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## Factors Contributing to Consumer Willingness to Adopt Body Scanning Technology

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THE FLORIDA STATE UNIVERSITY  
COLLEGE OF HUMAN SCIENCES

**Factors Contributing to Consumer Willingness to Adopt Body Scanning Technology**

By

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## ABSTRACT

When creating a unique experience for consumers, and in response to consumer demand for personalized products, retailers increasingly offer products customized to meet the individual consumer's need. A developing technology emerging in the retail setting is body scanning, with which consumer body measurements can be taken and then used to create personalized apparel products. However, this relatively new technology has little research backing its usefulness and practicality in the eyes of consumers. In order to better gauge the adoption of the technology in terms of diffusion within a retail context, an analysis of the personal factors contributing to consumers' willingness to use body scanning was conducted.

Using Roger's theory of diffusion (2003), which acknowledges the importance of innovators in paving the way for the diffusion of innovations in the marketplace, selected consumer characteristics were chosen for study in the current research on body scanning technology. The characteristics were, in part, taken from the Blackwell, Miniard, Engel (2001) model of consumer behavior and included personal values, involvement, susceptibility to interpersonal influence and innovativeness. The purpose of this study was to gain a better understanding of the factors contributing to consumer willingness to try body scanning by testing a model that incorporated the research variables. The variables were expected to contribute to innovativeness, and ultimately to the time frame of technology adoption. Correlations, factor analysis, and univariate analysis of variance results were reported for this exploratory test of variable relationships. Multinomial regression was used to build the final research model from the significant variables.

Final model results showed that normative susceptibility to interpersonal influence decreased one's chances of being among the first to adopt an innovative product. Normative involvement has no significant effect on responses of later adopters. Increases in informational SII scores also increased chances of being the first to adopt, and later to adopt as well. As subjects' involvement scores became greater, they were more likely to fall into the early majority of innovative shoppers. Innovativeness was significant to those intending to adopt body scanning early, but not to later adopters. Multinomial regression showed the individual values of security and fun and enjoyment of life to be

important to those earliest to adopt body scanning technology. The resulting findings can be applied in a broader text, with further testing of the research model recommended for other innovations. Future directions for research are mentioned following the discussion of conclusions.

## I. INTRODUCTION

### Statement of Problem

In creating a unique experience for consumers, and in response to consumer demand for personalized products, retailers are increasingly offering products customized to meet the individual consumer's need. In response to this trend, mass customization, a developing business strategy, allows for the "mass production of customized goods" (Istook, 2002, p. 61). Also referred to as co-design, this strategy allows consumers to become involved in the design and/or production aspects of consumer goods. Due to this developing strategy, tailored fit, once considered a luxury, can now be obtained at less expense to the consumer. Levi's Strauss and Co. previously offered a line of Original Spin jeans that allowed the consumer to customize the fit and style of jeans. Body measurements and fit requirements in combination with style, fabric, finish, color and cut preferences made purchasing Original Spin jeans a unique experience for the consumer. Although the line is discontinued, the strategy of mass customization still continues as companies provide customized options to consumers that are attractive and convenient. Mass customization is consumer driven as consumers play an active part in creating the product and drive trends.

The experience of customizing one's garment allows the consumer to explore his or her creativity without being overwhelmed with design options. Land's End currently offers a line of custom clothing for its online consumers. Style and fit options are available for customers from which to choose. All Land's End custom garments are backed by a guarantee: If the garment fit does not meet the consumer's expectations, simple size-adjustments can be made easily, on-line, and a new garment made. The guarantee also allows for the consumer to be fully reimbursed if the garment does not meet style expectations. The Land's End website reports satisfaction with its customized clothing through testimonials.

Custom fit patterns from Unique Patterns are available for members through manual measurements or by obtaining measurements from the company's *bodyskanner* technology. Bodyskanner is the company's name for the technology which enables a body scanning device that provides customer's with accurate measurements in less than one minute. This program allows home sewers to create garments from patterns

specifically designed to their style and fit needs. Included in the cost of membership to the Unique Patterns program, among other advantages, is a set of measurements from the bodyskanner.

Brooks Brothers has successfully catered to those opting for tailored fit at a lower price by offering mass-customized suits. In addition to style, fabric and design options, the New York store boasts of a body scanner that can quickly and accurately collect measurements to be used in creating the customized suits, with each scan (later scans may be required if measurements change) free to the customer. The body scans offered provide an accurate alternative to other companies offering mass customized products for which the customer must provide his or her own measurements. Buyers of Customized Brooks Brothers Suits may be further impressed by the quick turnaround (15 business days as opposed to the typical wait of 6-8 weeks) and relatively low price of only \$100.00 more than a comparable ready-to-wear suit (CNNmoney.com). By understanding the needs of its consumers, Brooks Brothers has utilized body scanning technology that one research team predicts will change “the conception, design, manufacture and distribution of apparel” to provide for the unique needs of its consumers (Ashdown, Loker & Anderson, 2002, p. 1).

Much research has already been done in redefining the applications for which body scanning can benefit consumer dollars. For instance, Cornell University has already launched projects exploring “the role body scan data can play in satisfying consumers’ desire for good fit while advancing the competitiveness of the domestic apparel industry” (Explore Cornell, p. 4). A project to create a model process and mathematical approach has begun to allow companies to improve fit of clothing for targeted markets (Explore Cornell). Further study in developing this potentially revolutionary technology is also being conducted at Cornell where researchers have successfully initiated a computer program able to create customized clothing from software that “unwraps” a 3-D representation of a garment. By creating a 2-D pattern shape, the program can offer accurate fit for the consumer. However, other factors besides the technical functions of body scanners will determine the acceptance, and successful implementation, of body scanning technology by apparel consumers.

The consumer's personal reactions to the technology in the retail context must also be taken into consideration. TC<sup>2</sup>'s NX-12 body scanning system is paving the way for commercial scanners by proving effective in collecting data for research purposes. Swimmers were eager to volunteer to have their measurements taken as TC<sup>2</sup> and Speedo teamed up to scan swimmers in the 2006 USA Swimming Spring Championships using the NX-12 body scanning system. The purpose of the exhibition was to produce data that would enable Speedo to further develop its line of performance swimwear (Anonymous, 2006). Another study used the NX-12 to remedy appearance and fit issues for plus size girls ages 9-14 (Anderson, 2006). The TC<sup>2</sup> NX-12 scanner is used in conjunction with the Body Mass Index (BMI) of plus size girls age 9-14 to categorize girls into either normal or plus size ranges. The research team of Pamela Ulrich and Lenda Jo Connell of Auburn University has used this unique data base to enable clothing producers to address issues of fit for this segment for whom appearance is of utmost importance (Anderson, 2006). Questionnaire results identifying further issues related to apparel purchase for the segment were used in conjunction with the scan data set. Several other researchers have explored fit issues in the apparel industry in conjunction with 3D body scanning, and automated pattern making (Ashdown & Dunner, 2006); improving sizing standards for women ages 55 and older (Salusso, Borkowski, Reich & Goldsberry, 2006); and female body shape analysis (Connell, Ulrich, Brannon, Alexander & Presley, 2006).

### **Statement of Purpose**

A developing technology useful in mass customization is body scanning, with which consumer body measurements can be taken and then used to create personalized apparel products. However, this relatively new technology has little research backing its usefulness and practicality in the eyes of consumers. In order to better gauge the success of the technology in terms of diffusion in the retail context, an analysis of the personal factors contributing to consumers' willingness to use body scanning was conducted. The analysis will also further current literature in the field of innovativeness. Using Roger's theory of diffusion (2003), which acknowledges the importance of innovators in paving the way for the diffusion of innovations in the marketplace, selected consumer characteristics have been chosen for study in the current research on body scanning technology. The purpose of this study was to gain a better understanding of the factors

contributing to consumer innovativeness through a look at factors contributing to consumer willingness to try body scanning.

A secondary purpose of this research was to test a model that retests the relationship between innovativeness and involvement using Zaichkowsky's (1985) PII scale in order to see if the scale can be used to simultaneously measure both enduring and situational involvement. Enduring involvement for a particular product class exists for one who has a "long-term, cross situational" interest in a product central to his or hers central needs and personal values (Bloch & Richins, 1983, 72). Situational involvement, on the other hand, results form a temporary perceived need where interest wanes once the need is met (Bloch & Richins, 1983). Susceptibility to interpersonal influence (SII), or how one identifies with a group through purchases (Bearden, Netemeyer, & Teel, 1989) as tested as a potential mediator between personal values and innovativeness. If a re-test of personal values and innovativeness confirmed a direct relationship with the two, then SII was predicted to at least partially mediate the relationship.

The following objectives and hypotheses guided the study. This chapter presents a proposed research model; gives pertinent background information on, and justification for, the selection of the independent variables; and outlines the methodology used in collecting and analyzing the data. The following objectives were driven by Roger's (2003) theory of diffusion of innovations and are based upon an extensive review of relevant literature.

### **Objectives**

- 1) To determine if susceptibility to interpersonal influence (SII) mediates a relationship between personal values and innovativeness.
- 2) To examine the normative and informational SII factors and test for a relationship with innovativeness.
- 3) To examine involvement results and confirm a relationship with innovativeness.
- 4) To determine if personal values, SII, and involvement indirectly affect intended adoption time frame through a relationship with innovativeness.



## Hypotheses in Research Model

**Hypothesis 1.** Susceptibility to interpersonal influence (SII) will mediate a relationship between personal values and innovativeness.

Several studies have shown the significance that values research has on predicting the preferences of consumers in purchasing behavior and attitudes towards shopping experiences (Goldsmith, Heitmeyer & Goldsmith, 1990; Goldsmith, Heitmeyer & Freiden, 1991). Values research has proven effective in determining the social values of female fashion innovators (Goldsmith, Heitmeyer, & Freiden, 1991), in comparing cultural changes in the United States over a ten year period (Kahle, Poulos & Sukhdial, 1988), as a basis for discerning consumer motivation for product consumption through laddering (Durgee, O'Conner, & Veryzer, 1996) and in partially explaining one's susceptibility to advertising (Barr & Kellaris, 2000).

Batra, Homer and Kahle (2001) examined how values affected the normative component of susceptibility to interpersonal influence (SNI), and how, in return, SNI affected consumer behaviors. What the researchers found was that SNI acted as a partial mediator between values and attribute importance ratings. However, SNI is only a mediator between those values and attributes where a relationship is established prior to introducing SNI as a mediator. The Batra et al. (2001) study will be taken a step further in the current study as SII is predicted to mediate the relationship between personal values and innovativeness. If a retest of the relationship between values and innovativeness produces a direct relationship it could potentially, according to the literature (Batra, et al., 2001), be mediated by susceptibility to normative interpersonal influence.

**Hypothesis 2a.** Normative SII will have a direct, negative relationship with innovativeness.

**Hypothesis 2b.** Informational SII will have a direct, positive relationship with innovativeness.

Those less susceptible to normative influence are more inclined to "adopt products before they become popular" and shop at unpopular stores (Lynn & Harris, 1997, p. 1874). Those most susceptible to interpersonal influence are likely to look to others for cues regarding purchase decisions (Bearden, Netemeyer, & Teel, 1989).

Because the diffusion of innovations relies on communication channels, interpersonal channels especially, one's SII may contribute to the role an individual plays in the diffusion process. SII includes identification with others on two distinct bases: to conform to others' expectations or to learn, or seek information, from others in terms of consumption practices.

Normative SII is the degree to which a group has the power to affect one's individual behavior. People in the late majority tend to be characterized as those who learn about innovations from interpersonal communication channels (Rogers, 2003). Therefore, it is expected that the late majority will be characterized by high levels of normative SII. However, laggards are characterized as being "skeptical" of new products, and may be more likely to look to adopters for information and therefore be characterized as higher in susceptibility to informational interpersonal influence.

A clear direction in the relationship between innovativeness and susceptibility to interpersonal influence (SII) is not predicted as a review of current literature does not allude to any distinct, directional relationship. Instead, the degree of susceptibility to either normative (SNI) or informational influence is expected to vary according to the characteristics of each group of adopters. Because of the potential contradictions expected between normative and informational SII, no specific direction will be hypothesized for SII and innovativeness in general.

**Hypothesis 3.** Involvement will have a relationship with innovativeness.

This study tested Zaichkowsky's (1985) personal involvement inventory to see if it could be factored into two parts: situational and enduring involvement. Therefore, the study could further defined the impact of instrumental and enduring involvement on the adoption of a specific innovation, that is, body scanning, if the two factors resulted. Although general involvement and innovativeness have a relationship, the literature does not provide a clear understanding of exactly how enduring versus situational involvement relates to innovativeness, therefore a directional hypothesis was not applicable for this study.

**Hypothesis 4a.** The three independent variables, personal values, SII, and involvement will contribute to innovativeness.

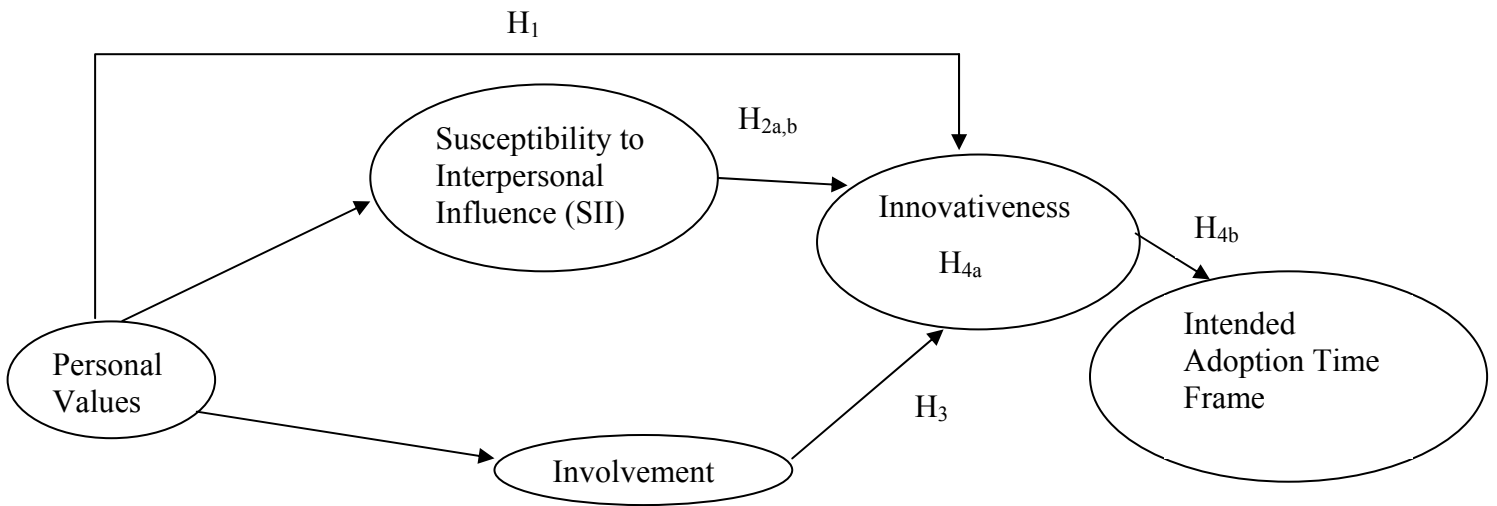
Innovative body scanning technology has the potential to spur the growth of mass customization in the domestic apparel and retail industry; however, consumer attitudes toward the usefulness of the technology will ultimately determine its effectiveness. Understanding contributing factors towards the adoption of innovative body scanning technology will equip retailers with the tools needed to target potential users of the new technology. The current study tested innovativeness to see if it alone was enough to predict willingness to use body scanning or if the other variables included in the study contributed to one's attitude and potential behaviors.

**Hypothesis 4b.** Innovativeness will be related to intended adoption time frame.

Innovators are those who are first to try new products on the market, paving the way for acceptance of new innovations by the mass market. One's level of innovativeness was predicted to determine the likelihood of adopting the relatively new technology in the context of the retail setting. This research focused on the first two steps of the diffusion process: Communication of the innovation and the resulting decision to adopt the innovation.

### **Proposed Research Model**

The basis for the current research includes Roger's (2003) theory of the diffusion of innovations. The study also incorporated pertinent variables related to the individual differences component of the Blackwell-Miniard-Engel (2001) model of consumer behavior and other related variables as per the review of literature. The proposed model showed the predicted relationships between values, SII, involvement and how they contribute to innovativeness, and willingness to use body scanning technology. Specifically, values were expected to have a direct relationship with innovativeness, which would be mediated by susceptibility to interpersonal influence. Values were also predicted to be related to involvement, and involvement to innovativeness. Two components are expected to factor from the involvement scale: enduring and situational.



**Figure 1: Proposed Research Model**

## Definitions of Terms

**Body Scanning:** Technology comprised of “highly-developed electronic devices” (Lee, et al., 2002, p. 141) producing 3-D body measurements which allows for the development of a “manufactured product with an individualized fit” (Fiore, et al., 2001, p. 100).

**Enduring Involvement:** A “long-term, cross-situational perception of product importance based on the strength of the product’s relationship to central needs and values” (Bloch & Richins, 1983, p. 72).

**Informational Susceptibility to Interpersonal Involvement:** Refers to a group’s effect on “the gathering, coding, and integrating of information about an issue” (Schroeder, 1996, pp. 585-586).

**Innovativeness:** The “degree to which an individual or other unit of adoption is relatively earlier in adopting new ideas than other members of a system” (Rogers, 2003, p. 297).

**Involvement:** A “person’s perceived relevance of the object based on inherent needs, values, and interests” (Zaichkowsky, 1985, p. 342).

**Normative Susceptibility to Interpersonal Influence:** Refers to a group’s power to “affect behavior by setting norms of conduct—formal and informal” (Schroeder, 1996, p. 585).

**Personal values:** “Fundamental beliefs that direct or motivate our behavior and decision making” (Solomon & Rabolt, 2004, p. 127).

**Situational / Instrumental Involvement:** A “temporary perception of product importance based on the consumer’s desire to obtain particular extrinsic goals that may derive from the purchase and/or usage of the product” (Bloch & Richins, 1983, p. 72).

**Susceptibility to Interpersonal Influence:** The “need to identify or enhance one’s image with significant others through the acquisition and use of products and brands, the willingness to conform to the expectations of others regarding purchase decisions, and/or the tendency to learn about products and services by observing others and/or seeking information from others” (Bearden, et al., 1989, p. 474).

## II. REVIEW OF LITERATURE

The following review of literature discusses Rogers' (2003) theory of the diffusion of innovations, the Blackwell-Miniard-Engel (2001) model of consumer behavior, personal values, susceptibility to interpersonal influence, involvement, innovativeness and mass customization and body scanning, respectively. The purpose of this review was to give pertinent background information on each variable measured in the current study and to show the importance of the selection of variables to be analyzed in the context of the current study. Concluding paragraphs are given for each topic to show how the current study is differentiated from previous works. A general discussion of the innovativeness construct, leading to Rogers' (2003) theory of the diffusion of innovations, will be discussed first as the diffusion of innovations serves as the primary theory guiding the current research.

### **Innovativeness**

The innovation decision process is “an information-seeking and information-processing activity in which an individual is motivated to reduce uncertainty about the advantages and disadvantages of the innovation” (Rogers, 1962, p. 14). Any idea or product that is new in the eyes of the potential adopter can be considered an innovation (Blackwell, Miniard, Engel, 2001). In the context of new consumer products, the new product or idea can be considered innovative if it is recently introduced and perceived as new, compared to other products, by consumers (Blackwell, et al., 2001). Innovations are diffused through a social system by the communication of the innovator, over time, by communication channels (Blackwell, et al., 2001, p. 417). A communication channel is any means through which information, or messages, about an innovation transfers between individuals. (Blackwell, et al., 2001).

One's innovativeness is “the degree to which an individual or other unit of adoption is relatively earlier in adopting new ideas than other members of a system” (Rogers, 2003, p. 297). The term adoptive innovativeness is where the actual adoption of the innovation occurs, whereas vicarious innovativeness is simply the act of gaining information regarding the innovation (Hirschman, 1980). In applying innovativeness to consumer models, researchers found that the mass market provides the main support for

the retail industry, but a smaller percentage of consumers control, or act as gatekeepers for, the proliferation of certain goods.

According to the theory, the innovators and early majority of innovation adopters are among the first to try an innovation. The early adopters have a unique position in influencing later adopters to adopt an innovation. Therefore, much research has been performed on this early adopter segment as marketers target the influential group. To better understand the innovativeness concept, the following review of diffusion literature will discuss the essential components of innovativeness: The stages of diffusion, communication of innovations, adopter categories and methods used to measure innovativeness.

