

THE EFFECTS OF CONSUMERS' ONLINE SHOPPING GOALS AND THEIR  
CHARACTERISTICS ON PERCEIVED INTERACTIVITY AND SHOPPING  
BEHAVIORS

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by  
PIN-WUAN LIN

Dr. Jana Hawley, Thesis Supervisor

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The undersigned, appointed by the Dean of the Graduate School, have examined the thesis entitled.

THE EFFECTS OF CONSUMERS' ONLINE SHOPPING GOALS AND THEIR CHARACTERISTICS ON PERCEIVED INTERACTIVITY AND SHOPPING BEHAVIORS

Presented by Pin-Wuan Lin

A candidate for the degree of Master of Science

And hereby certify that in their opinion it is worthy of acceptance.

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Professor Jana Hawley

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Professor Ge Xiao

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Professor Youlong Zhuang

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Professor Alexander Waigandt

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ABSTRACT

To ensure online success, it is important for online apparel retailers to understand their targeted customers. Consumers perceived different levels of interactivity from the website, which may influence their online shopping behaviors. The purpose of this study is to examine how consumers' characteristics and their shopping goals influence their perceptions on interactivity of the website; further, the relationship between consumers' perceived interactivity and behaviors was investigated.

A questionnaire was developed from prior literature and some existing measures and was given to 82 college female students from a variety of majors at the University of Missouri-Columbia. ANOVA and correlations analysis were used to test the hypothesis. The results supported the positive relationship between the levels of perceived interactivity, purchasing intentions, revising intentions, and attitudes toward the website as previous studies. What is more, the results of this study indicated that consumers

who have different personality perceived different levels of interactivity from Adidas's *My Virtual Model* website. This study also implies that consumers who tend to be utilitarians may have higher purchasing intentions, revisiting intentions, and positive attitudes toward Adidas' *My Virtual Model* website because they perceived higher interactivity than consumers who tend to be hedonists.

Based on the results of this research, online apparel retailers can discover the most efficient way to engage their customers' interests and to attract them to visit the websites and most importantly, to increase online sales. Future research is mainly directed to improve the research tools and to explore more factors influencing the perceived interactivity.

## TABLE OF CONTENTS

ACKNOWLEDGEMENT-----	ii
ABSTRACT-----	iii
LIST OF TABLES-----	vii
LIST OF FIGURES-----	viii
CHAPTER	
I. INTRODUCTION-----	1
Delimitations-----	6
Definitions-----	7
II. LITERATURE REVIEW-----	9
Interactivity-----	9
Consumers' Behaviors in Online Apparel Shopping-----	13
Consumer Characteristics-----	16
III. Methods-----	28
Sample-----	28
Stimulus-----	29
Research Design-----	32
Pilot Test and Pretest-----	34
Procedures-----	36
Instrument-----	38
The Use of Human Subjects in Research-----	48
Data Analysis-----	48
IV. RESULTS-----	51
Description of Samples-----	53
Instrument Reliability-----	55
Test of Hypotheses-----	56

V. DISCUSSION AND IMPLICATIONS-----	72
Summary of Results-----	73
Discussion-----	76
Implications of Findings-----	79
Limitations of the Study-----	81
Suggestions for Future Research-----	81
Conclusion-----	82
APPENDIX	
1. Letter of Consent-----	84
2. General Instructions-----	85
3. Instrument (Section 1)-----	86
4. Instrument (Section 2)-----	89
5. Permission to Recruit Subjects-----	92
6. Measurement Converting Table-----	93
7. The Most Recent IRB Approval-----	94
REFERENCE LIST-----	95
VITA-----	99

## LIST OF TABLES

Table	Page
2.1 The Differences between Utilitarian and Hedonic Consumers -----	19
2.2 The Difference of Purchasers, Browsers/non-purchasers -----	22
2.3 Independent Variables and Dependent Variables -----	26
3.1 Data analysis test for each hypothesis-----	50
4.1 Characteristics of the Participants -----	54
4.2 Reliability of variables -----	55
4.3 Descriptive Statistics-----	57
4.4 One-sample Kolmogorov-Smirnov Test -----	57
4.5 Result of ANOVA Test Independent variables and Dependent variables -	60
5.1 Hypotheses Tests -----	75

## LIST OF FIGURES

Figure	Page
2.1 The Framework of Online Consumer Behaviors -----	15
2.2 The Proposed Model of Research-----	27
3.1 Adidas' <i>My Virtual Model</i> Website -----	31
4.1 Interaction Plot -----	70

## **CHAPTER 1**

### **INTRODUCTION**

Online apparel sales continue to grow with the proliferation of e-commerce websites and consumers' acceptance of online shopping. Most analysts predict that sales of online clothing will rise from US\$8.3 billion to US\$14.6 billion between 2003 and 2007 (Nantel, 2004). In an annual report published by Shop.org in conjunction with Forrester Research, online apparel sales increased 24 percent in 2003-2004; growth through 2005 is projected to achieve another 22 percent (Burns, 2005). Land's End, a leading apparel retailer, made more profit by online operations than by its 38-year catalog operations (Siddiqui, O'Malley, McColl, & Birtwistle, 2003). Another successful apparel retailer, Gap, Inc., produced more sales volume on its website than the bricks and mortar stores (Siddiqui et al., 2003). E-commerce websites provide consumers cost savings, convenience, a way to easily search for information, and a 24-hours a day, 7-days a week service (Siddiqui et al., 2003). Along with these benefits, the online apparel niche market has a great deal of earning potential and has proved to be profitable for many businesses.

However, there are still some problems, which are mainly caused by the inability of providing real shopping experiences for the customers by the websites. Although

more convenient, online apparel websites do not offer a real try-on experience, interactive communication, and personalized services for their customers. Therefore, customers often have negative experiences in online clothing shopping, as they receive merchandise that is a poor fit, different looking from what is on the website, or unpleasant touch while wearing the items (Siddiqui et al., 2003). Moreover, Siddiqui et al. (2003) found that customers are disappointed by the low levels of interactivity of the websites while shopping online, and they are looking for a particular experience that is engaging and memorable.

As online apparel sales keep growing, it becomes more important for online apparel retailers to improve their services or websites to ensure online success. In order to solve those problems that cause consumers' hesitancy of online apparel shopping, some e-commerce businesses have introduced a virtual reality function that allows consumers to interact and control their own personalized body and clothes through a virtual experience. They can see a combination of the clothes and how the clothes fit to their particular body types. Moreover, virtual reality provides an entertaining and vivid experience to consumers. Therefore, the hesitancy caused by not giving enough related information that consumers need, fitting issues, and dissatisfaction with purchases can be reduced (Siddiqui et al., 2003).

There were several websites for apparel brands offering image interactivity

functions such as Delia's, Guess, Kenneth Cole, Lane Bryant, Eddie Bauer, etc. (Fiore & Jin, 2003; Siddiqui et al., 2003). However, early implementations of interactivity functions on these websites have been removed. This phenomenon indicates that these interactive functions might not be effective or meaningful to consumers. These websites, in fact, provided actual interactivity to consumers. However, the consumers perceived interactivity differently than what was actually provided by the website. There may be other factors influencing how consumers perceive interactivity, and these factors might be the main reasons that interactive functions were not effective or meaningful to consumers. Previous studies have suggested that perceived interactivity is an important mediator between the actual interactivity of the websites and consumers' online shopping behaviors (Wu, 2005). The investigation of perceived interactivity may reveal factors influencing the value of virtual reality implementation to consumers. The present study focus on the perceived interactivity, not actual interactivity, to understand the value of interactivity from virtual reality to consumers in online apparel shopping environments.

Previous studies have found that consumers' goals, such as goal-oriented and experiential-oriented, influence their online shopping behaviors (Ha & Stoel, 2004; Schlosser, 2003). Moreover, consumers' characteristics such as the experience they pursue, past online experiences, and how innovative they are in online shopping have

also been found to influence consumers' online shopping behaviors (Goldsmith & Flynn, 2004; Wolfinbarger & Gilly, 2001; Cheung, Zhu, Kwong, Chan, & Limayem, 2003). Therefore, it can be assumed that those factors also influence the perceived interactivity. However, little research discusses whether consumers who have different goals and their personal characteristics may perceive different levels of interactivity. Therefore, the present study examined how consumers' characteristics and their shopping goals influence their perceptions of interactivity from online apparel shopping environments. Eighty-two (82) students at the University of Missouri-Columbia were recruited to answer survey before and after they browsed Adidas' *My Virtual Model* website. They answers the questions asking their past experience, innovativeness in online shipping and personalities before they browse the website and answered the questions asking the interactivity they perceived, attitudes toward the website, purchasing intentions, and revisiting intentions after they browsed the website.

Currently, My Virtual Model, Inc., a Canadian company, which provides 3-D image virtual reality, is one of the leading companies providing a personalized virtual model for online apparel selling websites. *My Virtual Model* is used in association with several different products such as apparel, shoes, home décor, fashion magazines and games. There are some apparel companies using *My Virtual Model*; for instance,

Sears, L.L. Bean, Land's End, Adidas, H&M, and Speedo. *My Virtual Model* allows the customer to create a personalized model by selecting his or her personal body size, facial features, hair color, hair style and it can be rotated to view different angles.

The model combines with the company's catalog so the product items can be chosen and applied to the 3-D model to see the visual assortments. Another website belonging to GAP, Inc., [watchmechange.com](http://watchmechange.com), has a 3-D virtual model which can also be personalized for specific facial, hair, and body features. This website provides more realistic animation and entertainment by illustrating how wearing Gap's apparel, will change to a "brand-new" style. Comparing to Gap's virtual model that focuses on entertainment, *My Virtual Model (MVM)* is sales, and function, and entertainment oriented. *My Virtual Model* offers full functions of actual interactivity to consumers.

Consumers can interact with the actual products and see the combinations of each item on the website. Furthermore, it not only provides goal-oriented consumers with needed information aiding their purchasing decisions, but also offers the experiential consumer a stimulating experience (Fiore & Jin, 2003). Therefore, *My Virtual Model* can be a good tool to compare the levels of interactivity consumers perceived across different characteristics and different goals they have.

Using the *My Virtual Model* as a medium that provides interactivity, the present study examined whether consumer characteristics and goals together influenced

perceived interactivity, which, in turn, affected that attitude toward the website, purchasing intentions, or revisiting intentions.

Results of this study will be useful to online apparel retailers as well as researchers because it will help them better understand how consumers' perceived interactivity may mediate the effects of actual interactivity of a website on consumers' behaviors such as purchasing and revisiting intentions and attitudes toward a website; moreover, the study explored the factors that influenced perceived interactivity. What is more, it was expected that researchers would be able to use this study as a foundation for future research that examines other factors influencing perceived interactivity. Also, online apparel retailers can understand their customers' needs by this research. They can find out the most efficient way to engage their consumers' interests and participation in order to attract them, satisfy them, and retain them and most importantly, to ensure online success (Teo & Tan, 2002).

### **Delimitations**

In order to generalize the results to the general population of Internet users, college students from a variety of majors at University of Missouri-Columbia were recruited for this research. Moreover, in order to focus on investigating online consumer behaviors and obtain significant results, female English speaking consumers were selected for data analysis.

## **Definitions**

### *Online shopping behaviors*

Online shopping behavior encompasses the acts of browsing, comparing, evaluating, decision making and purchasing (Lim & Dubinsky, 2004).

### *Online purchasing behaviors*

Online purchasing behaviors are the acts in which consumers actually pay for goods over the Internet (Ha & Stoel, 2004).

### *Attitudes*

Attitudes mean psychological tendencies that are expressed by evaluating a particular entity with some degrees of favor or disfavor (Lim & Dubinsky, 2004).

### *Experiential behaviors*

Experiential behaviors are those that people have when they look for interesting and entertaining experiences; to have fun and to be immersed in the experience rather than to achieve goals of shopping online (Wolfinbarger & Gilly, 2001).

### *Goal-oriented behaviors*

Goal-oriented behaviors are those that people have when they look for task-oriented, efficient, rational, and deliberate online shopping (Wolfinbarger & Gilly, 2001).

### *Interactivity*

Interactivity means the capability of new communications systems (usually containing

a computer as one component) to “talk back” to the user, almost like an individual participating in a conversation (Rogers, 1986).

*Actual interactivity*

Actual interactivity is defined by features of a medium, capabilities of creating interactive content, messages, and potential for interactions in general (Wu, 2005).

*Perceived interactivity*

Perceived interactivity of websites by site-visitors is defined as a psychological state experienced by a site-visitor during the interaction process (Wu, 2005).

## **CHAPTER 2**

### **LITERATURE REVIEW**

The reasons why some of the early implementations of interactivity functions were not effective or were not meaningful to consumers are explored in this study. It is assumed that the factors that caused the ineffective implementations of interactivity functions are related to the different levels of interactivity consumers perceived. Moreover, according to previous studies, consumers' characteristics and goals have been found to influence consumers' behaviors such as purchasing and revisiting intentions and attitudes toward a website (Wu, 2005; Wolfinbarger & Gilly, 2001). Perceived interactivity has been shown to be a mediator between the actual interactivity of the website and consumers' behaviors (Wu, 2005); therefore, it is assumed that the consumers' characteristics and their goals may influence the mediation of perceived interactivity. In order to explore the mediation of perceived interactivity, (1) interactivity, (2) consumer behavior in online apparel shopping; and (3) consumers' characteristics were discussed.

#### **Interactivity**

The interactivity of a website is one of the medium's characteristics that significantly influence consumers' behaviors. Interactivity means "the capability of new communications systems (usually containing a computer as one component) to

‘talk back’ to the user, almost like an individual participating in a conversation”

(Rogers, 1986, p.4). Recent definitions of the interactivity of websites have placed an emphasis on communication, user activated control, time, two-way communications, synchronicity, connection quality, usability, website design, maneuverability and waiting time-- all of which influence the quality of interactivity (Chen & Chang, 2003; Ballantine, 2005). There are two main types of interactivity: actual interactivity and perceived interactivity.

#### *Actual interactivity*

One definition of actual interactivity is “focusing on the features of a medium or capabilities of creating interactive content or messages or potential for interaction in general” (Wu, 2005, p.47). Virtual reality provides actual interactivity by email hot-links, JavaScript-enabled mouse-over effects, searchable pull-down menus, product images, and dynamic creation of content (Wu, 2005). Virtual reality increases actual interactivity by providing an active cognitive process (control), enjoyment (entertainment), vivid experience, and involvement to consumers (Li, Daugherty, & Biocca, 2002). For online apparel shopping, the 3-D virtual reality model is an excellent tool for incorporating actual interactivity. It offers customers an active way to have control by being able to select products, develop the body form, evaluate the visual assortment, and investigate products’ level of match or appearance

on their body. Moreover, consumers can interact with the images by changing the colors of the apparel, and viewing the products in different angles or distances. The 3D virtual reality model offers more direct personalized information about the apparel such as how well the clothes fit and match, so consumers can be more involved in the buying experience. Further, the 3-D virtual reality model provides vivid images and it is entertaining and creative. In addition, it has been proved that consumers are more likely to use this model for Internet shopping because the interactivity functions from the 3-D virtual reality model and provides consumers with greater control over what to view (Joines, Scherer, & Scheufele, 2003).

