tr>
<td><strong>H2.4:</strong> Social acceptance → Apparel buying intention through the Internet</td>
<td>O</td>
</tr>
<tr>
<td><strong>H2.5:</strong> Prior experience with the Internet → Beliefs about Internet apparel shopping</td>
<td>O</td>
</tr>
<tr>
<td><strong>H2.6:</strong> Prior experience with the Internet → Apparel buying intention through the Internet</td>
<td>O</td>
</tr>
<tr>
<td><strong>H2.7:</strong> Beliefs about in-home apparel shopping → Beliefs about Internet apparel shopping</td>
<td>O</td>
</tr>
<tr>
<td><strong>H2.8:</strong> There is at least one significantly different parameter estimate in the proposed model for non-mail order shoppers and mail order shoppers</td>
<td>----</td>
</tr>
</tbody>
</table>

*Model 3 was for all respondents, Model 4 was for non-mail order shoppers, Model 5 was for mail order shoppers, O (supported), X (not supported).
CHAPTER 6: DISCUSSION AND CONCLUSIONS

The final chapter discusses findings presented in Chapters 4 and 5. Discussion sections consisted of three parts: 1) descriptive analysis, 2) effects of demographic characteristics on Internet apparel shopping, and 3) causal model analysis. Conclusions were generated from the findings. Implications of findings and recommendations for future research were provided.

Discussion

Descriptive Analysis

About 60 percent of the respondents had home computers; and 99% of home computer owners had on-line access. These numbers are notably larger than those in Ernst and Young's 1997 survey ("Internet Shopping", 1998) identifying that 41% of U.S. households had home computers and a half of the U.S. households with computers are on-line. The rapidly increasing number of computer owners and Internet users supports the literature ("Interactive Retailing", 1997; "Internet Shopping", 1998) that predicted consumers' rapid adoption of computer technology in the future. However, the respondent sample may over-represent computer owners who were more interested in the topic of the questionnaire.

Findings indicated that 27.6% of respondents had purchased any products through the Internet and 8.5% had purchased apparel via the Internet. Also, 21% of respondents had visited any Internet apparel retail site on a regular basis. These results show a tremendous increase in numbers, compared to the previous survey ("Internet Shopping", 1998) indicating that only six percent of consumers had bought something on-line and less than one percent of consumers had purchased apparel through the Internet. Again, the respondent sample may over-represent Internet shoppers.

Product categories frequently purchased by respondents through the Internet were computer-related products, books, clothing, travel service, and recorded music, corresponding to the previous findings ("Internet Shopping", 1998; Kunz, 1997).
Respondents' apparel shopping intention through the Internet with market incentives potentially offered in the future were much higher than apparel buying intention without new market incentives. Specifically, the most attractive market incentives to consumers were free and easy product return; view of how the garment looks on a model with measurements of the consumer or on an image of the consumer; information about availability of size and color; view of back, front, and sides of the garment; and ensured credit card security. The results regarding effective market incentives encouraging consumers to adopt Internet apparel shopping were new findings of this study.

Effects of Demographic Characteristics on Internet Apparel Shopping

Sex

No sex difference was found in prior experience with the Internet, indicating that males and females are not different in length of time using the Internet for any reasons. Males were not different from females in attitude toward Internet apparel shopping and apparel buying intention through the Internet. Previous findings (Fram & Grady, 1995; "Internet Shopping", 1998; Kunz, 1997) indicated that males have more experiences with the Internet, more favorable attitude toward Internet shopping, and more buying intention through the Internet. The inconsistent findings regarding no sex difference in Internet shopping can be partially due to the product category that we studied, apparel, because apparel is traditionally considered as an item that women purchase for the entire family. Previous research (Fram & Grady, 1995; "Internet Shopping", 1998; Kunz, 1997) studied a variety of product categories including apparel.

Marital status

No significant differences in attitudinal and behavioral variables related to Internet apparel shopping were found between married and non-married consumers. This finding was consistent with previous research finding no significant relationships between married people and non-married people in the level of intention to use electronic shopping (Shim & Drake, 1990). However, this finding did not support
Kunz's (1997) research finding that single consumers were less likely to intend to shop via the Internet than were non-single consumers.

**Location**

Respondents' residential location did not relate to any attitudinal and behavioral differences in their Internet apparel shopping. Based on the results, the hypothesis that non-metropolitan residents had more intention to buy apparel through the Internet than did metropolitan residents was not supported, inconsistent with Kunz's study (1997) identifying the significant effect of consumers' location on buying intention through the Internet.

**Age**

Younger respondents had more prior experience with the Internet, more positive attitude toward Internet apparel shopping, and more intention to buy apparel through the Internet than did older respondents. The results corresponded to prior findings (Fram & Grady, 1995; Kunz, 1997). The results also supported the notion that the innovators tend to be younger (Engel et al., 1995; Rogers, 1995).

**Education**

Respondents who had a higher level of education had more prior experience with the Internet, more positive attitude toward Internet apparel shopping, and more intention to buy apparel through the Internet than did respondents who had a lower level of education. The results were consistent with previous literature (Fram & Grady, 1995, 1997; "Internet Shopping", 1998; Kunz, 1997; Rogers, 1995).

**Household income**

Respondents with a higher level of household income had more prior experience with the internet and more intention to buy apparel through the Internet than did respondents with a lower level of income, consistent with previous literature (Fram & Grady, 1995, 1997; "Internet Shopping", 1998; Rogers, 1995).

**Number of children living in the household**

Respondents living with more children had more prior experience with the Internet ($p<.001$) and more intention to buy apparel through the Internet ($p<.05$) than did people living with fewer children. Consumers with children may want more time-
and location-free devices for apparel shopping than do consumers without children. They may also have more experience with the Internet, driven by their children's use of the Internet for entertainment and educational purposes. There was inverse evidence indicating no relationship between presence or absence of children at home and intention to use Internet shopping in Kunz's (1997) findings.

**Number of adults living in the household**

Respondents living with a larger number of adults had more social support for Internet apparel shopping than did respondents living with a smaller number of adults ($p < .05$). This was a new finding of the study. In this study, no significant relationship was found between the number of adults in the household and intention to use Internet shopping, supporting the previous finding (Kunz, 1997).

**Summary of results related to demographic influence**

Results of demographic differences in research variables were summarized in Table 6.1. Overall, age, education, and household income were the most important demographics generating significant differences in responses about Internet apparel shopping. The results were consistent with Rogers' (1995) notion that younger, more educated, and higher income people are more likely to adopt innovations than older, less educated, and lower income people.