### ***The Stages of Diffusion***

Rogers (2003) indicates five stages in the innovation decision process through which both individual consumers and other consumers collectively progress before innovation is diffused. The process consists of the knowledge, persuasion, decision, implementation, and confirmation stages. Attention to the new product results in beginning the process through the knowledge stage. Knowledge of a product may be obtained through media exposure or opinion leaders and is affected by personal characteristics of the consumer. Upon knowledge of a new product, the consumer proceeds to the persuasion stage where favorable or unfavorable attitudes are formed towards the innovation. Depending on attitudes formed during persuasion, a decision to adopt or reject the innovation is made. A behavior change leading to the use of an innovation occurs in the implementation stage, where marketing decisions are crucial in getting consumers to use the product, furthering diffusion. Finally, during confirmation consumers may “seek reinforcement for their innovation decision” (Blackwell, et al., 2001, p. 422), sometimes reversing previous decisions, especially in cases of dissonance.

### ***The Communication of Innovations***

Rogers’ (1962) model of consumer decision making for innovations is similar to those of other decision-making models; however, communications within a social structure rather than individual information processing sets the theory apart (Blackwell, et al., 2001). The theory calls communication a process where “participants create and share information with one another in order to reach a mutual understanding” (Blackwell,

et al., 2001, p. 5). Therefore, communication channels are critical to the diffusion of an innovative idea.

Communication of a new idea involves four primary facets: the innovation, the individual involved in using or obtaining knowledge of the innovation, an individual that does not have experience with the new idea, and the communication channel that links the two. The effectiveness of the communication channel and resulting diffusion process may be affected by the nature of the information exchange. The conditions under which the exchange takes place will determine if messages about the innovation are received by, as well as the resulting effect of the message on, the potential adopter. The nature of innovativeness may rely on certain communication channels to be effective in spurring the diffusion of information and subsequent technology adoption.

### ***Interpersonal Communications***

Diffusion of innovations is a social process dependent upon the communications within interpersonal relationships. Interpersonal channels “involve a face-to-face exchange between two or more individuals” (Rogers, 2003, p. 18). According to Rogers’ (2003) theory, “diffusion is a very social process that involves interpersonal communication relationships” (Rogers, 2003, p. 18). The diffusion of innovations is dependent on the experiences of those who have tried the innovation and the interpretation of that experience by others who would potentially adopt the innovation. Interpersonal communication is among the most effective channels in persuading one to accept a new idea, “especially if the interpersonal channel links two or more individuals who are similar in socioeconomic status, education, or other important ways” (Rogers, 2003, p. 15). The invasive nature of having one’s measurements taken may foster the need for the input of trusted individuals. One’s level of and disposition toward interpersonal influence may have an effect on innovativeness with body scanning technology due to the nature of diffusion which depends on interpersonal communication as a means of successful diffusion.

At the persuasion and decision-making stages of the diffusion of innovations an individual seeks information regarding the innovation so that uncertainty regarding consequences of adoption can be reduced. For innovation-evaluative information, interpersonal communication networks with one’s close peers are the most likely place



where an information exchange about the merits and drawbacks of an innovation will occur. Others' evaluations of the new idea or innovation are also influential when an individual makes the decision to adopt or not adopt, as well as at the confirmation stage of the adoption decision. In regard to the decision stage, most people depend on the opinions of other, who are most like them and who have already adopted the innovation, in making the decision whether or not to adopt the innovation.

### ***Adopter Categories***

Rogers' (2003) theory of the diffusion of innovations groups consumers into adopter categories according to their level of innovativeness. He proposes that there are five categories in which consumers fall: Innovators, early adopters, early majority, late majority and laggards. The categories fall from the highest level of innovativeness to the lowest, respectively. Consumers within a given adopter category are said to exhibit certain qualities from which generalizations can be made regarding the willingness to adopt innovations. Innovativeness is considered a multi-factor characteristic with consumers placed into the different categories of innovativeness displaying distinct characteristics. The bulk of the discussion of adopter categories will be on innovators due to the disproportionate amount of literature available on this group relative to other adopter categories, as this group is considered to be most influential in the diffusion process and in marketing.

#### ***Innovators***

##### ***Personal Characteristics***

Compared to later adopters, innovators are the first to adopt new consumer products. For innovators, the stimulus new things possess may be the motivation to purchase or try new products, or seek "creative and original solutions to problems", leading to the early adoption of an innovation (Goldsmith, 1990, p. 97). However fashion innovativeness is more than "mere novelty seeking" as consumers look further to find "unique meaning in the brands they buy" (Goldsmith, Moore & Beaudoin, 1999, p. 12).

Innovators have a unique self-image, unrelated to demographic characteristics such as education, age, race or marital status (Goldsmith, et al., 1999). Research confirms that fashion innovators see themselves as "more excitable, indulgent, contemporary, formal, colorful, dominating and vain" compared to fashion followers

(Goldsmith, et al., 1999, p. 10); with further description of the segment including “more comfortable” and more “pleasant” compared to later adopters (Goldsmith, et al., 1999, p. 10). Fashion innovators also see themselves as opinion leaders; have greater involvement in and knowledge of fashions; and spend more money and time in shopping for fashions compared to less innovative consumers (Goldsmith, Flynn & Moore, 1996). Further, innovators have more years of formal education; are more likely to be literate, exhibit greater rationality, have greater intelligence; be more favorable to change; and have higher aspirations relative to less innovative counterparts (Rogers, 2003). Innovators actively seek information; therefore, they have a high degree of mass media exposure. Another important characteristic of innovators is their interpersonal networks that extend over a wide area, reaching outside their local system. Innovators are able to cope with a higher level of uncertainty about an innovation than are other adopter categories. Innovators are less likely to be brand loyal, and have a tendency to abandon, at least temporarily, previous products for newer innovations (Foxall & Goldsmith, 1988).

#### *Shopping and Consumption Behaviors*

The term “leaders” (Gutman & Mills, 1982) is often synonymous with opinion leaders, innovators, and influentials (Solomon & Rabolt, 2004). Those “leaders” who pave the way for future trends are often seen as young, single, and may have a high level of education (Gutman & Mills, 1982; Shim & Bickle, 1994); however, this is not always the case, as some young shoppers can be classified as “apathetic” (Haynes, Pipkin, Black & Cloud, 1994, p. 31). Gutman and Mills (1982) have found leaders to rate high on levels of fashion leadership, interest and importance and low on anti-fashion attitudes. The same research showed leaders to accept “establishment views” (Gutman & Mills, 1982, p. 75) of fashion as well as exhibit “strong involvement” in mainstream fashion (Gutman & Mills, 1982, p. 75). Also included in the list of characteristics for fashion clothing innovators is self-reported spending, fashion magazine readership and time spent shopping (Goldsmith, Moore & Beaudoin, 1999).

#### *The Early Majority, Late Majority and Laggards*

Early adopters are looked to by others as opinion leaders, and are generally socially adept and respected by peers (Blackwell, Miniard & Engel, 2001). The early majority is characterized as deliberate and shoppers who adopt innovations just before

mass acceptance of a product. The more cautious late majority takes more time to adopt innovations, and adoption is usually in response to pressure from peers. The late majority is usually of “relatively lower socioeconomic status, makes little use of mass media channels, and learns about most new ideas from peers via interpersonal communication channels” (Blackwell, et al., 2001, p. 22). Laggards, the last group to adopt an innovation, have the lowest level of innovativeness and are generally skeptical of new products (Blackwell, et al., 2001).

The work of Eastlick and Lotz (1999) shows how important perception is to innovativeness. In their work, perceptions of the qualities associated with teleshopping, compatibility with lifestyle and relative advantage over other shopping formats, appeared to be the base from which the decision to adopt, or not adopt, the medium was based. Previous shopping behaviors including previously purchasing from television networks, also predicted membership in the innovator category. Higher social risk associated with using the innovation was perceived by early adopters of teleshopping followed by innovators. Results showed a negative relationship between perceptions of the relative advantage and compatibility, and perceived complexity of using the teleshopping medium. The likelihood of the respondent landing in the innovator group increased as opinion leadership/innovativeness traits were exhibited.

### ***Measuring Consumer Innovativeness***

Flynn and Goldsmith (1993) tested the innovativeness scale by Goldsmith and Hofacker (1991) and found that the scale had both nomological and criterion related validity. Results of the study confirmed that the original scale was effective in measuring “innovativeness within a specific domain of interest” and avoided problems “associated with time-of-adoption methods” (Flynn & Goldsmith, 1993, p. 1115).

Eastlick and Lotz (1999) developed a nominal scale with which intent to adopt was measured on consumer attitudes towards teleshopping. The scale consists of four questions regarding a respondent’s likelihood of adopting an innovation based on given time frames corresponding to adopter characteristics.

Inconsistencies in distinct demographic profiles suggest that superficial research in demographics and innovativeness will yield, at best, weak results. Fortunately, a rich history of innovations research has provided researchers with tools needed to create

effective marketing strategies. Simply using demographics to group consumers will give an incomplete segment description.

### **Values as Predictors of Consumer Behavior**

Values have an indirect, but significant, influence on consumer behavior. In addition to demographics, values can enhance the understanding of consumer behavior (Kahle, 1985). Values are the abstract beliefs that guide one's thoughts and actions and affect attitudes. As feelings toward concrete objects or situations, attitudes can be predictors of behavior (Becker & Connor, 1981). For marketers to understand consumer motivation for a particular product, a study of the consumers' underlying values is essential. Consumer behaviorists have performed extensive research on personal values and incorporated them into models with which to explain or predict consumer behavior (Blackwell, et al., 2001; Sheth, Newman & Gross, 1991, 1992; Scott, 1965). Zaichkowsky (1994) acknowledges the antecedent effect of values on involvement. The current study considers personal values as the only exogenous variable which will directly affect involvement and innovativeness. That is, values in the current study are independent of the states of the other variables under study. The following values review of literature will show why values are selected as critical to the study of involvement and innovativeness, beginning with a look at how values are incorporated into well-known consumer decision-making models.

#### ***Behavioral Models***

##### ***The Sheth-Newman-Gross (1991) Model of Consumer Behavior***

The Sheth, Newman and Gross (1991) model shows five values influencing market choice behavior which are functional, social, emotional, epistemic, and conditional values. The model is based upon three propositions, as follows:

- 1) Market choice is a function of multiple values.
- 2) These values make differential contributions in any given choice situation.
- 3) The values are independent.

(Sheth, Newman & Gross, 1991, p. 7)

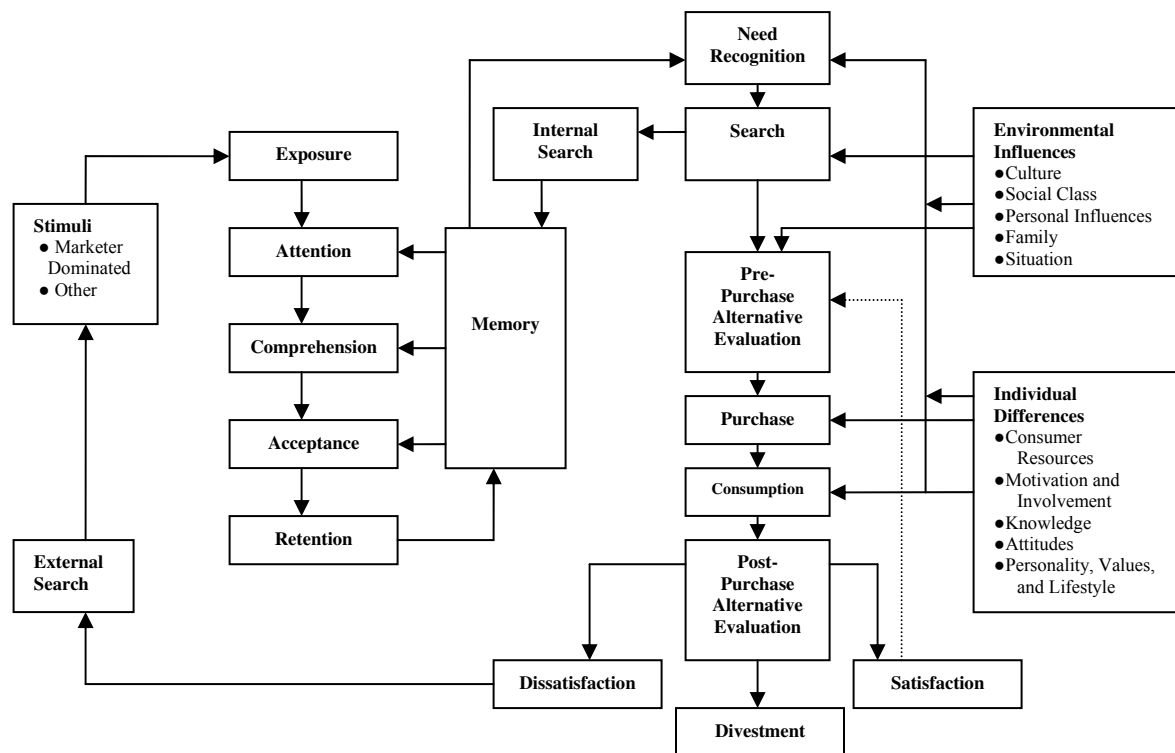
Functional value of an alternative is defined as the "perceived utility acquired from an alternative's capacity for functional, utilitarian, or physical performance" (Sheth,

et al., 1992, p. 160). Functional value can refer to the level of “salient functional, utilitarian, or physical attributes” (Sheth, et al., 1992, p. 160). Goods that are highly visible or shared with others are often chosen based on social value. A consumer product possesses social value with “perceived utility acquired from an alternative’s association with one or more specific social groups” (Sheth, et al., 1992, p. 160). Emotional value is determined by a product’s “capacity to arouse feelings or affective states” and can be associated with both functional and hedonic goods and services (Sheth, et al., 1992, p. 160). An alternative’s “perceived utility acquired from the capacity to arouse curiosity, provide novelty, and/or satisfy a desire for knowledge” is considered epistemic value. Epistemic value is measured using items “referring to curiosity, novelty, and knowledge” (Sheth, et al., 1992, p. 162). Conditional value depends upon “the specific situation or set of circumstances facing the choice maker” (Sheth, et al., 1992, p. 162) and is acquired in “the presence of antecedent physical or social contingencies that enhance its functional or social value” (Sheth, et al., 1992, p. 162).

### ***The Blackwell-Miniard-Engel (2001) Model of Consumer Behavior***

According to Blackwell, Miniard and Engel (2001), personality, values and lifestyle characterize market segments as they relate to the consumer decision-making model (CDM), as shown in Figure 2. Personality, values and lifestyle are considered “Individual Differences” and directly influence the decision processes involved in need recognition, search for information, pre-purchase alternative evaluation, purchase, consumption and post-consumption alternative evaluation and divestment. As its prevalence in the EKM model implies, values are an influential factor in the consumer decision-making process.

“Need recognition” begins the consumer decision-making process as a difference between one’s perception of the ideal state of affairs and actual state of affairs (Blackwell, et al., 2001). Blackwell, et al. (2001) define need recognition as a “state of desire that initiates a decision process that in turn occurs through the interaction of *individual differences* such as values and needs and *environmental influences*, especially social interaction” (p.146).



*Figure 2.* The Blackwell, Miniard, Engel (2001) Consumer Decision-Making Model

Individual differences and the environment affect one's external search, the next step in the EKM model. Search for information begins as one evaluates, through an internal search into memory, the amount of information known regarding a consumer product. If the individual feels that a choice can be made based on already known information, a further information search is unnecessary (Blackwell, et al., 2001). An external search will result if enough information is not already available from memory, and can be undertaken either by means of "marketer-dominated" or "other" searches. Marketer-dominated searches include those in which the supplier distributes information for persuasion purposes (Blackwell, et al., 2001). Word-of-mouth and product ratings are other external sources used to obtain product information.

Pre-purchase alternative evaluation includes the use of standards and specifications as evaluative criteria to compare different products and brands as alternatives in the decision-making process. In purchasing an item, one may need the advice of a salesperson with some expertise on the product under consideration (Blackwell, et al., 2001).

Individual differences are linked to the model's consumption and post-consumption alternative evaluation. Marketers need to consider that, for consumers, future product evaluations will hinge on how satisfied they are with their perception of a given product's performance; that is, how well the product meets the consumers' performance expectations. Satisfaction with the product is associated in the next pre-purchase alternative evaluation. Dissatisfaction can occur if a product is seen as falling short of expectation, which will also affect the consumer's next pre-purchase alternative evaluation.

Post-decision regret can also affect one's satisfaction with product performance, again affecting pre-purchase alternative evaluation if the alternative products not chosen were evaluated as having desirable attributes. Highly important consumer products are more susceptible to the consumption and post-consumption alternative evaluations. Finally, values affect divestment, the final stage in the EKM model (1995) as one must consider whether to dispose of, recycle, or remarket the consumer product.

### ***Measuring Values***

Behavior models show the importance personal values play in the decision-making process for consumer goods. Several measures of personal values developed from previous research in decision-making have resulted in a rich portrait of consumers with distinct characteristics useful in creating marketing strategies. The following review on techniques used to measure values will give context to the instrument selection proposed for the current research.

#### ***The Mean-End-Chain Technique***

Consumers often select products based on the benefits perceived in using a product or service. Therefore understanding the driving values behind consumer brand choice is important. Underlying values can reflect areas marketers can use to pinpoint motives for product usage. Consumption is largely driven by one's personal values because "products and services are purchased because people believe they will help attain a value-related goal" (Solomon & Rabolt, 2004, p. 127). The means-end-chain describes the motives behind product usage and brand selection. Gutman's (1982) laddering technique used in the means-end chain (MEC) model shows that consumer product or service attributes can facilitate "the achievement of desired end states" (Gutman, 1982, p. 60). Therefore, the MEC model is based on means, objects or activities "in which people engage", and ends, or "valued states of being" (Gutman, 1982, p. 60). The MEC is useful in developing brand image as it allows marketers to identify linkages made between consumer values and product preferences (Reynolds & Gutman, 1984); thus giving insight into "how the product relates to the personal-value systems of consumers" (Reynolds & Gutman, 1984, p. 36).

#### ***Rokeach Value Survey***

The Rokeach Value Survey (RVS) is made up of terminal and instrumental values. The psychologist, Milton Rokeach, identified these two sets and created the Rokeach value survey (RVS) in which terminal and instrumental values complement each other. Terminal values are those that refer to "end states of existence" (Solomon & Rabolt, 2004, p. 131). Instrumental values are those "composed of actions needed to



achieve these terminal values” (Solomon & Rabolt, 2004, p. 131). However, the RVS has seen limited usage as a measurement of consumer values.

Early research with the Rokeach Value Survey (RVS) has revealed that those who prefer different forms of media including television, magazine or newspaper, demonstrate different values (Becker & Connor, 1981). Heavy television viewers valued the development of satisfying interpersonal relationships over achievement and personal success. Magazine readers were inner-directed, relatively less concerned with interpersonal relationships and more concerned with achievement. Magazine readers and newspaper readers held much in common relative to television viewers. The results of the research suggest that marketers dealing with the different media should consider “advertising-campaign platforms and themes” that appeal to the distinctive values of media users (Becker & Connor, 1981, p. 42).

### ***Kahle’s List of Values***

The list of values (LOV), developed, in part, from the Rokeach value survey (RVS), has been shown to be effective in distinguishing the values of consumers for certain products. The LOV is used as an alternative to the RVS because it “isolates values with more direct marketing applications” (Solomon & Rabolt, 2004, p.131). The values listed in the LOV scale consist of the following nine values: sense of belonging, excitement, fun and enjoyment in life, warm relationships with others, self-fulfillment, being well-respected, a sense of accomplishment, security and self-respect (Kahle, 1983). Kahle (1983) describes his use of the nine values as taken from a previous study by Veroff, Douvan and Kulka (1981) in which the researchers developed the list from the RVS. The list of values calls for the participant to rank each of the nine values and/or indicate their most important value(s) (Kahle, 1983).

The LOV has been used to show a positive relationship between a positive attitude towards being well dressed and excitement, fun and enjoyment in life, being well respected, and accomplishment (Goldsmith, Heitmeyer & Goldsmith, 1990). Fashion leaders have been shown to place greater importance on fun/enjoyment and excitement

(Goldsmith, Heitmeyer & Freiden, 1991). Use of the LOV has also revealed differences in the values of purchasers of designer/private brands and national brands, and specialty store shoppers versus department and discount store shoppers (Heitmeyer, 2001).