#### *Perceived interactivity*

Site-visitors' perceived interactivity of a website is defined as "a psychological state experienced by a site-visitor during the interaction process" (Wu, 2005, p.48).

Perceived interactivity can be manifested in three dimensions. First, "consumers can perceive control over the site navigation, the pace or rhythm of the interaction, and the content being accessed. Second, consumers can perceive responsiveness from the site-owner, from the navigation cues and signs, and the persons online. Third, consumers can perceive personalization of the site with regard to acting as if it were a person, acting as if the website wants to know the site visitor, and acting as if it understands the site visitor" (Wu, 2005, p.48).

Perceived interactivity is the mediator between the actual interactivity and consumers' attitudes toward a website (Wu, 2005). Customers' perceptions of actual interactivity might vary while the situations, their characteristics, or other factors may influence the process where consumers perceive interactivity. Therefore, perceived interactivity is an important input into the decision process. Wu (2005) summarized 14 studies about interactivity and divided them into two groups. Seven studies analyzed interactivity as actual interactivity and investigated the interaction between the stimulus or medium and the actual interactivity. The other seven studies defined interactivity as perceived interactivity and measured the interactivity by using an itemized scale. However, Wu (2005) emphasized that "the current literature on interactivity's effects and the definition of actual and perceived interactivity seems to be inconsistent and confusing" (p.54). In order to research consumers' behaviors during online shopping, researching the perceived interactivity and retesting the perceived interactivity are valuable (Wu, 2005).

The process of consumers' decision-making in online purchasing relates to the experiences and satisfaction they perceived while shopping. Consumers tend to seek experiences that involve presence, involvement, enjoyment, affordability, control and vividness from the websites (Li, Daugherty, & Biocca, 2001). The more presence, involvement, enjoyment, affordability, control and vividness consumers perceive, the

higher satisfaction consumers will have (Li, et al., 2001). Once they are satisfied with their experience, they will have greater intentions to purchase (Li, et al., 2001). The interactivity function of a 3-D virtual reality model enhances the experiences consumers perceive because it provides more control and involvement while consumers interact with the website. Also, it offers an entertaining experience and vivid images to consumers (Li et al., 2001). It has been found that a 3-D virtual reality model that contains actual interactivity led to more favorable brand attitudes, heightened product knowledge, enhanced attitudes toward the website, purchasing and revisiting intentions (Li et al., 2002; Fiore & Jin, 2003). Moreover, several researchers found that perceived interactivity has effects on consumers' attitudes toward the website and purchasing intentions (Wu, 1999; Huang & McMillian, 2002; Schlosser, 2003). Therefore, if the 3-D virtual reality model yields higher perceived interactivity, the following hypotheses should be true:

H<sub>1</sub>: The higher levels of interactivity consumers perceive from the 3-Dimensional virtual reality (*My Virtual Model*), the greater the positive attitudes toward the website, the revisiting intentions, and the purchasing intentions they will have.

### **Consumers' behaviors in online apparel shopping**

Online shopping behaviors include browsing, comparing, evaluating, and decision-making (Lim & Dubinsky, 2004). Before purchasing, consumers may

search for information about apparel on the website. Information about apparel includes apparel's price, size, color, texture, and laundry instructions which are crucial for online apparel shoppers (Ha & Stoel, 2004). When consumers have enough information about the apparel, they will make a decision whether to purchase the apparel (Ha & Stoel, 2004). *My Virtual Model*, an online apparel 3-D virtual reality function, offers information consumers need in an efficient and creative way. Consumers can personalize their own model, simulate the trying on experience, see virtual assortments and get interactive suggestions. This information is crucial for consumers during the pre-purchase process (Chen & Chang, 2003).

Cheung et al. (2003) suggested the five main factors influencing consumers' online purchasing intentions and adoptions. They are the consumer's individual characteristics, the medium's characteristics, product/service characteristics, environmental influences, and merchant and intermediary characteristics. These factors not only have some effects on purchasing intentions and actual purchases, but may also affect the ways consumers interact with the website (Cheung et al., 2003) (See Figure 2.1). Moreover, as mentioned above, the levels of perceived interactivity may be the important mediator between the actual interactivity and consumers' behaviors. And, those factors influencing consumers' online purchasing intentions and actual purchases might also influence the mediation of perceived

interactivity. Therefore, those factors need to be discussed. This research will focus on studying one of those factors – consumers’ characteristics.

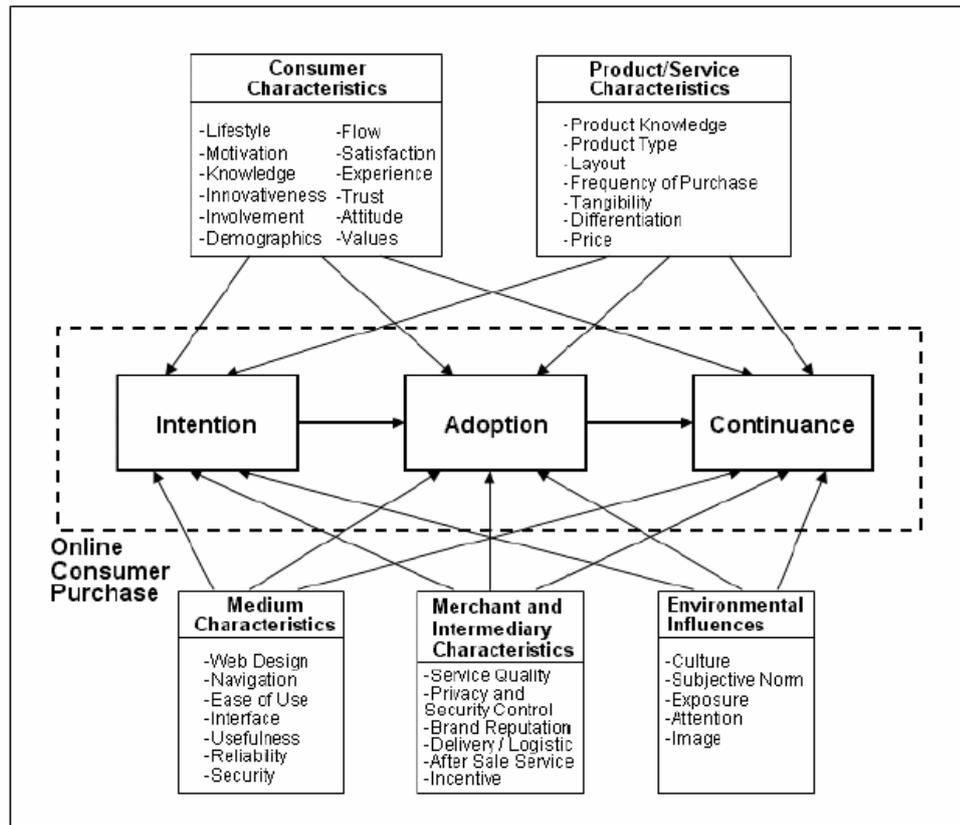


Figure 2.1 The Framework of Online Consumer Behaviors

From Online consumer behavior: a review and agenda for future research, 16th Bled eCommerce Conference, Bled Slovenia by Cheung, C.M.K., Zhu, L., Kwong, T., Chan, G.W.W. & Limayem, M., 2003, June, p.201

## **Consumer characteristics**

To create effective interactions between websites and the consumers is the main concern of every e-commerce company to ensure online success. In order to create effective interactions, understanding consumers' needs and the factors influencing their behaviors when shopping online should be the most important objectives.

Consumers' characteristics are one of the main factors affecting consumers' behaviors.

Consumers may interact with websites in different ways and may get different perceptions because of their distinct characteristics, which were found to be affecting their purchasing intentions (Cheung et al., 2003). Therefore, consumers' characteristics are important and need to be discussed. Consumers' characteristics including their personalities, past online experiences, and how innovative they are when they shop online (Cheung et al., 2003) will be addressed in the following sections.

### *Personalities*

Consumers have different personalities, which may influence what and how they perceive their online shopping behaviors (Wolfenbarger & Gilly, 2001). Consumers' personalities that lead to different shopping behaviors can be classified in two main aspects: utilitarian or hedonic personalities.

### *Utilitarian personality*

Consumers who are utilitarians have goal-oriented shopping behaviors.

Utilitarian shoppers shop online based on rational necessity which is related to a specific goal (Kim & Shim, 2002). They look for task-oriented, efficient, rational, and deliberate online shopping rather than an entertaining experience (Wolfenbarger & Gilly, 2001). Their main concern in online shopping is to purchase products in an efficient and timely way to achieve their goals with minimum irritation (Monuwe, Dellaert, & Ruyter, 2004). In addition, utilitarian shoppers' perceived experiences depend on the instrumental characteristics that help them achieve their tasks efficiently (Sorace, Perotti, & Widrick, 2005). They were more satisfied when websites were more convenient, easily accessible, had a more variety of selection, availability of information, and more freedom and control. (Wolfenbarger & Gilly, 2001).

### *Hedonic personality*

Consumers who are hedonists have experiential shopping behaviors. Hedonists not only gather information to shop online but also seek fun, fantasy, arousal, sensory stimulation, and enjoyable experiences (Monuwe, Dellaert, & Ruyter, 2004). These experiential shoppers want to be immersed in the experience rather than to achieve their goals by shopping online (Wolfenbarger & Gilly, 2001). Their perceived

experiences also depend on the medium characteristics that induce enjoyable experiences (Sorce et al., 2005). Hedonists received more satisfaction when websites were more playful, surprising, unique, and exciting. Generally speaking, when hedonists are satisfied, the possibility of impulse purchases and the frequency of visiting the website will increase (Wolfenbarger & Gilly, 2001).

*Differences between experiential (hedonic consumers) and goal-oriented (utilitarian consumers) behaviors*

Hedonic and utilitarian consumers approach and interact with websites differently because of their different personalities and motivations. They do not weigh the importance of the website in the same way. Utilitarian consumers are goal-oriented and are more driven by instrumental factors such as the accessibility, convenience, selection, and information availability of the website. Utilitarian consumers focus on the control and freedom they could perceive while hedonic consumers are experiential and are more motivated by fun and surprising experiences (Wolfenbarger & Gilly, 2001; Sanchez-Franco & Roldan, 2005). Their differences are summarized in Table 2.1.

Table 2.1 The Differences between Utilitarian and Hedonic Consumers

<b>Utilitarian</b>	<b>Hedonic</b>
Extrinsic Motivation	Intrinsic Motivation
Instrumental orientation	Ritualized orientation
Situational Involvement	Enduring involvement
Utilitarian benefits/value	Hedonic benefits/value
Directed (prepurchase search)	Nondirected (ongoing) search; browsing
Goal-oriented choice	Navigational (experiential) choice
Cognitive	Affective
Work	Fun
Planned purchases; repurchasing	Compulsive shopping; impulse buys

(Sanchez-Franco & Roldan, 2005)

Wolfenbarger and Gilly (2001) reported that 71% of shoppers were goal-oriented and had previously planned their most recent online purchase, and 29% of shoppers were experiential and had been browsing when they made a purchase. Therefore, online shopping is more likely to be goal-oriented rather than experiential. However, experiential browsing behavior is desirable because it is associated with increased impulse purchases and more frequent visits (Wolfenbarger & Gilly, 2001). Moreover, younger web surfers have large potential to become consumers who tend to pursue experiential benefits (Wolfenbarger & Gilly, 2001). Even though experiential browsers are not the majority, the E-commerce websites still need to attach importance to them.

The interactivity functions of *My Virtual Model* may satisfy both hedonic and utilitarian consumers' needs. Interactivity functions provide a great deal of

information and offers control to the utilitarians. For example, utilitarians can personalize their own models, see the virtual assortments, and investigate how well products fit and matches with their body. On the other hand, hedonic consumers can perceive interactive and vivid images and entertaining experiences by creating their personalized model and by playing with the colors and body selections of that model (Sorce et al., 2005).

Research has shown that the ways consumers interact with a website are different because of their personality (Wolfenbarger & Gilly, 2001; Sanchez-Franco & Roldan, 2005; Sorce et al., 2005; Monsuwe et al, 2004). Hedonists pursue more enjoyable experiences and more immersion in virtual experiences than utilitarians. On the contrary, utilitarians pursue satisfaction of their goals and search for control to achieve these goals. Therefore, it is assumed that utilitarians and hedonists may have different perceptions of the interactivity from *My Virtual Model*. Thus, this study suggests the following hypotheses:

H<sub>2</sub>: Consumers who are hedonists and who are utilitarians perceive different levels of interactivity depending on how much control they have and on how much enjoyment they experience by using *My Virtual Model*.

*Innovativeness and past experience of online shopping*

Goldsmith and Flynn (2004) reported that “online apparel purchasers could not be distinguished from non-purchasers by their demographics, but they were not more innovative toward clothing and fashions than the non-purchasers. Online apparel purchasers, however, did use the Internet more and were more innovative toward using the Internet than non-purchasers were” (p.86). Consumers who are more innovative when they use the Internet are more likely to buy apparel online than those who are less innovative. The differences between purchasers and non-purchasers in terms of innovativeness of using the Internet and past online experiences are summarized in Table 2.2. This study implied that the innovativeness of consumers while shopping online and past online experiences might influence their future purchasing intentions. Little research has been done to find whether consumers who are more innovative when they shop online and have more online experiences may perceive higher levels of interactivity. Therefore, this study suggests the following hypotheses:

H<sub>3</sub>: Consumers who have past online experiences perceive higher levels of interactivity from *My Virtual Model* than those who have less past online experiences.

H<sub>4</sub>: Consumers who are innovative when they shop online perceive higher levels of

interactivity from *My Virtual Model* than who are less innovative when they shop online.