Table 6.1. Influence of demographic characteristics on variables related to Internet apparel shopping*  

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Demographic Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior experience with the Internet</td>
<td>Age, Education, Household income, Number of children living together</td>
</tr>
<tr>
<td>Attitude toward Internet apparel shopping</td>
<td>Age, Education</td>
</tr>
<tr>
<td>Apparel buying intention through the Internet</td>
<td>Age, Education, Household income, Number of children living together</td>
</tr>
<tr>
<td>Social support for Internet apparel shopping</td>
<td>Number of adults living together</td>
</tr>
</tbody>
</table>

* Effects of continuous variables (age, education, household income, number of children living together, and number of adults living together) were tested by Pearson correlation coefficients at the significant level of .05.
Causal Model Analysis

Five causal models were tested. First, a model based on the theory of reasoned action (Fishbein & Ajzen, 1975) was tested for Internet apparel shopping (Model 1). Second, an expanded Fishbein and Ajzen's (1975) model including prior experience with the Internet was tested (Model 2). Third, a more expanded model adding a belief component (i.e., beliefs about in-home apparel shopping) to Model 2 was tested (Model 3). Finally, Model 3 was tested for the two groups—non-mail order shoppers and mail order shoppers—generating Models 4 and 5.

The analyses of causal models were conducted by a maximum-likelihood estimation procedure using LISREL VII (Jöreskog & Sörbom, 1989). To test model fit, a chi-square statistic, goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), and root mean squared residual (RMSR) were used. The $R^2$s for the whole model and apparel buying intention through the Internet—the most comprehensive dependent variable—were examined as important indicators addressing the explanation capability of the models. Though all five models showed acceptable fit to the data (GFI $\geq .96$, AGFI $\geq .90$, RMRS $\leq .09$), Model 5 for mail order shoppers (Model 5) had the highest $R^2$s for the model and for the apparel buying intention through the Internet variable.

Four hypothesized paths ($H_{2.1}$ through $H_{2.4}$) generated from the theory of the reasoned action were significant in all models. The results indicate that the Fishbein and Ajzen's (1975) theory of reasoned action explains a portion of the relationships of consumers' belief-attitude-behavioral intention related to Internet apparel shopping. In addition, two newly added components based on innovation adoption theory (Rogers, 1995)—prior experience with the Internet and beliefs about in-home apparel shopping—were critical in explaining the decision making process of Internet adoption for apparel shopping. Specifically, prior experience with the Internet had the strongest total effects on apparel buying intention through the Internet across all applicable models (Models 2 through 5). The finding supports the theoretical and empirical literature emphasizing the importance of prior experience with a behavior in predicting behavioral intention (Bear et al., 1987; Bentler & Speckart, 1979; Doll &
Some differences were observed in results between non-mail order shoppers and mail order shoppers. One path from prior experience with the Internet to beliefs about Internet apparel shopping was not significant for non-mail order shoppers, whereas the path was significant for mail order shoppers. The result indicates that non-mail order shoppers' experience with the Internet does not affect their beliefs about Internet apparel shopping.

Further analysis was conducted to explore the effect of parameter estimate on difference of the two groups: mail order shoppers versus non-mail order shoppers, using multi-group analysis via AMOS Version 3.6 (Arbuckle, 1997). The results verified there was no significantly different parameter estimate in the proposed model for non-mail order shoppers and mail order shoppers, meaning that the two groups are not statistically different overall.

Conclusions

A tremendously increasing adoption rate of Internet and Internet apparel shopping compared to a previous survey ("Internet Shopping", 1998) may be understood as a good sign for the promising future of Internet retailing. Compared to the degree of favorableness in attitude toward Internet apparel shopping, most of consumers were still hesitant to adopt Internet apparel shopping in the near future. The results imply that consumers want more assurance of relative advantages of Internet apparel shopping to actually adopt the option. Accordingly, consumers showed significantly higher intention to shop for apparel through the Internet with innovative market incentives ensuring relative advantages of Internet apparel shopping that may or may not be available in the today's Internet retail sites.

The step-by-step approach for theoretical model development and analysis clearly showed the procedure of model development and the analysis results of each model. All proposed models had acceptable fits to data. Models 1, 2, and 3 had
significantly improved fits compared to the null model as well as the model in the previous stage.

Model analysis results indicated that the theory of reasoned action (Fishbein & Ajzen, 1975) and innovation adoption theory (Rogers, 1995) were successfully incorporated into the theoretical models testing consumer adoption of the Internet for apparel shopping. Specifically, consumers' belief-attitude-buying intention relationships adopted from the theory of reasoned action (Fishbein & Ajzen, 1975) provided a basis of the models describing the decision making process of Internet apparel shopping. Also, social influence components of the theory of reasoned action (Fishbein & Ajzen, 1975) were critical in explaining consumers' Internet adoption for apparel shopping. Based on the findings, it was concluded that consumers depend both on their own psychological judgments and social influence when they develop intention to buy apparel through the Internet.

In addition, prior experience with the Internet had the strongest total effects on apparel buying intention through the Internet across all models tested, supporting innovation theory (Rogers, 1995) and theoretical research in social psychology (Bentler & Speckart, 1979; Doll & Ajzen, 1992; Fredricks & Dossett, 1983). Therefore, it was strongly supported that consumers who have more experience with the Internet will have greater intention to purchase apparel through the Internet.

The theoretical models combining the two theories better explained consumers' apparel buying intention through the Internet than did the Fishbein and Ajzen's (1975) model alone. The results indicate that theoretical model development and integration of theories were successful for the study of consumer adoption of the Internet for apparel shopping.

Implications

The findings provided worthwhile implications for Internet apparel marketing as well as for academia.
Implications for Industry

Internet marketers, merchandisers, and product developers will have a better picture of the demographic target for Internet apparel shoppers due to the findings. Demographic targets for Internet apparel shopping are younger, more educated, and higher income consumers. The findings related to market incentives provide important implications for the Internet apparel retail industry. To attract more consumers into Internet shopping, Internet industry personnel should consider adopting and promoting some market incentives, such as free and easier product returns, innovative functions, ensured credit card security, more extensive information about products, and technical improvements of current systems. These were the items that consumers wanted most for them to get involved with Internet apparel shopping.

Based on the finding related to the importance of prior experience with the Internet and social factors, some advertising implications are generated. Advertisers may want to provide more opportunities for consumers to be exposed to Internet apparel shopping systems through community events and services. An increase of trialability and observability achieved through hands-on and visual experiences may positively contribute to consumers' intention formation related Internet apparel shopping. In addition, recognizing the importance of social reinforcement for Internet apparel shopping through interpersonal channels, the word-of-mouth advertising strategy should be significantly considered.