Kahle (1985) insists that values be used in addition to demographic and attitudinal data to properly seek out and appeal to consumers. Goldsmith, Heitmeyer, and Freiden (1991) support Kahle (1985) in that using social values in addition to demographics and attitudinal data can allow greater insight into consumer purchasing motives. The term psychographics is used to capture views not expressed by “demographic, behavioral, and socioeconomic measures” (Shim & Bickle, 1994, p. 2). By using psychographics and demographics to group consumers with distinctive characteristics, resulting segmentation typologies offer an effective tool for lifestyle marketing (Solomon & Rabolt, 2004).

### **The Significant Impact of Susceptibility to Interpersonal Influence**

The EKM (1995) consumer decision-making model incorporates personal influences as part of the environmental influences component. Reference groups may be more or less influential on a consumer depending on the consumer’s personal characteristics. Consumer susceptibility to interpersonal influence (SII) is considered the “need to identify or enhance one’s image with significant others through the acquisition and use of products and brands, the willingness to conform to the expectations of others regarding purchase decisions, and/or the tendency to learn about products and services by observing others and/or seeking information from others” (Bearden, et al., 1989, p. 474). As a social process, the diffusion of innovations is dependent upon communication within channels with interpersonal communication being the most influential. Susceptibility to interpersonal influence, as a general construct, can be broken down into two facets, informational and normative influences.

#### ***Informational and Normative SII***

Adhering to group norms can be beneficial to one who chooses to define themselves based upon adopting referent group behaviors or opinions as conformity to others’ expectations allows for one to “gain rewards or to avoid punishments mediated by others” (Bearden, et.al., 1989, p. 474). Informational influences describe “the group’s

effect on the gathering, coding, and integrating of information about an issue” (Schroeder, 1996, pp. 585-586). Informational influences include significant others such as friends and relatives with whom respondents engage in discussion regarding products, including “asking advice of others prior to making a purchase, avoiding a purchase because others said it was unsatisfactory, and having asked an ‘expert’ about a contemplated purchase” (Bearden, et al., 1989, p. 478). Informational influence is positively related to public self-consciousness, but not as strongly as normative influence. Informational influence does not reflect the level of social influence as that of normative influence (Schroeder, 1996). Those who score high on consumer susceptibility to interpersonal influence are highly influenced by peers, self-conscious, lacking a “high degree of stability of self” (Schroeder, 1996, p. 596).

Normative influence is the power a group has to affect individual behaviors through the setting of formal and informal norms of conduct (Schroeder, 1996). Scores on susceptibility to normative influence are negatively related to individuation and self-understanding scales and positively related to public self-consciousness and social anxiety scores with “lower levels of individuation and self-understanding” (Schroeder, 1996, p. 596). Those less susceptible to normative influence are more inclined to “adopt products before they become popular” and shop at unpopular stores (Lynn & Harris, 1997, p. 1874). The need for uniqueness was found to be independent of consumer susceptibility to normative influence and was unrelated to pursuing uniqueness through consumption. However, need for uniqueness was related to innovativeness. The conclusion is drawn that “people use some products to foster uniqueness while also using other products to foster belonging and conformity” (Lynn & Harris, 1997, p. 1875).

### ***Susceptibility to Marketing Influences***

Consumer susceptibility to salespersons’ influence (CSII) is the “proneness to be affected by attitudes, opinions, and behavior(s) of a salesperson and to allow the salesperson to influence shopping buying behavior(s)” (Goff & Walters, 1995, p. 916). Research on CSII has revealed that recreational shoppers, those who shop for enjoyment, are influenced by salespeople. The profile of a recreational shopper includes: outshopping, spending more time per trip, fashion oriented, information seeking, and

impulse purchases. Recreational shoppers will “continue shopping after an initial purchase”, redeem coupons, buy national brands, be brand loyal, and be favorable to advertising. This large market segment also prefers “closed-end malls, prestigious department stores, and exciting store atmospheres” (Goff & Walters, 1995, p. 924).

Susceptibility to advertising was positively related to both normative and informational interpersonal influence. Those prone to advertising are also likely to rely on others for cues regarding behaviors and to hold materialistic values as both personal and impersonal influences seem to play a part in influencing compliant behaviors (Barr & Kellaris, 2000, p. 231). The materialistic values place things as central to their lives and “necessary for happiness and success” (Barr & Kellaris, 2000, p. 233). In regards to the amount of effort put into processing presented information, “low susceptibles appear to engage in simple heuristic processing” (Barr & Kellaris, 2000, p. 233), whereas high susceptibles can be motivated by high personal relevance of information to use more systematic thinking. One may be more likely to seek information on consumer goods based on how involved he or she is in a product category; including enduring involvement resulting from pleasure derived from usage, and/or situational, or usage as a means to an end, levels of involvement.

The current research will take the effect of SII on consumer purchases a step further than previous research by checking its effectiveness as a mediator variable for values and innovativeness. The results have the potential to explain further factors contributing to one’s innovativeness, and the resulting relationship to readiness to adopt body scanning technology.

Kropp, Lavack and Holden (1999) used Kahle’s (1985) list of values (LOV) and Bearden, et al’s. (1989) consumer susceptibility to interpersonal influence scale (CSII) on a sample of college students to determine if there was a relationship between values, CSII and the behaviors, smoking and drinking. Significant relationships were found between the participant’s CSII and responses on the LOV. The researchers found that those high in CSII highly rated “sense of belonging”, “warm relationships with others”, and “being well respected”. Lower amounts of CSII were associated with smokers and lower ratings of “sense of belonging”, “being well-respected”, and “security”.

## **Consumer Involvement**

Consumer involvement has spurred the evolution of the construct now used in many areas of consumer behavior research. Blackwell, et al. (2001) use the definition of involvement as “the level of perceived personal importance and/or interest evoked by a stimulus within a specific situation” (Blackwell, et al., 2001). Involvement in a product can be useful as the consumer seeks to maximize benefits and minimize risks associated with a purchase decision. Product involvement refers to “a consumer’s level of interest in a particular product” (Solomon & Rabolt, 2004, p. 121). Although widely used, the construct, however, still leaves room for study designed to further define, and understand, its effect on consumer behavior. Researchers have worked to define the construct, refine its meaning and apply the theory to learn more about consumer behavior. The following look at involvement research encompasses several researchers’ work to construct a picture of involvement as it is currently portrayed. The review will conclude with the direction the current research aims to take the field in regard to the way situational or enduring involvement is viewed and how each term is measured currently, and perhaps uncover a new use for a scale to measure involvement.

### ***Defining Consumer Involvement***

Bloch and Richins (1983) use the term, perceived product importance, to refer to “the extent to which a consumer links a product to salient enduring or situation-specific goals” (p. 71). The researchers differentiate between product importance and product involvement, where product importance “reflects an individual’s perception that his/her actions concerning a product matter” and product involvement is “the motivational state that results from the stimulus of product importance perceptions” (Bloch & Richins, 1983, p. 73). Perceptions of product importance at a given time often depend on both elements of situational/instrumental and enduring involvement (Bloch & Richins 1983).

Laurent and Kapferer (1985) argue for a multi-faceted determination of involvement, as involvement itself does not directly predict behaviors. An involvement profile measuring four antecedents of involvement is recommended. The four facets proposed include: 1) the risk importance or perceived product importance and perceived consequences of a mispurchase, 2) the “subjective probability of a mispurchase”, 3) the

“pleasure value or hedonic value of the product class”, and 4) the “perceived sign value of the product class” (Laurent & Kapferer, 1985). The facets are not predictive of each other and each facet exerts different influences on the decision-making process.

Perceived differences between alternatives are a major influential variable on product involvement. However, the level of importance and consequences of a mispurchase are most influential on the decision-making process. The hedonic value of a product, also called the pleasure facet, can play a role in facilitating communication about a product, but plays little part in the decision process itself.

In an analysis of previous research, Mittal and Lee (1989) made an important distinction between product and purchase involvement. Product involvement is one’s level of interest in a product class, based on the ability of that product to meet the individual’s values and goals. Purchase involvement is the level of interest one has in selecting between brands. Low-purchase involvement involves a more casual approach to brand selection. High purchase involvement, on the other hand, is characterized by a deliberate decision of brand choice. Put another way, “the utility of a product captures the across-product differences in the functional value of products while ‘brand risk’ captures the within-product across-brand differences in such functional value” (366). Six sources of involvement are listed based on product versus brand level sources. Product level sources include product-sign value, product-hedonic value, and product utility. Brand level sources are brand-sign value, brand-hedonic value, and brand risk. In general, product involvement is better correlated with product level sources. The same pattern is seen with brand-level sources as they correlate strongly with brand-decision involvement. However, brand decision involvement was found to come after product involvement.

Zaichkowsky’s (1985) research confirms previous findings that high involvement behavior was a contrast to low involvement behavior in each of the propositions. High involvement behavior was demonstrated by a higher interest in acquiring information about products, an active evaluation of competing alternatives, a higher perceived difference among brands in a product class, and by having a preferred brand in a product class. Further research in involvement includes the study of enduring versus situational/instrumental involvement.

### ***Involvement and Consumer Characteristics***

Shim and Kotsiopoulos (1993) found their largest group of consumers, labeled as “highly involved apparel shoppers”, to be concerned with keeping their clothing “up-to-date with fashion trends” (Shim & Kotsiopoulos, 1993, p. 81). The consumers also saw shopping as a leisure activity, in which they were less concerned with convenience and time spent, and “tended to shop at specialty stores or department stores” (Shim & Kotsiopoulos, 1993, p. 81). The highly involved apparel shopper was conscious about and loyal to certain brand names. Important shopping attributes of highly involved apparel shoppers included “good quality personnel, customer service, visual image of store, easy access, and brand/fashion” (Shim & Kotsiopoulos, 1993, p. 81). In their study, Gutman and Mills (1982) also noted that specialty stores catered to fashion-conscious women willing to pay for clothing that would allow them to “enter and play the fashion game” (pp. 81-82).

A link between shopping orientations and patronage was also found by Summers, Belleau, and Wozniak (1992). The research showed five factors used in “consumer perceptions of fashion and of apparel shopping” that included shopping involvement, importance of clothing image, fashion commitment, quality conscious, and fashion aversion (Summers, et al., 1992, p. 87). Respondents who shopped in clothing-only stores for both themselves and their families scored higher on shopping involvement, fashion commitment, and quality conscious, but had lower scores for fashion aversion. Respondents who shopped for apparel in discount stores, for both themselves and their families, scored the lowest on quality conscious. For enclosed mall shoppers, quality conscious held the highest scores. The highest scores for fashion aversion were found for those respondents who preferred to shop in small shopping centers (Summers, et al., 1992).

Haynes, Pipkin, Black and Cloud (1994) produced six consumer profiles using four sets of descriptive variables, including: demographics, shopping motivations and involvement, shopping attitudes or orientations toward shopping, and desired retailer attributes. The six profiles included those of narrowers, shoppers, apathetics, loyals, late bloomers and avoiders and included elements of “shopping process involvement” which “occurs because of the anticipated reward from participation in shopping activities”

(Haynes, et al., 1994, p. 23). “Narrowers” exhibited relatively less interest in the shopping process. “Shoppers” considered each of the ten measured store attributes to be important when determining where to shop. “Apathetics” were younger consumers who were highly involved in shopping for consumer products; however, economic factors and a lack of product knowledge were seen as possibly hindering their shopping process. “Loyals” were highly involved but with limited market participation and were interested in product variety and value. “Late bloomers” patronized stores based on convenience and value and “avoiders” had little time or money to be used in shopping for apparel and saw the activity as a necessity (Haynes, et al., 1994).

Involvement can be triggered when one’s personal needs, values, or self-concept is met with appropriately timed marketing stimuli (Blackwell, et al., 2001). Personal, product and situational factors each contribute to involvement levels. Personal factors are those pertaining to “self-image, health, beauty, or physical condition” (Blackwell, et al., 2001, p. 91). Direct personal association with a product will result in high involvement, especially if it will enhance self-image. High personal involvement in a product is likely to be enduring and stable. A consumer may become enduringly involved in a product if the product gives the user satisfaction inherent from its usage, rather than as a result of use (Bloch & Richins, 1983). Also contributing to high involvement is an increase in perceived risk of physical or psychological harm, poor performance and financial loss.

As Flynn and Goldsmith (1993) confirmed the usefulness of a shortened 10-item personal involvement inventory scale, they also reinforced typical consumer characteristics linked to apparel involvement. The characteristics included relationships between involvement and frequency of shopping, monthly spending, and seeking out apparel pieces in retail stores previously found in media selections. The more involved consumer will also perceive a higher risk in given purchase decisions.

Flynn and Goldsmith (1993) also found involvement to play a role in pre- and post-purchase satisfaction. Positive relationships were found when correlating pre- and post- purchase satisfaction with involvement. As satisfaction increased, so did involvement (Chae, Black and Heitmeyer, 2006). This supports the Blackwell-Miniard-



Engel (2001) model where involvement was related to the third and fifth stages of the decision-making model, alternative evaluation and post-purchase satisfaction.

### ***Enduring versus Situational Involvement***

Enduring importance, as an antecedent to enduring involvement, is “a long-term, cross-situational perception of product importance based on the strength of the product’s relationship to central needs and values” (Bloch & Richins, 1983, p. 72). Houston and Rothschild (1978) define enduring involvement, a between-individuals perspective, as “the strength of the preexisting relationship between an individual and the situation in which behavior will occur” (p. 184). Although a certain product may be valued as more important, at least temporarily, until the extrinsic objective is met, enduring involvement emphasizes the involvement resulting from perceived long-term benefits or advantages of product usage. That is, someone enduringly involved in a certain product class will derive pleasure from the product itself, instead of using it as a means to an end. If after the extrinsic objective is met the product returns to a low level of perceived importance, situational/instrumental involvement is considered the driving motive behind consumption. The same is true for a purchase task until product class alternatives are reduced.

Situational involvement is “the ability of a situation to elicit from individuals concern for their behavior in that situation (Houston & Rothschild, 1978, p. 184). They proposed two categories of stimuli eliciting situational involvement: 1) “relating to products or services” and 2) “social psychological stimuli” (Houston & Rothschild, 1978, p. 184). Situational involvement is thought to vary between products and not individual preferences, as features such as cost, elapsed time and complexity play a larger role in product decision making leading to a specific end rather than inherent pleasure in the product usage, whereas “the inherent nature of a product elicits a certain level of concern” (Houston & Rothschild, 1978, p. 184).

Using the constructs presented in Houston and Rothschild’s (1978) study, Slama and Tashchian (1987) further confirmed the validity of enduring versus situational involvement through usage of the S-O-R paradigm of consumer involvement. The study

operationalized enduring involvement using questions that pertained to “the ego centrality and familiarity of the product to the individual” (Slama & Tashchian, 1987, p. 41). The questions used to measure the construct reflected level of product “knowledge, familiarity, self-relevance and value centrality” (Slama & Tashchian, 1987, p. 41). The researchers operationalized situational involvement using statements that reflected object and social psychological stimuli relevant to a given purchase decision. They used questions that reflected the consumer’s perceived “benefits of the purchase, cost, similarity of the decision alternatives, and social concern” (Slama & Tashchian, 1987, p. 40). Situational involvement is shown to have a primary influence on response involvement, whereas enduring involvement had little influence on response involvement. The conclusion is drawn that enduring involvement influences situational involvement, which directly influences response involvement.

### ***Situational/Instrumental Involvement***

Situational factors are also called instrumental factors and are characterized as being strong upon purchase, but decrease after the purchase is made. Instrumental importance is “a temporary perception of product importance based on the consumer’s desire to obtain particular extrinsic goals that may derive from the purchase and/or usage of the product” (p. 72). Situations affecting involvement include social situations where a product is purchased for personal use or as a gift, or consumed alone or in a social setting (Blackwell, et al., 2001).

### ***Enduring Involvement***

Richins and Bloch (1986) see enduring involvement as “the baseline level of product involvement” because “it represents the consumer’s degree of interest or arousal for a given product on a day-to-day basis” (p. 280). A situation in which enduring involvement is high requires that the product is of interest and “occupies the consumer’s thoughts without the stimulus of an immediate purchase” (Richins & Bloch, 1986, p. 280).

### ***Involvement and Innovativeness***

Compared to instrumentally involved consumers, enduringly involved consumers have a significant impact on the diffusion process by demonstrating stronger relationships with certain elements of diffusions studied. Overall, the highly involved group plays the most important role in the diffusion process followed by enduringly involved and instrumentally involved respondents, respectively (Venkatraman, 1988). As enduringly involved consumers in a product class play a more significant role in the diffusion process than instrumentally involved consumers (Venkatraman, 1998), less involved consumers may take cues from more involved innovators. Highly involved consumers rate highest on involvement, opinion leadership, innovative behavior, and ongoing information seeking behavior, information sharing, influence, expertise and frequency of usage or patronage (Venkatraman, 1988). Only scores on the element of information sharing were not found to be different between the enduringly and instrumentally involved groups.

A significant level of perceived product knowledge, probably as a result of behaviors which include more shopping trips, spending, innovativeness and higher levels of “product-category-related information sources”, is typical of enduringly involved consumers (Flynn, Goldsmith & Kim, 2000, p. 115). Generally, enduringly involved consumers are less price sensitive than their less involved counter parts (Flynn, et al., 2000; Goldsmith, 2000). Also, enduringly involved consumers are not likely to be opinion seekers, unlike opinion leaders who are also at times opinion seekers (Flynn, et al., 2000). Heavy users, those who are known to marketers as the brand loyal majority of a given product sales, seek product information from several sources, are involved in the product category, are more innovative, knowledgeable and likely to act as opinion leaders. One profile of heavy users also includes exposure to higher levels of media for a given product field (Goldsmith & Litvin, 1999, p. 131).

Non-innovators score lower in enduring involvement as well as other characteristics associated with enduring involvement including opinion leadership and perceived and actual knowledge (Flynn & Goldsmith, 1993; Flynn, et al., 2000). Innovative consumers are more likely to spend more time shopping for a product class relative to non-innovators, read more product-class related magazines, and used the

product with greater frequency. Innovativeness correlates positively with “opinion leadership, enduring involvement, perceived knowledge, and real knowledge” (Flynn & Goldsmith, 1993, p. 1114).

### ***Measuring Involvement***

Bloch and Richins (1983) developed and tested instrumental involvement items assessing a list of goals or motives for a product purchase, and then assessing the importance of each goal or motive. Instrumental involvement items were used to measure “the result of goals usually relating to the purchase of an item” including avoiding losses or achieving gains” (Bloch & Richins, 1983, p. 73, p. 76). Bloch and Richins (1983) work included an enduring involvement scale that assessed “the extent to which a product is thought to provide the consumer with important long-term rewards” and is significant in the consumer’s life (p. 74).

Venkatraman (1990) used Bloch and Richins scale of enduring involvement to determine if a moderating or mediating relationship exists between enduring involvement, opinion leadership, and opinion leader characteristics. The results show that enduring involvement “does not moderate the relationship between opinion leadership and each of its characteristics” (Venkatraman, 1990, p. 63). Instead, the study revealed that “opinion leadership mediates the effect of enduring involvement on knowledge, influence and information sharing” (Venkatraman, 1990, p. 64). Enduring involvement was found to directly affect innovative behavior. In a previous work, Venkatraman (1988) borrowed from Bloch and Richins (1983) and found that enduring involvement was assessed using items that measure the “centrality of the product to the individual’s lifestyle” (Venkatraman, 1990, p. 300). Instrumental involvement was assessed by questions based on a list of motives or goals for using a product and “assessing the importance of each goal” (Venkatraman, 1988, p. 300).

The semantic differential scale measuring consumer involvement (Zaichkowsky, 1985) has been cited numerous times for use in many disciplines. The scale measures participant responses to “statements of theoretical propositions pertaining to involvement” (Zaichkowsky, 1985, p. 349) and has demonstrated positive relationships

between the involvement scale scores. Zaichkowsky (1985) defines involvement as “a person’s perceived relevance of the object based on inherent needs, values, and interests” (p. 342). Three areas affecting one’s level of involvement were used as the basis for the research: personal, physical, and situational. Four propositions about the differences between high and low involvement behavior include: search for product information, alternative evaluation, perception of brand differences, and brand preferences.

According to Goldsmith and Emmert (1991), in a study measuring the validity of three involvement scales, the Zaichkowsky (1985) scale appeared to be “the most general of those available” (p. 371). The scale is also “context-free”, therefore applicable to “products, advertisements, and purchase situations” (Solomon & Rabolt, 2004, p. 122). It could be argued that the PII has the potential to serve another function: to be used to distinguish between enduring and situational involvement.