Table 2.2 The Difference of Purchasers, Browsers/non-purchasers

	<b>Innovativeness of using Internet</b>	<b>Past online experience</b>
<b>Purchaser</b>	Higher	Higher
<b>Browser/non-purchaser</b>	Lower	Lower

*Goals*

Consumers may have different goals when they shop online. Some consumers may have the goal to purchase online (purchasers), but some consumers may not have the goal to purchase online (browsers and searchers). They may only want to search for the information they need on the website. This kind of consumer is called a “searcher”, one who is goal-oriented to search for information online in an efficient way so as to fulfill their goals. “Searchers” searching process reflects a purposive and task-specific behavior, such as pre-purchase deliberation (Ha & Stoel, 2004), and their intentions of searching for information online can predict their purchasing intentions (Ha & Stoel, 2004). Another kind of consumers is called a “browser”, who is experiential and try to find an entertaining experience rather than information (Schlosser, 2003). Once searchers and browsers are satisfied by the experiences they perceive, they may become purchasers. Purchasers, browsers, and searchers may have different online shopping behaviors toward a website and have different

perceptions of relative advantages in online shopping because of the different goals they pursue (Ha & Stoel, 2004). For example, browsers perceived greater interactivity from vivid mental images than searchers (Schlosser, 2003). Therefore, it is likely consumers who have different goals may perceive interactivity from *My Virtual Model* differently. Furthermore, *My Virtual Model* has the ability not only to meet the needs of the searchers by providing the fitting simulation and visual assortments, but also to offer browsers personalized vivid and interactive images and fun experiences. Thus, the following hypotheses are suggested:

H<sub>5</sub>: Consumers who have different goals perceive different levels of interactivity from *My Virtual Model*.

H<sub>5.1</sub>: Consumers who are goal-oriented perceive different levels of interactivity from *My Virtual Model* than consumers who are experiential.

Previous studies examined the relationships between consumers' goals, perceptions, attitudes, and purchasing intentions by manipulating goals as an independent variable. The ways the authors manipulated vary. Schlosser (2003) manipulated the goals to test consumers' attitudes and the object interactivity they perceived. Two different situations were assigned to participants: those participants assigned to search were instructed to go to the site with "the goal of efficiently finding something specific on Kodak's site". Other participants assigned to browse were

instructed to “have fun, looking at whatever you consider interesting and/or entertaining”. On the contrary, Sanchez-Franco and Roldan (2005) did not manipulate the goals. They classified the participants into two groups by using the following measures: “I usually have a distinct or identifiable purpose for my browsing (goal-oriented behavior)” and “I usually surf or have no preconceived purpose for my web experience (experiential behavior)”. In this research, in order to investigate the effects of goals on perceived interactivity and consumers’ behaviors, Schlosser’s manipulation of goals and Sanchez-Franco and Roldan’s measures were used.

Consumers may perceive different levels of interactivity from the same website which provides the same amount of actual interactivity (Liu, 2003). Different levels of interactivity consumers perceived may result from some other factors such as consumers’ characteristics and their goals of shopping online. The interactions between goals and consumers’ characteristics (personalities, innovativeness of online shopping, past online experiences) may also have effects on perceived interactivity.

The following hypotheses are suggested:

H<sub>6</sub>: The effects of consumers’ personalities on the levels of perceived interactivity are different across the two groups which have different goals (goal-oriented vs. experiential behaviors).

H<sub>7</sub>: The effects of consumers’ innovativeness in online shopping on the levels of

perceived interactivity are different across the two groups which have different goals (goal-oriented vs. experiential behavior).

H<sub>8</sub>: The effects of consumers' past online experiences on the levels of perceived interactivity are different across the two groups which have different goals (goal-oriented vs. experiential behaviors).

Based on the previous studies, the researcher gives the hypotheses direction:

H<sub>6.1</sub>: Consumers who are classified as utilitarian and goal-oriented perceived higher levels of interactivity from *My Virtual Model* than other groups of consumers.

H<sub>7.1</sub>: Consumers who are more innovative in online shopping and are goal-oriented perceive higher levels of interactivity from *My Virtual Model* than other groups of consumers.

H<sub>8.1</sub>: Consumers who have more past online experiences and are goal-oriented perceive higher levels of interactivity from *My Virtual Model* than other groups of consumers.

The independent variables and dependent variables of this study are described in Table 2.3.

Table 2.3 Independent Variables and Dependent Variables

	Independent variables	Dependent variables	Purpose
H1	The levels of perceived interactivity	Purchasing intentions Revisiting intentions Attitudes toward the website	Explore the effects of consumers' perceived interactivity on their purchasing intentions, revisiting intentions, attitudes toward the website.
H2	Personality tendency (Utilitarian vs. Hedonist )	The levels of perceived interactivity	Explore the effects of consumer characteristics and goals on their perceived interactivity
H3	Past online purchasing experiences Past online information searching experience	The levels of perceived interactivity	
H4	Innovativeness in online shopping	The levels of perceived interactivity	
H5	Goals (goal-oriented vs. experiential behavior)	The levels of perceived interactivity	
H6	Goals+ personalities	The levels of perceived interactivity	Investigate the interactions
H7	Goals+past online purchasing experiences		
H8	Goals+past online info searching experiences Goals+innovativeness in online shopping		

Based on the literature review, the researcher structured the proposed model in Figure 2.2. She examined the effects of consumer characteristics and goals as independent variables on consumer perceived interactivity and the effects of perceived interactivity on purchasing intentions, revisiting intentions, and attitudes

toward the website. In addition, Adidas' My Virtual Model website was used as stimulus.

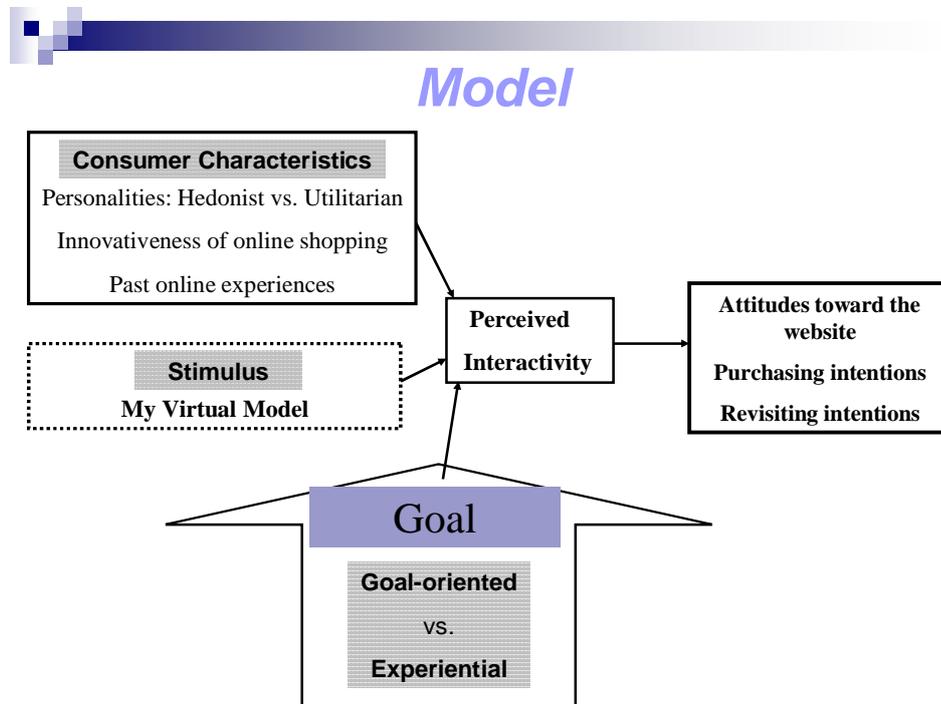


Figure 2.2 The Proposed Model of Research

## **CHAPTER 3**

### **METHODS**

This chapter includes a description of sample, stimulus, research design (experimental design and hypotheses test design), pilot test, pretest sample, procedures, and the development of the questionnaire. Data collection methods and statistical tests are discussed.

#### **Sample**

College students with a variety of majors at the University of Missouri-Columbia were recruited for this research. College students are usually the earliest adopters of new products and concepts (Lim & Dubinsky, 2004). Moreover, they spend more than 20 hours per week on the Internet, and 81 percent of them have made purchases online (Lim & Dubinsky, 2004). College students are great potential customers and they should be the primary focus for many online businesses who desire long-term success. However, in order to focus on comparing online consumer behaviors and acquire significant results, female English speaking students are selected to answer the questionnaire.

There are two reasons for selecting female English speaking students: first, female consumers make up the majority of online shoppers because they often have greater spending power and enthusiasm for the shopping experiences (Siddiqui et al.,

2003). Even though male consumers are also important for online shopping, most of them spend less time than female customers. Moreover, nearly all females have greater interest in purchasing clothing. Therefore, females' online apparel shopping behaviors and the interactivity they perceive are necessary to be investigated.

Second, although non-native English speakers are also important potential customers, this research involves some semantic measures and in order to reduce the misunderstanding of the questions on the survey, female English speaking students from a variety of majors at the University of Missouri-Columbia were selected.

Participants included undergraduate and graduate students and were randomly selected. In order to obtain enough statistical power, the researcher used the information that is similar to the previous study's information to calculate the power by a statistical software (G\*power) (Erdfelder, Faul, & Buchner, 1996). At least thirty-six participants can obtain enough power (power=.95; alpha=.05; effective size=.67). However, in order to expand the sample size to obtain reliable results, eighty-two participants were recruited.

### **Stimulus**

To test the levels of the perceived interactivity, a website that provides a strong actual interactivity for online apparel shoppers, is necessary. Currently, My Virtual Model, Inc. is one of the leading companies providing a personalized virtual model

for E-commerce apparel websites. There are some apparel websites which utilize *My Virtual Model* for women's clothing; for instance, Sears, L.L. Bean, Land's End, Adidas, Speedo, and H&M. H&M and Speedo only provide swimwear and jeans selections for the *My Virtual Model* function. Therefore, Speedo and H&M are not suited for this research because this research needs a full-functional virtual reality system to test consumers' behaviors. The Adidas' website displays a variety of products that can be applied to *My Virtual Model*. *My Virtual Model* allows consumers to create personalized models by selecting their personal sizes, skin colors, hair styles and colors, eye, lips, nose shapes, and weight and maturity. The model can be zoomed in and out, rotated to view different angles and combined with the catalog, which can be chosen and applied on the 3-D virtual model to see the visual assortments. Customers can have their own account to record their personal information, selection, preference and email their model to other people. Moreover, no price information is provided for any product on Adidas' website; as a result, consumers' behaviors will not be influenced by the prices of the products. Adidas' products are accepted by a wide range of consumers; however, the bias, that consumers' perceived interactivity might be influenced by their preferences, can be minimized. Therefore, this study used *My Virtual Model* on Adidas' website, <http://adidas.mvm.com>, as a stimulus.

The layout of the Adidas' website consists of the model on the left side, the clothing catalog on the right, a thumbnail of each item and the customer's choices are shown in the middle (see Figure 3.1). There are some tabs customers can choose on top of the website: personalize, search by sport, search by product type, and my closet. Under the model, there are four options which allow customers to interact with the model: rotate, zoom, create my model, and email my model. Under the thumbnail of each item consumers choose, consumers can press the buttons to take out the whole outfit or remove the selected items.

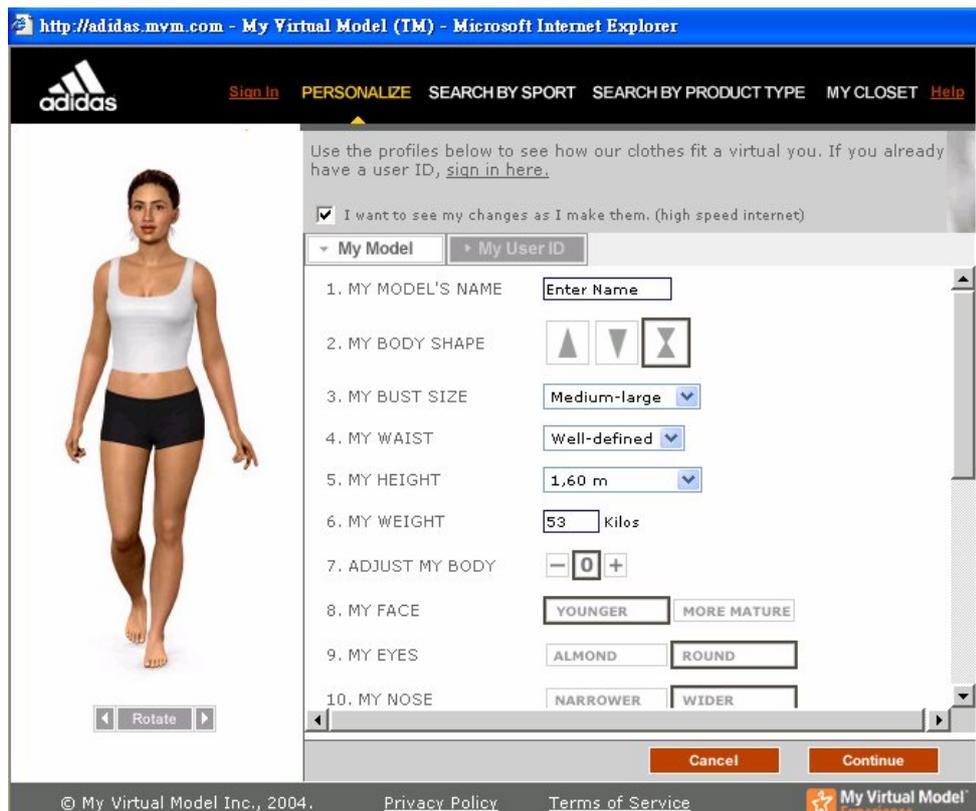


Figure 3.1 Adidas' *My Virtual Model* Website

## Research design

### *Experimental design*

The experiment was conducted in order to examine the effects of consumers' goals of online shopping on the interactivity they perceived from *My Virtual Model* and the interactions between consumers' goals of online shopping and their characteristics (personalities, past online experiences, innovativeness of online shopping) was investigated.

The experiment used a between-subject design. The goal was manipulated by following Schlosser's (2003) approach: Group A was given a goal-oriented situation. The participants were instructed to go to the website with "the goal of efficiently finding Adidas' products such as clothing and accessories on its website". Group B was given an experiential situation. The participants were instructed to "have fun looking at whatever you consider interesting and/or entertaining" (Schlosser, 2003). The participants were randomly assigned to one of the two groups, either Group A: goal-oriented situation (X1) or Group B: experiential situation (X2).

Group A       $R \rightarrow X1 \rightarrow O$

Group B       $R \rightarrow X2 \rightarrow O$

However, at the pretest, twenty-two participants answered the survey and Seventeen participants did not follow the situation that was given. For example,

some participants were given the experiential situation, but they had the goal when they browsed the website so they answered the manipulations check question as “yes” in the question of “I had a distinct or identifiable purpose for my browsing.” or “no” in the question of “I had no preconceived purpose for my virtual experience”. Some of the participants told the researcher that they originally did not have a goal for visiting the website, even though they were instructed to go to the website with a goal. Thus, they still did not follow the situation to answer the questionnaire. Furthermore, they thought the questions were not clear. Therefore, the researcher decided to use other questions to ask for participants’ goal instead of giving the situations.