Implications for Academia

The empirical findings of the study will benefit researchers by providing background information related to consumers' perceptions and involvement with Internet apparel shopping. In addition, the step-by-step approach of causal model development will provide a basis for better understandings of theoretical model development. Each step was designed to show the effect of each variable newly added to the Fishbein and Ajzen (1975) model. Specifically, the results of model analysis clearly showed that the models combining the theory of reasoned action (Fishbein & Ajzen, 1975) and the theory of innovation adoption (Rogers, 1995) better
explains the relationships among attitudinal, social, and behavioral variables related to Internet apparel shopping. The proposed theoretical models will contribute to scholarship in the fields of textile and clothing, marketing, and sociology by providing theoretical understanding of Internet adoption for apparel shopping.

Limitations

The results should be evaluated in the light of some limitations of the study. First, although a national random sample was used for this study, the results may not be fully generalized to the U.S. population because respondents were slightly skewed to the group with higher education, income, and age compared to the general U.S. population. Also, a low return rate (27.4%) of the questionnaires may reflect that the study sample does not represent the general U.S. population, including more people who are interested in the research topic and who are able to answer to the proposed questions.

Second, social acceptance was measured by an item, "some of my friends or family shop for apparel on the Internet", and not with the Fishbein and Ajzen (1975) measure, "most of the people who I know...". The modification of the measurement item was based on the assumption that Internet apparel shopping is very new and innovative so that overall Internet apparel shopping acceptance was very low at the time of data collection. The slightly different measure from the original theory (Fishbein & Ajzen's, 1975) may partially limit the applicability of findings to the theory of reasoned action.

Third, the behavioral intention component of the proposed models was assessed with intention to "purchase" apparel through the Internet, whereas other belief, attitude, and social factor components focused on Internet apparel "shopping". Since "shopping" does not necessarily include "purchasing" behavior, the inconsistent wording of "shopping" and "purchasing" in attitudinal, social, and behavioral variables may cause some differences in the results of causal model analysis, compared to the results of a study using consistent wording.
Fourth, a division of mail order shoppers and non-mail order shoppers was based on an item asking about the number of apparel orders made through mail order shopping channels in the past 12 months. Since the two-group categorization was based on their mail order shopping experience in the past 12 months, it may be possible that some of the consumers categorized as non-mail order shoppers had some mail order shopping experience in the past more than one year ago.

**Recommendations for Future Research**

Several recommendations for future research are based on findings. First, the proposed model can be applied to other product categories. However, the applicability may be limited to products in which consumers use high-involvement decision procedures because the theory of reasoned action used as a basis of the models explains buying behavior for high-involvement products (Mowen & Minor, 1998). Therefore, Internet shopping for high involvement products such as foreign cars, diamond rings, stereo phonographs, and electronic watches (Zaichkowsky, 1986) might be explained by the proposed models. Empirical research testing the proposed model focusing on different products will contribute to enhancing the applicability of the model.

Second, to test the effect of prior experience with mail order apparel shopping, the variable was used as a covariate in comparison of mail order shoppers and non-mail order shoppers. In future study, prior experience with mail order apparel shopping can be used as an independent variable in the model. Likewise, prior experience with the Internet can be used as a covariate generating two groups, Internet users, and non-Internet users, instead of using it as an independent variable as done in this study. According to whether the prior experience component in the models is used as an independent variable or a covariate, the results can be somewhat different.

Third, consumers' use of interpersonal channels for obtaining social reinforcement for Internet apparel shopping may be another interesting issue to investigate. In this study, the effect of interpersonal channels was studied. Issues
for future research include how consumers use the interpersonal channels as well as mass-media for acquiring information and reinforcement for their intention to use Internet shopping.

Although there are some other theoretical perspectives explaining innovation adoption, the present study primarily focused on the effects of prior experience and demographic characteristics on the adoption process, which were addressed in the theory of innovation adoption (Rogers, 1995). Further research can focus on other theoretical concepts from innovation adoption theory (Rogers, 1995) in explaining the decision making process of innovation adoption. The effect of perceived characteristics of the innovation (relative advantage, compatibility, complexity, trialability, and observability) on Internet shopping adoption will be important topics to be studied. Also, personality variables of innovators (innovativeness, empathy, dogmatism, ability to deal with abstractions, rationality) should be further studied related to Internet shopping. Furthermore, differences in personal characteristics according to adoption categories (innovators, early adopter, early majority, later majority, laggards) may be another important issue to be studied related to Internet shopping.

In addition, causal models with latent variables assessed by multiple indicators can be developed and tested in future research. The proposed models in the present study had only single-indicator variables due to a relatively large number of variables. The multiple-indicator approach may improve explicability of each latent variable.
APPENDIX A:
DATA COLLECTION QUESTIONNAIRE
What are your opinions about apparel shopping by mail and over the Internet? How can businesses better serve your shopping needs? Results of this survey will be reported to businesses to improve their services. This study is conducted by the Department of Textiles and Clothing at the Iowa State University. Any information you provided will remain completely confidential.
SECTION 1.
YOUR SHOPPING EXPERIENCE
This section asks questions about your experience with apparel shopping.

Indicate ALL ways you have shopped for APPAREL in the past 12 months. (Check all that apply to you)

[ ] In-store shopping
[ ] Mail order catalog
[ ] TV shopping
[ ] Internet/Web sites
[ ] CD-ROM or video catalog
[ ] Others Please specify ____________________________
[ ] None

About how many times in the past 12 months have you ordered APPAREL items through in-home shopping methods (i.e., catalog, TV, Internet)?

[ ] Never
[ ] Once
[ ] 2-5
[ ] 6-10
[ ] More than 10

How many APPAREL items have you bought through in-home shopping during the past 12 months?

[ ] None
[ ] One item
[ ] 2-4 items
[ ] 5-7 items
[ ] 8-10 items
[ ] More than 10 items

About how much did you spend on apparel that you purchased through in-home shopping during the past 12 months?

[ ] None
[ ] $1-25
[ ] $26-50
[ ] $51-75
[ ] $76-100
[ ] $101-150
[ ] $151-200
[ ] $201-300
[ ] $301-400
[ ] $401-500
[ ] More than $501
[ ] More than $1000

Please circle the number that best describes your feelings about in-store and in-home shopping.

In-store apparel shopping is:

Safe for credit——— 1 2 3 4 5 6 7———Risky for credit
card use

Convenient——— 1 2 3 4 5 6 7———Inconvenient
In-store apparel shopping is:

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<tr>
<th></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>Not expensive</td>
<td></td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Easy</td>
<td></td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Enjoyable</td>
<td></td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

In-home mail catalog apparel shopping is:

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<th></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>Safe for credit</td>
<td></td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Convenient</td>
<td></td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Not expensive</td>
<td></td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Easy</td>
<td></td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Enjoyable</td>
<td></td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

For apparel shopping in general, how important are the following?