Shopping process involvement (SPI) is a result of “anticipated reward from participation in shopping activities” (Haynes, et al., 1994, p. 23). This construct was used as part of a larger set of variables studied to “identify decision styles within a set of consumers using variables based on their choice set sizes at three stages of the choice sets model and profile the consumers within each decision style on variables descriptive of each major types of patronage variable” (Haynes, et al., 1994, p. 24). The study is based on selected variables “that influence various choice sets” and include “prior knowledge, previous experiences, current information obtained from friends’ retailing strategies, personal motivations, and involvement in shipping” (Haynes, et al., 1994, p. 24). Profiles of shoppers were compiled using the results, including: demographic, shopping motivations and involvement, shopping attitudes or orientation toward shopping and desired retailer attributes”. Six profiles resulted and include narrowers, shoppers, apathetics, loyals, late bloomers and avoiders. Narrowers were the least interested in shopping. Shoppers took each retailer attribute into consideration when deciding on patronage choices. Apathetics were high in product involvement, but had limited shopping engagements due to other factors such as economic situations and lack of knowledge. Loyals were also high in involvement, and low in market participation; instead the group was more interested in “obtaining high product variety and value for their money” (Haynes, et al., 1994, p. 31). Late bloomers placed emphasis on

convenience and value and avoiders saw shopping as a necessity and scored low in process involvement.

### ***Confirmation of the Zaichkowsky (1985) Personal Involvement Inventory***

Flynn and Goldsmith (1993) confirmed the external validity and reliability of the revised, 10-item personal involvement inventory (PII) scale. Factor analysis revealed two distinct factors, both of which correlated positively with the major factor. The main ten-item scale was grouped into two distinct factors, the first being important, appealing, worthless, not needed, involving and means a lot. The second factor consisted of boring, irrelevant, unexciting, and mundane. Moreover, correlations with dependent variables further confirmed the validity of the two factors effectively combined to create one summed scale.

Zaichkowsky (1994) also successfully reduced her PII scale to 10 items; however her attempt at breaking the scale down into two specific factors, cognitive and affective, was unsuccessful. Factorization revealed one general factor and one minor component. One group included the values interesting, appealing, fascinating, exciting and involving. The second group was described by the researcher as more rational or cognitive and included important, relevant, valuable, means a lot to me, and needed. However the researcher affirms that the affective and cognitive involvement factors are not independent and, therefore, cannot be separated from the 10-item scale. Internal reliability was found to be acceptable for the 10-item scale.

In the *Marketing Scales Handbook*, Bruner and Hensel (1996) refer to the relevance of Zaichkowsky's (1985) personal involvement inventory (PII) scale as useful in measuring both situational and enduring involvement, without directly specifying which items can be factored into two parts. The authors of the compendium acknowledge that low scores suggest little involvement of the consumer and high scores a greater amount of interest. Tested in the compendium are scale items for situational involvement and enduring involvement. For situational involvement, the items include the following pairs: important/unimportant, of no concern/of concern to me, irrelevant/relevant, means a lot to me/means nothing to me, valuable/worthless, not beneficial/beneficial, matters to me/doesn't matter, boring/interesting,

unexciting/exciting, unappealing/appealing, and essential/nonessential. For enduring involvement, the specified items include all items used by Zaichkowsky (1985) with one additional item: not involved/highly involved.

Lichtenstein, Netemeyer and Burton (1990) operationalized enduring and situational involvement from items used in Zaichkowsky's (1985) personal involvement inventory. However, the exact methodology in determining these measures in the study is unclear, therefore the current research will use Zaichkowsky's scale to determine level of involvement in fashion and each variable's possible effect on body scanning through innovativeness, and factor the scale into two possible factors, enduring and situational involvement. Body scanning was chosen for this study because of the potential for use in the retail setting. Applications born from the non-invasive measurements have already proven to set trends and alter the way consumers shop.

### **Serving the Consumer in the Modern Marketplace: Fit, Customization, and Experience**

Three significant trends are found in researching consumer applications of body scanning technology: fit, customized products, and experiential shopping. Each trend has direct or indirect ties to the measurements provided by body scans. Consumer fit problems can be remedied through revised measurement data sets designed to improve industry sizing standards (Guerlain & Durand, 2006). Measurement data collected from niche markets, previously ignored by apparel manufacturers, are being explored to find ways to improve fit and appropriateness of dress issues (Anderson-Connell, et al., 2006; Salusso, et al., 2006). Body scans also enhance fit on an individual basis through mass customization of apparel products. Mass customization employs technology to provide for the consumer apparel with personalized fit at less expense than tailored clothes. Mass customization can also allow consumers to choose style as well as fit options. Options explored through the use of virtual try-on create a more brick-and-mortar-like experience for online shoppers. Virtual try-on employs digitally rendered models for accurate representation of apparel products. Body scan data can be used to provide consumers with personalized virtual models to accurately represent apparel products sold online.

## ***Fit***

Body scanning technology contributes to the success of mass customization by allowing accurate body measurements to be taken from individuals. As defined by Fiore, et al. (2001), body scanning “involves using electronic measurements of the customer’s body to develop a manufactured product with an individualized fit” (p. 100). The body is “scanned with highly-developed electronic devices” that produce a 3-D body measurement of the person scanned (Lee, et al., 2002, p. 141). Information on personal body measurements from body scans can be easily stored on smart cards for use in co-design and mass customization.

Guerlain and Durand (2006) have created data banks from body scans which are “more precise and repeatable than those taken by a tailor” (p. 164). The E-TAILOR project is currently refining body scanning and other technologies associated with mass customization so that body scanners can be used to generate measurements portable and usable in standard formats; making the benefits of the technologies more accessible to consumers (Kartsounis, Magnenat-Thalmann, and Rodrian.). Body scanning technology is also an integral part of the success of CAD systems in which traditional slopers are manipulated to fit the specific dimensions of individual consumers. The detailed measurements provided by the scanners enable manufacturers to provide consumers with better fitting clothing relative to traditional methods of pattern grading when used in conjunction with computer aided design (CAD) applications.

## ***The Demand for Personalized Services and Products: Mass Customization***

Mass customization is essentially intended to meet consumers’ individualized needs by using technology to aid in the modification of a standard product line in a cost effective way (Choy & Loker, 2004; Lee, Kunz, Fiore & Campbell, 2002). Fit problems are also remedied by mass customization strategies which use technologies that enable the creation of tailor-fit clothing. Mass customization allows consumers to be involved, at different levels, in the design of goods, while keeping costs below that of customized or tailored goods. The interactive nature of mass customization engages the consumer in the design process.



While levels of customization may vary, consumers are able to, independently or working with a sales associate, choose an individualized combination of product style, fabric, color and size from a set of predetermined options, or to create a product based on his or her specific preferences (Lee, et al, 2002). Co-design is a term used in association with mass customization. Part of the appeal of co-design for consumers is a carefully selected, but limited number of choices offered by a firm. Therefore, the consumer is allowed a manageable number of choices for mass customized goods to keep the experience of co-design enjoyable instead of overwhelming for the consumer (Choy & Loker, 2004).

### ***Implementing Mass Customization***

Mass customization has diverse means of implementation; enabled by supporting technologies. Lee, et al., (2002) has identified concepts related to mass customization with implications for merchandisers: product, process and place. Products for mass customization include those “apparel types and garment features that consumers might want to customize” (Lee, et al., 2002, p. 140). Process includes “customer preferences for interaction with humans and technology for mass customization”. Processes used in mass customization include body scanning “for personal size and fit”, and co-design “for an individualized combination of design options and creating the customer’s own unique design” (p. 141). Place refers to “locations where consumers might be willing to participate in mass customization (Lee, et al., 2002, p. 140). Successful implementation of mass customization strategies relies heavily on the retailer’s ability to respond to the consumers’ need for harmony among the three concepts of process, product and place.

Lee, et al. (2002) describe four approaches to customization which include cosmetic, transparent, adaptive and collaborative customization. Each approach allows for some consumer discretion in the design of the product and end-use; however, the level of customization varies with each approach. Cosmetic customization does not entail changing the nature of the product, only the representation of the product; for example, the product’s packaging. A change in the nature of a product to suit an individual customer, but not the standard representation, is considered transparent customization. Adaptive customization allows the customer to independently manipulate

the product to “suit their own needs without any additional interactions with the company” (Lee, et al., 2002, p. 139), but does so without changing the product or representation of the product. The final and most consumer-involved approach to mass customization is collaborative customization in which the “design of the product itself, as well as the representation of the product”, is changed to suit the needs of the individual consumer (Lee, et al., 2002, p. 139).

Mass customization has four dimensions: assemblers, modularizers, involvers, and fabricators. Assemblers require no direct involvement from consumers, instead many provide a range of choices, then “use modularity in the assembly and use stages” (Lee, et al., 2002, p. 139). Modularizers use modularity for component commonality in the design and fabrication stages and involve individual customers in specifying the unique requirements for the assembly and use stages (Lee, et al., 2002, p. 139). Involvers “permit individual customers to specify the unique requirements” in design and fabrication stages but use modularity during the assembly and use stages. Fabricators “involve individual customers in creating unique designs and fabricators by manipulating modular components while the assembly and use stages accommodate the modification” (Lee, et al., 2002, p. 139).

Strategies driving mass customization depend heavily on the effectiveness of supporting technologies. Technologies often included in mass customization are: “body scanning, computer-aided design, single-ply cutters, digital printing and modular production. The technologies are also effectively used to accurately represent products to consumers, reducing costs related to returns (Guerlain & Durand, 2006). Lee, et al. (2002) contend that to effectively merchandise body scanning and co-design for use by consumers, some issues must be addressed including, “presentation formats of customized products, types of services offered, and other resources required” (Lee, et al., 2002, p. 141). Ultimately, however, the success of the commercial applications of data retrieved from body scans will depend on the consumer’s willingness to accept and use the application (Loker, Ashdown, Cowie, & Schoenfelder, 2004).

### ***Internet Shopping and the Virtual Try-on Experience***

The potential of co-design to be used to create memorable experiences for the consumer, and the resulting experiences' effectiveness in getting consumers to use the technology affiliated with the strategy, was supported by Fiore et al.'s (2004) investigation of the effects of optimum stimulation level (OSL), experimenting with appearance (EA) and enhancement of individuality (EI) on one's willingness to use mass customization. From the research, two motivations emerged for using co-design, including the use of co-design as a way for retailers to create an exciting experience for consumers and allowing the consumer to play a role in creating a unique fashion product. The two motivations contributed to a substantial portion of the variance explained in willingness to use co-design, and mediated relationships between the individual difference variables (EA, EI and OSL) (Fiore et al., 2004, p. 843).

Benefits of using body scanning technology, other than obtaining easier and more accurate body measurements and use in mass customization and co-design, include obtaining measurement information that enables computer programs with "3D visualization tools" (Loker, et al., 2004) that produce, for the consumer, a visual representation of styles and sizes of clothing on images representative of their personal dimensions. Virtual try-on was rated highest in its appeal by consumers asked to rank interest in applications of body scan technology. This application was also selected by respondents as "most likely to influence participants to buy more clothing on the Internet" (Loker, et al., 2004, p. 9). Other applications ranked in the study included custom fit of apparel products, size prediction and personal shopper programs, respectively.

Research has gone into the study of the effects of telepresence on on-line shopping. Telepresence enhances one's online shopping to emulate the brick-and-mortar experience, digitally, using technology which not only allows for impressive presentation of goods, but for interaction as the consumer manipulates view and style possibilities (Fiore, Kim & Lee, 2005). Avatars, or a "digital model of a person" (Gurzki, Hinderer and Rotter, 2001, p. 2) can enhance telepresence by giving one an accurate representation of how clothing looks on the body. Avatars can be representative of general apparel

sizes, or personalized to the measurements of individual consumers. Measurements from body scans enable the creation of personalized avatars.

Virtual try-on is used to allow online consumers the “possibility to see themselves or a model matching their body measurements and shape (a configurable generic model) wearing simulated garments” (Kartsounis, et al.). This form of digital try-on or modeling assists in the many challenges faced by online merchants of accurately representing goods (Kartsounis, et al.). The results of the enhanced consumer interaction with virtually modeled apparel products enables consumers to make better informed purchase decisions (Fiore, et al., 2005). Data sets of accurate measurements enable procedures of digital try-on models to create avatars appropriate for consumer use through accurate representation, clear images with quick loading times. Fast calculation of avatars that accurately represent consumer tastes is critical in ensuring use of the technology by consumers (Guerlain & Durand, 2006). An inability to capture and sustain the attention of the consumer can hinder the usefulness of the technologies.

### **The Potential of Body Scanning in the Retail Market**

Targeting consumers most likely to catalyze the spread of the technology in apparel purchases is vital to the successful adoption of the technology. Ashdown (Segelken, 2005, p. 10) suggests the apparel industry could potentially satisfy customers by combining objective fit information with fit preferences. The retail industry holds potential as an outlet through which consumers can take advantage of mass customization enabling technologies. Learning consumer attitudes can aid in designing effective retail strategies for mass customization.

Consumers with a high interest in mass customization have distinct characteristics that differentiate them from consumers with low interest in mass customization (Choy and Loker, 2004). Consumers with a high interest in design involvement are willing to spend longer periods of time on the design process and will pay more for a co-designed gown, relative to those with lower levels of interest. Technology usage also appears to influence use of co-design for wedding gowns, as subjects who utilize more personal technologies are more likely to purchase a co-designed gown, and to spend more numbers of hours per day on the computer and Internet (Choy and Loker, 2004).

### ***Consumer Reaction to Body Scans***

Like any innovation, some resistance is to be expected before its adoption. This is no different for the participants in Loker et al.'s (2004) study about body scanning. The participants were uncomfortable with the technology when they were introduced to it. However, as the process progressed, participants became more at ease with the technology. Participants were "somewhat unsure or unsettled about the process before the scan and became noticeably more comfortable after the scan" (Loker et al., 2004, p. 157). The majority (73%) of the participants reported being very comfortable with the scanning process, and nearly all (98%) were willing to be scanned again. Emotional commentary of the participants recorded during the evaluation revealed that participants tended to distance themselves from their own 3-D image, "an unfamiliar yet highly personalized technological output" (Loker et al., 2004, p. 157). Internet clothing shoppers were more comfortable, overall, with viewing their scans compared to non-Internet shoppers. However, the participants ultimately appeared to see the visual scan as "less important than the ultimate result: better fitting clothing through custom clothing, 3-D try-on, or size prediction commercial ventures" (Loker et al., 2004, p. 158). Also, research has shown that trying body-scanning "as an exciting experience" and for "creating a better fitting product" contributed to willingness to use body scanning, but better fit was the primary motivation (Fiore, et al., 2003, p. 285).

Loker, et al., (2004) predicts that for body scanning and related technologies, its applications will "continue to evolve as scanner costs go down" and consumers will "drive the adoption of body scan data in order to increase their involvement in product development and quality of fit" (p. 159). However, the benefits of the technology and its potential applications cannot be reaped unless consumers are willing to use the technology. In testing a model "linking psychological traits as predictors of motivations and motivations as predictors of willingness to use body-scanning for fashion products", Fiore et al. (2003) found two motivations contributing to the willingness to use body scanning: "trying body-scanning as an exciting experience and for creating a better fitting product" (p. 285). In this study the primary motivation for using body scanning was creating a better fitting product.

For both body scanning and co-design, sales associates experienced in fashion design were preferred over “general” sales associates (Lee, et al., 2002). Trained sales associates were also preferred by respondents for assisting in the body scanning process. For both co-design and body scanning, participants preferred to participate in a specialty store and were least likely to feel comfortable using the technologies in a discount store setting (Lee, et al., 2002).

### **III. METHODOLOGY**

The purpose of this study was to explore factors contributing to one's innovativeness through an examination of the possible relationship with values, susceptibility to interpersonal influence (SII), and involvement on innovativeness with willingness to adopt body scanning. Data was evaluated to determine relationships and create a new model with personal values and SII, personal values with enduring (EI) and situational (SI) involvement, SII and EI versus SI, SII and degree of adoption/willingness to use body scanning technology, and EI and SI with degree of adoption/willingness to use body scanning technology. Comparisons between consumer groups falling into either Generation Y (consumers ages 18-29) or Baby Boomers (ages 42-61) were made to compare attitudes, and; therefore, behaviors. Examination of the two generation cohorts determined how each market segment perceived the utility of body scanning. Understanding the deeper motives behind technology adoption is useful in marketing potential retail services. The insights gained in the current study also expand the current knowledge base of generational differences between Generation Y and Baby Boomer cohorts. The methodology chapter outlines the methods and analysis procedures used in the current study. The following is discussed: objectives, variables, sample, questionnaire development, and data collection procedure.

#### **Objectives**

- 1) To determine if susceptibility to interpersonal influence (SII) mediates a relationship between personal values and innovativeness.
- 2) To examine the normative and informational SII factors and test for a relationship with innovativeness.
- 3) To examine involvement results and confirm a relationship with innovativeness.
- 4) To see if personal values, SII, and involvement indirectly affect intended adoption time frame through a relationship with innovativeness.

## **Variables**

Industry use of body scanning could potentially benefit both retailers and consumers by allowing for streamlined applications on emerging retail technologies. However, consumer adoption or non-adoption of the technology is of great significance to the retail industry should the technology be applied in the retail setting. Studying the potential adoption of an innovative technology also creates opportunity to further study underlying motivations behind technology adoption yet to be discussed in current research literature. Therefore, the current research used Rogers' (2003) theory of the diffusion of innovations and pertinent aspects of the Blackwell-Miniard-Engel (2001) consumer behavior model to investigate the challenges of implementing a new technology for use in the retail setting. Rogers' (2003) theory of the diffusion of innovations was the primary model used to guide the current research. Variables complementary to the diffusion of innovations were also selected from the Blackwell-Miniard-Engel (2001) consumer behavior model. Independent variables included in the current study are personal values, susceptibility to interpersonal involvement (SII), and involvement. The dependent variable is intention to adopt body scanning technology.

The personal values variable was measured using Kahle's LOV (1985). Normative and informational SII was measured using Bearden, et al's., work (1989) on the subject. Involvement was measured using Zaikowsky's (1985) personal involvement inventory. Innovativeness was measured by the intent to adopt scale used by Eastlick and Lotz (1999). Table 1 shows the study's objectives with corresponding hypotheses. Table 2 further describes the measures used in the current study. Table 3 matches the research objectives and hypotheses with the instrument used to measure the variables, with corresponding validity and reliability scores.



Table 1

*Objectives and Hypotheses*

Objective (To...)	Hypothesis
1) Determine if Susceptibility to Interpersonal Influence (SII) mediates a relationship between personal values and innovativeness.	H1: SII will mediate a relationship between personal values and innovativeness.
2) Examine the normative and informational SII factors and test for a relationship with innovativeness.	H2a: Normative SII will have a direct, negative relationship with innovativeness. H2b: Informational SII will have a direct, positive relationship with innovativeness.
3) Examine involvement results and test for a relationship with innovativeness.	H3: Involvement will have a relationship with innovativeness.
4) To see if personal values, SII, and involvement indirectly affect intended adoption time frame through a relationship with innovativeness.	H4a: The three independent variables, personal values, SII, and involvement, will have a relationship with innovativeness. H4b: Innovativeness will be related to intended adoption time frame.

Table 2

*Variables and Measurement Items*

Variable	Instrument	Source	Measurement Items
Personal Values	Kahle's (1983) List of Values	Kahle, L. R. and Kennedy, P. (1989). Using the list of values (LOV) to understand consumers. <i>The Journal of Consumer Marketing</i> , 6, 3. 5-12.	<p>Measured using a Likert scale, 1-9 (very unimportant to very important).</p> <ol style="list-style-type: none"> <li>1) Sense of Belonging</li> <li>2) Excitement</li> <li>3) Warm Relationships with Others</li> <li>4) Self-Fulfillment</li> <li>5) Being Well Respected</li> <li>6) Fun and Enjoyment of Life</li> <li>7) Security</li> <li>8) Self-Respect</li> <li>9) A Sense of Accomplishment</li> </ol> <p>Now reread the items and circle <i>the one</i> thing that is most important to you in your daily life.</p>
Susceptibility to Interpersonal Influence		Bearden, W.O, Netemeyer, R.G., and Teel, J.E. (1989). Measurement of consumer susceptibility to interpersonal influence. <i>The Journal of Consumer Research</i> , 15. 4. 473-481.	<p>Measured using a Likert scale, 1-5 (strongly agree to strongly disagree).</p> <p>Normative:</p> <ol style="list-style-type: none"> <li>10) I rarely purchase the latest fashion styles until I am sure my friends approve of them.</li> <li>11) It is important that others like the products and brands I buy.</li> <li>12) When buying products, I purchase those brands I think others will approve of.</li> <li>13) If other people can see me using a product, I often purchase the brand they expect me to buy.</li> <li>14) I like to know what brands and products make good impressions on others.</li> <li>15) I achieve a sense of belonging by purchasing the same products and brands that others purchase.</li> <li>16) If I want to be like someone, I often try to buy the same brands that they buy.</li> <li>17) I often identify with other people by purchasing the same products and brands they purchase.</li> </ol> <p>Informational:</p> <ol style="list-style-type: none"> <li>1) To make sure I buy the right product or brand, I often observe what others are buying and using.</li> <li>2) If I have little experience with a product, I often ask my friends about the product.</li> <li>3) I often consult other people to help choose the best alternative available from a product class.</li> <li>4) I frequently gather information from friends or family about a product before I buy.</li> </ol>

Table 2 (continued).