Participants were asked one question before browsing the website: “I usually go to apparel websites just for fun” anchored by *Strongly disagree* (1) to *Strongly agree* (7).

After browsing the website, they were asked another question: “when I browse this website, I just want to have fun” anchored by *Strongly disagree* (1) to *Strongly agree* (7). The results of this particular question were summed up and divided by 82 (number of participants) to yield 5.476. This mean score (5.476) is then used as a cutoff point to divide the participants into two groups. Participants who answered 6 or 7 were categorized into experiential. On the other hand, participants who answered in the range of 1 to 5 were categorized into goal-oriented (Novak, T. P., Hoffman, D. L. & Duhachek, A., 2003).

### *Hypotheses test design*

Each participant was surveyed as to their perceived interactivity, attitudes toward the website, purchasing and revisiting intentions, personality (utilitarian tendency or hedonic tendency), innovativeness and past experience in online shopping while using *My Virtual Model* as a stimulus in order to test the hypotheses.

First, the relationships between consumer characteristics (personality tendency, past online experiences, innovativeness of online shopping) and the levels of perceived interactivity were tested. Second, the effect of goals when browsing the website on perceived interactivity was examined. Third, the relationships between the levels of perceived interactivity and purchasing and revisiting intentions and attitudes toward the website were investigated. Finally, the effects of the interactions between consumers' characteristics and goals on perceived interactivity were investigated.

### **Pilot test and Pretest**

Five graduate students and one professor in the University of Missouri-Columbia investigated the questionnaire and procedures through a pilot test. Among the five graduate students and one professor, three of them were given goal-oriented situations to find something specific through *My Virtual Model* on Adidas' website and three of them were given the experiential situation to explore anything interesting and/or

entertaining through *My Virtual Model* on Adidas' website. After 10 minutes, they started to answer the questionnaire while they were still interacting with the website. After they finished answering the survey, they offered some ideas to the researcher: first, they suggested providing a measurement converting table (Appendix 6) to participants because the measurements shown on the website were in meters and kilograms; however, people in the United States are custom to use inches and pounds. Second, they recommended adding a sentence in the instruction and the questionnaire to remind participants that this survey refers to the *My Virtual Model* portion of Adidas' website not Adidas' products. Third, they suggested minimizing the options in the ethnicity question. Fourth, they asked to reword and modify some items in the questionnaire.

Eighteen students in a management class participated in this research for pretest. Half of them were assigned the goal-oriented situation and half of them were assigned the experiential situation. The participants were given the first section of the questionnaire before browsing the website. Then, the instructions were given and participants were asked to go to the Adidas' "My Virtual Model" website and then they could start to answer the survey. However, most of the participants did not follow the situations they were given. Some participants, who were given the experiential situation, answered "yes" in the question of "I had a distinct or

identifiable purpose for my browsing.” or “no” in the question of “I had no preconceived purpose for my virtual experience”. Some of the participants told the researcher that they originally did not have a goal prior to visiting the website, even though they were instructed to go to the website with a goal, and thus they still did not follow the directions on the questionnaire. What is more, they thought the questions were confusing. Therefore, the researcher decided not to manipulate the situation; instead, participants were asked about personal goals before and after browsing the website.

### **Procedures**

Before the semester began, the researcher communicated with professors, instructors, and teaching assistants to get permission to recruit participants from his or her classes (Appendix 5). The researcher went to the class to give a brief introduction of this research and announced the incentive (the chance to win 50 dollars). A sign-up sheet was provided to obtain participants’ contact information. The researcher emailed the time and place of participating to the students who were willing to participate. The students also received a friendly reminder to ask them to come to the computer lab at the scheduled date and time.

Before the participants arrived, the researcher inspected the Internet and the *My Virtual Model* function of the website to ensure that the Internet and the *My Virtual*

Model function of the website were working properly. Upon the arrival of the participants, a copy of a written informed consent form (Appendix 1) was given to each participant and the researcher discussed the information on the consent form with the participants. After the participants signed the consent form, the researcher briefly explained the purpose and procedures of the experiment and told the participants not to talk with others when they were answering the questions in order to make sure all the participants were working independently. Then, the participants were asked to fill out a survey before browsing the website (Appendix 3) for collecting demographic and consumers' characteristics (past experiences, personality tendency and innovativeness of online shopping) information. After finishing the survey, the participants were asked to sit in front of a computer and followed the instructions (Appendix 2) which describe each of the functions in the tabs and buttons and how to go to the website. After participants read the instructions and browsing the website for about 15 minutes, another part of the questionnaire (Appendix 4), which is about perceived interactivity, attitudes toward the website, purchasing intentions, and revisiting intentions, was given to participants.

## **Instrument**

### *Questionnaire*

The questionnaire consists of two sections. The first section of the questions was given to participants before the main experiment. The questions asked participants' past experiences, innovativeness of online shopping, and their personalities. The second section was given to participants after the experiment. The questions asked about participants' goals when browsing the website, past experience of visiting this website and familiarity of the brand (Adidas), perceived interactivity, attitudes toward the website, purchasing intentions, and revisiting intentions.

A copy of the questionnaire is shown in Appendix 4.

### *Section 1: Consumers' characteristics*

#### *Past Experiences*

The researcher combined Ha and Stoel's (2004) and Goldsmith and Flynn's (2004) scales to measure frequency of the consumer to search for apparel information and to make purchases online. Further, the researcher added more questions about past experiences in online shopping, and past experiences of shopping on Adidas' website.

#### *Frequency of Internet apparel information search*

1. During the past six months, how often have you used the Internet to search information for clothing? (Never, once or twice, every few months, every month,

at least once a week)

*Frequency of Internet apparel purchasing behavior*

1. During the past six months, how often have you used the Internet to purchase clothing? (Never, once or twice, every few months, every month, at least once a week)
2. How often would you say that you purchase clothing online? (Never, rarely, sometimes, often, very often)
3. How many times have you bought clothing online since May 1, 2005? (\_\_\_times)

*Past experiences in online shopping*

1. Have you ever used the Internet to buy clothing? (yes/no)
2. Have you ever used the Internet to search for product information before purchasing clothing? (yes/no)

*Past experiences in online shopping on Adidas' website*

Changal's (2005) scale, a 2-item 7-point Likert scale anchored by *Strongly disagree*

(1) to *Strongly agree* (7), is used to test consumers' past experiences with a website.

The researcher added three more questions to ask about the past experience of purchasing Adidas' product(s) and the answer of those questions were revised to be yes or no option. The questions are as follows:

1. This site is for a brand that I am familiar with. (yes/no)

2. I have visited Adidas' website before. (yes/no)
3. I have purchased Adidas' product(s) on this website before. (yes/no)

#### *Innovativeness*

Goldsmith and Flynn (2004) and R. E. Goldsmith and E. B. Goldsmith (2002) used the 6-item 5-point Domain Specific Innovativeness (DSI) scale to measure consumer's innovativeness for shopping online (Cronbach's alpha =0.79). The researcher modified those questions and used them in the questionnaire. In order to make the questionnaire consistent, all 3 items are rated on a 7-point scale anchored by *Strongly Disagree* (1) to *Strongly Agree* (7).

1. In general, I am among the first in my circle of friends to purchase new clothing or fashion (over the Internet).
2. Compared with my friends, I do more Internet shopping.
3. In general, I am the first in my circle of friends to know the names of the latest places to shop on the Internet.

#### *Personality trait*

Kim and Shim (2002) used a 7-point Likert scale to measure the consumers' personality traits of utilitarians and hedonists in online shopping (Cronbach's alpha =.79 and .72). Babin, Darden, and Griffin (1994) developed a 5-point Likert scale to measure hedonic and utilitarian shopping behaviors (reliability coefficients=.93

and .80). Even though their scales were not used for testing an online shopper's personality, these scales were applicable to this research. The questions used to identify a consumers' personality, whether the consumer is hedonist or utilitarian, are modified from Kim and Shim's (2002) and Babin, Darden, and Griffin's (1994) measures. In order to make the questionnaire consistent, a 7-point Likert scale anchored by *Strongly Disagree* (1) to *Strongly Agree* (7) was used.

#### *Hedonists*

1. Online shopping for me is highly enjoyable.
2. Spending time in online shopping is enjoyable in comparison with other things in daily life.
3. I enjoy being immersed in exciting virtual experience during online shopping.
4. I enjoy online shopping for its own sake, not just for the products I may want to purchase.
5. I could have a good time through online shopping because I am able to act on the "spur-of-the moment".

#### *Utilitarians*

1. What I desired can be found most of the time on online shopping experience.
2. I want to find what I really need through online shopping.

Consumers' general online shopping personalities vary because some consumers

incline toward shopping as a task and other consumers are leaning toward the experience they perceive, along with the increased sensory involvement and emotional payoff provided (Babin et al., 1994). Based on those personality trait questions, a 7-point Likert scale anchored by *Strongly Disagree* (1) to *Strongly Agree* (7) was used. Participants who selected the upper end of the Likert scale are classified as hedonists. On the other hand, participants selected the lower end of the Likert scale are classified as utilitarians.

### *Goal*

Sanchez-Franco & Roldan (2005) used two questions to investigate people's goal: First, "I had a distinct or identifiable purpose for my browsing". Second, "I had no preconceived purpose for my virtual experience". They used a 7 point scale ranging from "strongly disagree" to "strongly agree" and they categorized people as experiential by ranged from 5-7 on the second question and ranged 1-3 on the first question. On the other hand, people ranged 5-7 on first question and 1-3 on the second question are goal-oriented. However, in the pretest, the researcher found the questions were confusing to participants. Novak, Hoffman, & Duhachek (2003) in their research of "The Influence of Goal-Directed and Experiential Activities on Online Flow Experiences" used the following four items to capture the distinction between experiential versus goal-directed uses of the Web: "I usually use Web for:

Entertainment”; “I usually use Web for: Work”; “I usually use Web for: Just fooling around and exploring for fun”; “I usually have specific goal in mind when I browse the website”. They used 9-point rating scales. However, those of the questions are not specific for apparel website. In order to determine consumers’ shopping goal, respondents were asked to check all that apply for the following options of the reasons they shop on the Internet: price, price comparison, sizes, availability, entertainment, or others. However, people might have other reasons, which are not related to their goal, such as no salesmen to pressure them. Thus, this question may not be applicable to investigate participants’ goal. Therefore, the researcher presented two questions: “I usually go to apparel websites just for fun” and “When I browse this website, I just want to have fun.” The first question was given before participants browsed the website and the second question was given after the participants had browsed the website (Sanchez-Franco & Roldan, 2005).

### *Section 2: Perceived interactivity*

Wu (2000) used 9-items of 9-point Likert scales to measure perceived interactivity of websites (Cronbach’s alpha =.74) and Ballantine (2005) used 5 items of 7-point Likert scales to measure interactivity (Cronbach’s alpha =.82). Changal (2005) used McMillan and Hwang’s MPI scale, the 18 items rated on 7-point Likert scales to test the perceived interactivity (Cronbach’s alpha =.87). Liu (2003)

indicated that some of the previous scales contain attitudinal or behavioral intention items which may affect the levels of perceived interactivity. For example, two consumers perceived the same levels of interactivity from the same website providing the same levels of actual interactivity. However, one consumer may be more concerned with privacy than the other consumer and may not be willing to provide personal information to the website. As a result, they have two different ratings of perceived interactivity even though they actually perceived the same amount of interactivity from the website. Therefore, she developed the scales (Cronbach's alpha =.70) that can avoid the affective problems to test consumers' perceived interactivity in three aspects: active control (Cronbach's alpha =.75), two-way communication (Cronbach's alpha =.86), and synchronicity (Cronbach's alpha =.86). Liu's scales focus on testing the overall perceived interactivity applied to all aspects of the websites. This research used *My Virtual Model* to investigate the levels of interactivity consumers perceive. Therefore, Liu's (2003) scale was adopted as the foundation for creating the questions focusing on investigating how consumers perceive interactivity from *My Virtual Model*. Also, the researcher added some specific questions related to apparel. All the items were rated on a 7-point scale anchored by *Strongly Disagree* (1) to *Strongly Agree* (7). The questions are as follows:

### *Active control*

1. I feel that I have a lot of control over my own personalized body and clothes through the virtual experiences on this website.
2. I feel that I have a lot of control by seeing the Mix & Match of each item through the virtual experiences on this website.
3. I feel that I have a lot of control by seeing how well I look by wearing the clothes through the virtual experiences on this website.
4. I feel that I have a lot of control by seeing how the clothing fits to my body through the virtual experiences on this website.
5. While I am on the website, I can choose freely by changing the body features, sizes, and clothes on *My Virtual Model*.
6. While surfing *My Virtual Model* on this website, my actions decide the kind of experiences I get.

### *Two-way communication*

1. *My Virtual Model* on this website is effective in providing feedback to me.
2. *My Virtual Model* facilitates two-way communication between the site and me.
3. The website makes me feel like a sales person is talking back to me and giving me advice.

### *Synchronicity*

1. *My Virtual Model* on this website processes my input very quickly.
2. Getting information about clothing I want from *My Virtual Model* on this website is very fast.
3. I am able to obtain the information I want from *My Virtual Model* on this website without any delay.
4. When I click on each function of *My Virtual Model* on this website, I feel I am getting instantaneous information such as virtual assortments of the clothes.

### *Attitudes toward the website*

Chen and Well's scales (Cronbach's alpha =.63) represented general attitudes toward the website. Although Huang (2005) did not report multi-dimension of her scales, Huang's scales seemed to include both hedonic and utilitarian aspects of attitudes, which is applicable to this research. Therefore, Huang's scales (Cronbach's alpha =.80) are adopted to measure consumers' attitudes toward the website. In her research, the hedonic performance for the experience of the website could be measured validly by the semantic differential items of Fun/Frustrating, Enjoyable/Not enjoyable, and Interesting/Boring; the utilitarian aspect by items such as Safe/Risky, Ordered/Chaotic, Wise/Foolish, and Reliable/Unreliable; and the overall aspect by items such as Useful/Useless, Pleasant/Unpleasant,

Entertaining/Weary, and Nice/Awful. The multi-dimension semantic differential scales were used. The items are as follows:

1. How would you evaluate this website:

	1	2	3	4	5	6	7	
Frustrating								Fun
Not Enjoyable								Enjoyable
Boring								Interesting
Risky								Safe
Chaotic								Ordered
Foolish								Wise
Unreliable								Reliable
Useless								Useful
Unpleasant								Pleasant
Weary								Entertaining
Awful								Nice

### *Purchasing intentions*

Fiore and Jin (2003) used 4-items of 7-point Likert scales (Cronbach's alpha =.93) to measure willingness to purchase from the online store. Chagal (2005) used 3-items of 7-point Likert scales (Cronbach's alpha =.94) to test purchasing intentions. In order to obtain complete information from consumers, the researcher used Fiore and Jin's questions as the foundation for creating the questions for this research and combined one question from Chagal (2005). The purchasing intentions section of the questionnaire consisted of 3 items. They were rated on a 7-point scale anchored by *Strongly Disagree* (1) to *Strongly Agree* (7).