<table>
<thead>
<tr>
<th></th>
<th>Very unimportant</th>
<th>Neutral</th>
<th>Very important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brand</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Credit card safety</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Convenience</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Price</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Good service</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Easy to do</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Enjoyment</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Value</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Personal safety</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>

Please circle the number which best represents your feelings.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Neutral</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local stores offer me good value for apparel products</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>In-home catalog shopping offers me good value for apparel products</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Local apparel stores offer me good service</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Statement</td>
<td>Strongly Disagree</td>
<td>Neutral</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>-------------------</td>
<td>---------</td>
<td>----------------</td>
</tr>
<tr>
<td>In-home catalog apparel shopping offers me good service</td>
<td>1</td>
<td>2 3 4 5</td>
<td>6 7</td>
</tr>
<tr>
<td>Local stores are attractive places to shop for apparel</td>
<td>1</td>
<td>2 3 4 5</td>
<td>6 7</td>
</tr>
<tr>
<td>Local stores are safe places to shop for apparel</td>
<td>1</td>
<td>2 3 4 5</td>
<td>6 7</td>
</tr>
<tr>
<td>Most of the time, I can find apparel that I want in local stores</td>
<td>1</td>
<td>2 3 4 5</td>
<td>6 7</td>
</tr>
<tr>
<td>Most of the time, I can find apparel that I want when I shop at home</td>
<td>1</td>
<td>2 3 4 5</td>
<td>6 7</td>
</tr>
<tr>
<td>Styles of apparel in local stores are satisfactory to me</td>
<td>1</td>
<td>2 3 4 5</td>
<td>6 7</td>
</tr>
<tr>
<td>Styles of apparel through in home catalogs are satisfactory to me</td>
<td>1</td>
<td>2 3 4 5</td>
<td>6 7</td>
</tr>
<tr>
<td>Local prices for apparel are out of line with other towns</td>
<td>1</td>
<td>2 3 4 5</td>
<td>6 7</td>
</tr>
<tr>
<td>Prices for apparel in catalogs are out of line with local prices</td>
<td>1</td>
<td>2 3 4 5</td>
<td>6 7</td>
</tr>
<tr>
<td>For apparel, I usually have more success in shopping via catalogs than in a store</td>
<td>1</td>
<td>2 3 4 5</td>
<td>6 7</td>
</tr>
<tr>
<td>I enjoy shopping for apparel through catalogs</td>
<td>1</td>
<td>2 3 4 5</td>
<td>6 7</td>
</tr>
<tr>
<td>I enjoy receiving apparel catalogs through the mail</td>
<td>1</td>
<td>2 3 4 5</td>
<td>6 7</td>
</tr>
<tr>
<td>I read advertisements for apparel sales</td>
<td>1</td>
<td>2 3 4 5</td>
<td>6 7</td>
</tr>
<tr>
<td>I find myself checking prices even on inexpensive apparel items</td>
<td>1</td>
<td>2 3 4 5</td>
<td>6 7</td>
</tr>
<tr>
<td>I often shop around until I find an apparel I want at the lowest price</td>
<td>1</td>
<td>2 3 4 5</td>
<td>6 7</td>
</tr>
</tbody>
</table>
When shopping for apparel in stores, I usually stick to certain brands——— - 1

When shopping for apparel from catalogs at home, I usually stick to certain brands——— - 1

It takes too much time to shop for apparel in stores ——— —— - 1

It takes too much time to shop for apparel at home ——— - 1

I feel a psychological lift when shopping for apparel ——— —— - 1

I only go shopping for apparel when I need it ——— —— — — - 1

I enjoy apparel shopping whether or not I purchase an item ——— —— — — - 1

I usually shop for apparel at the most convenient store ——— —— — — - 1

I prefer to shop for apparel with my friends or family ——— —— — — - 1

I like to get suggestions from my friends or family when I shop for apparel ——— —— — — - 1

I like my friends or family to help me with my apparel shopping ——— —— — — - 1

I rarely buy any apparel that I think others will not approve of ——— —— — — - 1

It is important for others to like the apparel I buy ——— —— — — - 1

When shopping, I generally purchase apparel I think others will approve of ——— —— — — - 1

My friends or family think I should shop via the Internet———- - 1
My friends or family encourage me to shop for apparel via the Internet——1

Some of my friends or family shop for apparel on the Internet——1

When it comes to shopping, how likely are you to do what your friends or family say you should do?——1

SECTION 2.
INTERNET APPAREL SHOPPING
This section asks questions about your Internet apparel shopping.

Please circle the number that best describes your feelings. EVEN IF YOU DON'T NOW SHOP THROUGH THE INTERNET, PLEASE ANSWER THE FOLLOWING:

How likely is it that you will buy any apparel items through the Internet within the next six months?

Unlikely——1

Likely——7

Apparel shopping through the Internet is:

Safe for credit——1

Risky for credit card use——7

Convenient——1

Inconvenient——7

Not expensive——1

Expensive——7

Easy——1

Difficult——7

Enjoyable——1

Not enjoyable——7

Good——1

Bad——7

Desirable——1

Undesirable——7

Beneficial——1

Useless——7

Positive——1

Negative——7
<table>
<thead>
<tr>
<th>I would use the Internet to:</th>
<th>Highly Likely</th>
<th>Neutral</th>
<th>Unlikely</th>
<th>Highly Likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Find out about the latest clothing style offerings through non-local retailers</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Find out about the latest clothing styles offered by designers throughout the world</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Find out about current clothing items in stock at local retailers</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Order clothing for purchase from Non-local retailers</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Order clothing for purchase from local retailers</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>I would be more likely to shop for apparel via the Internet:</th>
<th>Highly Likely</th>
<th>Neutral</th>
<th>Unlikely</th>
<th>Highly Likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>if I had a computer</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>if I had a modem and Internet hook-up</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>if the company sent me a catalog by mail</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>if the company included its Web address in a mail order catalog sent to me</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>if the Web site was easy to use</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>if credit card security was insured</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>if product return was easier</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>if product return was free</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>if a more extensive number of styles were available on the Web retail site than in the catalog or store</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>if more extensive descriptions of items were included</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Highly Unlikely</td>
<td>Neutral</td>
<td>Likely</td>
<td>Highly Likely</td>
<td></td>
</tr>
<tr>
<td>-----------------</td>
<td>---------</td>
<td>--------</td>
<td>---------------</td>
<td></td>
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<tr>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>
Highly Unlikely  Neutral  Highly Likely

if a listing of previous purchases I have made through that site was available to me—— 1  2  3  4  5  6  7

if an index service could search across many catalogs for the item I want—— 1  2  3  4  5  6  7

SECTION 3. COMPUTER/INTERNET USE
This section asks questions about your experiences with computers and the Internet.