*Variables and Measurement Items*

Involvement	The Personal Involvement Inventory	Zaichkowsky, J.L. (1985). Measuring the involvement construct. <i>The Journal of Consumer Research</i> , 12. 3. 341-352.	<p>Contrasting views measured using a 7-point Likert scale.</p> <ol style="list-style-type: none"> <li>1) Important/Unimportant</li> <li>2) Of no concern/of concern to me</li> <li>3) Irrelevant/Relevant</li> <li>4) Means a lot to me/Means nothing to me</li> <li>5) Useless/Useful</li> <li>6) Valuable/Worthless</li> <li>7) Trivial/Fundamental</li> <li>8) Beneficial/Not beneficial</li> <li>9) Matters to me/Doesn't matter</li> <li>10) Uninterested/Interested</li> <li>11) Significant/Insignificant</li> <li>12) Vital/Superfluous</li> <li>13) Boring/Interesting</li> <li>14) Unexciting/exciting</li> <li>15) Appealing/Unappealing</li> <li>16) Mundane/Fascinating</li> <li>17) Essential/Nonessential</li> <li>18) Undesirable/Desirable</li> <li>19) Wanted/Unwanted</li> <li>20) Not needed/Needed</li> </ol>
Innovativeness	The Goldsmith and Hofacker Innovativeness Scale	Goldsmith, R.E. and Flynn, L.R. (1992). Identifying innovators in consumer product markets. <i>European Journal of Marketing</i> , 26. 12. 42-55.	<p>Measured on Likert scale, 1-5 (strongly agree to strongly disagree)</p> <ol style="list-style-type: none"> <li>1) In general, I am among the last in my circle of friends to try a new fashion when it appears.</li> <li>2) If I heard a new fashion item was available in the store, I would be interested enough to buy it.</li> <li>3) Compared to my friends I own few new fashion items.</li> <li>4) I will buy a new fashion item, even if I have not heard of it yet.</li> <li>5) In general, I am the last in my circle of friends to know the names of the latest fashions and styles.</li> <li>6) I know the names of new fashion designers before other people do.</li> </ol>
Intent to Adopt		Eastlick, M.A., and Lotz, S. (1999). Profiling potential adopters and non-adopters of an interactive electronic shopping medium. <i>International Journal of Retail and Distribution Management</i> , 27, 6 209-223.	<p>“Categorized by time-frame intended for adoption into <i>non-adopter, follower, early adopter, and innovator</i> groups (researchers)” (216).</p> <ol style="list-style-type: none"> <li>1) No, will never adopt</li> <li>2) Yes, will adopt but only after it is widely used by others</li> <li>3) Yes, will adopt but only after I have a chance to see if those who use it first are satisfied</li> <li>4) Yes, will adopt as soon as it is available</li> </ol>

Table 3

*Measurement Items Associated with Hypotheses*

Objective (To...)	Hypothesis	Measurement instrument	Reliability/Validity Scores
<p>1) Determine if Susceptibility to Interpersonal Influence (SII) mediates a relationship between personal values and innovativeness.</p>	<p>H1: SII will mediate a relationship between personal values and innovativeness.</p>	<p>Susceptibility to Interpersonal Influence; Bearden, W.O, Netemeyer, R.G., and Teel, J.E. (1989). Kahle's (1983) List of Values Kahle, L. R. and Kennedy, P. (1989). The Goldsmith and Hofacker Innovativeness Scale Goldsmith, R.E. and Flynn, L.R. (1992).</p>	<p>LISREL results of 0.86, 0.87, and 0.83. Coefficient alpha of 0.91; Significant chi square of 139.46 (df = 87, p&lt;0.01); t-value exceeding 9.97 (p&lt; 0.01).</p>
<p>2) Examine the normative and informational SII factors and test for a relationship with innovativeness.</p>	<p>H2a: Normative SII will have a direct, negative relationship with innovativeness. H2b: Informational SII will have a direct, positive relationship with innovativeness.</p>	<p>Susceptibility to Interpersonal Influence; Bearden, W.O, Netemeyer, R.G., and Teel, J.E. (1989). The Goldsmith and Hofacker Innovativeness Scale Goldsmith, R.E. and Flynn, L.R. (1992).</p>	<p>Chi-square statistics significant, 86.6 per cent and 90.2 per cent statistics were predicted correctly, respectively and their respective R<sup>2</sup> values were 0.31 and 0.42" (211).</p>

Table 3 (continued).

*Measurement Items Associated with Hypotheses*

<p>3) Examine involvement results and test for a relationship with innovativeness.</p>	<p>H3: Involvement will have a relationship with innovativeness.</p>	<p>The Personal Involvement Inventory Zaichkowsky, J.L. (1985). The Goldsmith and Hofacker Innovativeness Scale Goldsmith, R.E. and Flynn, L.R. (1992).</p>	
<p>4) To see if personal values, SII, and involvement indirectly affect intended adoption time frame through a relationship with innovativeness.</p>	<p>H4a: The three independent variables will have a relationship with innovativeness. H4b: Innovativeness will determine intended adoption time frame.</p>	<p>The Goldsmith and Hofacker Innovativeness Scale Goldsmith, R.E. and Flynn, L.R. (1992). Eastlick, M.A., and Lotz, S. (1999).</p>	

## Questionnaire Development

Demographic data collected included factors related to the age, gender, ethnicity, city and state of residence, occupation, total income, and highest level of education. Consumer values were measured using the List of Values (LOV) as tested by Kahle (1985). In comparing the LOV with the Rokeach Value Survey (RVS) and Values and Life Style (VALS), Kahle (1985) found the LOV to be superior to both measures. The LOV was preferable to the RVS because “it detects more daily influence in people’s lives” and was easier to administer (Kahle, 1985, p. 234). The LOV was found to be more effective in “measuring something close to what you are predicting” in comparison to the VALS scale (Kahle, 1985, p. 234).

Bearden, Netemeyer and Teel (1989) developed a “general measure of consumer susceptibility to interpersonal influence” (SII) scale that was both reliable and valid. The result of the study was a 12-item, two factor scale. The final scale used in the research had a significant chi square of 139.46 ( $df = 87$ ,  $p < 0.01$ ) and t-value exceeding 9.97 ( $p < 0.01$ ). Construct reliability was based on LISREL results of 0.86, 0.87, and 0.83. A coefficient alpha of 0.91 was also found for the instrument. Zaichkowsky’s (1985) personal involvement inventory (PII) was proven reliable with an overall Pearson correlation of 0.90. The average Chronbach alpha for the three product classes, instant coffee, color television, and laundry detergent, was .98. Content validity for the construct measurement had an average inter-judge reliability of .81. The scale was used in the current study, in its two parts, to measure both normative and informational susceptibility to interpersonal influence (SII).

Eastlick and Lotz (1999) created an *intent to adopt* scale that measured level of innovativeness by categorizing respondents based on their intended time frame of adoption. The nominal scale ranges from “no, will never adopt” to “yes, will adopt as soon as it is available”. By their responses, participants were categorized by Roger’s (2003) theory of diffusion adopter categories which includes non-adopters, followers, early adopters, and innovators. Both models “for the innovator intent and non-adopter intent group had good fits since their model chi-square statistics were significant ( $p = 40.0001$ ), their residual chi-square statistics were not significant ( $p = 50.05$ ) 86.6 %

and 90.2 % statistics were predicted correctly, respectively and their respective  $R^2$  values were 0.31 and 0.42” (p. 211).

## **Sample**

The research population for the current study included two separate generation cohorts, men and women born between the years of 1977 and 1994, also known as Generation Y, and men and women included in the “baby boomer” generation, “Boomers”, those born between 1946 and 1964 (Levy & Weitz, 2007), The two groups were included as basis for comparison between the two generation cohort groups and the behaviors under study.

Described as “media savvy” (Marconi, 2001, p. 96), Generation Y is brand conscious, technologically competent and willing to spend discretionary income (Gray, 2006, Marconi, 2001; Anonymous, 2005). This group spends and influences \$150 billion per year (Bernstel, 2002). Generation Y is included in the theoretical sample because its members will have access to the body scanning technology, and will most likely feel comfortable using it, as the technology develops and becomes readily available to the consumer market.

Boomers currently have the highest household median income and have a significant impact on the retail industry in the U.S. by having the largest expenditures on apparel and services (US Bureau of Statistics). Boomers may also be interested in the technology that holds the potential of ensuring proper fit of apparel. Previous research has shown that women 55 and over have expressed dissatisfaction with ready-to-wear (Goldsberry, E, Shim, S, & Reich, N, 1996). Although members of Generation Y are seen as more comfortable with technology relative to Boomers, Boomers have incomes that would allow them to pay for custom-fit products. Therefore a comparison between the groups will help marketers better understand the needs of the two consumer groups and apply strategies accordingly.

Participants were recruited through an on-line sample distribution company. The questionnaire was hosted using Survey Monkey. Questionnaires were distributed through the sampling distribution company, Survey Sample International (SSI), to respondents with the appropriate demographic requirements. Both samples were given identical

questionnaires to complete. According to the SSI website, the company's survey panel members are: "multi-sourced and constantly refreshed. Members are enrolled using banner ads and online recruitment methods, exclusively using permission-based techniques. SSI does not use unsolicited e-mail in building panels. Panelists agree to keep survey content confidential" (<http://www.surveysampling.com/index.php>).

### **Pilot Study**

A pilot study was performed after the initial questionnaire development to ensure face validity. The two phases of the pilot study included submission of surveys from representatives of the Baby Boomer and Generation Y cohorts. Fifteen graduate students in the College of Human Sciences at Florida State University, representing the Generation Y cohort, made up a panel to judge face validity of the instrument and to ensure understanding of body scanning based on the description included in the body of the questionnaire. Graduate students were given paper copies of the on-line survey to complete. The online version of the questionnaire was tested via email to selected faculty members to ensure ease of use of the on-line format and general understanding of survey items.

### **Questionnaire Administration**

The questionnaire was hosted on a URL submitted to the sample distribution company. The sample distribution company e-mailed invitations to participate in the study to groups of potential respondents. The final sample represents a nationwide study. Participants were presented with the 56-question survey which took no more than fifteen minutes to complete. Upon completion of the survey, respondents interested in collecting incentives were directed to a separate webpage not linked to the survey site. Therefore no identifying information was linked to the completed questionnaires. After the responses were collected, the data was stored by the URL host, Survey Monkey, and retrieved by the researcher in Excel format; and later imported into SPSS for statistical analysis.



## IV. RESULTS

The purpose of this study was to explore factors contributing to one's innovativeness through an examination of the possible relationship with values, susceptibility to interpersonal influence (SII), and involvement on innovativeness with willingness to adopt body scanning. Body scanning was chosen to be studied in the current analysis due to its relative newness to the retail market and potential to impact the way consumers purchase apparel in the future. Marketers of the technology, and retailers alike, will benefit from the results of the current study which reports on potential usage of body scanners in the retail setting. Age was measured with the two generational cohorts and compared for responses related to personal characteristics and intended time of adopting body scanning technology. The hypotheses are as follows:

**Hypothesis 1.** Susceptibility to interpersonal influence (SII) will mediate a relationship between personal values and innovativeness.

**Hypothesis 2a.** Normative SII will have a direct, negative relationship with innovativeness.

**Hypothesis 2b.** Informational SII will have a direct, positive relationship with innovativeness.

**Hypothesis 3.** Involvement will have a relationship with innovativeness.

**Hypothesis 4a.** The three independent variables, personal values, SII, and involvement will contribute to innovativeness.

**Hypothesis 4b.** Innovativeness will be related to intended adoption time frame.

### *Descriptive Data*

This chapter begins with a discussion of research for descriptive analysis including response rate, demographics, and descriptive variables. Then results of the involvement factor analysis, analysis of variance for the dependant variable innovativeness, and the multinomial regression analysis used to build the final research model will be discussed. Reliabilities for each measure will be reported. All data were imported from the survey hosting software using Microsoft Excel into the Statistical Package for the Social Sciences 13.0 (SPSS) for Windows for analysis.

### *Usable Responses*

Of the 599 final returned responses, 517 were usable. Usable surveys were determined by eliminating surveys with missing values for the question “please indicate the statement that best corresponds to your intention to adopt body scanning for apparel purchases”. Of the total returned responses, 86.3% were usable. The data collection procedure proved to be efficient in providing a large pool of viable completed responses.

### *Demographics*

The target groups for this research were men and women from two age groups corresponding to the generational cohorts, Boomers and Generation Y. The proposed ages for the two groups were to fall between 19 and 29 for Generation Y and 43 to 61 for Boomers. However, the age brackets were changed to fit the profile of the actual research sample, with the resulting age groups ranging from 19 to 31 and 41 to 63. The sample included 53.6% of the respondents between the ages of 19 and 31 and 46.4% between the ages of 40-62. See Table 4 for age group frequencies. Only five respondents reported ages not included in the proposed age brackets, and still included in the final analysis. The number of respondents not fitting into the theoretical age bracket is .97% of the total sample population.

Table 4

#### *Age frequencies*

Age	Frequency	Percent	Cumulative percent
Group 1 (19-31)	277	53.6	53.6
Group 2 (41-63)	240	46.4	100
	N= 517	100	

The majority of the respondents were female (62.3%), with only 37.7% of the respondents male (see Table 5). The majority of the respondents identified themselves as White/Caucasian (83.8%), followed by Black/African American (8.9%), Hispanic/Latino (3.3%), Asian (1.9%), responses designated “Other” (1.9%), and American

Indian/Alaskan native (.8%). See Table 6 for race/ethnicity breakdowns for the actual sample.

Table 5

*Gender frequencies*

Gender	Frequency	Percent	Cumulative percent
Female	322	62.3	62.3
Male	195	37.7	100
N= 517		100	

Table 6

*Race/ethnicity frequencies*

Race	Frequency	Percent
White/Caucasian	433	83.8
Black/African American	46	8.9
Hispanic/Latino	17	3.3
Asian	10	1.9
Other	7	1.4
American Indian/ Alaska Native	4	0.8
N= 517		100.1

Respondents' highest level of education was determined by responses falling into one of the pre-specified categories: Graduate degree, college degree, some college, and high school or less. The majority of the respondents had some college education (36.2%). The next largest group consisted of respondents with at least a college degree (31.5%), followed by those with "high school or less" educations (20.7%). Only 11.6% of the respondents held a graduate degree. See Table 7 for frequencies and percentages of respondents' level of education.

Annual income data was also collected by asking the respondent to please choose the category that best corresponded to their total income, before taxes, in the year 2006.

The mode for the data was the bracket \$50,000 to \$74,999. The average income for the respondents was \$52,119.00. Table 8 shows the total frequencies of respondent reported annual income for 2006.

Table 7

*Level of education frequencies*

Level of education	Frequency	Percent
Some college	187	36.2
College degree	163	31.5
High school or less	107	20.7
Graduate degree	60	11.6
	N= 517	100

*Descriptive Data – Personal Values*

Frequencies were recorded for each variable included in the study. Mean, median, and mode for each variable can be found in Table 9. For the personal values scores, respondents were asked to rate each individual value on a scale from 1 to 9, with one being “not at all important”, 5 as “neutral”, and 9 as “extremely important”. Sense of belonging had a mean of 6.63, median of 7.00 and mode of 7. Excitement had a mean of 6.36, median of 6.00 and mode of 7. Warm relationships with others had a mean of 7.53,

Table 8

*Income frequencies*

Total income before taxes	Frequency	Percent
Less than \$10,000	35	6.8
\$10,000-\$24,999	85	16.4
\$25,000-\$34,999	67	13
\$35,000-\$49,999	99	19.1
\$50,000-\$74,999	105	20.3
\$75,000-\$99,999	54	10.4
\$100,000-\$149,999	34	6.6
\$150,000-\$199,999	10	1.9
\$200,000 or more	3	0.6
Don't know	25	4.8
	N= 517	99.9

Table 9

*Variable frequencies*

N = 517	Mean	Median	Mode
Self-respect	7.84	8	9
Security	7.59	8	9
A sense of accomplishment	7.55	8	8
Fun and enjoyment of life	7.54	8	9
Warm relationships with others	7.53	8	8
Self-fulfillment	7.38	8	7
Being well respected	7.22	7	7
Sense of belonging	6.63	7	7
Excitement	6.36	6	7
Normative SII	1.93	1.88	1
Informational SII	2.78	3	3
Innovativeness	2.51	2.5	3
Involvement	4.55	4.32	4

median of 8.00 and mode of 8. Self fulfillment had a mean of 7.38, median of 8 and mode of 7. Being well respected had a mean of 7.22, median and mode of 7. Fun and enjoyment of life, security, and self respect each had means between 7.54 and 7.84, medians of 8 and modes of 9. Sense of accomplishment had a mean of 7.55, median and mode of 8.

Respondents were asked to indicate the one personal value that meant the most to them. Most respondents chose sense of accomplishment (n=150), followed by self-fulfillment (n=120), security (n=88), and being well respected (n=68), as found on table 10. Table 10 also give frequencies and percentage scores for sense of belonging (n=64), fun and enjoyment of life (n=45), excitement (n=30), self respect (n=28), and warm relationships with others (n=5).

Table 10

*Frequencies and percentages of most important personal value responses*

Personal Value	Frequency	Percent of Total Responses
Sense of Belonging	64	10
Excitement	30	5
Warm Relationships With Others	5	0.8
Self fulfillment	120	20.1
Being Well Respected	68	11.4
Fun and Enjoyment of Life	45	7.5
Security	88	14.7
Self Respect	28	4.7
Sense of Accomplishment	150	25.1
Total	598	99.3

*Descriptive Data –Susceptibility to Interpersonal Influence*

For normative and informational susceptibility to interpersonal influence (SII), respondents were asked to indicate the number that best corresponds to their likelihood of including significant others in decisions related to apparel purchases. The likert scale given to indicate responses for each variable ranged from 1 to 5, with 1 equaling “strongly disagree”, 3 as “neutral”, and 5 as “strongly agree”. Normative SII had a mean of 1.93, median of 1.88 and mode of 1.00. Informational SII had a mean of 2.78, median

of 3.00 and mode of 3.00. The data shows that most respondents disagreed with statements corresponding to normative SII. Respondents appeared to be neutral in terms of informational SII.

#### *Descriptive Data — Involvement*

For involvement, respondents were asked their perceived involvement in a product based on their personal rankings of pairs of contrasting views using a 7-point likert scale. The negative half of the word pair was equal to 1, a score of 3 indicated a neutral disposition toward the word pair, and 7 indicated highest agreement with the positive half of the word pair. The mean score of all responses was 4.56, the median 4.32, and the mode was 4.00.

#### *Descriptive Data – Innovativeness*

To measure the innovativeness construct, respondents were asked to indicate a number on the given likert scale best representing typical personal apparel purchasing behaviors. The likert scale ranged from one to five, where one equaled “strongly disagree”, 3 was “neutral”, and 5 was “strongly agree”. The results showed that innovativeness had a mean of 2.51, median of 2.50 and mode of 3.00.

#### *Descriptive Data--Intention to Adopt Body Scanning*

Finally, of each category of the dependant variable, category one, “no, I will never adopt body scanning technology for apparel purchases” had the largest number of responses (n=153). Category two, “Yes, I will adopt body scanning technology but only after it is widely used”, had 133 responses. Category three, “Yes, I will adopt body scanning technology but only after I have a chance to see if those who use it first are satisfied” had 124 responses. Finally, the fourth category, “Yes, I will adopt body scanning technology as soon as it is available in retail stores”, had 106 responses (see Table 11).