1. Assuming the products on the website suit my taste or needs, I would be willing to

purchase clothes through this website

2. The likelihood that I would shop on this website is high
3. I would purchase the product on this website only because of “My Virtual Model”

#### *Revisiting intentions*

The researcher adopted Fiore and Jin’s (2003) measures of revisiting intentions and modified one of the questions. A 2-item 7-point scale anchored by *Strongly disagree* (1) to *Strongly agree* (7) is used. The measures about revisiting intentions are as follows:

1. I would visit this website again
2. I would visit this website again with intention to purchase.

#### **The use of human subjects in research**

The application (Appendix 7) was submitted to the Institutional Review Board (IRB) of the University of Missouri-Columbia to get the approval of collecting data using human subjects. The committee assured that the rights and welfare of the human subjects were adequately protected, that the data offered by participants were confidential, and the experiment did not involve physical or mental risks. Approval for project #1058097 was given in January 1<sup>st</sup>, 2006.

#### **Data analysis**

SPSS for Windows version 13.0 was used for all statistical computation. To

test hypothesis 1: the correlation analysis was used to test the effects of perceived interactivity (an interval variable) on purchasing intentions, revisiting intentions, and attitudes toward the website (interval variables). To test hypothesis 2: the effects of personality tendency (utilitarian vs. hedonist) (a categorical variable) on perceived interactivity (an interval variable), the ANOVA analysis was used. To test hypothesis 3: the effects of past online experience (a categorical variable) on perceived interactivity (an interval variable), the ANOVA analysis was used. To test hypothesis 4: innovativeness of online shopping (a continuous variable or a categorical variable) on perceived interactivity (an interval variable), the correlation and ANOVA analysis were used. To test hypothesis 5: the effects of goals when browsing the website (a categorical variable) on perceived interactivity (an interval variable), the ANOVA analysis was used. To test hypothesis 6: the effects of interactions between goals and consumers' personality, past online experience and innovativeness in online shopping on perceived interactivity, the ANOVA analysis was used. The level of significance for all of the analyses were set at .05. The summary of data analysis test for each hypothesis is in Table 3.1.

Table 3.1 Data analysis test for each hypothesis

	Independent variables	Dependent variables	Test
H <sub>1</sub>	The levels of perceived interactivity	Purchasing intentions	Spearman r (correlation)
		Revisiting intentions	Pearson (correlation)
		Attitudes toward the website	Spearman r (correlation)
H <sub>2</sub>	Personality tendency (Utilitarian vs. Hedonist )	The levels of perceived interactivity	ANOVA
H <sub>3</sub>	Past online purchasing experiences	The levels of perceived interactivity	ANOVA
	Past online information searching experience		ANOVA
H <sub>4</sub>	Innovativeness in online shopping	The levels of perceived interactivity	Pearson (correlation)
			ANOVA
H <sub>5</sub>	Goals (goal-oriented vs. experiential behavior)	The levels of perceived interactivity	ANOVA
H <sub>6</sub>	Goals+ personalities	The levels of perceived interactivity	ANOVA
H <sub>7</sub>	Goals+past online purchasing experiences		
H <sub>8</sub>	Goals+past online info searching experiences Goals+innovativeness in online shopping		

## CHAPTER 4

### RESULTS

This chapter presents the descriptive statistics of the sample and statistical analysis of the following hypotheses:

H<sub>1</sub>: The higher levels of interactivity consumers perceive from the 3-Dimensional virtual reality (*My Virtual Model*), the greater the positive attitudes toward the website, the revisiting intentions, and the purchasing intentions they will have.

H<sub>2</sub>: Consumers who are hedonists and who are utilitarians perceive different levels of interactivity depending on how much control they have and on how much enjoyment they experience by using *My Virtual Model*.

H<sub>3</sub>: Consumers who have past online experiences perceive higher levels of interactivity from *My Virtual Model* than those who have less past online experiences.

H<sub>4</sub>: Consumers who are innovative when they shop online perceive higher levels of interactivity from *My Virtual Model* than who are less innovative when they shop online.

H<sub>5</sub>: Consumers who have different goals perceive different levels of interactivity from *My Virtual Model*.

H<sub>5.1</sub>: Consumers who are goal-oriented perceive different levels of interactivity from

*My Virtual Model* than consumers who are experiential.

H<sub>6</sub>: The effects of consumers' personalities on the levels of perceived interactivity are different across the two groups which have different goals (goal-oriented vs. experiential behaviors).

H<sub>6.1</sub>: Consumers who are classified as utilitarian and goal-oriented perceived higher levels of interactivity from *My Virtual Model* than other groups of consumers.

H<sub>7</sub>: The effects of consumers' innovativeness in online shopping on the levels of perceived interactivity are different across the two groups which have different goals (goal-oriented vs. experiential behavior).

H<sub>7.1</sub>: Consumers who are more innovative in online shopping and are goal-oriented perceive higher levels of interactivity from *My Virtual Model* than other groups of consumers.

H<sub>8</sub>: The effects of consumers' past online experiences on the levels of perceived interactivity are different across the two groups which have different goals (goal-oriented vs. experiential behaviors).

H<sub>8.1</sub>: Consumers who have more past online experiences and are goal-oriented perceive higher levels of interactivity from *My Virtual Model* than other groups of consumers.

### **Description of samples**

The results of the demographic variables are listed in Table 4.1. Eighty-two (82) students provided completed questionnaires. This represents a 50 percent response rate. The majority of participants (91.5%) were between 18 and 24 years of age. In term of class standing, 5 percent of the participants were freshmen 24 percent were sophomore, 30 percent were juniors, 28 percent were seniors, and the remainder (12%) were graduate students.

The majority (55%) of the participants were students in the college of Human Environmental Science. Art and Sciences provided 14.6 percent of the respondents. Eleven (13.4%) of the study sample students were from the Health Professions. Additional subjects came from the College of Education (7.3%), school of Journalism (4.9%), and College of Business (3.7%).

In terms of ethnicity, 80.5 percent of this study samples were Caucasians. The reminder were fairly evenly distributed among African American, Asian, and Asian American.

The majority of the students (over 55%) had family income over \$50,000 per year. The remaining respondents' family income was less than \$50,000 per year.

Table 4.1 Characteristics of the Participants

<b>Variables</b>		<b>Frequency (n=82)</b>	<b>Percent</b>	<b>Mean of perceived interactivity</b>
<b><u>Age</u></b>	18-24	75	91.5%	
	25-30	3	3.7%	
	31-35	2	2.4%	
	Greater than 35	2	2.4%	
<b><u>Income</u></b>	Less than 10k/yr	10	12.2%	
	10k-20k/yr	7	8.5%	
	20k-30k/yr	5	6.1%	
	30k-40k/yr	6	7.3%	
	40k-50k/yr	7	8.5%	
	50-60k/yr	14	17.1%	
	More than 70k/yr	32	39%	
<b><u>Major</u></b>	HES	45	54.9%	65.96
	Art and Science	12	14.6%	63.92
	Health Professions	11	13.4%	71.36
	Education	6	7.3%	57
	Journalism	4	4.9%	63
	Business	3	3.7%	60.67
	Undeclared	1	1.2%	66
<b><u>First Language</u></b>	English	76	92.7%	
	Others	6	7.3%	
<b><u>Academic Level</u></b>	Freshman	4	4.9%	73.50
	Sophomore	20	24.4%	66.70
	Junior	25	30.5%	65.64
	Senior	23	28%	63.91
	Graduate	10	12.2%	62.30
<b><u>Ethnicity</u></b>	Caucasian	66	80.5%	65.56
	African American	5	6.1%	67
	Asian	5	6.1%	59.2
	Asian American	3	3.7%	68.33
	Mix	2	2.4%	67.5
	Latino American	1	1.2%	64

### *Past online experience*

The majority of participants reported that they have used the Internet for searching product information before purchasing clothing and accessories (92.7%, 76 of the 82 participants), and over 75 percent (62 of the 82 participants) have used the Internet for purchasing clothing and/or accessories. However, only 6 percent of the respondents have visited Adidas' *My Virtual Model* website, and none of the participants sampled had previously purchased a product from Adidas' *My Virtual Model* website.

### **Instrument Reliability**

The multi-item measures were evaluated. The alpha coefficient of all the variables exceeded .80; therefore, all of the variables are highly reliable. The alpha coefficients are described in Table 4.2 below.

Table 4.2 Reliability of variables

Variables	Number of items	Cronbach's Alpha
Innovativeness of online shopping	3	.87
Personality (Hedonist vs. Utilitarian)	7	.89
Perceived interactivity	13	.88
Attitudes towards the website	11	.93
Purchasing intention	3	.80
Revisiting intention	2	.80

## Tests of Hypotheses

H<sub>1</sub>: The higher levels of interactivity consumers perceive from the 3-Dimensional virtual reality (*My Virtual Model*), the greater the positive attitudes toward the website, the revisiting intentions, and the purchasing intentions they will have.

### *Inspection of the data*

Prior to conducting the formal analysis of the data, the results of all the items of attitudes toward the website and perceived interactivity were summed and preliminary steps were taken to strengthen the validity of the conclusions. A case analysis was conducted to identify influential observations. The statistical inference assumptions associated with correlation were assessed. Inspection of descriptive statistics (Table 4.3) and Kolmogorov-Smirnov tests (Table 4.4) for observations in each cell suggested that there were serious departures from the normality assumption in purchasing intention and attitudes toward website; however, there were no serious departures from the normality in perceived interactivity and revisiting intention. Therefore, Spearman  $r$  was chosen for testing the correlation between perceived interactivity and attitudes toward website, and between perceived interactivity and purchasing intention. Pearson correlation was chosen for testing the correlation between revisiting intention and perceived interactivity.

Table 4.3 Descriptive Statistics

	N	Skewness	Kurtosis
Perceived interactivity	82	-.463	1.257
Purchasing intention	82	5.048	37.485
Revisiting intention	82	-.347	-.529
Attitudes toward website	82	2.778	11.936
Utilitarian	37	-1.061	3.236
Hedonist	45	-.162	-.251
Innovativeness	82	.492	-.906
Low innovativeness	49	-.872	2.288
High Innovativeness	33	.201	-.183
Experiential	47	.203	-.458
Goal-oriented	35	-1.145	2.357

Table 4.4 One-sample Kolmogorov-Smirnov Test

	N	Kolmogorov-Smirnov Z	Asymp. Sig. (2-tailed)
Perceived interactivity	82	.530	.942
Purchasing intention	82	1.682	.007
Revisiting intention	82	1.037	.232
Attitudes toward website	82	2.326	.000
Utilitarian	37	.658	.780
Hedonist	45	.435	.992
Innovativeness	82	1.259	.084
High innovativeness	49	.651	.790
Low innovativeness	33	.483	.974
Experiential	47	.567	.905
Goal-oriented	35	.629	.824

### *Correlation results*

The levels of interactivity consumers perceived was found to be moderate significantly correlated with attitudes toward the website ( $r^2=.28$ ,  $p=.000$ ), revisiting intentions ( $r^2=.18$ ,  $p=.000$ ), and purchasing intentions ( $r^2=.28$ ,  $p=.000$ ). Therefore, hypothesis 1: The higher levels of interactivity consumers perceive from the 3-Dimensional virtual reality (*My Virtual Model*), the greater the positive attitudes toward the website, the revisiting intentions, and the purchasing intentions they will have was supported.

H<sub>2</sub>: Consumers who are hedonists and who are utilitarians perceive different levels of interactivity depending on how much control they have and how much enjoyment they experience by using *My Virtual Model*.

### *Inspection of the data*

Prior to conducting the formal analysis of the data, preliminary steps were taken to strengthen the validity of the conclusions. Two items were coded reversely and were summed up with the other items of personality. Sum the average value of each of the 82 participants and then divided by 82 (total number of participants).

The value obtained was the cutoff point (3.693171) to categorize the participants in either the hedonic or utilitarian group. A case analysis was conducted to identify potential outliers and influential observations. One score in the data set was found to

have a standardized residual exceeding an absolute value of 2.5. However, when dropping the outlier, the result did not change. Therefore, the researcher decided to keep the outlier.

The statistical inference assumptions associated with ANOVA were also assessed. Inspection of plots, descriptive statistics (Table 4.3), and Kolmogorov-Smirnov tests (Table 4.4) for observations in each cell suggested that there might be departures in Kurtosis inspection. However, Kurtosis only influences standard deviation. Therefore, there was no serious departure from the normality assumption. In addition, Levene's test for the equality of variance indicated that population cell variances were equal at the .05 level,  $F(1, 80) = .497/n.s.$  Thus, there was no serious departure from the homogeneity assumption, so the ANOVA was robust.

#### *ANOVA results*

A factorial analysis of variance was conducted on the levels of perceived interactivity with two kinds of personality serving as the independent variables. The results of the ANOVA are shown in Table 4.5. The two kinds of personality (utilitarian versus hedonist) perceived significant different levels of interactivity,  $F(1, 80) = 4.103, p = .046.$  Utilitarian participants perceived higher levels of interactivity than hedonist participants. The Partial eta Squared of 0.05 indicated that this was a

medium effect. Therefore, hypothesis 2: consumers who are hedonists and who are utilitarian perceived different levels of interactivity and utilitarian consumers perceived higher levels of interactivity from Adidas' *My Virtual Model* website was supported

Table 4.5 Result of ANOVA Test Independent variables and Dependent variables

<i>Independent variables</i>	<i>Dependent variables</i>	<i>F</i>	<i>p</i>
Personality	Perceived	4.103*	p=.046
Online purchasing experience	interactivity	.162	n.s.
Online info searching experience before purchasing		.543	n.s.
High vs. low innovativeness		0.000	n.s.
Goal		2.166	n.s.
Goal*Personality		.008	n.s.
Goal*Innovativeness		.047	n.s.
Goal*Past experience of purchasing		1.327	n.s.
Goal*Past experience of information searching		.493	n.s.

H<sub>3</sub>: Consumers who have past online experiences perceive higher levels of interactivity from *My Virtual Model* than those who have less past online experiences.

*Participants have experience of using the Internet for **buying** clothing and accessories versus participants who have no experience using the Internet for **buying** clothing and accessories.*

### *Inspection of the data*

Prior to conducting the formal analysis of the data, preliminary steps were taken to strengthen the validity of the conclusions. A case analysis was conducted to identify potential outliers and influential observations. One score in the data set was found to have a standardized residual exceeding an absolute value of 2.5. However, when dropping the outlier, the result did not change. Therefore, the researcher decided to keep the outlier.