Do you have a computer at home?  
[ ] Yes  [ ] No

Do you have a computer at work?  
[ ] Yes  [ ] No

Could you access Internet with your present computer equipment at home or at work?  
[ ] Yes  [ ] No

Do you have an access to the Internet from places other than home or work (i.e., library, community service center, etc.)?  
[ ] Yes  [ ] No

About how much time do you use the Internet for any reason other than work each week?  
[ ] Don’t use  [ ] Less than 1 hour  [ ] 1-5 hours  [ ] 5-10 hours  [ ] more than 10 hours

How often do you visit any Internet retail sites for any kind of merchandise?  
[ ] Never  [ ] Once or twice a year  [ ] Once every few months  [ ] Every month  [ ] At least once a week
How often do you look through Internet catalogs to get information about APPAREL products?

[ ] Never
[ ] Once or twice a year
[ ] Once every few months
[ ] Every month
[ ] At least once a week

Indicate ALL types of products you have **seen** on Internet retail sites?

[ ] Clothing
[ ] Shoes
[ ] Home furnishings
[ ] Jewelry
[ ] Computer-related products
[ ] Other

Please specify ______________________
[ ] None

Indicate ALL types of products that you have **purchased** from Internet retail sites?

[ ] Clothing
[ ] Shoes
[ ] Home furnishings
[ ] Jewelry
[ ] Computer-related products
[ ] Other

Please specify ______________________
[ ] None

SECTION 4.
DEMOGRAPHIC CHARACTERISTICS
This section asks questions about your demographic characteristics.

What is your sex?
[ ] Female
[ ] Male

What is your age? _______ years

What is your ethnicity? (Please check more than 1 if applicable.)

[ ] White or European ethnicity
[ ] Black or African ethnicity
[ ] Hispanic or Latino ethnicity
[ ] Asian ethnicity
[ ] Native American
[ ] Native Hawaiian or Pacific Islander
[ ] Other

Please specify ______________________
Are you a U.S. Citizen?
  [ ] Yes  [ ] No

Indicate number of people living in your household.

________ Number of adults (18 years and older)

________ Number of children (up to 17 years)

Indicate total household income from all sources before taxes in 1997.
  [ ] Less than $10,000
  [ ] $10,000 to $14,999
  [ ] $15,000 to $24,999
  [ ] $25,000 to $34,999
  [ ] $35,000 to $49,999
  [ ] $50,000 to $74,999
  [ ] $75,000 to $99,999
  [ ] $100,000 to $149,999
  [ ] $150,000 to $199,999
  [ ] $200,000 and over

What is the highest level of education you have completed?
  [ ] Some grade school
  [ ] Some high school
  [ ] Completed high school or equivalent
  [ ] Some college/vocational or technical school
  [ ] Undergraduate college degree
  [ ] Some graduate school
  [ ] Graduate degree

What is your present occupation?

_________________________________________

If you are married, what is the highest level of education your spouse has completed?
  [ ] Some grade school
  [ ] Some high school
  [ ] Completed high school or equivalent
  [ ] Some college/vocational or technical school
  [ ] Undergraduate college degree
  [ ] Some graduate school
  [ ] Graduate degree

If you are married, what is the present occupation of your spouse?

_________________________________________
Your comments will be appreciated, either here or in a separate envelope.

Would you like a report of results sent to you?
Yes ________  No ________

Thank you so much for participating!!!

Please return your completed questionnaire in the enclosed envelope to:
Department of Textiles and Clothing
1052 LeBaron Hall
Iowa State University
Ames, IA 50011-1120
APPENDIX B:
CONSENT FORM FOR THE PRETEST AND FOCUS GROUP
Focus Group Consent Form

You are invited to participate in a study of consumer adoption of the Internet for apparel shopping. We hope to learn whether you use Internet shopping for clothing and your plans for use of Internet apparel shopping in the future. You were selected to participate in this study because you are an undergraduate student at Iowa State University. You are one of about 50 students selected for this study.

If you decide to participate, the researchers will ask for you to fill out a questionnaire and will lead a discussion session focusing on consumers’ perceptions of Internet apparel shopping. These two exercises are estimated to take totally a maximum of one hour. The information that is obtained from these exercises will be used to modify the research questionnaire that will be later used for a nationwide survey.

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission. The information will be released only in the form of "responses of undergraduate students in a midwestern university."

Your decision whether or not to participate will not prejudice your present or future relations with Iowa State University. If you decide to participate, you are free to discontinue participation at any time without prejudice.

If you have any questions, please call Mary Lynn Damhorst at 515-294-9919, Dept. of Textiles and Clothing, Iowa State University (mldmhrst@iastate.edu).

You will be offered a copy of this form to keep.

----------------------------------------------------------------------------------------------------------------------

Please sign below if you are willing to participate in this study. Your signature indicates that you read the information provided above and have decided to participate. You may withdraw at any time without prejudice after signing this form should you choose to discontinue participation in this study. Thank you for your willingness to help!

Signature

Date
APPENDIX C:
FOCUS GROUP QUESTIONS
Focus Group Questions

1. Did you have any difficulties in filling out the questionnaire?
   Probe: Were there any questions unclear?
   Were there any questions that are hard to understand?

2. How many of you have purchased any items through the Internet?
   a. (If there is anyone,) what kinds of items have you purchased through the Internet?
   b. Have you ever purchased any clothing or shoe items through the Internet?

4. Have you ever seen any of the apparel catalogs on the Internet?
   If yes, what did you think about them?
   Probe: What features did the Internet catalogs have?
   What kinds of brands or retailers were associated with the Internet catalogs?
   Were the catalogs difficult or easy to use?

5. What would make you more interested in Internet apparel shopping?
   Probe: Can you suggest any improvements for Internet apparel retailers?

7. Do you have any other suggestions for this study?
APPENDIX D:
COVER LETTER TO THE SAMPLE
FOR THE FIRST MAILING
October 30, 1998

Do you love or hate shopping for apparel? The enclosed survey could help businesses serve you better in the future. Your opinions about shopping for apparel, in stores and from home via catalogs or Internet, will have an impact on businesses. Even if you never or rarely use mail order or Internet for shopping, you have valuable insights to give to this project. This survey will only take 10 to 15 minutes to fill out and can be completed by anyone in your household above the age of 17 who shops for apparel.

The data you provide will help us determine how many and what types of consumers now shop by Internet and by home catalog. The data will also indicate what kinds of improvements might attract consumers to shop for apparel by Internet in the future. Apparel businesses will use the findings to help in making their Internet catalogs more consumer friendly. The study is funded by Iowa State University and is not conducted to further interests of any particular business.