Table 11

*Categorical Response Frequencies*

Category	Response	n	Percentage
1	No, I will never adopt body scanning technology for apparel purchases	153	29.65
2	Yes, I will adopt body scanning technology but only after it is widely used	133	25.78
3	Yes, I will adopt body scanning technology but only after I have a chance to see if those who use it first are satisfied	124	24.03
4	Yes, I will adopt body scanning as soon as it is available in retail stores	107	20.54
		517	100

***Hypothesis Testing***

The hypotheses were tested using either a correlation matrix, factor analysis, univariate analysis of variance, multinomial regression, or some combination of these. Each hypothesis will be discussed, using the results of the data analysis to determine support of the hypothesis for the current study.

**Hypothesis 1.** Susceptibility to interpersonal influence (SII) will mediate a relationship between personal values and innovativeness.

The personal values measure did not show a significant relationship to innovativeness ( $r=.409$ ) in the univariate analysis of variable model, nor did informational SII ( $r=.257$ ). Without a direct correlation between personal values and innovativeness, there is no need to continue to test for a mediating variable. Therefore, not enough evidence has been shown to confirm the hypothesis that SII mediates a relationship between personal values and innovativeness. Hypothesis one is not supported.

**Hypothesis 2a.** Normative SII will have a direct, negative relationship with innovativeness.

The correlation matrix revealed a significant positive relationship between normative SII and innovativeness. Although a relationship is shown, the hypothesis is not supported due to the positive nature of the correlation matrix findings.

**Hypothesis 2b.** Informational SII will have a direct, positive relationship with innovativeness.

Informational SII has a direct, significant relationship with innovativeness according to the correlation matrix. The correlation coefficient for informational SII and



innovativeness is .138 ( $p=.01$ ), showing a positive relationship. Therefore, hypothesis 2b is fully supported.

**Hypothesis 3.** Involvement will have a relationship with innovativeness.

The correlation matrix demonstrated a significant relationship between involvement and innovativeness variables ( $r<.001$ ). Therefore hypothesis 3 is supported.

**Hypothesis 4a.** The three independent variables, personal values, SII, and involvement will contribute to innovativeness.

According to the correlation matrix, four of nine personal values have significant relationships with innovativeness including excitement ( $r=.194$ ,  $p<.05$ ), warm relationships with others ( $r=.092$ ,  $p<.01$ ), self-fulfillment ( $r=.098$ ,  $p<.01$ ), and fun and enjoyment of life ( $r=.097$ ,  $p<.01$ ). The correlation matrix also showed that both normative and informational SII had positive significant correlations with innovativeness ( $r=.277$ ,  $p<.05$ , and  $r=.138$ ,  $p<.05$ , respectively). Involvement was also positively and significantly related to innovativeness ( $r=.203$ ,  $p<.05$ ).

To clarify the contributions of personal values, involvement and SII to innovativeness, a univariate analysis of variance was performed. The resulting model did not show significant associations with informational SII and personal values as significant contributors to innovativeness. Involvement and normative SII each had significant relationships in the model with innovativeness as the dependent variable. This hypothesis is partially supported due to contributions to innovativeness by two out of the three tested variables.

**Hypothesis 4b.** Innovativeness will be related to intended adoption time frame.

Innovativeness was not correlated to the aggregate score for intention to adopt in the correlation matrix. However, innovativeness did show to be a contributing factor to intention to adopt in the final model by almost doubling one's odds of falling into the earliest adopter group ( $\text{Exp}(B)$  1.833), but lessening the chances of one falling into category three. So, hypothesis 4b was partially supported as respondents ranking high on innovativeness also had increased odds of being among the earliest adopters of body scanning.

## *Correlations*

A correlation matrix was produced to accomplish the purposes found in the objectives of the study, as well as to lend support to the research hypotheses. The correlations are based on a p-value significance of either the 0.01 or 0.05 level (2-tailed). Each variable was tested for relationships among the other research variables, which include the following: each personal value, the personal value rated among respondents as most important, normative SII, informational SII, innovativeness, involvement, intention to adopt body scanning technology, age group, and gender.

In the correlation matrix, significant scores are indicated by \* for one-tailed test scores, and \*\* for two-tailed test scores. The coefficient associated with significant scores shows the strength of the correlation, allowing inferences to be made about the relationship between the two variables under scrutiny. For each coefficient, a -1 indicates a perfect, negative relationship between two variables and a +1 indicates a perfect, positive relationship. Each significant correlation will be discussed including the strength and direction of the relationship. See Tables 12 and 13 for summaries of the current research correlations.

According to the correlation matrix, normative SII, as to be expected, had a moderate correlation with informational SII ( $r=.504$ ). A significant relationship was also found for normative SII and innovativeness ( $r=.277$ ). As for correlations with individual personal values, normative (SII) had relationships with sense of belonging ( $r=.141$ ), self respect ( $r=-.163$ ) and sense of accomplishment ( $r=-.087$ ). Incidentally, the relationships between normative SII, self-respect and sense of accomplishment were negative, meaning higher scores for normative SII leads to lower scores for those particular values. The opposite is also true: for increases in scores of self-respect and sense of accomplishment, normative SII decreases.

Informational SII was positively, and moderately, related to normative SII, and related to innovativeness ( $r=.138$ ), involvement ( $r=.093$ ), intention to adopt body scanning technology ( $r=.156$ ), sense of belonging ( $r=.214$ ), excitement ( $r=.133$ ), warm relationships with others ( $r=.170$ ), self-fulfillment ( $r=.119$ ), being well respected ( $r=.098$ ), and fun and enjoyment of life ( $r=.106$ ). As scores in the significant correlations increase, so do scores in informational SII, and vice versa. However, a significant,

negative relationship was found between age groups and informational SII ( $r=-.160$ ); which means that an increase in age results in lower informational SII scores. The younger age group appears to be more receptive to informational SII relative to the older respondents.

Table 12  
*Personal Values Correlations*

	Sense of Belonging	Excitement	Warm Relationships With Others	Self-fulfillment	Being Well Respected	Fun and Enjoyment of Life	Security	Self-Respect	Sense of Accomplishment	Most Important Value
Sense of Belonging	1									
Excitement	.475**	1								
Warm Relationships With Others	.571**	.427**	1							
Self-fulfillment	.501**	.471**	.534**	1						
Being Well Respected	.535**	.438**	.506**	.594**	1					
Fun and Enjoyment of Life	.419**	.572**	.585**	.592**	.601**	1				
Security	.446**	.390**	.533**	.482**	.579**	.568**	1			
Self-Respect	.341**	.269**	.497**	.587**	.580**	.570**	.645**	1		
Sense of Accomplishment	.454**	.319**	.486**	.644**	.620**	.561**	.575**	.732**	1	
Most Important Value	.094*	-.025	.220**	.036	-.014	-.023	.001	-.002	-.065	1

\* Correlation is significant at the 0.05 level

\*\* Correlation is significant at the 0.01 level

Significant relationships were found for innovativeness and the variables of normative SII ( $r=.277$ ), informational SII ( $r=.138$ ), involvement ( $r=.203$ ), age group ( $r=-.189$ ) and the personal values of excitement ( $r=.194$ ), warm relationships with others ( $r=.092$ ), self-fulfillment ( $r=.098$ ) and fun and enjoyment of life ( $r=.097$ ). All relationships were positive, except for that of innovativeness and age group. The correlation shows that innovativeness increases as age decreases. That is, the older age group scored lower on the innovativeness scale compared to the younger respondents.

Involvement was positively related to informational SII ( $r=.093$ ), innovativeness ( $r=.203$ ), intention to adopt body scanning technology ( $r=.128$ ), and the personal values of sense of belonging ( $r=.250$ ), excitement ( $r=.195$ ), warm relationships with others ( $r=.261$ ), self-fulfillment ( $r=.288$ ), being well respected ( $r=.283$ ), fun and enjoyment of life ( $r=.285$ ), security ( $r=.255$ ), self respect ( $r=.260$ ) and sense of accomplishment ( $r=.267$ ). A significant relationship was not found for involvement and normative SII, age group, or the respondent's most important value rating.

Table 13  
*Variable Correlations*

	Normative SII	Informational SII	Innovativeness	Involvement	Intention to Adopt	Age Group	Gender
Normative SII	1						
Informational SII	.504**	1					
Innovativeness	.277**	.138**	1				
Involvement	-.010	.093*	.203**	1			
Intention to Adopt	.102*	.156**	-.062	.128**	1		
Age Group	-.043	-.160**	-.189**	-.065	-.053	1	
Gender	.131**	.007	-.129**	-.261**	-.019	.227**	1

\* Correlation is significant at the 0.05 level

\*\* Correlation is significant at the 1.01 level

The intention to adopt body scanning scale was positively related to sense of belonging ( $r=.182$ ), excitement ( $r=.137$ ), warm relationships with others ( $r=.171$ ), self fulfillment ( $r=.111$ ), being well respected ( $r=.160$ ), fun and enjoyment of life ( $r=.150$ ), and sense of accomplishment ( $r=.102$ ).

The category of age group, coded as “1” corresponding to the younger group and “2” to the elder, had negative relationships with the following variables: informational SII ( $r=-.160$ ), innovativeness ( $r=-.189$ ), excitement ( $r=-.186$ ) and fun and enjoyment of life ( $r=-.137$ ). The negative relationships indicate that as scores increase, age group

decreases. That is, the younger group is correlated to higher scores in informational SII, innovativeness, excitement and fun and enjoyment of life.

### ***Factor Analysis***

A factor analysis was performed on the involvement construct to determine whether or not two distinct factors would emerge, namely for the measurements of enduring and situational involvement. Varimax rotation was used with the principal component analysis, resulting in two strong components and one lesser third component. The Kaiser-Meyer-Olkin measure of sampling adequacy had a coefficient of .948. Bartlett's test of sphericity had a significance of  $p < .001$ . Total eigenvalues for the three components were 9.786, 1.812, and 1.230, respectively (see Table 14).

After the rotation, component one explained 30.162% of the variance; component two, 29.931%; and component three, 7.423% of the total variance (see Table 15). The first factor component grouped together the following: of no concern/of concern to me, fundamental/trivial, interested/uninterested, boring/interesting, unexciting/exciting, mundane/fascinating, undesirable/desirable, needed/not needed (see Table 16). The second factor component was made up of the following pairs: important/unimportant, valuable/worthless, not beneficial/beneficial, matters to me/doesn't matter, significant/insignificant, vital/superfluous, unappealing/appealing, essential/nonessential, wanted/unwanted. The remaining third component consisted of the factors of irrelevant/relevant, and means a lot to me/means nothing to me. For the purposes of this study, factor one is named "engaging", factor two "enriching" and factor three "meaningful".

Although the results did not show the hypothesized factors of enduring and instrumental involvement, the three resulting factors complemented each other nicely. As found in Table 16, the three components had strong measurements to balance the weaker measurements of the other factors. For instance, the questionnaire component of important/unimportant has weak coefficients for components one and three (.238 and .038 respectively), however component two is a strong .706. The component one, of concern/of no concern to me, measurement is .635; which is much stronger than

components two and three (.381 and -.125). Component three of relevant/irrelevant is a strong -.892, whereas component one is .058 and component two is .025. The trend

Table 14

*Reliability and validity of factor analysis*

KMO and Bartlett's Test		
Kaiser-Meyer-Oklin Measure of Sampling Adequacy		0.95
Bartlett's Test of Sphericity	Approx. Chi-Square	7201.41
	Df	171
	Sig.	>.001

Table 15

*Eigenvalues for involvement factor analysis*

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% Variance	Cumulative %	Total	% Variance	Cumulative %	Total	% Variance	Cumulative %
	Engaging	9.79	51.51	51.505	9.79	51.51	51.51	5.73	30.16
Enriching	1.18	9.54	61.042	1.81	9.54	61.04	5.69	29.93	60.09
Meaningful	1.23	6.47	67.515	1.23	6.47	67.52	1.41	7.42	67.52

continues for the majority of the three factors used to measure the involvement construct. However, for the appealing/unappealing and wanted/unwanted factors, components one and two have very similar coefficients making the factors less easy to distinguish between the two components.

**Model Building**

The proposed research model indicated expected relationships with susceptibility to interpersonal influence (SII) and involvement with innovativeness. Innovativeness was expected to have a relationship with one's intended adoption of body scanning time frame. To test the proposed model, a univariate analysis of variance was conducted to

check for the relationships between the independent variables of personal values, informational and normative SII, and involvement and the dependant variable, innovativeness. However, the correlation matrix showed no relationship between

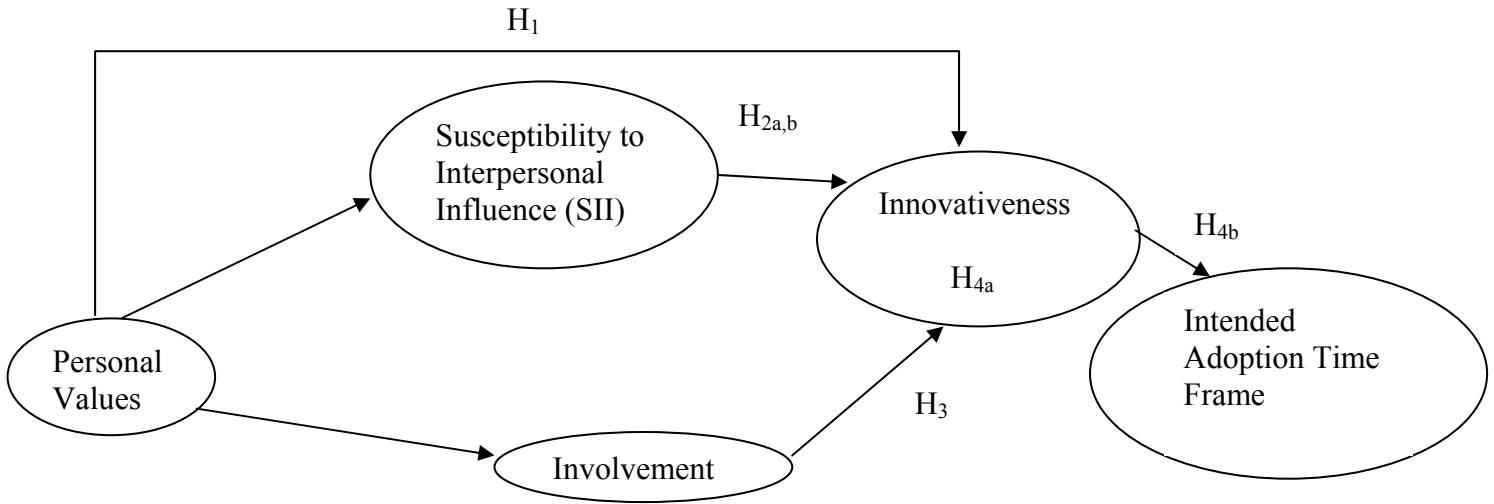
Table 16

*Resulting components of factor analysis*

	Component		
	Engaging	Enriching	Meaningful
Of no concern/of concern to me	<b>0.635</b>	0.381	-0.125
Trivial/Fundamental	<b>0.627</b>	0.264	-0.099
Uninterested/Interested	<b>0.755</b>	0.373	0.056
Boring/Interesting	<b>0.842</b>	0.301	0.102
Unexciting/exciting	<b>0.843</b>	0.28	0.121
Mundane/Fascinating	<b>0.841</b>	0.166	0.067
Undesirable/Desirable	<b>0.798</b>	0.351	0.094
Not needed/Needed	<b>0.728</b>	0.271	0.049
Important/Unimportant	0.238	<b>0.706</b>	0.038
Valuable/Worthless	0.232	<b>0.741</b>	0.151
Beneficial/Not beneficial	0.29	<b>0.778</b>	0.115
Matters to me/Doesn't matter	0.293	<b>0.812</b>	0.096
Significant/Insignificant	0.332	<b>0.813</b>	0.074
Vital/Superfluous	0.215	<b>0.705</b>	0.001
Appealing/Unappealing	0.515	<b>0.636</b>	0.15
Essential/Nonessential	0.331	<b>0.747</b>	.
Wanted/Unwanted	0.475	<b>0.621</b>	0.171
Irrelevant/Relevant	0.058	0.025	<b>-0.892</b>
Means a lot to me/Means nothing to me	0.174	0.345	<b>0.665</b>

\*bolded values indicate items included in the factor component

innovativeness and intention to adopt and, a direct relationship with the two variables could not be assessed. Therefore, a multinomial regression was conducted to test all variables in the study as independent variables with the dependent variable of intention to adopt body scanning technology. Shown below, again, is the proposed model for this study (Figure 1).



**Figure 1. Proposed research model**

*Univariate analysis of variance*

Univariate analysis of variance was used to test for possible contributions to innovativeness by personal values, susceptibility to interpersonal influence (SII) and involvement. Aggregate scores were used to test each variable. SII was measured for the individual factors, normative and informational. The model had an adjusted R squared of .136. A total of 516 responses were analyzed for the model. The resulting significant variables included involvement ( $p < .001$ ), and normative SII ( $p < .001$ ). Informational SII and personal values were not significant contributors to innovativeness, according to the univariate analysis of variance (see Table 17).



Table 17

*Results of univariate analysis of variance for variables related to innovativeness*

Dependant variable: Innovativeness	
Source	Sig.
Involvement	>.001
Normative SII	>.001
Informational SII	0.257
Personal Values	0.409
N=516	

*Multinomial Regression*

The data was analyzed using multinomial regression on SPSS software. Multinomial regression uses “odds ratios” to compare responses of categorical dependant variables to a reference group, which is typically the first or last category of the dependant variable as specified by the researcher. The resulting coefficients indicate the number of times it is likely that an interval increase in a given independent variable score will correspond to a respondent choosing one of the categories of the dependent variable. Each category has its own associated coefficient. Assumptions of the model include the constancy of all other model variables when comparing the selected independent variable score, and the dependant variable category, to that of those choosing the reference category. That is to say, results of the regression are reported in terms of the number of times an interval increase in the independent variable increases or decreases one’s chance of choosing a certain category of the dependant variable, compared to those respondents choosing the reference category.

Two series of multinomial regressions were run to eliminate non significant variables included in the proposed model and to confirm a final model. Variables in the first regression were eliminated based on a significance level of  $p < .05$ . Each analysis included intention to adopt body scanning technology as the dependent variable, with response category one, “No, I will never adopt body scanning technology for apparel purchases”, as the reference group. The factor in the initial analysis included each of the two age groups. Age was grouped in SPSS as a “1” for respondents between the ages of

18 and 31, and a “2” for respondents ages 40-62. Covariates in the first analysis included the two factors of susceptibility to interpersonal influence, normative and informational; personal values; innovativeness; and involvement. Covariate scores were based on average responses for each construct measured. For the first regression, a chi square was recorded of 97.30, with a significance level of  $p < .001$ . The second regression resulted in a chi square of 91.60 and significance level of  $p < .001$ .

After the first regression analysis was used to eliminate the non significant variables from the proposed model, the second regression test was performed. Personal values were not found significant and therefore were excluded from the second regression. Table 18 shows the results of trial one. The significant variables associated with the intention to adopt categories included in the second regression were normative and informational SII, innovativeness, and involvement (See Table 18). Only significant variables for the response category four were found for the second regression, therefore no further regression analyses were run.

The final model is composed of the original dependent variable which categorizes the respondent's intention to adopt body scanning technology into four distinct time frames (see figure 3). Remaining covariates in the final research model include involvement, innovativeness, and both normative and informational SII. In general, each category could be distinguished by the relationship found between time of adoption and influence of the study's variables. The resulting model will be discussed first in general terms, then in terms of each category of the dependant variable.

Table 18

*Multinomial regression results, trial one*

Trial One; Reference Category 1			
Intention to adopt		Sig.	Exp(B)
2	Personal Values	0.073	1.248
	Normative SII	0.512	0.88
	Informational SII	>.001	1.832
	Innovativeness	0.196	1.244
	Involvement	0.094	1.3
	Over 35	0.65	1.122
	Under 35	.	.
3	Personal Values	0.092	1.235
	Normative SII	0.17	1.319
	Informational SII	0.028	1.471
	Innovativeness	0.007	0.618
	Involvement	0.003	1.604
	Over 35	0.392	1.246
	Under 35	.	.
4	Personal Values	0.065	1.299
	Normative SII	0.043	0.654
	Informational SII	>.001	2.256
	Innovativeness	0.001	1.833
	Involvement	0.04	1.414
	Over 35	0.944	1.02
	Under 35	.	.