The statistical inference assumptions associated with ANOVA were also assessed. Inspection of plots, descriptive statistics (Table 4.3), and Kolmogorov-Smirnov tests (Table 4.4) for observations in each cell suggested that there was no serious departure from the normality assumption. In addition, Levene's test for the equality of variance indicated that population cell variances were equal at the .05 level,  $F(1, 79) = .318/n.s.$  Thus, there was no serious departure from the homogeneity assumption, so the ANOVA was robust.

### *ANOVA results*

A factorial analysis of variance was conducted on the levels of perceived interactivity with past experience in using the Internet for buying clothing and accessories serving as the independent variables. The results of the ANOVA are shown in Table 4.5. Participants who have past experience in using the Internet for

buying clothing and accessories did not perceive significant different levels of interactivity from participants who did not have past experience,  $F(1, 79) = .162$ ,  $p=.69/n.s.$

*Participants have past experience of using the Internet for **searching** product information before purchasing versus participants who do not have the experiences.*

#### *Inspection of the data*

Prior to conducting the formal analysis of the data, preliminary steps were taken to strengthen the validity of the conclusions. A case analysis was conducted to identify potential outliers and influential observations. One score in the data set was found to have a standardized residual exceeding an absolute value of 2.5. However, when dropping the outlier, the result did not change. Therefore, the researcher decided to keep the outlier.

The statistical inference assumptions associated with ANOVA were also assessed. Inspection of plots, descriptive statistics, and Kolmogorov-Smirnov tests for observations in each cell suggested that there was no serious departure from the normality assumption. In addition, Levene's test for the equality of variance indicated that population cell variances was equal at the .05 level,  $F(1, 80) = .262/n.s.$  Thus, there was no serious departure from the homogeneity assumption, so the ANOVA was robust.

### *ANOVA results*

A factorial analysis of variance was conducted on the levels of perceived interactivity with past experience in using the Internet for searching product information before purchasing as the independent variables. The results of the ANOVA are shown in Table 4.5. Participants who have past experience in using the Internet for searching product information before purchasing did not perceive significant different levels of interactivity from participants who did not have the experience,  $F(1, 80) = .543, p=.46/n.s.$

Moreover, Spearman r was chosen to test the correlation between the frequency of search information of clothing and accessories online and perceived interactivity, and the frequency of purchasing clothing and accessories online and perceived interactivity. The levels of interactivity the participants perceived were not found to be significantly correlated with the frequency of search information of clothing and accessories online ( $r^2=.000324, p=.872/n.s.$ ) and the frequency of purchasing clothing and accessories online ( $r^2=.001681, p=.716/n.s.$ ).

In conclusion, participants who had past online experiences did not perceive higher levels of interactivity from *My Virtual Model* than those who had less past online experiences. Therefore, hypothesis 3 was not supported.

H<sub>4</sub>: Consumers who are innovative when they shop online perceive higher

levels of interactivity from *My Virtual Model* than who are less innovative when they shop online.

#### *Inspection of the data*

Prior to conducting the formal analysis of the data, the results of all items of innovativeness in online shopping and perceived interactivity were added up and preliminary steps were taken to strengthen the validity of the conclusions. A case analysis was conducted to identify influential observations. The statistical inference assumptions associated with correlation were assessed. Inspection of descriptive statistics (Table 4.3) and Kolmogorov-Smirnov tests (Table 4.4) for observations in each cell suggested that there were no serious departures from the normality assumption.

First, Pearson correlation was chosen to test the hypothesis. The correlation result revealed that the levels of interactivity consumers perceived were found to be not significantly correlated with innovativeness in online shopping ( $r^2=.007056$ ,  $p=.45/n.s.$ ). Second, ANOVA analysis was used to retest the results. Before conducting ANOVA, the sums of each item of innovativeness in online shopping were transformed as two categories: high innovativeness versus low innovativeness (9.536585 as the cutoff point). Preliminary steps were taken to strengthen the validity of the conclusions. A case analysis was conducted to identify potential

outliers and influential observations. One score in the data set was found to have a standardized residual exceeding an absolute value of 2.5. However, when dropping the outlier, the result was still not significant. Therefore, the researcher decided to keep the outlier.

The statistical inference assumptions associated with ANOVA were also assessed. Inspection of plots, descriptive statistics (Table 4.3), and Kolmogorov-Smirnov tests (Table 4.4) for observations in each cell suggested that there was no serious departure from the normality assumption. In addition, Levene's test for the equality of variance indicated that population cell variances was equal at the .05 level,  $F(1, 80) = .884/n.s.$  Thus, there was no serious departure from the homogeneity assumption, so the ANOVA is robust.

#### *ANOVA results*

A factorial analysis of variance was conducted on the levels of perceived interactivity with innovativeness of online shopping as the independent variables.

The results of the ANOVA are shown in Table 4.5. Both innovative participants and less innovative participants when they shop online did not perceive significant different levels of interactivity from *My Virtual Model* website,  $F(1, 80) = 0$ ,  $p=.998/n.s.$  Therefore, hypothesis 4 was not supported.

H<sub>5</sub>: Consumers who have different goals perceive different levels of interactivity from

*My Virtual Model.*

H<sub>5.1</sub>: Consumers who are goal-oriented perceive different levels of interactivity from *My Virtual Model* than consumers who are experiential.

*Inspection of the data*

The results of all items of goal were summed up and the sum was divided by 82 to find the cutoff point (5.47567). Participants were categorized as experiential and goal-oriented by the cutoff point. Forty-seven (47) participants were experiential and thirty-five (35) participants were goal-oriented. Preliminary steps were taken to strengthen the validity of the conclusions. Prior to conducting the formal analysis of the data, a case analysis was conducted to identify potential outliers and influential observations. One score in the data set was found to have a standardized residual exceeding an absolute value of 2.5. However, when dropping the outlier, the result did not change. Therefore, the researcher decided to keep the outlier.

The statistical inference assumptions associated with ANOVA were also assessed. Inspection of plots, descriptive statistics (Table 4.3), and Kolmogorov-Smirnov tests (Table 4.4) for observations in each cell suggested that there was no serious departure from the normality assumption. In addition, Levene's test for the equality of variance indicated that population cell variances were equal at

the .05 level,  $F(1, 80) = .892/n.s.$  Thus, there was no serious departure from the homogeneity assumption, so the ANOVA was robust.

#### *ANOVA results*

A factorial analysis of variance was conducted on the levels of perceived interactivity with goal when browsing the website. The results of the ANOVA are shown in Table 4.5. Participants who have past experience and participants without past experience in using Internet for searching product information before purchasing did not perceive significant different levels of interactivity,  $F(1, 80) = 2.166$ ,  $p=.145/n.s.$  Therefore, hypothesis 5 was not supported.

H6: The effects of consumers' personalities on the levels of perceived interactivity are different across the two groups which have different goals (goal-oriented vs. experiential behaviors).

H<sub>6.1</sub>: Consumers who are classified as utilitarian and goal-oriented perceived higher levels of interactivity from *My Virtual Model* than other groups of consumers.

A two-ANOVA was conducted to investigate the interactions between personalities and goals. A 2 (goal) \* 2 (personality) ANOVA was performed on perceived interactivity from the website. The main effect of goal was not statistically significant,  $F(1, 78) = 1.60$ ,  $p=.21/n.s.$  The main effect of personality was not statistically significant,  $F(1, 78) = 3.40$ ,  $p=.069/n.s.$  The interaction between

goal and personality was not statistically significant,  $F(1, 78) = .008, p = .928/n.s.$  (Table 4.5). Also, the interaction plot showed that there was no interaction. In summary, the effect of consumers' personalities on the levels of perceived interactivity was not different across the two groups (goal-oriented vs. experiential behaviors). Therefore, hypothesis 6 was not supported.

H<sub>7</sub>: The effects of consumers' innovativeness in online shopping on the levels of perceived interactivity are different across the two groups which have different goals (goal-oriented vs. experiential behavior).

H<sub>7.1</sub>: Consumers who are more innovative in online shopping and are goal-oriented perceive higher levels of interactivity from *My Virtual Model* than other groups of consumers.

A two-ANOVA was conducted to investigate the interactions between participants' innovativeness in online shopping and goals. A 2 (goal) \* 2 (innovativeness) ANOVA was performed on perceived interactivity from the website. The main effect of goal was not statistically significant,  $F(1, 78) = 1.884, p = .17/n.s.$  The main effect of innovativeness was not statistically significant,  $F(1, 78) = .011, p = .92/n.s.$  The interaction between goal and innovativeness was not statistically significant,  $F(1, 78) = .047, p = .83/n.s.$  (Table 4.5). Also, the interaction plot presented there was no interaction. In summary, the effects of consumers'

innovativeness in online shopping on the levels of perceived interactivity were not different across the two groups which have different goals (goal-oriented vs. experiential behaviors). Therefore, hypothesis 7 was not supported.

H<sub>8</sub>: The effects of consumers' past online experiences on the levels of perceived interactivity are different across the two groups which have different goals (goal-oriented vs. experiential behaviors).

H<sub>8.1</sub>: Consumers who have more past online experiences and are goal-oriented perceive higher levels of interactivity from *My Virtual Model* than other groups of consumers.

A two-ANOVA was conducted to investigate the interactions between participants' past experience in online **purchasing** and goals. A 2 (goal) \* 2 (past experience of online purchasing) ANOVA was performed on perceived interactivity from the website. The main effect of goal was not statistically significant,  $F(1, 77) = .428, p = .52/n.s.$  The main effect of past experience of online purchasing was not statistically significant,  $F(1, 77) = .060, p = .81/n.s.$  (Table 4.5). Also, the interaction between goal and innovativeness was not statistically significant,  $F(1, 77) = 1.327, p = .25/n.s.$  The plot (Figure 4.1) presented the interaction between goal and past experience in online purchasing; however, it was not statistically significant which may be caused by power issue (observed power = .21). In summary, the effects of

consumers' past experience in online purchasing on the levels of perceived interactivity was not different across the two groups which have different goals (goal-oriented vs. experiential behaviors).

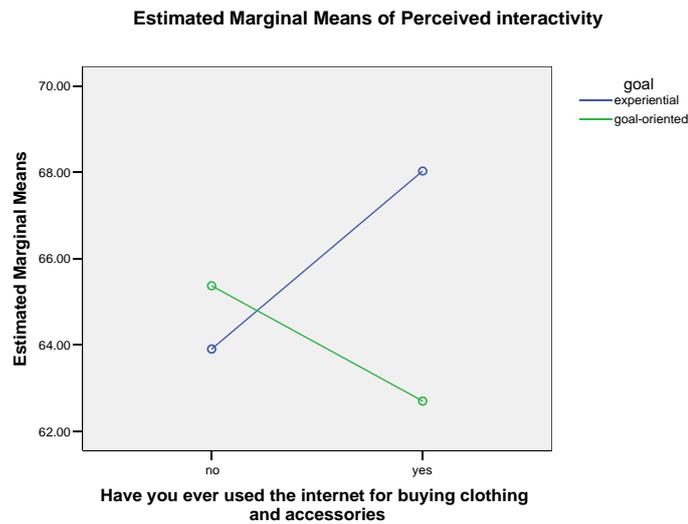


Figure 4.1 Interaction Plot

A two-ANOVA was conducted to investigate the interactions between participants' past experience in **information searching** before purchasing and goal. A 2 (goal) \* 2 (past experience of information searching) ANOVA was performed on perceived interactivity from the website. The main effect of goal was not statistically significant,  $F(1, 78) = 1.825, p = .18/n.s.$  The main effect of past experience of information searching was not statistically significant,  $F(1, 78) = .472, p = .49/n.s.$  The interaction between goal and innovativeness was not statistically significant,  $F(1, 78) = .493, p = .49/n.s.$  (Table 4.5). Also, the interaction plot showed that there was no interaction between goal and past experience in online

purchasing (observed power=.11). To sum up, the effects of consumers' past experience in online purchasing on the levels of perceived interactivity were not different across the two groups which have different goals (goal-oriented vs. experiential behaviors). Therefore, hypothesis 8 was supported.

## **CHAPTER 5**

### **DISCUSSION and IMPLICATIONS**

The purpose of this study was to examine how consumers' characteristics and their shopping goals influence their perceptions of interactivity from online apparel shopping environments. This study tested the hypotheses in five parts: 1) the relationship between consumers' personality (utilitarian versus hedonist) and the level of interactivity they perceived from the website. 2) The relationship between consumers' innovativeness in online shopping and the level of interactivity they perceived from the website. 3) The relationship between consumers' past experience in online shopping and the level of interactivity they perceived from the website. 4) The relationship between consumers' shopping goals when browsing the website. (5) The effects of interaction between consumers' shopping goals and their personality, innovativeness, and past experience in online shopping on the level of interactivity they perceived from the website. Moreover, the relationship between purchasing intentions, revisiting intentions, attitudes toward the website and the level of interactivity they perceived from the website was retested to prove the accuracy of previous studies. In this chapter, interpretations of the analyses are provided. Implications and future research are suggested.

## Summary of the Results

Table 5.1 listed the results of hypotheses. Data analyses indicated that consumers who have different personality perceived different levels of interactivity from Adidas' *My Virtual Model* website. Utilitarian consumers perceived higher interactivity than hedonist consumers. Therefore, H<sub>2</sub> (Consumers who are hedonists and who are utilitarians perceive different levels of interactivity depending on how much control they have and on how much enjoyment they experience by using *My Virtual Model*) was supported.

Correlation results revealed that there was a positive relationship between the levels of perceived interactivity, purchasing intentions, revisiting intentions, and attitudes toward the website. Therefore, H<sub>1</sub> (The higher levels of interactivity consumers perceive from the 3-Dimensional virtual reality (*My Virtual Model*), the greater the positive attitudes toward the website, the revisiting intentions, and the purchasing intentions they will have) was supported.

The result of this research is consistent with previous studies that found a 3-D virtual reality model that enhanced the attitudes toward the website, and the purchasing and revisiting intentions (Li et al., 2002; Fiore & Jin, 2003). Numerous studies found that perceived interactivity affects consumers' attitudes toward the website and the purchasing intentions (Wu, 1999; Huang & McMillian, 2002;

Schlosser, 2003).

ANOVA results indicated that there was no significant relationship between consumers' past online experiences, innovativeness in online shopping, goals when browsing the website and perceived interactivity. No interaction between goals and consumers' personalities, and past online experiences, and innovativeness in online shopping was found. Finally, there was no effect of the interaction on perceived interactivity.