This survey asks only for general information. Your help in completing and returning this survey is most appreciated! Your name was acquired through a random listing of households in the U.S. All responses to this survey will be kept completely confidential. Only the researchers will have access to names of respondents. Any personal identification indicators will be destroyed by December 1, 1999. Results will be reported only in general, with no specific individuals identified in reports. We hope that you will respond by November 15, 1998, but if you choose not to participate, simply return the questionnaire in the envelope provided. A decision not to participate will not bias our feelings toward you in any way.

If you have any questions concerning the completion of this survey, please do not hesitate to phone, e-mail, or write. Please indicate on the back of the survey form if you would like a report of the results.

Thank you for sharing your time and expertise.

Warmest regards,

Mary Lynn Damhorst
Associate Professor
Dept. of Textiles and Clothing
(515)294-9919
mdmhrst@iastate.edu

Stephen G. Sapp
Associate Professor
Dept. of Sociology
(515)294-1403
ssapp@iastate.edu

Russell N. Laczniak
Associate Professor
Dept. of Marketing
(515)294-9692
laczniak@iastate.edu

Eunah Yoh
Graduate Assistant
Dept. of Textiles and Clothing
(515)294-8519
yoh@iastate.edu
APPENDIX E:
REMINDER POSTCARD
We'd really appreciate your response to the Internet/Mail Order Apparel Shopping Survey sent to you one week ago. (Please ignore this if you already returned the survey. Thank you!)

WE DON'T MEAN TO BUG YOU, BUT...

Your response is needed in order to help educators better serve consumers and the apparel industry by learning about current and future Internet and mail order shopping habits for clothing. We would appreciate it if you could complete the survey and mail it back to us in the next few days. If you have any questions, please call Mary Lynn Damhorst at 515-294-9919, Dept. of Textiles and Clothing, Iowa State University.

Thank you for your time.

Mary Lynn Damhorst  Stephen Sapp  Russell Laczniak  Eunah Yoh
Associate Professor  Associate Professor  Associate Professor  Graduate Assistant
APPENDIX F:
COVER LETTER TO THE SAMPLE
FOR THE THIRD MAILING
November 24, 1998

About three weeks ago, we wrote to you seeking your opinions about issues related to Internet and mail order apparel shopping. As of today, we have not received your completed questionnaire. We realize that you may not have had time to complete it. However, we would genuinely appreciate hearing from you. If you have already completed the questionnaire, thank you and ignore this message!

By participating in this study, you can help apparel businesses serve you better in the future. We are writing to you again because the study's usefulness depends on our receiving a questionnaire from each respondent.

In the event that your questionnaire has been misplaced, a replacement is enclosed. **Even if you never or rarely use mail order or Internet for shopping, you have valuable insights to give to this project.** Your name was drawn through random sampling of U.S. households. This survey can be completed by anyone in your household above the age of 17 who shops for apparel. The study is funded by Iowa State University and is not conducted to further interests of any particular business. All responses to this survey will be kept completely confidential. Any personal identification indicators will be destroyed by December 1, 1999. Results will be reported only in general, with no specific individuals identified in reports.

If you have any questions concerning the completion of this survey, please do not hesitate to phone, e-mail, or write. Please indicate on the back of the survey form if you would like a report of the results.

Thank you for sharing your time and expertise.

Warmest regards,

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Associate Professor  
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laczniak@iastate.edu

Eunah Yoh  
Graduate Assistant  
Dept. of Textiles & Clothing  
(515)294-8519  
yoh@iastate.edu
APPENDIX G:
HUMAN SUBJECT APPROVAL
Information for Review of Research Involving Human Subjects
Iowa State University
(Please type and use the attached instructions for completing this form)

1. Title of Project: Consumer Adoption of Internet Technology for Apparel Shopping

2. I agree to provide the proper surveillance of this project to insure that the rights and welfare of the human subjects are protected. I will report any adverse reactions to the committee. Additions to or changes in research procedures after the project has been approved will be submitted to the committee for review. I agree to request renewal of approval for any project continuing more than one year.

   Mary Lynn Damhorst
   Typed Name of Principal Investigator
   4-16-98 Date
   Textiles and Clothing
   Department
   1052 LeBaron Hall
   Campus Address
   404-9912 Phone Number to Report Results

3. Signatures of other investigators
   Stephen Sapp
   Russell Lazarski
   Eunah Yoh
   Date
   4-17-98
   Signature of Principal Investigator
   Relationship to Principal Investigator
   Co-principal Investigator
   Co-principal Investigator
   Graduate Assistant

4. Principal Investigator(s) (check all that apply)
   Faculty [X] Staff [ ] Graduate Student [X] Undergraduate Student [ ]

5. Project (check all that apply)
   [X] Research [X] Thesis or dissertation [ ] Class project [ ] Independent Study (490, 590, Honors project)

6. Number of subjects (complete all that apply)
   1200 # Adults, non-students 50 # ISU student 14 # minors under 14 17 # minors 14 - 17 other (explain)

7. Brief description of proposed research involving human subjects: (See instructions, Item 7. Use an additional page if needed.)

   (See attached page)

(Please do not send research, thesis, or dissertation proposals.)

8. Informed Consent: [X] Signed informed consent will be obtained. (Attach a copy of your form.) [X] Modified informed consent will be obtained. (See instructions, item 8.) [ ] Not applicable to this project.
9. Confidentiality of Data: Describe below the methods to be used to ensure the confidentiality of data obtained. (See instructions, item 9.)

All information obtained from surveys will be kept completely confidential. Code numbers will be used to identify individuals who were surveyed. No names of individuals will be used in study reports. The only individuals who will listen to the taped focus groups will be the principal investigator and the graduate assistant. Focus group tapes will be erased by December 1, 1998. Records of survey sample will be destroyed by December 1, 1999.

10. What risks or discomfort will be part of the study? Will subjects in the research be placed at risk or incur discomfort? Describe any risks to the subjects and precautions that will be taken to minimize them. (The concept of risk goes beyond physical risk and includes risks to subjects’ dignity and self-respect as well as psychological or emotional risk. See instructions, item 10.)