Table 19

*Multinomial regression results, trial two*

Trial Two, Reference Category 1			
Intention to adopt		Sig.	Exp(B)
2	Informational SII	>.001	1.963
	Involvement	0.023	1.405
3	Informational SII	0.007	1.582
	Innovativeness	0.01	0.637
	Involvement	>.001	1.735
4	Normative SII	0.017	0.612
	Informational SII	>.001	2.419
	Innovativeness	>.001	1.861
	Involvement	0.007	1.551

### *Final Research Model*

In general, each category could be distinguished by the relationship found between time of adoption and influence of the study's variables. The categorical dependent variable included those in the intention to adopt scale of 1 to 4, with category 1, "No, I will never adopt body scanning technology for apparel purchases", serving as the reference group for the rest of the categories. The categories include the following, from latest to adopt to earliest to adopt: 2, "Yes, I will adopt body scanning technology but only after it is widely used", 3, "Yes, I will adopt body scanning technology but only after I have a chance to see if those who use it first are satisfied", and 4, "Yes, I will adopt body scanning as soon as it is available in retail stores". The final model includes the independent covariates: involvement, innovativeness, informational SII and normative SII.

The final model shows informational SII to be directly significant to "intention to adopt" responses two, three, and four. The analysis showed a significant relationship between normative SII and intention to adopt responses corresponding to category four, those most likely to adopt body scanning technology. Involvement was associated with the response, categories two and four, but not in the case of category three. The two factors of age group had no significance in the final model. Innovativeness had significant relationships with response categories three and four, those most likely to adopt, but no significant relationship with category two.

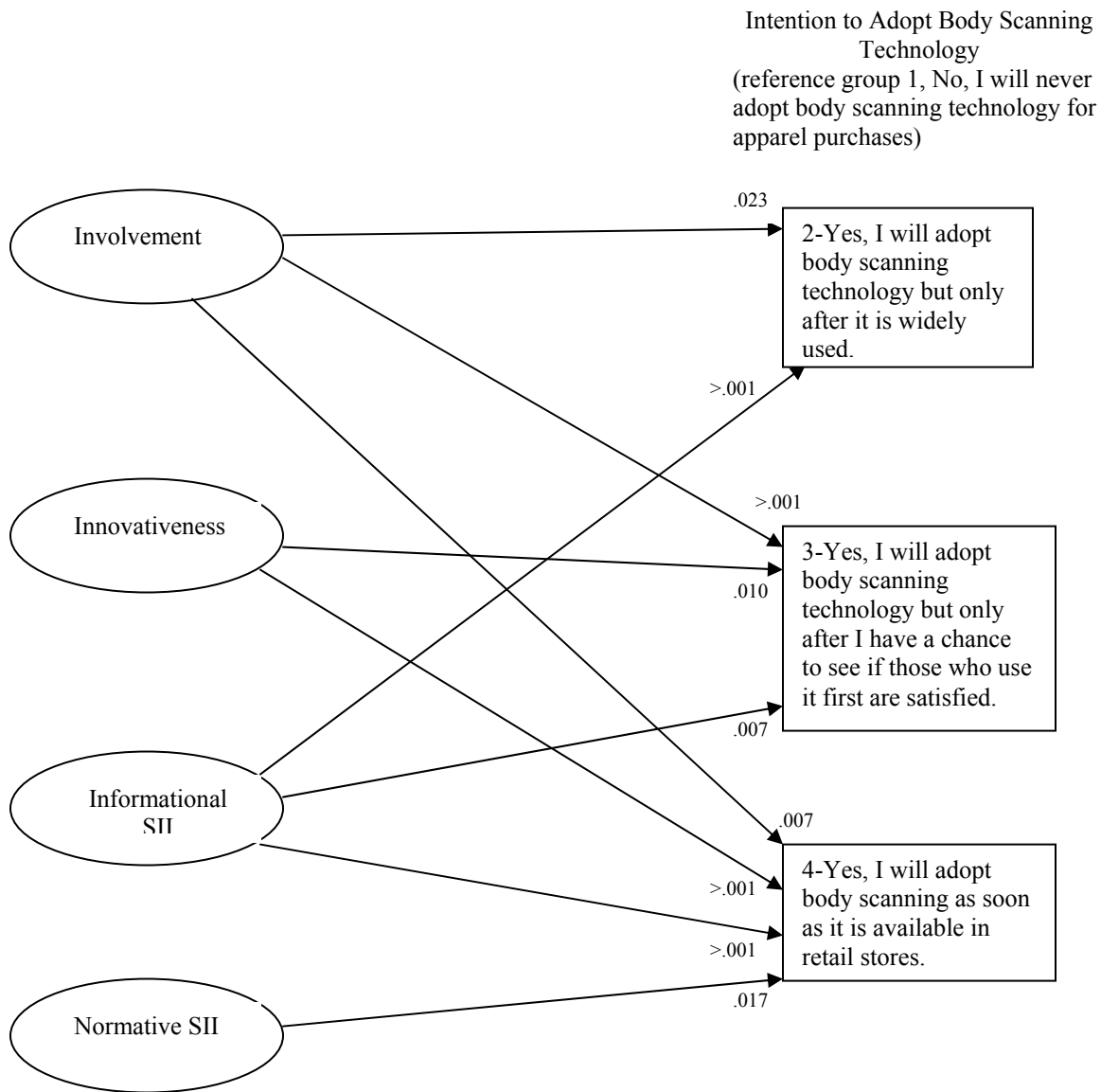


Figure 3. Revised research model, according to multinomial regression results.

*Category Two, “Yes I will adopt body scanning technology but only after I have a chance to see if those who use it first are satisfied”*

For category two, innovativeness was not significant for the second regression analysis, neither was normative SII. However, for each unit increase in informational SII, the respondents increased their relative risk of falling into category two by a factor of 1.963. It is important to note that this is not to the degree of those in category four, but more than in category three. For every unit increase in involvement, holding all other factors constant, respondents increased their relative risk of being in category two by a factor of 1.405.

*Category Three, “Yes, I will adopt body scanning technology but only after I have a chance to see if those who use it first are satisfied”*

Normative SII was not found as a significant variable in respondents choosing category three in the second and final regression analysis. However, respondents increased their risk of choosing category three by a factor of 1.582 for every unit increase in informational SII scores. Respondents also increased their chance of choosing category three by a factor of 1.735 for every unit increase in involvement.

*Category Four, “Yes, I will adopt body scanning as soon as it is available in retail stores”*

Compared to those answering “No, I will never adopt body scanning technology for apparel purchases”, and assuming that all other variables are held constant, if someone in category four were to increase their informational SII score by one unit, his or her likelihood of choosing category four increases by a factor of 2.419. If the respondent were to increase his or her normative SII score by one unit, the likelihood of him or her choosing category four decreases by a factor of .612. For each unit increase in a score on involvement, the relative risk of the respondent belonging to category four increases by a factor of 1.551. Finally, respondents are 1.861 times more likely to choose category four for every unit increase in innovativeness.

### ***Personal Values and Intention to Adopt Body Scanning Technology***

As a final measure, multiple regression was used to test for relationships between each personal value and the four intention to adopt categories (see Table 20). The resulting model had a significance level of  $>.001$  and chi-square of 59.179. The values “fun and enjoyment in life” and “security” were the only two to show any level of significance ( $p<.05$ ). However, self-respect had a borderline level of significance (.052) for category three. No other values were found to be significant (see table 20). The reference category for the evaluation was category one, “No, I will never adopt body scanning technology for apparel purchases”.

For category four, “fun and enjoyment of life” (.042) and “security” (.010) were significant. With every unit increase in ratings of the value “fun and enjoyment of life”, respondents are 1.413 times as likely to fall into category four, all other variables remaining constant. Respondents actually decrease their odds of being in category four .681 times per unit increase in response to rating security as being an important value. Respondents in category four are less likely to be concerned with security as a personal value.

A unit increase in security also decreases one’s chance of falling into category two by a factor of .698 times. For category three, “fun and enjoyment of life” (.059) and “self-respect” (.052) were borderline significant. Although these values were not technically significant in the study, it seems appropriate to mention these scores as well. As fun and enjoyment of life increases per interval unit, likelihood of choosing category three increases 1.363 times, all other factors remaining constant. Self respect decreases .716 times the respondent’s likelihood of choosing category three per unit increase in scale.

Table 20

*Significant personal values and associated categories*

Reference Category 1			
Intention to adopt category	Personal value	Sig.	Exp (B)
	2 Fun and enjoyment of life	0.059	1.363
	2 Self respect	0.052	0.716
	3 Security	0.01	0.698
	4 Fun and enjoyment of life	0.042	1.413
	4 Security	0.01	0.681



## V. SUMMARY, DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS FOR FUTURE RESEARCH

### *Summary*

In order to better gauge the success of the technology in terms of diffusion in the retail context, an analysis of the personal factors contributing to consumers' willingness to use body scanning was conducted. The analysis also furthers current literature in the field of innovativeness. Exploratory analysis was conducted to test a proposed model for factors which could contribute to one's self-reported intention to adopt a new technology. Body scanning was chosen for the current study due to retail formats emerging in response to consumer demand for entertaining shopping experiences, and for its relative newness for consumers in retail stores. Although some manufacturers of clothes have used body scanners in retail stores for some time, widespread use is still sparse. The current study shows factors contributing to the time of adoption of an innovative product and gives the likelihood of the diffusion of body scanners from self reported intention to adopt the technology.

Several different statistical analyses were run to test the research hypotheses. This exploratory analysis used correlation analysis, factor analysis, univariate analysis of variance and multinomial regression to answer research objectives and hypotheses and to build a final research model. The correlation matrix was used as a starting point for examining expected relationships among variables, as well as testing hypotheses 2a and 2b. The univariate analysis of variance tested the contributions of personal values, SII, and involvement to innovativeness. Factor analysis was used to test for the predicted involvement factors in hypotheses 3. The final research model was determined using a series of multinomial regressions.

The final research model revealed insightful characteristics of respondents based on intended time of adoption of body scanning technology. Comparisons among the groups in the multinomial regression can be made for an individual variable with the assumption that the remaining variables are held constant. The model can also be applied to a broader context of innovative products.

Results of the model show that if informational SII and involvement scores are held constant, increased scores for innovativeness mean increased chances of choosing category four, those earliest to adopt an innovative technology. Also, if involvement and innovativeness scores are kept constant, the respondent is over twice as likely to choose category four as informational SII scores increase. Involvement scores increase for those in category three if informational SII and innovativeness scores are the same. Apparently, involvement is critical to those who are early in adopting a new technology, but innovativeness is a strong characteristic of those who are the first to adopt a product category or technology. Involvement is also linked to informational SII.

Normative SII was only significant in the model to those in category four, the most innovative. However, normative SII has a negative effect on one's intention to adopt the technology. Normative SII actually decreases one's chances of being in the group with the highest innovators, per unit increase in scale rating. That is, the higher the normative SII, the less likely the respondent is to adopt body scanning before others. Innovators can spur growth in interest in body scanning by telling friends of its benefits. Perhaps, friends higher in normative SII will value the opinion of one seen as cool, or as a leader, and adopt the technology to fit in with a growing number of users. Or, those high in normative SII may delay using the technology until it is socially accepted, that is used by others in his or her peer group, allowing the consumer high in normative SII to become accepted into the reference group. In either case, the innovator is needed to introduce the service to his or her peer group.

### ***Discussion and Conclusions***

Each statistical procedure used for the current research was useful for giving insights into the data set. Therefore conclusions will be made for each variable based on the given statistical procedure in order to show how each individual analysis fits into the final model analysis. The conclusions are categorized by variable, as each variable was treated using a different statistical analysis in order to get a better understanding of the exploratory analysis.

### *Gender Comparisons*

It is common for studies in consumer behavior to examine the contrasting purchasing habits of men and women, and this study is no exception. Gender related to several of the study's variables. Most relationships found were between women and the variables studied, but it is worth mentioning that normative SII was specific to men. Because men had a relationship with normative SII, it seems men are likely to look to peer groups for purchasing cues in order to assimilate, or fit, into a group. Perhaps most men would rather not "stand out" when it comes to clothing. Gender was not significant to intention to adopt body scanning technology. However, the association between men and normative SII would lead one to assume that they would be later adopters of body scanners given the negative relationship of normative SII with those most likely to choose to adopt the technology first. This could also be due to a lack of interest on the part of the male respondents considering the nature of the technology in the retail/apparel context.

### *Age Group Comparisons*

Because younger consumers have emerged as a viable consumer market, much research focuses on generational commonalities for those born between 1977 and 1994, otherwise known as Generation Y. In light of the growing spending power of Generation Y, comparisons of this generation and the affluent Boomer generation are made to help marketers cater to two unique, yet very powerful market forces. Although age group distinctions did not prove to be significant in predicting time of body scanning adoption in the final research model, several important conclusions can be drawn from correlations produced in the study. The results indicate that since both groups are likely to use the technology, marketers of body scanning technology can count on being able to appeal to consumers of all ages.

Factors significant to age group include both normative and informational SII, excitement and fun and enjoyment of life. The younger respondents, those corresponding to Generation Y, are more likely to hold these traits than those of their Boomer counterparts. However, because age group was not significant in the final research

model, and since the correlations found in the matrix were weak, caution should be taken when making radical distinctions between the two age groups.

It is safe to say that the younger group, Generation Y, is more likely to look to others for cues to purchasing behavior, either to fit into a peer group, or just to gain information about a potential purchase. Further testing of the construct may show SII to be a function of age rather than an unchangeable consumer characteristic. Of all the personal values, the only two significant to age group (fun and enjoyment of life and excitement) show that the younger generation is more carefree than the older. If these values stick, then perhaps a new shift in American values will occur once this generation comes of age. Or, perhaps these values will change once more adult responsibilities, such as children or independence from familial financial support, are introduced into the lifestyles of the younger consumer group. A later study comparing the values of the two generation cohorts would be helpful in understanding any changes in values as the groups age.

### *Personal Values*

The current analysis revealed relationships between personal values and intention to adopt body scanning technology. “Fun and enjoyment of life” and “security” were significant in the multinomial regression for personal values and intention to adopt categories. Those who favor “fun and enjoyment in life” are more likely to choose category four, all other factors remaining constant. The finding for “fun and enjoyment in life” is consistent with previous research where fashion leaders were reported to place greater importance on this value relative to non-fashion leaders (Goldsmith, et al, 1991). A unit increase in favorable responses to the value “security”, all other factors remaining constant, decreases the likelihood of choosing category four by a factor of .698.

Marketers can use this information to spin promotion of the services as corresponding to heightened levels of selected personal values. Displays of user testimonials using written script and pictures displayed along the body scanning machine, cue area and appropriate retail floor space could attract the attention of potential users and make them feel more comfortable in using the technology. For instance, promotions can include using groups of people discussing the new technology and the advantages to using it to appeal to those valuing warm relationships with others. Or, testimonials can

be displayed where the new technology proved to be an exciting experience useful in capturing body measurements, with the purpose of attracting consumers holding excitement high as a personal value. Showing the new service as being beneficial as well as a pleasurable experience could attract the attention of early adopters.

### *Involvement*

According to the results of the univariate analysis of variance, involvement was shown to be a significant contributor to overall innovativeness in the model ( $<.001$ ). Like other studies before (Flynn & Goldsmith, 1993; Zaichkowsky, 1994), the current study confirms the existence of multiple factors of the PII. Two factors were found in Flynn and Goldsmith's (1993) work, where it was concluded that, based on the factor analysis and correlations, all ten items of the personal involvement inventory could be combined to form the original summed scale proposed by Zaichkowsky (1985). In her revision of the personal involvement inventory (PII), Zaichkowsky (1994) also found that the instrument could be factored into two subscales, one general factor and one minor component. The general component consisted of: interesting, appealing, fascinating, exciting and involving. The minor component, which she described as being more rational or cognitive in nature, included: important, relevant, valuable, means a lot to me, and needed. However, this study differs from previous work in that three components were found to be significant and the items found in the components are different.

The three involvement factors resulting from the principal component analysis had stronger components after the varimax rotation. After the varimax rotation, the components became very clearly defined, and complemented each other nicely. The strongest factor found in this research was component one and accounted for 30.16% of the total variance in responses. This component, called "engaging", appears to include those factors which point to a product's ability to illicit interaction between the product and the respondent. Component two, "enriching", refers to instrument measures that indicate the product's perceived ability to make one's life better or easier and accounts for 29.931% of measurement variance. The third component refers to a product's ability to illicit a response based on the product's ability to be meaningful in one's life.

The current study's results show that a product's ability to engage us plays a large part in increasing our involvement in a product class. A close second is the product's promise of enriching our lives through usage, thus eliciting involvement in a product class. The product's perceived meaning in one's life accounts for little variance in the total involvement criteria, although the contribution is significant. Future research would re-test the subscales on different consumer behaviors to see if, indeed, each factor could be used to measure different factors of involvement.

In the context of the final model, higher levels of involvement increase one's likelihood of choosing earlier adoption categories, especially for category three. Those earliest to adopt a product are most likely to be highly involved in the product class. However, respondents in category two, the late majority, also exhibit considerable involvement in apparel purchases. This leads to the conclusion that late adopters may delay trying new technologies until adequate information is obtained regarding the risk of adoption. The considerable role of involvement characteristic of those choosing category two alludes to information gathering tendencies among all respondent categories.

Goldsmith, et al's. (1991), previous work confirms conclusions of the current study as they reported fashion leaders as participating in activities (including media usage, browsing and actual purchases) that would enhance one's information collection or knowledge of a specific product class. To cater to potential body scanning technology adopters, knowledgeable sales associates and ample information regarding body scanning offerings and its benefits should be incorporated into the body scanning experience.

#### *Susceptibility to Interpersonal Influence*

Informational SII was not a significant contributor in the univariate analysis of variance model to the dependent variable, innovativeness. However, the final research model shows that informational SII has a strong influence on one's falling into the category, "earliest to adopt body scanning technology". The conclusion can be drawn, therefore, that informational SII contributes positively to one's chances of being first to adopt a new technology even if it does not directly contribute to one's general innovativeness.

The final model shows normative SII to be related only to category four. This is not surprising as normative SII refers to one's likelihood to look to others for information on apparel purchases in order to belong to the group. A higher response to normative SII actually decreased one's chance of being in the category for earliest adopters and was not significant for any other category. This compliments previous research which found that those who want to "blend in" are least likely to be the most innovative. In fact, the most innovative consumer may actually find him or herself unable to relate to those in the mainstream, whereas one in the early majority is often respected by his or her peers. Store promotions targeting those later to adopt can include elements that show groups of "cool" people using the services, with script that indicates that even those most apprehensive of the technology can be made to feel comfortable considering the technology has been tested by plenty of savvy consumers already.

### *Innovativeness*

Comparing the results of the univariate analysis to that of the multinomial regression shows that although not all factors contribute directly to one's innovativeness, they do independently contribute to one's intention to adopt a new technology based on a given time frame of expected adoption. Goldsmith and Flynn (1992) reported that innovative shoppers tended to shop more often and spend more money on apparel relative to later adopters. Initial higher prices of customized clothing made possible through body scanning technologies may not be a problem for those innovators willing to pay a little extra to be the first to try out the new service. As the technology becomes more sophisticated and less expensive, later adopters will be likely to use the services and buy goods enabled by body scanning technologies.

Goldsmith et al, (1991) also found fashion leaders to hold the personal values of excitement and fun/enjoyment of life. The current study confirms this finding as those scoring high in innovativeness have a significant relationship with excitement. It stands to reason that a new product or service may be attractive those looking for excitement; who would also be willing to try new things in order to fill this need. If having customized clothing made for one's personal use is made to seem like an exciting

alternative to “off the rack clothing”, then promotion of the body scanning experience should be a natural extension of an exciting experience.

#### *Intended Adoption Time Frame*

According to the results, 70.41% of the respondents will accept body scanning at some time in the future. The majority of the respondents will adopt, but perhaps after some exposure in the marketplace first. The response ratios are not exactly as expected, since Roger’s (1995) diffusion of innovations states that laggards should make up 16% of the theoretical population, the late majority 34%, early majority 34%, early adopters 13.5% and innovators 2.5% of the total population. The sample population for this study shows, however, that if innovators were to begin to use the technology and appear to be satisfied with the experience, others in the marketplace will use the service as well. Therefore, it is recommended that marketers pay attention to the increasing applicability of body scanning technology in the retail context.