Table 5.1 Hypotheses Tests

Independent variables	Dependent variables	Test	Result
H <sub>1</sub> The levels of perceived interactivity	Purchasing intentions	Spearman r	r <sup>2</sup> =.28, p=.000
	Revisiting intentions	Pearson	r <sup>2</sup> =.18, p=.000
	Attitudes toward the website	Spearman r	r <sup>2</sup> =.28, p=.000
H <sub>2</sub> Personality (Utilitarian vs. Hedonist )	The levels of perceived interactivity	ANOVA	Utilitarian N=37, $\bar{X}$ =62.70 Hedonist N=45, $\bar{X}$ =67.60 F(1,80) =4.103, p=.046
H <sub>3</sub> Past online purchasing experiences	The levels of perceived interactivity	ANOVA	Yes N=62, $\bar{X}$ =65.71 No N=19, $\bar{X}$ =64.53 F(1,79) =.162, p=.069/n.s.
		ANOVA	Yes N=76, $\bar{X}$ =65.64 NO N=6, $\bar{X}$ =62.17 F(1,80) =.543, p=.463/n.s.
H <sub>4</sub> Innovativeness in online shopping	The levels of perceived interactivity	Pearson	High N=33, $\bar{X}$ =65.39 r <sup>2</sup> =.0007, p=.007/n.s.
		ANOVA	Low N=49, $\bar{X}$ =65.39 F(1,80) =0, p=.998/n.s.
H <sub>5</sub> Goals (goal-oriented vs. experiential behavior)	The levels of perceived interactivity	ANOVA	Goal-oriented N=35, $\bar{X}$ =63.31 Experiential N=47, $\bar{X}$ =66.94 F(1,80) =2.166, p=.145/n.s.
H <sub>6</sub> Goals+ personalities	The levels of perceived interactivity	ANOVA	F(1,78) =.008, p=.928/n.s.
H <sub>7</sub> Goals+innovativeness in online shopping		ANOVA	F(1,78) =.047, p=.829/n.s.
H <sub>8</sub> Goals+past online purchasing experiences		ANOVA	F(1,77) =1.327, p=.253/n.s.
	Goals+past online info searching experiences	ANOVA	F(1,78) =.493, p=.493/n.s.

## Discussion

The present study attempted to examine the relationship between perceived interactivity and purchasing intentions, revisiting intentions, and positive attitudes toward the website. The result obtained from this study is consistent with the previous studies (Wu, 1999; Huang & McMillian, 2002; Schlosser, 2003). This study indicated that the interactivity of the website is crucial to enhancing consumers' confidence in their final purchasing decision, attitudes toward the website, and the tendency of revisiting the website. *My Virtual Model* provides the virtual reality try-on experience and presents the Mix & Match of the clothing and accessories. This study implied that consumers perceived high interactivity from *My Virtual Model* because the experience and presentation from *My Virtual Model* provide great control and facilitate the two-way communications between consumers and the website (Wu, 1999; Huang & McMillian, 2002; Schlosser, 2003).

Furthermore, the relationships between consumers' characteristics (shopping goal, personality, past online experience, innovativeness in online shopping) and their perceived interactivity were investigated. The result obtained from this study is consistent with the prediction stated in Hypothesis 2. Consumers' personality tendency was found to have influences on consumers' perceived interactivity from Adidas' *My Virtual Model* website. Consumers who tend to be utilitarian were

shown to perceive higher interactivity from the website than consumers who tend to be hedonist consumers. Utilitarian consumers are goal-oriented when they shop online (Kim & Shim, 2002). Their main concern in online shopping is to purchase products in an efficient and timely way in order to achieve their goals (Monsuwe et al., 2004). Wolfinbarger and Gilly (2001) found that utilitarian consumers were more satisfied when websites were more convenient, easily accessible, had a more variety of selection, availability of information, and more freedom and control. Based on the results of this study, we can assume that *My Virtual Model* provides more information about the product because consumers can see the virtual reality of clothing and accessories and Mix & Match; further, they can personalize their own model and see how their bodies fit the clothing and accessories. Consumers who tend to be utilitarian could find the information they need in an efficient way. Therefore, consumers who tend to be utilitarian perceived high interactivity from the website. Moreover, this study shows that the more interactivity consumers perceived from Adidas' *My Virtual Model* website, the higher purchasing intentions, revisiting intentions, and positive attitudes toward the website consumers have. Therefore, this study also implies that consumers who tend to be utilitarians have higher purchasing intentions, revisiting intentions, and positive attitudes toward Adidas' *My Virtual Model* website because they perceived higher interactivity than consumers who tend

to be hedonists. On the other hand, consumers, who tend to be hedonists, seek enjoyable experiences. Hedonists received more satisfaction when websites were more playful, surprising, unique, and exciting. Generally speaking, when hedonists are satisfied, the possibility of impulse purchases and the frequency of visiting the website will increase (Wolfenbarger & Gilly, 2001). However, consumers, who tend to be hedonists, were observed to have lower perceived interactivity in this study.

*My Virtual Model* provides entertaining experience to consumers because consumers can personalize their own appearance, hair style, and body shape and play with the images. But, in this study, the researcher found that some of the participants complained that they could not find their measurements on the website to personalize the model because the server is unable to display the model for people who are over 92 kilograms. Moreover, some of the participants reported that those clothes did not look good on their own virtual model. Therefore, the researcher assumed that these might be the reasons that hedonic consumers did not perceive high interactivity in this study.

Previous studies suggested that the innovativeness of consumers while shopping online and past online experiences might influence their future purchasing intentions (Goldsmith & Flynn, 2004). Consumers who have different goals may have different online shopping behaviors toward a website and may have different

perceptions of relative advantages in online shopping (Ha & Stoel, 2004). In contrast, this study has shown that there was no relationship between perceived interactivity with the following variables: consumers' innovativeness in online shopping, past online experiences, and goals when browsing the website. In addition, there was no interaction between consumers' goals when browsing the website, innovativeness in online shopping, and past online experiences.

### **Implications of the Findings**

Results obtained from this study are useful to online apparel retailers as well as for other researchers because these results can help them to better understand how consumers perceive interactivity, and consumers' purchasing, revisiting intentions, and attitudes toward a website; moreover, the study revealed the factors that influence the perceived interactivity. Furthermore, this study stated that the interactive functions on some apparel websites were ineffective and assumed the ineffectiveness was caused by the vague understanding of their targeted customers and subsequently resulted in the apparel retailers to terminate the interactive functions of their websites. It is expected that online apparel retailers can understand their targeted customers' needs by identifying their customers' personality tendency based on the results of this study. For example, online apparel retailers can create different versions of websites which focus on utilitarian or hedonic consumers. The version of this website, which

focuses on utilitarian customers, should emphasize more user friendly function in order to provide utilitarian customers a way to find what they need efficiently.

Another version of website for hedonic customers should concentrate more on the entertaining experience. Moreover, it is necessary for online apparel retailers to think about the alternative way to cope with the problems for the plus-sized consumers. In this research, plus-sized respondents were found to have an unpleasant experience when they browsed the website because the unattractiveness of their own virtual model or they were embarrassed when they could not find their measurements on the website. However, Adidas does not focus on plus-sized customers; also, Adidas does not provide plus-sized products. Therefore, the researcher suggested that the website should link to the catalog in which professional models wear the products when the plus-sized consumers choose their sizes. Thus, they will not have unpleasant experiences because of their virtual reality model. In addition, according to the result of this research, consumers have purchasing intentions after they browse Adidas' *My Virtual Model* website. However, there is no link to let customers actually shop online. The researcher proposed that a link to Adidas' homepage to allow the customers to shop online should be added on the website. Therefore, online apparel retailers can refer to the suggestions of this research in order to discover the most efficient way to engage their customers'

interests and to attract them to visit the websites and, most importantly, to increase online sales (Teo & Tan, 2002). In addition, there may be other factors influencing the perceived interactivity. Thus, researchers can take this study as a foundation for future research which examines other factors that potentially influence perceived interactivity.

### **Limitations of the Study**

Because of the time and financial constraints, this research was limited to a student sample from the University of Missouri-Columbia. The results of this study can apply to general college students' online apparel shopping behaviors. However, it is necessary to increase the sample size for future study to generalize the results to the general population of Internet users.

### **Suggestions for Future Research**

In order to generalize the effects of consumers' characteristics and goals when browsing the website on perceived interactivity, further investigation for a large sample is needed to apply the result to general population.

Furthermore, there are five main factors influencing consumers' online purchasing intentions: consumers' individual characteristics, the medium's characteristics, product/service characteristics environmental influences, and merchant and intermediary characteristics (Cheung et al., 2003). This research only

examined the relationship between consumers' individual characteristics and perceived interactivity. Therefore, future studies may investigate other factors influencing how consumers perceive interactivity.

In addition, the 3-D virtual reality provides the try-on experience, interactive communication, and personalized function, which improves the online apparel business. Understanding consumers' behaviors in online apparel shopping is crucial for online apparel business. Most of the previous studies used existing websites as a tool to examine consumers' behaviors. It is necessary to settle some of the variables functions; however, the researcher usually does not have the ability to change the existing website. Therefore, to build a 3-D virtual reality model which is for research purpose will be the best research tool for online apparel shopping. However, building a website needs to have graphic designers, programmers, and website builders. Due to time and financial constraints, the researcher did not have the opportunity to build a 3-D virtual reality model website to test consumers' behaviors. Thus, in future studies, creating a website to investigate consumers' behaviors is recommended.

### **Conclusion**

In conclusion, this study investigated how consumers' characteristics and their goal when browsing the website influence their perceptions of interactivity from the

website. The results confirmed that perceived interactivity are related to three variables: purchasing intentions, revisiting intentions, and positive attitudes toward the website. Finally, consumers' personality tendency was shown to affect their perceived interactivity: utilitarian consumers perceived higher interactivity from the website than hedonic consumers. With several limitations of this study, future research is mainly directed to improve the research tools and to explore more factors influencing the perceived interactivity.

## Appendix 1

### Letter of Consent

Thank you for agreeing to participate in this important study. The purpose of this survey is to evaluate the customer's experience with Adidas' "My Virtual Model" website based on how the site helps consumers to find something they are looking for. Your participation will greatly contribute to building a body of knowledge on consumers' online apparel shopping behaviors.

Your participation is strictly voluntary. You may decline to participate. You may also decline to answer any question and discontinue participation at any time. You will not be penalized for doing so and your grades will not be affected. But, to participate in this experiment, you have to be at least 18 years old and have never participated in this experiment before. Although the survey may cause some slight discomfort in answering questions about your past experience in online shopping, the possibility of such discomfort is minimal. The survey should **not** take **more than 30 minutes** to complete. Moreover, you will have the chance to **win 50 dollars** as thanks for your participation. While there is no anticipated direct personal benefit from your participation in this study, it is believed that your completion of the survey will assist me in the compilation of an accurate and detailed description of consumer behavior of online apparel shopping.

All information you provide will be confidential and none of your personal details or e-mail address will be disclosed to any third party. The data collected in this study will be used for research purposes only.

If you have any questions about this research project, please feel free to contact Debbie (Pin-Wuan) Lin, at (573) 639-1855 ([plw94@mizzou.edu](mailto:plw94@mizzou.edu)). For additional information regarding human participation in research, please contact the Campus Institutional Review Board (IRB) in the University of Missouri-Columbia IRB Office at (573) 882-9585

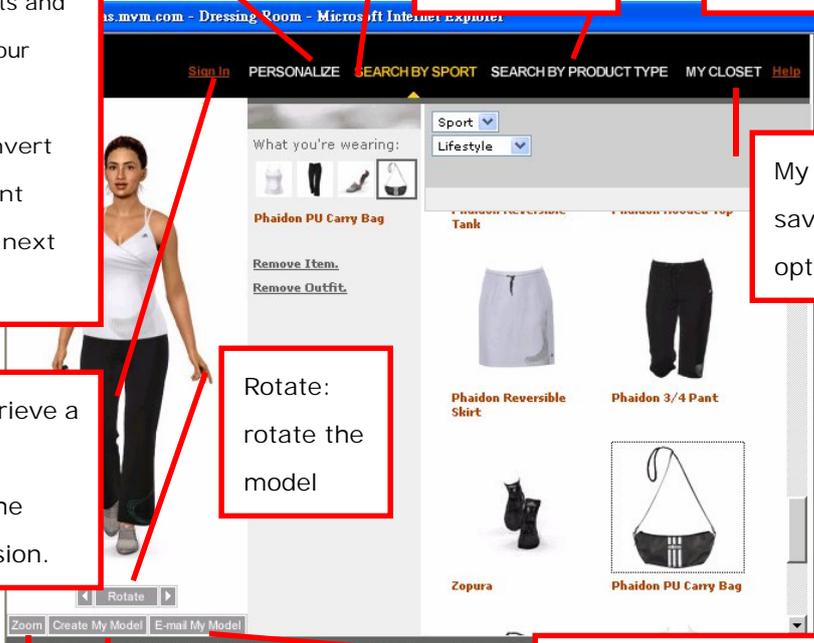
Thanks for your participation.

Signature here \_\_\_\_\_

## Appendix 2 General Instructions

Please go to the website: [http://adidas.mvm.com/adidas\\_ctx/jsp/sim.jsp](http://adidas.mvm.com/adidas_ctx/jsp/sim.jsp) and click your left hand side link (ENTER US). Please read the following description of the website. You will have 15 minutes to browse this website. Then, you can come to get your next section survey and start to answer it. **Remember! When you are browsing the website or answering the questionnaire, please do not discuss with others.**

### Description of the functions of the website:



The screenshot shows the Adidas MVM website interface. The navigation bar includes links for Sign In, PERSONALIZE, SEARCH BY SPORT, SEARCH BY PRODUCT TYPE, MY CLOSET, and Help. The main content area features a virtual model on the left and a list of clothing items on the right, including a Phaidon PU Carry Bag, Phaidon Reversible Skirt, Phaidon 3/4 Pant, Zopura shoes, and another Phaidon PU Carry Bag. The interface also includes search filters for Sport and Lifestyle, and options to Remove Item or Remove Outfit.

**Personalize:** personalize the measurements and features of your body. There is convert measurement table in the next page!

**Search by sport:** search items form the catalog by sport type

**Search by product type:** search items form the catalog by product type

**My closet:** save your options

**Sign in:** Retrieve a model or terminate the current session.

**Rotate:** rotate the model

**Zoom:** Enlarge the model image in a secondary window.

**Create my model, Shortcut** to the Personalize page.

**Email my model:** Send your model image to as many as three recipients at a time. This is a great way to get fashion advice from friends and family about what your model is wearing.