No risk involved

11. CHECK ALL of the following that apply to your research:
   - A. Medical clearance necessary before subjects can participate
   - B. Administration of substances (foods, drugs, etc.) to subjects
   - C. Physical exercise or conditioning for subjects
   - D. Samples (Blood, tissue, etc.) from subjects
   - E. Administration of infectious agents or recombinant DNA
   - F. Deception of subjects
   - G. Subjects under 14 years of age and/or Subjects 14 - 17 years of age
   - H. Subjects in institutions (nursing homes, prisons, etc.)
   - I. Research must be approved by another institution or agency (Attach letters of approval)

If you checked any of the items in 11, please complete the following in the space below (include any attachments):

- **Items A-E**: Describe the procedures and note the proposed safety precautions being taken.
- **Items D-E**: The principal investigator should send a copy of this form to Environmental Health and Safety, 118 Agronomy Lab for review.
- **Item F**: Describe how subjects will be deceived; justify the deception; indicate the debriefing procedure, including the timing and information to be presented to subjects.
- **Item G**: For subjects under the age of 14, indicate how informed consent from parents or legally authorized representatives as well as from subjects will be obtained.
- **Items H-I**: Specify the agency or institution that must approve the project. If subjects in any outside agency or institution are involved, approval must be obtained prior to beginning the research, and the letter of approval should be filed.
Checklist for Attachments and Time Schedule

The following are attached (please check):

12.☐ Letter or written statement to subjects indicating clearly:
   a) purpose of the research
   b) the use of any identifier codes (names, #s), how they will be used, and when they will be
      removed (see Item 17)
   c) an estimate of time needed for participation in the research and the place
   d) if applicable, location of the research activity
   e) how you will ensure confidentiality
   f) in a longitudinal study, note when and how you will contact subjects later
   g) participation is voluntary; nonparticipation will not affect evaluations of the subject

13.☐ Consent form (if applicable)

14.☐ Letter of approval for research from cooperating organizations or institutions (if applicable)

15.☐ Data-gathering instruments

16. Anticipated dates for contact with subjects:
   First Contact                                                                                         Last Contact
   Month / Day / Year                                                                                     Month / Day / Year
   6/28/98                                                                                                 10/31/98

17. If applicable: anticipated date that identifiers will be removed from completed survey instruments and/or audio or visual
    tapes will be erased:
    Month / Day / Year
    12/1/99

18. Signature of Departmental Executive Officer Date Department or Administrative Unit
    ☐                                                                                                       4-17-98     Textiles and Clothing

19. Decision of the University Human Subjects Review Committee:
    ☒ Project Approved     ☐ Project Not Approved     ☐ No Action Required

    Patricia M. Keith Date Signature of Committee Chairperson
    Name of Committee Chairperson 4/23/98

Last Name of Principal Investigator Damhorst
7. Brief description of proposed research involving human subjects:

Objectives of the Study
1. To investigate consumers’ attitudes toward and use of the Internet for apparel shopping.
2. To determine variables affecting consumer attitudes toward and use of Internet apparel shopping.
3. To identify market incentives enhancing consumers’ willingness to adopt the Internet for apparel shopping.
4. To develop and test a theoretical model integrating many of the factors indicated above.

Procedure
A self-administered questionnaire will be mailed to 1,600 persons randomly selected from a nationwide sample of households. Mailing lists will be purchased from a nationally recognized sampling company. Selected consumers will receive: 1) a letter including purpose and potential implications of the study as well as request for participation in this survey, 2) a questionnaire which consists of multiple sections exploring consumers’ attitudes toward Internet shopping and intention to adopt the Internet for apparel shopping, and 3) a stamped return envelope. The survey instruments will be developed based on the literature and preliminary focus group interviews with consumers. The questionnaire will be pretested by ISU students to determine clarity and appropriateness of questions.

Following Salant and Dillman’s (1994) Total Design Method, a postcard reminder will be sent one week after the initial mailing. Three weeks after the first mailing, a third mailing will be conducted by sending a cover letter, a questionnaire, and a business reply envelope to the non-respondents. Collected data will be analyzed by various statistical methods including Multivariate Analysis of Variance, Multiple Regression Analysis, and Factor Analysis. In addition, Structural Equation Modeling Analysis will be conducted to explore possible causal relationships between customer characteristics, customers’ previous experiences, social supports, customers’ attitudes toward Internet shopping, and customer intention toward Internet shopping adoption, which are mediated by different effects of market incentives.
APPENDIX H:
FACTOR ANALYSIS
Table H.1. Factor analysis of 'Beliefs about in-home apparel shopping'

<table>
<thead>
<tr>
<th>Factor Items</th>
<th>Loading</th>
<th>Communality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risky for credit card use/Safe for credit card use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X Importance of credit card safety for apparel shopping</td>
<td>.67</td>
<td>.45</td>
</tr>
<tr>
<td>Inconvenient/Convenient</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X Importance of convenience for apparel shopping</td>
<td>.85</td>
<td>.73</td>
</tr>
<tr>
<td>Expensive/Not expensive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X Importance of price for apparel shopping</td>
<td>.68</td>
<td>.46</td>
</tr>
<tr>
<td>Difficult/Easy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X Importance of ease for apparel shopping</td>
<td>.83</td>
<td>.69</td>
</tr>
<tr>
<td>Not enjoyable/Enjoyable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X Importance of enjoyment for apparel shopping</td>
<td>.79</td>
<td>.62</td>
</tr>
</tbody>
</table>

Eigenvalue = 2.95  
Percent of variance explained = 59.1  
Cronbach α = .82

Table H.2. Factor analysis of 'Prior experience with the Internet'

<table>
<thead>
<tr>
<th>Factor Items</th>
<th>Loading</th>
<th>Communality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time length spent on using the Internet for any reason other than work.</td>
<td>.91</td>
<td>.84</td>
</tr>
<tr>
<td>Frequency of visiting any Internet retail sites for any kind of merchandise.</td>
<td>.85</td>
<td>.84</td>
</tr>
</tbody>
</table>

Eigenvalue = 1.69  
Percent of variance explained = 84.5  
Cronbach α = .82
Table H.3. Factor analysis of 'Beliefs about Internet apparel shopping'

<table>
<thead>
<tr>
<th>Factor Items</th>
<th>Loading</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Risky for credit card use/Safe for credit card use</td>
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<td>.31</td>
</tr>
<tr>
<td>X Importance of credit card safety for apparel shopping</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inconvenient/Convenient</td>
<td>.84</td>
<td>.71</td>
</tr>
<tr>
<td>X Importance of convenience for apparel shopping</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expensive/Not expensive</td>
<td>.73</td>
<td>.53</td>
</tr>
<tr>
<td>X Importance of price for apparel shopping</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Difficult/Easy</td>
<td>.84</td>
<td>.70</td>
</tr>
<tr>
<td>X Importance of ease for apparel shopping</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not enjoyable/Enjoyable</td>
<td>.80</td>
<td>.64</td>
</tr>
<tr>
<td>X Importance of enjoyment for apparel shopping</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Eigenvalue = 2.89  
Percent of variance explained = 57.9  
Cronbach α = .81

---

Table H.4. Factor analysis of 'Attitude toward Internet apparel shopping'