Since some retailers, such as Brooks Brothers and Benchmark Clothiers, have already used the technology for some time, it may be useful to develop strategies for later adopters. Customer testimonials displayed in retail mixes may spur interest in the technology from the mass market, who, although are responsible for the larger percentage of money spent in apparel purchases, need some push to begin using the service from those who have already done so. Positive feedback on the service may create a feeling of security that is important for later adopters of innovations, but not earlier adopters.

It is not surprising that category four is highest in innovativeness, informational SII, and includes respondents who value fun and enjoyment in life as a personal value. Knowing that informational SII is typical of those gather information by looking to groups or peers for information regarding purchases, and that normative SII is characteristic of those purchasing products to belong to a peer group, people in category four could be described as less dependent on others for a sense of self-worth or have a greater sense of autonomy, adding to what is already known about innovators. Respondents choosing category four do not depend on the opinions of others. The results of the current study also confirm previous research on innovators (Flynn & Goldsmith, 1993) reported to spend more time and money on media related to a certain product class.



Experiential marketing could be very effective targeting this consumer. As innovators have been shown to appreciate effective assistance in the retail setting when making purchase decisions (Goldsmith & Flynn, 1991), having body scanning experts available, along with product discount promotions, may create interest in the consumer, and confidence in the process; therefore creating further potential for diffusion of the product.

Retailers could gradually introduce the service to the retail floor then, as consumers grow accustomed to seeing and using the service, make further additions to customized product offerings. Later adopters may not want to have sales assistant help as much as earlier adopters (Goldsmith & Flynn, 1992) so later versions of the technology could be based on currently used self-service technologies. Consumers may find this less invasive and may be more likely to use the service if they feel some sort of control over the process.

### ***Future Research***

This exploratory analysis also opens the door for further investigation into comparing preferences of different age groups. Differences found in this study show that changes in consumer demands are likely to come as the younger generation of consumers becomes more responsible for personal and family purchasing decisions. Understanding this generation's view of emerging technology may give direction to future market changes, including the increased incorporation of self-service technologies, or technology in the retail context in general. Later studies may be beneficial to marketers which re-evaluate Generation Y's personal values as lifestyle changes begin to set in due to the aging population to see if current values remain important to the generation. Finally, the research model should be further tested to confirm its reliability by incorporating the model in studies of future technologies or service strategies to see if similar results are found.

As a number of factors can affect the diffusion of a new product or service, risk assessments for both consumers and retailers should be taken. Future research could also ask retailers how they feel about implementing the technology in their stores, as the retail industry is typically late in adopting technology in general, and to gain a better understanding of their perceived likelihood of retailers adopting the technology. Input

from sales associates as to their feelings toward working with the technology, including apprehension of conducting the scans may also be useful. Early adopters, especially, take notice of sales associate assistance, and therefore, sales associates should feel comfortable with the technology in order to increase sales from the body scan measurements.

Retailers may also be interested to see if the investment in hardware, software and associate training is profitable. Price points and expected markups should be investigated to confirm the practicality of offering body scanning and associated services in retail stores. Also, consideration should be paid as to the options for returned products and how this will affect costs to the retailer since returned products may not be easily re-sold.

Finally, case studies may be beneficial to retailers considering the new service. Understanding how smaller boutiques are successfully managing the technology may lend insights into how to handle the offering to a mass market of consumers. Full scale introductions of the technology by mass retailers should be conducted regionally for consumer feedback before being implemented nationally in order to capture the essential characteristics of consumers likely to use body scanners.

## VI. IMPLICATIONS AND LIMITATIONS

The implications of this research are obvious if one can envision a retail setting where body scanners are as common as fitting rooms in stores. As the technology of body scanners becomes more sophisticated, and less expensive, it is possible for retailers to offer this service on a daily basis. Once the services are offered, and the body scanners common, no longer will the novelty of the body scanner experience be a selling point; instead, retailers will have to have service and product offering that set them apart from other retailers. The data of this research shows that consumers are interested in testing the service. Therefore, it is beneficial for retailers to begin researching the product offerings made possible by body scanning technology, and the costs of implementing the body scanners in the stores, in order to establish themselves early as leaders and experts in body scanning services. Stores can use imagery, where appropriate, to promote and direct shoppers to the scanning booths. Associates will need to be highly trained in using the scanners and in assisting consumers with the accompanying products.

One major limitation to this research is the current, and seemingly lasting, trend for casual dress, even in the workplace. Body scanners are well-known for enabling mass customized clothing tailored to individual tastes and sizes, particularly for suits and evening wear. However, if lines can be developed to incorporate the American consumers' taste for casual wear with the luxury of tailored fit, then sales can be generated to cover the costs of implementing the body scanning and associated services and ultimately result in profit for the store.

In a world of fast fashion and casual Fridays, it is hard to ascertain who will actually use body scanners. As we know, older generations are not happy with seeing the scans, but are likely to use body scanners to ensure better fit of clothing. Also, the overhead, expense, and inherent risk in mass customized goods made possible by body scanners may cause retailers to charge more than what some consumers are used to paying for fashion goods. There is also risk in the novelty of body scanners in retail stores to "wear off" if a substantial utilitarian gain is not perceived by users of body scanners. It is proposed then that body scanners be implemented and used as "measures of best fit". Like associates at Victoria's Secret who are able to measure customers to ensure proper sizing and fit of intimate apparel, experts of body scanners could offer

consumers a way of best assessing which sizes offered by the firm are suited to the individual customer. Incentives such as discounts or membership points could be used to create interest in the scanner, thus allowing measurements to be gathered by retailers to provide more accurate sizing and fit for customers in the form of a private label. In conclusion, it may be a risk for retailers to implement body scanners, but investments in marketing the services and training associates in using the technology could have lasting pay-offs.

## APPENDIX A. SURVEY QUESTIONS

### Survey Questions

#### **Personal Values** (Kahle and Kennedy, 1989)

Measured using a Likert scale, 1-9 (very unimportant to very important).

- 1) Sense of Belonging
- 2) Excitement
- 3) Warm Relationships with Others
- 4) Self-Fulfillment
- 5) Being Well Respected
- 6) Fun and Enjoyment of Life
- 7) Security
- 8) Self-Respect
- 9) A Sense of Accomplishment

Now reread the items and circle *the one* thing that is most important to you in your daily life.

#### **Susceptibility to Interpersonal Influence** (Bearden, Netemeyer, and Teel, 1989)

Measured using a Likert scale, 1-5 (strongly agree to strongly disagree).

Normative:

- 1) I rarely purchase the latest fashion styles until I am sure my friends approve of them.
- 2) It is important that others like the products and brands I buy.
- 3) When buying products, I purchase those brands I think others will approve of.
- 4) If other people can see me using a product, I often purchase the brand they expect me to buy.
- 5) I like to know what brands and products make good impressions on others.
- 6) I achieve a sense of belonging by purchasing the same products and brands that others purchase.
- 7) If I want to be like someone, I often try to buy the same brands that they buy.
- 8) I often identify with other people by purchasing the same products and brands they purchase.

Informational:

- 9) To make sure I buy the right product or brand, I often observe what others are buying and using.
- 10) If I have little experience with a product, I often ask my friends about the product.
- 11) I often consult other people to help choose the best alternative available from a product class.
- 12) I frequently gather information from friends or family about a product before I buy.

**Involvement** (Zaichkowsky, 1985)

Contrasting views measured using a 7-point Likert scale.

- 1) Important/Unimportant
- 2) Of no concern/of concern to me
- 3) Irrelevant/Relevant
- 4) Means a lot to me/Means nothing to me
- 5) Useless/Useful
- 6) Valuable/Worthless
- 7) Trivial/Fundamental
- 8) Beneficial/Not beneficial
- 9) Matters to me/Doesn't matter
- 10) Uninterested/Interested
- 11) Significant/Insignificant
- 12) Vital/Superfluous
- 13) Boring/Interesting
- 14) Unexciting/exciting
- 15) Appealing/Unappealing
- 16) Mundane/Fascinating
- 17) Essential/Nonessential
- 18) Undesirable/Desirable
- 19) Wanted/Unwanted
- 20) Not needed/Needed

**Innovativeness** (Eastlick and Lotz, 1999, 216)

“Categorized by time-frame intended for adoption into *non-adopter, follower, early adopter, and innovator* groups (researchers).

- 1) No, will never adopt
- 2) Yes, will adopt but only after it is widely used by others
- 3) Yes, will adopt but only after I have a chance to see if those who use it first are satisfied
- 4) Yes, will adopt as soon as it is available

## APPENDIX B. HUMAN SUBJECTS APPROVAL MEMO

Subject	Use of Human Subjects in Research - Approval Memorandum
From	"Human Subjects" <humansubjects@magnet.fsu.edu>
Date	Tuesday, February 27, 2007 11:02 am
To	<ehd03@fsu.edu>
Cc	<jheitmey@mailier.fsu.edu>

Office of the Vice President For Research  
Human Subjects Committee  
Tallahassee, Florida 32306-2742  
(850) 644-8673 . FAX (850) 644-4392

### APPROVAL MEMORANDUM

Date: 2/27/2007

To: Erin Drake

Address: 3909 Reserve Dr. #922 Tallahassee FL 32311  
Dept.: TEXTILES AND CONSUMER SCIENCES

From: Thomas L. Jacobson, Chair

Re: Use of Human Subjects in Research  
Factors Contributing to Consumer Willingness to Adopt Body Scanning Technology

The forms that you submitted to this office in regard to the use of human subjects in the proposal referenced above have been reviewed by the Secretary, the Chair, and two members of the Human Subjects Committee. Your project is determined to be Exempt per 45 CFR § 46.101(b)2 and has been approved by an expedited review process.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals, which may be required.

If you submitted a proposed consent form with your application, the approved stamped consent form is attached to this approval notice. Only the stamped version of the consent form may be used in recruiting research subjects.

If the project has not been completed by 2/21/2008 you must request a renewal of approval for continuation of the project. As a courtesy, a renewal notice will be sent to you prior to your expiration date; however, it is your responsibility as the Principal Investigator to timely request renewal of your approval from the Committee.

You are advised that any change in protocol for this project must be reviewed and approved by the Committee prior to implementation of the proposed change in the protocol. A protocol change/amendment form is required to be submitted for approval by the Committee. In addition, federal regulations require that the Principal Investigator promptly report, in writing any unanticipated problems or adverse events involving risks to research subjects or others.

By copy of this memorandum, the Chair of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Human Research Protection. The Assurance Number is IRB00000446.

Cc: Jeanne Heitmeyer, Advisor  
HSC No. 2007.170

## APPENDIX C. INFORMED CONSENT LETTER

Dear Student/Sir or Ma'am,

I am a graduate student under the direction of Dr. Jeanne Heitmeyer at Florida State University conducting a research study to gain a better understanding of the factors contributing to consumer willingness to try body scanning. Your responses to the accompanying survey will help further the understanding of consumer attitudes toward this innovative, consumer-centered technology.

A better understanding of the user of body scanning technology, a means by which accurate, non-invasive body measurements are taken, is critical to the success of emerging retail applications that will affect both consumers and producers of goods. If body scanners can be effectively marketed to consumers, consumers will then be able to reap the benefits of the technology including greater satisfaction with apparel purchases and an enhanced consumer experience.

I am requesting your participation in responding to a 55-question questionnaire which should take no longer than fifteen minutes to complete. There is no penalty should you choose not to participate in the study, or to withdraw from any activity at any time. All information submitted by you, the respondent, will be kept confidential to the extent allowed by law. Individual responses will not be examined, instead only group findings will be presented for analysis by the researcher. The results of the research study may be published, but your anonymous responses cannot be traced back to you. Completion of the questionnaire will be considered your consent to participate in the study.

Questions or concerns regarding your rights as a subject in this research project can be directed to the Chair of the Human Subjects Committee, Institutional Review Board, at 850-644-8633. If you have any questions concerning this research, please call me at (850) 644-2498 or email me at [ehd03@fsu.edu](mailto:ehd03@fsu.edu). You may also contact Dr. Jeanne Heitmeyer at (850) 644-5578, or [jheitmey@mailier.fsu.edu](mailto:jheitmey@mailier.fsu.edu).

Your efforts in participating in this research project are deeply appreciated.

Sincerely,

Erin Drake



## APPENDIX D. SURVEY INSTRUMENT

This survey is designed to examine consumer behaviors associated with the adoption of body scanning technology. After reviewing the information provided, please answer the questions to the best of your ability. Your honest and candid answers are critical to the success of the study. Your anonymous responses will only be used for this study. Only the primary researcher will record and compile questionnaire scores for research purposes. If you have any questions regarding the study or procedures, you may contact the primary researcher, Erin Drake (ehd03@fsu.edu) or Dr. Jeanne Heitmeyer (jheimeyer@mailier.fsu.edu) at Florida State University. Answering the following survey questions signals your agreement to participate in the current study. Your participation in the current research project will help retailers better cater to your needs as a consumer and is greatly appreciated by the researcher.

The following is a list of things that some people look for or want out of life. Please study the list carefully and then rate each thing on how important it is in your daily life, where 1 = not at all important, 5 = neutral, and 9 = extremely important

### Sense of Belonging

not at all important 1  2  3  4  5  6  7  8  9  extremely important  
neutral

### Excitement

not at all important 1  2  3  4  5  6  7  8  9  extremely important  
neutral

### Warm-Relationships with others

not at all important 1  2  3  4  5  6  7  8  9  extremely important  
neutral

### Self-Fulfillment

not at all important 1  2  3  4  5  6  7  8  9  extremely important  
neutral

### Being Well Respected

not at all important 1  2  3  4  5  6  7  8  9  extremely important  
neutral

Fun and Enjoyment of Life

not at all important 1  2  3  4  5  6  7  8  9  extremely important  
neutral

Security

not at all important 1  2  3  4  5  6  7  8  9  extremely important  
neutral

Self-respect

not at all important 1  2  3  4  5  6  7  8  9  extremely important  
neutral

A Sense of Accomplishment

not at all important 1  2  3  4  5  6  7  8  9  extremely important  
neutral

Now, please select one item and indicate the one thing that is most important to you in your daily life.

- Sense of belonging
- Excitement
- Warm-Relationships with others
- Self-Fulfillment
- Being Well Respected
- Fun and Enjoyment of Life
- Security
- Self-respect
- A Sense of Accomplishment

The following questions pertain to your likelihood to include significant others in your apparel purchasing decisions. Please indicate the number that best corresponds to your agreement or disagreement with each statement, where 1=

strongly disagree, 3= neutral, and 5= strongly agree.

I rarely purchase the latest fashion styles until I am sure my friends approve of them.

strongly disagree 1  2  3  4  5  strongly agree  
neutral

It is important that others like the products and brands I buy.

strongly disagree 1  2  3  4  5  strongly agree  
neutral

When buying products, I purchase those brands of which I think others will approve.

strongly disagree 1  2  3  4  5  strongly agree  
neutral

If other people can see me using a product, I often purchase the brand they expect me to buy.

strongly disagree 1  2  3  4  5  strongly agree  
neutral

I like to know what brands and products make good impressions on others.

strongly disagree 1  2  3  4  5  strongly agree  
neutral

I achieve a sense of belonging by purchasing the same products and brands that others purchase.

strongly disagree 1  2  3  4  5  strongly agree  
neutral

If I want to be like someone, I often try to buy the same brands that they buy.

strongly disagree 1  2  3  4  5  strongly agree  
neutral

I often identify with other people by purchasing the same products and brands they purchase.

strongly disagree 1  2  3  4  5  strongly agree  
neutral

To make sure I buy the right product or brand, I often observe what others are buying and using.

strongly disagree 1  2  3  4  5  strongly agree  
neutral

If I have little experience with a product, I often ask my friends about the product.

strongly disagree 1  2  3  4  5  strongly agree  
neutral

I often consult other people to help choose the best alternative available from a product class.

strongly disagree 1  2  3  4  5  strongly agree  
neutral

I frequently gather information from friends or family about a product before I buy.

strongly disagree 1  2  3  4  5  strongly agree  
neutral

Please indicate the number that best corresponds to your typical apparel purchase decisions, where 1=strongly disagree, 3=neutral, and 5=strongly agree.

In general, I am among the last in my circle of friends to try a new fashion when it appears.

strongly disagree 1  2  3  4  5  strongly agree  
neutral

If I heard a new fashion item was available in the store, I would be interested enough to buy it.

strongly disagree 1  2  3  4  5  strongly agree  
neutral

Compared to my friends I own few new fashion items.

strongly disagree 1  2  3  4  5  strongly agree  
neutral

I will buy a new fashion item, even if I have not heard of it yet.

strongly disagree 1  2  3  4  5  strongly agree  
neutral

In general, I am the last in my circle of friends to know the names of the latest fashions and styles.

strongly disagree 1  2  3  4  5  strongly agree  
neutral

I know the names of new fashion designers before other people do.

strongly disagree 1  2  3  4  5  strongly agree  
neutral

Questions 5 and 6 refer to your feelings toward body scanning technology, a system that allows quick, safe and accurate 3-D body measurements. Please read the following description of body scanning and answer questions 5 and 6 based on the information given.

Body scanning is a technology that enables an individual to have quick, hygienic and accurate body measurements taken. Highly developed electronic devices using light beams scan the participant resulting in a comprehensive set of 3-D body measurements. A typical scanner consists of a dimly lit booth in which the participant, dressed in close-fitting garments, is asked to hold a standing pose with legs approximately shoulder width apart and arms out to the side to allow for a proper scan of the body. The scan takes only seconds to complete. Measurements are taken in a private setting and are seen only by the participant and scan operator. Information on personal body measurements from body scans can be easily stored on smart cards for use in customizing apparel to the specific style and fit needs of the consumer. The detailed measurements provided by the scanners enable manufacturers to create better fitting clothing through the use of compiled measurement data sets. Another use of the measurements taken from body scans include creating personalized computer models that allow a visual representation of styles and sizes of clothing on images representative of one's personal dimensions.

Please indicate the statement that best corresponds to your intention to adopt body scanning for apparel purchases:

- No, I will never adopt body scanning technology for apparel purchases.
- Yes, I will adopt body scanning technology but only after it is widely used.
- Yes, I will adopt body scanning technology but only after I have a chance to see if those who use it first are satisfied.
- Yes, I will adopt body scanning as soon as it is available in retail stores.

Have you ever had your body measurements taken by a body scanner before?

- Yes
- No

If you answered yes, in what setting was the scanner located (retail store, laboratory, etc.)?

Please answer the following questions; remember your answers will be kept confidential and will only be used in aggregate with the answers of other respondents.

What is your gender?

- female
- male

What is your age?

Which of the following best describes you?

- American Indian/ Alaska Native
- Asian
- Black/ African American
- Hawaiian/Other Pacific Islander
- Hispanic/Latino
- White/ Caucasian

Other

Please select your State (of 50 and DC):

In what city do you reside?

What was your total income, before taxes in 2006?

- Less than \$10,000
- \$10,000 - \$24,999
- \$25,000 - \$34,999
- \$35,000 - \$49,999
- \$50,000 - \$74,999
- \$75,000 - \$99,999
- \$100,000 - \$149,999
- \$150,000 - \$199,999
- \$200,000 or more
- Don't know

What is the highest level of education you have achieved?

- High School or less
- Some College
- College Degree
- Graduate Degree

If you are a university student, please answer the following questions. If not, this is the end of the survey, thank you for your participation.

What is your class rank?

- Freshman
- Sophomore
- Junior
- Senior
- Graduate

What is your major? Please do not abbreviate

What was your parent's total household income, before taxes, in 2006?

- Less than \$10,000
- \$10,000 - \$24,999
- \$25,000 - \$34,999
- \$35,000 - \$49,999
- \$50,000 - \$74,999
- \$75,000 - \$99,999
- \$100,000 - \$149,999
- \$150,000 - \$199,999
- \$200,000 or more
- Don't know

Your efforts in completing this survey are greatly appreciated!



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## **BIOGRAPHICAL SKETCH**

Erin Drake is a native of Atlanta, Georgia and an alumna of the University of Georgia where she received her Bachelor of Science degree in Psychology, May 1999. After taking a year long break from school as a sales representative for a theatrical drapery manufacturer, Erin decided to take her new found skill for and love of fabrics and build upon these by returning to school. In 2001, Erin returned to school at the University of Georgia, this time in the Merchandising program. The next two years for her were very exciting, and after graduation she worked as an assistant manager in an upscale dress boutique. During that time she was also given the opportunity to teach at a local community college as an adjunct professor where she taught several classes related to textiles and fashion merchandising. It was after the teaching experience she decided to return again to school to pursue her doctorate degree in merchandising at Florida State University. During her time at Florida State she has experienced tremendous academic and personal growth.