Appendix 3 Instrument (Section 1)

**Section 1 :**

**Now, you can start to fill out the questionnaire and please don't talk with others when you are answering the questions in order to make sure you work independently.**

**Please provide the following demographic information.**

**Indicate your choice by placing a check mark beside the correct option.**

**1. Which of the following best describes your age group?**

18-24

25-30

31-35

Greater than 35

**2. Gender:**  Male  Female

**3. Which of the following best describes your family's annual income (in dollars)?**

**(If you support yourself, please only include your income; otherwise, include your current family's income)**

Less than \$10,000/year

\$10,000-\$20,000/Year

\$20,000-\$30,000/Year

\$30,000-\$40,000/Year

\$40,000-\$50,000/Year

\$50,000-\$60,000/Year

More than \$70,000/Year

**4. What is your major? \_\_\_\_\_**

**5. Is English your first language?**

Yes  No

**6. What is your academic level?**

Freshman

Sophomore

Junior

Senior

Graduate

**6. What is your ethnic background? (check all that apply)**

African

Asian

European

Latino/a (any Central or South American country)

- Native American
- Latino/a-American
- African-American
- Asian-American
- European-American or Caucasian
- Not Listed, Please Specify \_\_\_\_\_

**Please provide the following information.**

**Indicate your choice by placing a check mark beside the correct option.**

1. Have you ever used the Internet for buying clothing and accessories?  
 **Yes**     **No**
2. Have you ever used the Internet for searching product information before purchasing clothing and accessories?  
 **Yes**     **No**
3. During the past six months, how often have you used the Internet to **search** information for clothing and accessories?  
 Never  
 Once or twice  
 Every few months  
 Every month  
 At least once a week
4. During the past six months, how often have you used the Internet to **purchase** clothing and accessories?  
 Never  
 Once or twice  
 Every few months  
 Every month  
 At least once a week
5. How often would you say that you purchase clothing and accessories online?  
 Never  
 Rarely  
 Sometimes  
 Often  
 Very often
6. How many times have you bought clothing and accessories online since May 1, 2005?  
            times

**Please express how strongly you agree or disagree with the following statements.**

**Indicate your choice by placing a check mark beside the correct number.**

1. In general, I am among the first in my circle of friends to purchase new clothing or fashion over the Internet.

Strongly Disagree 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_ 6 \_\_\_\_\_ 7 \_\_\_\_\_ Strongly Agree

2. Compared with my friends, I do more Internet shopping.

Strongly Disagree 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_ 6 \_\_\_\_\_ 7 \_\_\_\_\_ Strongly Agree

3. In general, I am the first in my circle of friends to know the names of the latest places to shop on the Internet.

Strongly Disagree 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_ 6 \_\_\_\_\_ 7 \_\_\_\_\_ Strongly Agree

4. Online shopping for me is highly enjoyable.

Strongly Disagree 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_ 6 \_\_\_\_\_ 7 \_\_\_\_\_ Strongly Agree

5. Spending time in online shopping is enjoyable in comparison with other things in daily life.

Strongly Disagree 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_ 6 \_\_\_\_\_ 7 \_\_\_\_\_ Strongly Agree

6. I enjoy being immersed in exciting virtual experience during online shopping.

Strongly Disagree 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_ 6 \_\_\_\_\_ 7 \_\_\_\_\_ Strongly Agree

7. I enjoy online shopping for its own sake, not just for the products I may want to purchase.

Strongly Disagree 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_ 6 \_\_\_\_\_ 7 \_\_\_\_\_ Strongly Agree

8. I could have a good time through online shopping because I am able to act on the “spur-of-the moment”.

Strongly Disagree 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_ 6 \_\_\_\_\_ 7 \_\_\_\_\_ Strongly Agree

9. What I want can be found from most of the time on online shopping experience.

Strongly Disagree 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_ 6 \_\_\_\_\_ 7 \_\_\_\_\_ Strongly Agree

10. I want to find what I really need through online shopping.

Strongly Disagree 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_ 6 \_\_\_\_\_ 7 \_\_\_\_\_ Strongly Agree

11. I usually go to apparel websites just for fun

Strongly Disagree 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_ 6 \_\_\_\_\_ 7 \_\_\_\_\_ Strongly Agree

Appendix 4 Instrument (Section 2)

**Remember! please answer the questionnaires based on how the site helps you to find something you are looking for, and not on the products of Adidas**

**Please express how strongly you agree or disagree with the following statements. Indicate your choice by placing a check mark beside the correct number.**

1. When I browse this website, I just want to have fun  
Strongly Disagree 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_ 6 \_\_\_\_\_ 7 \_\_\_\_\_ Strongly Agree

**Indicate your choice by placing a check mark beside the correct option.**

1. The site is for a brand (Adidas) that I am familiar with.

\_\_\_\_\_ **Yes**      \_\_\_\_\_ **No**

2. I have visited this website before.

\_\_\_\_\_ **Yes**      \_\_\_\_\_ **No**

3. I have purchased Adidas' product(s) because of this website before.

\_\_\_\_\_ **Yes**      \_\_\_\_\_ **No**

**Please express how strongly you agree or disagree with the following statements.**

**Indicate your choice by placing a check mark beside the correct number.**

1. I feel that I have a lot of control over my own personalized body, clothes, and accessories through the virtual experiences on this website.

Strongly Disagree 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_ 6 \_\_\_\_\_ 7 \_\_\_\_\_ Strongly Agree

2. I feel that I have a lot of control by seeing the Mix & Match of each item through the virtual experiences on this website.

Strongly Disagree 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_ 6 \_\_\_\_\_ 7 \_\_\_\_\_ Strongly Agree

3. I feel that I have a lot of control by seeing how well I look by wearing the clothes through the virtual experiences on this website.

Strongly Disagree 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_ 6 \_\_\_\_\_ 7 \_\_\_\_\_ Strongly Agree

4. I feel that I have a lot of control by seeing how the clothing fits to my body through the virtual experiences on this website.

Strongly Disagree 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_ 6 \_\_\_\_\_ 7 \_\_\_\_\_ Strongly Agree

5. While I am on the website, I can choose freely by changing the body features, sizes, clothes and accessories on *My Virtual Model*.

Strongly Disagree 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_ 6 \_\_\_\_\_ 7 \_\_\_\_\_ Strongly Agree

6. While surfing *My Virtual Model* on this website, my actions decide the kind of experiences I get.

Strongly Disagree 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_ 6 \_\_\_\_\_ 7 \_\_\_\_\_ Strongly Agree

7. "My Virtual Model" on this website is effective in providing feedbacks to me.

Strongly Disagree 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_ 6 \_\_\_\_\_ 7 \_\_\_\_\_ Strongly Agree

8. "My Virtual Model" facilitates two-way communication between the site and me.

Strongly Disagree 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_ 6 \_\_\_\_\_ 7 \_\_\_\_\_ Strongly Agree

9. The website makes me feel like a sale person is talking back to me and giving me advice.

Strongly Disagree 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_ 6 \_\_\_\_\_ 7 \_\_\_\_\_ Strongly Agree

10. "My Virtual Model" on this website processes my input very quickly.

Strongly Disagree 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_ 6 \_\_\_\_\_ 7 \_\_\_\_\_ Strongly Agree

11. Getting information of clothing and accessories I want from "My Virtual Model" on this website is very fast.

Strongly Disagree 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_ 6 \_\_\_\_\_ 7 \_\_\_\_\_ Strongly Agree

12. I am able to obtain the information I want from "My Virtual Model" on this website without any delay.

Strongly Disagree 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_ 6 \_\_\_\_\_ 7 \_\_\_\_\_ Strongly Agree

13. When I click on each function of "My Virtual Model" on this website, I feel I am getting instantaneous information such as virtual assortments of the clothes and accessories.

Strongly Disagree 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_ 6 \_\_\_\_\_ 7 \_\_\_\_\_ Strongly Agree

**Please indicate your choice by placing a check mark beside the correct number.**

2. How would you evaluate this website:

	1	2	3	4	5	6	7	
Not Fun								Fun
Not Enjoyable								Enjoyable
Boring								Interesting
Risky								Safe
Chaotic								Ordered
Foolish								Wise
Unreliable								Reliable
Useless								Useful
Unpleasant								Pleasant
Weary								Entertaining
Awful								Nice

**Remember! please answer the questionnaires based on how the site helps you to find something you are looking for, and not on the products of Adidas.**

1. Assuming the products on the website suit my taste or needs, I would be willing to purchase clothes or accessories through this website.

Strongly Disagree 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_ 6 \_\_\_\_\_ 7 \_\_\_\_\_ Strongly Agree

2. The likelihood that I would shop on this website is high.

Strongly Disagree 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_ 6 \_\_\_\_\_ 7 \_\_\_\_\_ Strongly Agree

3. I would purchase the product on this website only because of "My Virtual Model".

Strongly Disagree 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_ 6 \_\_\_\_\_ 7 \_\_\_\_\_ Strongly Agree

4. I would visit this website again.

Strongly Disagree 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_ 6 \_\_\_\_\_ 7 \_\_\_\_\_ Strongly Agree

5. I would visit this website again with intention to purchase.

Strongly Disagree 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_ 6 \_\_\_\_\_ 7 \_\_\_\_\_ Strongly Agree

## Appendix 5 Permission to Recruit Subjects

Dear professor:

My thesis entitled “the effects of consumers’ characteristics and their online shopping goals on their perceived interactivity and shopping behaviors” is in the data collecting process. The purpose of this study is to investigate consumers’ experience of the Adidas’ “My Virtual Model” website in terms of how the site helps consumers to find something they are looking for. Your students will be excellent samples I could use; therefore, I would like to have your permission to recruit the students in your classes as participants. Their participation will greatly contribute to building a body of knowledge on consumers’ online apparel shopping behaviors.

If that is possible, please put the incentives, the time (see the sign up sheets), and the place (computer lab in Stanely 147) of participation of this research project in the syllabus and announce them again in the beginning of the semester. The participants will be asked to come to a computer lab at the scheduled date and time. They will have a chance to win 50 dollars. A sign-up sheet will be provided to get participants’ contact information. The participants will receive a friendly reminder before the research project. The experiment should not take more than 30 minutes to complete.

If you have any questions about this research project, please feel free to contact Debbie (Pin-Wuan) Lin, at (573) 639-1855 ([plw94@mizzou.edu](mailto:plw94@mizzou.edu)). For additional information regarding human participation in research, please contact the Campus Institutional Review Board (IRB) in the University of Missouri-Columbia IRB Office at (573) 882-9585

Thank you very much for your help.

Signature here \_\_\_\_\_

**Appendix 6 Measurement Converting Table**

<b>Pounds</b>	<b>Kilos</b>	<b>Pounds</b>	<b>Kilos</b>
50.00	22.68	320.00	145.15
60.00	27.22	330.00	149.69
70.00	31.75	340.00	154.22
80.00	36.29	350.00	158.76
90.00	40.82	360.00	163.29
100.00	45.36	370.00	167.83
110.00	49.90	380.00	172.36
120.00	54.43	390.00	176.90
130.00	58.97	400.00	181.44
140.00	63.50	410.00	185.97
150.00	68.04	420.00	190.51
160.00	72.57	430.00	195.04
170.00	77.11	440.00	199.58
180.00	81.65	450.00	204.12
190.00	86.18		
200.00	90.72		
210.00	95.25		
220.00	99.79		
230.00	104.33		
240.00	108.86		
250.00	113.40		
260.00	117.93		
270.00	122.47		
280.00	127.01		
290.00	131.54		
300.00	136.08		

<b>Feet Inches</b>	<b>m</b>	<b>Feet Inches</b>	<b>m</b>
3 feet 0 inches	,91	5 feet 0 inches	1,52.
3 feet 1 inches	,93	5 feet 1 inches	1,54.
3 feet 2 inches	,96	5 feet 2 inches	1,57.
3 feet 3 inches	,99	5 feet 3 inches	1,60
3 feet 4 inches	1,01	5 feet 4 inches	1,62
3 feet 5 inches	1,04	5 feet 5 inches	1,65
3 feet 6 inches	1,06	5 feet 6 inches	1,67
3 feet 7 inches	1,09	5 feet 7 inches	1,70
3 feet 8 inches	1,11	5 feet 8 inches	1,72
3 feet 9 inches	1,14	5 feet 9 inches	1,75
3 feet 10 inches	1,16	5 feet 10 inches	1,77
3 feet 11 inches	1,19	5 feet 11 inches	1,80
4 feet 0 inches	1,21	6 feet 0 inches	1,82
4 feet 1 inches	1,24	6 feet 1 inches	1,85
4 feet 2 inches	1,27	6 feet 2 inches	1,87
4 feet 3 inches	1,29	6 feet 3 inches	1,90
4 feet 4 inches	1,32	6 feet 4 inches	1,93
4 feet 5 inches	1,34	6 feet 5 inches	1,95
4 feet 6 inches	1,37	6 feet 6 inches	1,98
4 feet 7 inches	1,39	6 feet 7 inches	2,00
4 feet 8 inches	1,42	6 feet 8 inches	2,03
4 feet 9 inches	1,44	6 feet 9 inches	2,05
4 feet 10 inches	1,47	6 feet 10 inches	2,08
4 feet 11 inches	1,49	6 feet 11 inches	2,10

## Appendix 7 The Most Recent IRB Approval

	<b>Campus Institutional Review Board</b> University of Missouri-Columbia	483 McReynolds Hall Columbia, MO 65211-1150 PHONE: (573) 882-9585 FAX: (573) 884-0663
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Project Number: **1058097**

Project Title: The effects of consumers` online shopping goals and their characteristics on shopping behaviors and perceived interactivity

Approval Date: 01-30-2006

Expiration Date: 01-18-2007

Investigator(s): Hawley, Jana Marie  
Lin, Pin-Wuan  
Waigandt, Alexander

Level Granted: Expedited

Your Amendment was reviewed and we have determined that you are APPROVED to continue to conduct human subject research on the above-referenced project.

Federal regulations and Campus IRB policies require continuing review of research projects involving human subjects. Campus IRB approval will expire one (1) year from the date of approval unless otherwise indicated. Before the one (1) year expiration date, you must submit a Campus IRB Continuing Review Report to the Campus IRB. Any unexpected events are to be reported at that time. The Campus IRB reserves the right to inspect your records to ensure compliance with federal regulations at any point during your project period and three (3) years from the date of completion of your research.

Any additional changes to your study must be promptly reported and subsequently approved. If you have any questions, please contact the Campus IRB office at (573) 882-9585.

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## VITA

Pin-Wuan (Debbie) Lin was born August 8, 1982, in Taipei, Taiwan. She attended Fu-Jen Catholic University in Taiwan. She received a B.S. -Fashion Marketing (2004) in Textile and Clothing. After graduating from college, she attended the University of Missouri-Columbia and received a M.S. (2006) degree in the Department of Textile and Apparel Management. While attending University of Missouri-Columbia, she received Maxine Hobbs Patrick and Homer Patrick Graduate fellowship from the Department of Textile and Apparel Management and Curator's Grant-in-Aid scholarship from University of Missouri-Columbia.