<table>
<thead>
<tr>
<th>Factor Items</th>
<th>Loading</th>
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</thead>
<tbody>
<tr>
<td>Bad/Good</td>
<td>.93</td>
<td>.86</td>
</tr>
<tr>
<td>Undesirable/Desirable</td>
<td>.94</td>
<td>.88</td>
</tr>
<tr>
<td>Useless/Beneficial</td>
<td>.94</td>
<td>.88</td>
</tr>
<tr>
<td>Negative/Positive</td>
<td>.95</td>
<td>.91</td>
</tr>
</tbody>
</table>

Eigenvalue = 3.52  
Percent of variance explained = 88.1  
Cronbach α = .95
Table H.5. Factor analysis of 'Social support for Internet apparel shopping'

<table>
<thead>
<tr>
<th>Factor Items</th>
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</thead>
<tbody>
<tr>
<td>My friends or family think I should shop via the Internet</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>X</em> When it comes to shopping, how likely are you to do</td>
<td>.97</td>
<td>.95</td>
</tr>
<tr>
<td>what your friends or family say you should do?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My friends or family encourage me to shop for apparel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>via the Internet</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>X</em> When it comes to shopping, how likely are you to do</td>
<td>.97</td>
<td>.95</td>
</tr>
<tr>
<td>what your friends or family say you should do?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Eigenvalue = 1.90
Percent of variance explained = 95.0
Cronbach α = .95
APPENDIX I:
CORRELATION MATRIX
Table I. Correlation matrix of variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Age</th>
<th>Edu</th>
<th>Income</th>
<th>Adult#</th>
<th>Child#</th>
<th>PE/IH</th>
<th>PE/IT</th>
<th>BLF/IH</th>
<th>BLF/IT</th>
<th>ATT/IT</th>
<th>SS</th>
<th>SA</th>
<th>BI/ITA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Edu</td>
<td></td>
<td>-.15*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
<td>-.23***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adult#</td>
<td></td>
<td></td>
<td></td>
<td>-.12*</td>
<td>.35***</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child#</td>
<td></td>
<td></td>
<td></td>
<td>-.36***</td>
<td>-.01</td>
<td>.01</td>
<td>.11*</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PE/IH</td>
<td></td>
<td>-.09</td>
<td>.14**</td>
<td>.14</td>
<td>.09</td>
<td>.06</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>PE/IT</td>
<td></td>
<td>-.36***</td>
<td>.29***</td>
<td>.31***</td>
<td>.07</td>
<td>.21***</td>
<td>.15**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>BLF/IH</td>
<td></td>
<td>-.02</td>
<td>.04</td>
<td>.01</td>
<td>-.11*</td>
<td>-.02</td>
<td>.20***</td>
<td>.07</td>
<td>.100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BLF/IT</td>
<td></td>
<td>-.12*</td>
<td>.08</td>
<td>.06</td>
<td>-.05</td>
<td>.07</td>
<td>.21***</td>
<td>.22***</td>
<td>.48***</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATT/IT</td>
<td></td>
<td>-.18**</td>
<td>.15**</td>
<td>.08</td>
<td>.02</td>
<td>.03</td>
<td>.18**</td>
<td>.19***</td>
<td>.19**</td>
<td>.63***</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS</td>
<td></td>
<td>-.07</td>
<td>.12*</td>
<td>-.00</td>
<td>.13*</td>
<td>.06</td>
<td>.21***</td>
<td>.08</td>
<td>.14</td>
<td>.21***</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SA</td>
<td></td>
<td>-.06</td>
<td>.03</td>
<td>.07</td>
<td>.12*</td>
<td>.09</td>
<td>.07</td>
<td>.21***</td>
<td>.04</td>
<td>.23***</td>
<td>.20***</td>
<td>.47***</td>
<td>1.00</td>
</tr>
<tr>
<td>BI/ITA</td>
<td></td>
<td>-.19**</td>
<td>.20***</td>
<td>.16**</td>
<td>.08</td>
<td>.12*</td>
<td>.25***</td>
<td>.49***</td>
<td>.05</td>
<td>.29***</td>
<td>.33***</td>
<td>.35***</td>
<td>.41***</td>
</tr>
</tbody>
</table>

* Adult#, number of adults living in the household, Child#: number of children living in the household, PE/IH: prior experience with in-home shopping, PE/IT: prior experience with the Internet, BLF/IH: beliefs about in-home apparel shopping, BLF/IT: beliefs about Internet apparel shopping, ATT/IT: attitude toward Internet apparel shopping, SS: social support for Internet apparel shopping, SA: social acceptance of Internet apparel shopping, BI/ITA: apparel buying intention through the Internet, *p<.05, **p<.01, ***p<.001.
REFERENCES


ACKNOWLEDGMENTS

I would like to recognize numerous people who contributed to this research and my graduate studies. Most of all, I would like to express my deepest appreciation to my major professor, Dr. Mary Lynn Damhorst, for her sincere support, knowledgeable guides, and regardful encouragement in every stage of dissertation development. Without her expertise, it may not be possible for me to successfully complete this research as well as my doctoral study.

I also would like to acknowledge my dissertation committee members. I wish to express my deepest gratitude to Dr. Stephen Sapp in the department of Sociology who provided big helps throughout model development and data analysis for this research. My appreciation extended to Dr. Nancy Miller who has always been very supportive to me during my five-year studies at Iowa State. I also would like to express my gratitude to Dr. LuAnn Gaskill, major professor for my Master's degree, who patiently taught me the ways to build a scholarly basis. I thank Dr. Russell Lacznia who provided good support for this study.

I would like to acknowledge the Science, Technology, and Society Research Grant by Graduate College, Iowa State University, for funding awarded to this study. I express my sincerest gratitude to the faculty of the Department of Textiles and Clothing (TC) for their heartful reliance on my abilities as a graduate student, an undergraduate instructor, and a researcher. Valuable opportunities as a scholar and an educator that the TC faculty allowed me, were essential in discovering my scholarly abilities and teaching talents. My thanks also go to my peer students in the TC department for their supports. Specially, I wish to thank Keun-Young Oh who was always willing to provide good information and knowledgeable comments for my research.

At last, I would like to express my appreciation to my husband, Byoung-Ky Chang, my loving parents, and other family members for their continuous support and encouragement throughout my graduate studies.
VITA

Name of Author: Eunah Yoh

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Thesis: "Visionary perspectives of apparel retailing in the next millennium: Implications for the textile and clothing profession"

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Iowa State University, Ames, IA

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Iowa State University, Ames, IA

Fall, 1997-Spring, 1999 Graduate Research Assistant
Department of Textiles and Clothing
Iowa State University, Ames, IA

1995-1999 Committee of Fashion Showcase:
Textiles and Clothing Undergraduate Students' Exhibition
Department of Textiles and Clothing
Iowa State University, Ames, IA

Referreed Publications:

