Enhancing Brand Loyalty through Brand Experience:
Application of Online Flow Theory

by

Soo In Shim

A dissertation submitted to the Graduate Faculty of
Auburn University
in partial fulfillment of the
requirements for the Degree of
Doctor of Philosophy

Auburn, Alabama
May 7, 2012

Keywords: brand, experience, loyalty, flow, online, shopping

Approved by

Sandra Forsythe, Co-chair, Wrangler Professor of Consumer Affairs
Wi-Suk Kwon, Co-chair, Associate Professor of Consumer Affairs
Hye Jeong Kim, Assistant Professor of Consumer Affairs
Peng Zeng, Associate Professor of Mathematics & Statistics
Gisela Buschle-Diller, Professor of Polymer and Fiber Engineering

Abstract

Companies strive to increase loyalty to their brand by providing their customers with positive brand-related experiences. However, no published work has investigated how consumers become absorbed in shopping a brand's Website and how their optimal experience on that Website, called online flow, can influence their general brand experience and brand loyalty. The purpose of this study is to examine the relationships between consumers' skill, perceived challenge of the task, online flow, brand experience, and brand loyalty. Data were collected using an online survey with a national sample of 500 female adults 20 to 34 years old. Respondents performed a given online browsing task on an existing brand's Website randomly assigned to them and completed a questionnaire. The results from structural equation modeling analysis of the data show that the more skillful the consumers, the more likely they are to reach a state of online flow on a brand's Website, providing support for flow theory. Results also showed that the relationship between skill and online flow was greater for consumers who felt more challenged by the given task, confirming the principle of flow theory that flow occurs when high skill is matched with high challenge. Further, online flow positively influenced brand experience, which in turn positively influenced brand loyalty. This study provides important theoretical, methodological, and managerial implications. Limitations and suggestions for future research are also discussed.

Acknowledgments

I would like to express my deepest gratitude to my co-advisors, Dr. Sandra Forsythe and Dr. Wi-Suk Kwon, for their excellent guidance, caring, patience, and for providing me with an excellent atmosphere for doing research throughout my graduate career at Auburn University. I would like to thank Dr. Hye Jeong Kim and Dr. Peng Zeng for guiding my research and helping me to develop my background in consumer affairs and statistics. I would also like to thank Dr. Gisela Buschle-diller who was willing to serve as an outside reader for me. Special thanks go to Dr. Carol Warfield, who let me pursue higher education in the department of Consumer Affairs at Auburn University and provided me with opportunities for financial support.

I would like to thank my friend David Branscomb for always being willing to help and give his best suggestions. I would also like to thank Christin Seifert for helping me collect data. Many thanks to Qin Bian, Yi Sheng Goh, Jae Youn Chang, Shuying Long, Yishuang Li, and other colleagues, who used to use or are using graduate offices in Spidle Hall, for their encouragement and emotional support during my graduate studies. My thanks must go also to Dr. Yuri Lee, who gave me sage suggestions to help me overcome difficulties of studying abroad.

Lastly, I am heartily thankful to my parents, elder brother, and younger sister. They were always supporting me and encouraging me with their best wishes. This dissertation is simply impossible without them.

Table of Contents

List of Tables

List of Figures

Chapter 1. Introduction

The recent market environment requires more effort for business success. An increasing number of product brands lowers the customer's threshold of switching brands (Berschler, 2005), raising the level of competition and the difficulty of achieving success (Müller, Florès, Agrebi, & Chandon, 2008). Many senior business managers believe that traditional competitive advantages such as price, product, quality, and brand no longer effectively differentiate a company from its competitors (Shaw & Ivens, 2005). As an alternative competitive advantage, researchers have recommended that business managers strive to make customers loyal to their brand by building a close relationship with their customers (Kotler & Keller, 2009; Meyer & Schwager, 2007; Pine & Gilmore, 1998).

Strong brand loyalty is reflected by customers' emotional attachment to a brand and their patronage behavior toward the brand (Chaudhuri & Holbrook, 2001). Loyal customers are beneficial to a company for several reasons. Loyal customers tend to stay longer in a brand's store and buy more of the brand's products through repeated purchases (VanParys, 2007). This patronage behavior leads to increased purchase volume (Reichheld & Schefter, 2000) among loyal customers. Baldinger and Rubinson (1996) demonstrate that a small number of loyal customers represent a large percentage of the brand's sales. Furthermore, loyal customers more easily retain their favorable attitude toward a brand than do other customers (Reichheld & Schefter, 2000) and are more likely to share with other customers their great experiences with the brand. These behaviors among loyal customers illustrate the importance of strong brand loyalty.

Enhancing brand experiences is key to building strong brand loyalty (Berry & Carbone, 2007; Frow & Payne, 2007; Mascarenhas, Kesavan, & Bernacchi, 2006; VanParys, 2007). Brand experience is reflected by consumers' synthesized perceptions of all points of contact with a brand, based on their personal experiences (Crosby & Lunde, 2008). Because strong brand loyalty presupposes a long-term and close relationship between a consumer and a brand (Berschler, 2005), consumers who have not experienced a brand are hardly committed to the brand. In other words, abundant, various, and positive brand experiences are necessary to foster strong brand loyalty. For this reason, brand experience management has been incorporated in the mission statements of many companies, such as Dell, Toyota, and Starbucks (Verhoef et al., 2009), with the aim of building strong brand loyalty through the accumulation of positive brand experiences (Berry & Carbone, 2007; Berschler, 2005; Biedenbach & Marell, 2010; Brakus, Schmitt, & Zarantonello, 2009; Frow & Payne, 2007; Mascarenhas et al., 2006; Meyer & Schwager, 2007; VanParys, 2007).

Brakus et al. (2009) propose that brand experience is shaped through consumers' interaction with brand-related stimuli including brand identity (e.g., name, symbol, sign, color-combination), packaging, marketing communications (e.g., advertisements, brochures, Websites), and marketing environments where the brand is sold (e.g., stores, events). As a channel for both marketing communication and sales, a brand's Website provides a venue in which a consumer experiences the brand. A brand's Website is crucial in conveying brand experience because consumers can freely explore the brand's offerings on its Website through richer and more interactive ways than other communication channels (Berthon, Pitt, & Watson, 1996; Keller, 2010; Müller et al., 2008; Pine & Gilmore, 1998). In particular, Pine and Gilmore (1998)

describe a brand's Website as the most efficient marketing communication channel to enrich various kinds of brand experiences such as sensory, emotional, and educational experiences.

Consumers' interaction with brand-related stimuli on the Website can lead to experiences of online flow -- a state of optimal, outstanding, memorable, extraordinary, totally absorbing, or engaging online experiences (Hoffman & Novak, 1996, 2009; Huang, 2003; Novak, Hoffman, & Duhachek, 2003; Skadberg & Kimmel, 2004). The present study proposes that online flow experienced by a consumer on a brand's Website can positively influence the consumer's overall brand experience. While prior studies have concentrated on the positive effect of online flow on online learning (e.g., Hoffman & Novak, 1996; Skadberg & Kimmel, 2004) and exploratory behavior (e.g., Agarwal & Karahanna, 2000; Hoffman & Novak, 1996; Huang, 2006; Korzaan, 2003; Novak et al., 2003), few studies have addressed the impact of online flow on consumers' attitudes and behaviors in the context of online shopping (e.g., Bridges & Florsheim, 2008; Wang, Baker, Wagner, & Wakefield, 2007). Furthermore, there are no studies verifying the benefits of online flow in enhancing brand experience, and thereby brand loyalty, a goal of the present study.

As only the most compelling experiences with a Website will lead to online flow, the question becomes how the brand's Website can facilitate consumers in reaching a state of online flow when visiting their site. Hoffman and Novak (1996, 2009) have developed an integrated model of online flow in computer-mediated contexts that considers various antecedents including skill, challenge, interactivity, vividness, attention, and telepresence. Although there have been disagreements on whether some of the antecedents of online flow proposed by Hoffman and Novak (1996, 2009) are actually antecedents or dimensions of online flow (Li & Browne, 2006; Liu, 2003; McMillan & Hwang, 2002; Trevino & Webster, 1992; Wang et al., 2007; Webster,

3

Trevino, & Ryan, 1993), a consensus among researchers is that online flow is determined by the matched skill and challenge (Ghani & Deshpande, 1994; Koufaris, 2002; Novak, Hoffman, & Yung, 2000; Skadberg & Kimmel, 2004). According to Csikszentmihalyi (1991, 1997), within a given online task, skill is a user's ability to accomplish the task, while challenge is the amount of effort required to accomplish the task. Flow theory postulates that consumers can reach flow only when they have sufficient skill to complete a task that is manageably challenging (Csikszentmihalyi, 1991, 1997). As a type of flow, the state of online flow is also influenced by skill and challenge, as empirically verified by qualitative (Chen, Wigand, & Nilan, 1999; Pace, 2004) as well as quantitative (Hoffman & Novak, 1996; Novak et al., 2000) studies.

However, prior studies have tended to focus on skill and challenge only in terms of online navigational tasks (Chen, 2006; Chen et al., 1999; Hoffman & Novak, 1996; Novak et al., 2000; Pace, 2004), which may be insufficient for actual online shopping. Because product evaluation is a key part of a consumer's purchase decision making process (Blackwell, Miniard, & Engel, 2006), navigational skill alone is insufficient to reflect all necessary skills to complete an online shopping task. For example, even if a navigational skill facilitates consumers' efforts to find a set of alternative products, the consumers may still feel challenged in making a purchase decision due to a lack of expertise in judging the quality or other characteristics of the products. Chen et al. (1999) argue that skill in the Web environment should not be simply referred to as the ability to use Web browsers. Hoffman and Novak (1996) also support the need to broaden conceptualization of skill and challenge beyond navigation skill and challenge because online shopping entails more complex tasks than online browsing. Thus, the present study explores a variety of dimensions of skill (e.g., Web search skill, e-commerce skill, general shopping skill, and clothing shopping skill) and challenge (e.g., perceived challenge toward online browsing

4

task) relevant to various online browsing tasks as potential antecedents of online flow a consumer experiences on a brand's Website.

Purpose

The purpose of this study is to examine the relationships between skills, challenges, online flow, brand experience, and brand loyalty. The specific objectives of this study are

(1) To examine interaction between skill and challenge as an antecedent to online flow on a brand's Website;

(2) To examine the direct relationship between online flow experienced on a brand's Website and consumers' brand experience;

(3) To examine the direct relationship between consumers' brand experience and their brand loyalty; and

(4) To examine the mediating role of brand experience for the relationship between online flow and brand loyalty.

Significance of the Study

The present study illuminates the mechanism by which brand loyalty is enhanced through positive brand experience resulting from experiencing online flow while on a brand's Website. Prior studies have proposed these relationships in fragments, but none of them have simultaneously investigated online flow, brand experience, and brand loyalty. Applying flow theory, this study proposes a set of skills and challenges that influence the level of online flow that consumers experience. Because there are no studies identifying the benefits of online flow for branding and marketing, the present study contributes to a better understanding of how key

variables in flow theory (i.e., skill, challenge, and online flow) influence brand experience and thereby brand loyalty.

The present study also contributes to the literature by extending the application of flow theory to the context of online shopping. Because most prior studies of online flow operationalize skill and challenge specific to online navigational tasks, their operationalization is not appropriate to reaching online flow during online shopping activities. The present study adopts broader definitions of skill and challenge, encompassing all possible skills and challenges specific to online shopping tasks for the product category chosen for this study (apparel) as well as navigational skills and challenges in the Web environment. Moreover, the present study comprehensively examines the possible dimensions of online flow, identified in prior studies, in order to identify which dimensions are related to online flow in the context of online shopping for apparel. Thus, this study contributes to filling a gap between understanding flow theory in general and its contextual application to online shopping.

The present study also provides managerial implications by elucidating the sequential process of building brand loyalty through a brand's Website. By hypothesizing the process (of developing brand loyalty) based on theoretical support and verifying the hypotheses with empirical data, the present study provides marketers with a better understanding of how to facilitate online flow experience when shopping their Website in order to enhance the customer's brand experience and build strong brand loyalty. Importantly, the present study tests the mediating role of brand experience on the relationships between online flow and brand loyalty. Accordingly, marketers can use the findings of this study to ascertain the importance of brand experience on the development of brand loyalty and to establish a more effective strategy for brand experience management. Furthermore, this increased knowledge can help marketers better

understand the important role of online flow in enriching brand experience and ultimately more effectively operate their brand's Websites to improve brand experience management.

Definition of Terms

- Brand experience: A customer's subjective response to brand-related stimuli (e.g., brand identity, packaging, marketing communications, and marketing environments where the brand is sold), reflecting four dimensions (Brakus et al., 2009):

    (1) sensory experience, stimulating the five senses;

    (2) affective experience, provoking distinguished emotions and feelings;

    (3) behavioral experience, accompanying bodily reactions; and

    (4) intellectual experience, appealing to or using the capacity for rational thought

- Brand loyalty: A customer's belief in the priority of a brand over other rival brands and subsequent behavioral intention to repurchase, revisit, and recommend the brand, and pay a price premium for the brand (Oliver, 1999; van den Brink, Odekerken-Schröder, & Pauwels, 2006; Zeithaml, Berry, & Parasuraman, 1996)

- Challenge: The extent of a consumer's mental discomfort provoked by required effort to reach a purchase decision on a brand's Website (Chen et al., 1999; Ghani & Deshpande, 1994)

- Online flow: The extent to which a consumer is engaged in interaction with brand-related stimuli while performing an online shopping task on a brand's Website, as represented by the following eight characteristics (Chen, 2006; Ghani & Deshpande, 1994; Guo & Poole, 2009; Huang, 2006; Jackson & Marsh, 1996; Koufaris, 2002; Novak et al., 2000; Skadberg & Kimmel, 2004; Trevino & Webster, 1992; Wang et al., 2007; Webster et al., 1993):

7

(1) Autotelic experience: the extent to which consumers perceives that they feel rewarded in doing the task themselves, accompanied by positive affects such as enjoyment and intrinsic interest

(2) Concentration: the extent to which consumers perceive that they focuses their attention on the task

(3) Control: the extent to which consumers perceive that they can complete the task using their own ability to manage

(4) Curiosity: the extent to which consumers perceives that they desire to learn during the task

(5) Mergence of action and awareness: the extent to which consumers perceives that they respond to stimulus immediately after being aware of the stimulus during the task

(6) Loss of self-consciousness: the extent to which consumers perceives that they are not aware of how others critically view their doing the task

(7) Telepresence: the extent to which consumers perceive a situation as if they were in another environment where they are actually not

(8) Time distortion: the extent to which consumers perceives that time has passed more rapidly than ordinarily during the task

- Skill: The extent to which a consumer is equipped with abilities needed to shop on a brand's Website including the consumer's abilities to navigate the Website, find a right product category, find alternative products, evaluate and compare the quality and suitability of the alternative products, identify the desired product, complete transactions on the Website, and solve any problems in the shopping process.

Chapter 2. Literature Review and Hypotheses

This chapter provides a review of the relevant literature addressing major concepts used to build the model and hypotheses tested in the present study. This review consists of three sections: flow, brand experience, and brand loyalty. The first section describes flow including flow theory, online flow, and skills and challenges as the key determinants of online flow in the context of online shopping. The second section reviews literature on brand experience in order to identify the definition and construct of brand experience. The final section identifies brand loyalty and discusses the relationships between brand loyalty and other variables. Hypotheses are presented along with supporting literature in these three sections.

Flow

Flow theory. Flow, defined as "the state in which people are so involved in an activity that nothing else seems to matter" (Csikszentmihalyi, 1991, p. 4), represents the highest quality of experience (Csikszentmihalyi & LeFevre, 1989). Flow has also been described as a state of memorable, extraordinary, and totally absorbing experience (Caru & Cova, 2003; LaSalle & Britton, 2002; Pine & Gilmore, 1998). If a person reaches flow, the person is stretching his or her capabilities, which may accompany new skill acquisition and self-esteem enhancement, beyond simply enjoying the moment (Csikszentmihalyi & LeFevre, 1989).

Csikszentmihalyi (1991, 1997) argues that individuals in a flow state perceive a clear goal in the activity they are performing and feel a sense of control over the activity. This sense of

control is also described as a feeling of being able to do anything (Jackson & Marsh, 1996). In addition, due to the intense involvement, individuals in a flow state concentrate on the activity so much that their attention is narrowed, leading them to forget or ignore their surroundings, concerns, basic psychological needs, and even the feeling of self-consciousness (Csikszentmihalyi, 1991, 1997). Moreover, individuals in a state of flow may feel that time seems to pass in an non-ordinary manner (either very slowly or very rapidly) and may be aware of himself or herself merging with the activity (Csikszentmihalyi, 1991, 1997). As a key characteristic of flow, Csikszentmihalyi (1991, 1997) emphasizes autotelic experience that makes the deep involvement intrinsically rewarding, accompanied by positive affects such as enjoyment and interest.

According to flow theory (Csikszentmihalyi, 1991), flow is determined by two factors: skill and challenge. Csikszentmihalyi (1991) defines skill as a person's ability to perform a given task successfully and challenge as the amount of effort that is required to accomplish the task. As shown in Figure 2.1, Csikszentmihalyi (1991) portrays flow with the two axes of skill and challenge. If a level of challenge is higher than the level of skill possessed by users, individuals are likely to be overwhelmed by anxiety because they are not able to handle the task. If the level of challenge is lower than the level of skill, little effort is required to complete the task, thereby provoking boredom. Individuals may feel apathy toward the task if both the levels of skill and challenge are too low, in spite of the matched skill and challenge (e.g., routine tasks). Flow occurs only when formidable challenge is manageable by a person's skills; that is, both the levels of skill and challenge are high.
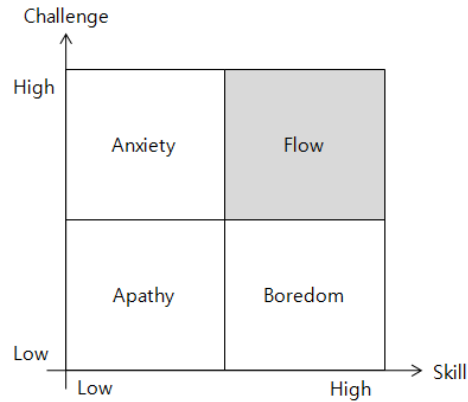
Figure 2.1. Csikszentmihalyi's (1991) four types of experiences in flow theory

Csikszentmihalyi (1997) also suggests an advanced typology of eight categories of experiences based on more levels of skill and challenge (see Figure 2.2). The eight categories include apathy (low skill × low challenge), boredom (medium skill × low challenge), relaxation (high skill × low challenge), worry (low skill × medium challenge), control (high skill × medium challenge), anxiety (low skill × high challenge), arousal (medium skill × high challenge), and flow (high skill × high challenge). This typology of experience also shows that reaching flow requires both a high level of skill and a high level of challenge.
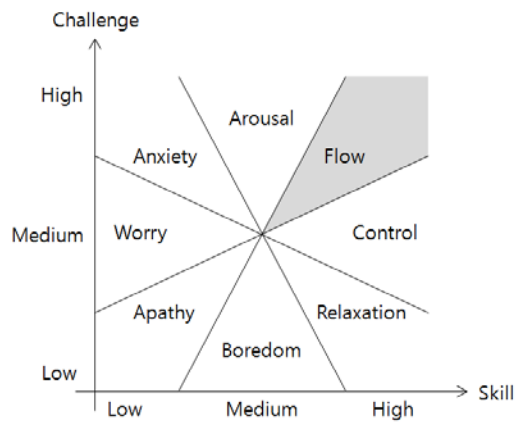
Figure 2.2. Csikszentmihalyi's (1997) eight types of experiences in flow theory

Online flow. Flow can occur in interactions with symbolic systems, such as mathematics and computer languages, as well as in the pursuit of physical activities (Csikszentmihalyi, 1997). Online flow is the flow state specific to online environments including an intranet and the Internet. The concept of online flow has evolved in the context of information technology (Agarwal & Karahanna, 2000), human-computer interaction (Li & Browne, 2006; Trevino & Webster, 1992; Webster et al., 1993), marketing in hypermedia computer-mediated environments (Hoffman & Novak, 1996, 2009; Novak et al., 2000), and Website navigation (Chen et al., 1999; Hoffman & Novak, 1997; Pace, 2004).

Just as the concept of flow covers various activities in everyday life, online flow may be achieved through a variety of online activities such as searching information on Websites, distance learning, online chatting, playing online games, and online shopping. Perhaps the most widely adopted definition of online flow is "the state occurring during network navigation which is characterized by a seamless sequence of responses facilitated by machine interactivity, intrinsically enjoyable, accompanied by a loss of self-consciousness, and self-reinforcing" (Hoffman & Novak, 1996, p. 57). This definition indicates that online flow accompanies a deep engagement with a navigation activity. Some additional characteristics of online flow are suggested, such as telepresence referring to a sense of presence in a non-existing environment by means of a set of technologies (Pace, 2004).

Online flow reflects the representative characteristics of flow. Chen, Wigand, and Nilan (1999) demonstrate that descriptions of online flow are consistent with other flow activities such as dancing and rock climbing. Prior studies have examined various characteristics of online flow including *a clear goal* (Chen, 2006; Guo & Poole, 2009), *immediate feedback* (Chen, 2006; Guo & Poole, 2009), *matched skill and challenge* (Guo & Poole, 2009), *concentration* (Chen, 2006;

Chen et al., 1999; Ghani & Deshpande, 1994; Guo & Poole, 2009; Koufaris, 2002), *focused immersions* (Agarwal & Karahanna, 2000), *total involvement* (Chen et al., 1999), *an attention focus* (Huang, 2006; Koufaris, 2002; Novak et al., 2000; Trevino & Webster, 1992; Wang et al., 2007; Webster et al., 1993), *reduced awareness of irrelevant factors* (Pace, 2004), *a sense of control* (Agarwal & Karahanna, 2000; Chen, 2006; Chen et al., 1999; Ghani & Deshpande, 1994; Guo & Poole, 2009; Huang, 2006; Koufaris, 2002; Novak et al., 2000; Pace, 2004; Trevino & Webster, 1992; Wang et al., 2007; Webster et al., 1993), *mental alertness* (Pace, 2004), *mergence of activity and awareness* (Chen, 2006; Guo & Poole, 2009; Pace, 2004), *time distortion* (Chen, 2006; Chen et al., 1999; Guo & Poole, 2009; Novak et al., 2000; Pace, 2004; Skadberg & Kimmel, 2004), *temporal dissociation* (Agarwal & Karahanna, 2000), *a loss of self-consciousness* (Chen, 2006; Guo & Poole, 2009), *enjoyment* (Agarwal & Karahanna, 2000; Chen et al., 1999; Ghani & Deshpande, 1994; Huang, 2006; Koufaris, 2002; Skadberg & Kimmel, 2004), *curiosity* (Agarwal & Karahanna, 2000; Huang, 2006; Trevino & Webster, 1992; Wang et al., 2007; Webster et al., 1993), *intrinsic interest* (Chen et al., 1999; Huang, 2006; Trevino & Webster, 1992; Wang et al., 2007; Webster et al., 1993), *an autotelic experience* (Guo & Poole, 2009), *joy of discovery and learning* (Pace, 2004), and *telepresence* (Chen, 2006; Novak et al., 2000; Pace, 2004; Skadberg & Kimmel, 2004) (see Table 2.1).

Several of these terms designate the common characteristics of online flow or show conceptual similarity. For example, concentration is alternatively referred to as focused immersion, total involvement, and an attention focus (Guo & Poole, 2009); all these terms illustrate a person in flow focusing his or her attention totally on the activity that he or she is performing in a Web environment. Because both time distortion and temporary dissociation refer to a sense of time passing in an abnormal speed during a Web task, the two terms are used

13

Table 2.1

Online Flow Related Concepts from Selective Prior Studies

Source	Online flow related concepts based on their roles identified by the source		
	Antecedents	Dimensions	Consequences
Ghani and Deshpande (1994)	Control	Enjoyment Concentration	
Chen, Wigand, and Nilan (1999)	Control	Total involvement Concentration Enjoyment Intrinsic interest Time distortion	
Agarwal and Karahanna (2000)		Temporal dissociation Focused immersion Enjoyment Control Curiosity	
Hoffman and Novak (1996); and Novak, Hoffman, and Yung (2000)	Focused attention Telepresence	Flow verbatim	
Koufaris (2002)		Control Enjoyment Concentration	

Pace (2004)	Curiosity
	Clear goal
	Focused attention
		Joy of discovery and
		  learning
		Reduced awareness of
		  irrelevant factors
		Time distortion
		Mergence of action and
		  awareness
		Control
		Mental alertness
		Telepresence	

Skadberg and Kimmel (2004)	Telepresence	Time distortion Enjoyment	
Chen (2006)	Clear goal Control Immediate feedback Mergence of action and awareness	Telepresence Time distortion Concentration Loss of self-consciousness	Enjoyment
Huang (2006)		Control Enjoyment Attention Intrinsic interest	

Table 2.1 (continued)

Online Flow Related Concepts from Selective Prior Studies

Source	Online flow related concepts based on their roles identified by the source		
	Antecedents	Dimensions	Consequences

Guo and Poole (2009)	Clear goal
	Immediate feedback
	Balance of skill and
	    challenge
		Concentration
		Mergence of action and
		    awareness
		Control
		Time distortion
		Loss of self-consciousness
		Autotelic experience	

Hoffman and Novak (2009)	Focused attention Telepresence	Flow verbatim	Control
Trevino and Webster (1992); Webster, Trevino, and Ryan (1993); Huang (2003); Wang, Baker, Wagner, and Wakefield (2007); and Ho and Kuo (2010)		Control Attention Curiosity Intrinsic interest	

interchangeably (Guo & Poole, 2009). Enjoyment and intrinsic interest are regarded as the same

concept representing a pleasant feeling that stems from performing the Web task itself or

learning through the activity. Moreover, autotelic experience embraces any kinds of sense of

rewarding for performing the Web task by including enjoyment and intrinsic interest, and thus it

is simply operationalized as enjoyment in some studies (e.g., Ghani & Deshpande, 1994; Huang,

2006; Koufaris, 2002).

     Furthermore, some of the characteristics of online flow show a partial overlap in their

definitions. For instance, concentration is considered as centering attention on a limited stimulus

field (Guo & Poole, 2009), which shares common characteristics with mental alertness in which

the person does not feel physically tired or hungry. Concentration may also have a positive

relationship with reduced awareness of other factors (Pace, 2004). Reduced awareness of other

factors may overlap with other characteristics such as telepresence reflecting a sense of being in a Web-created environment. Further, unawareness of self-consciousness appears similar to the loss of self-consciousness or the merging of activity and awareness. A clear goal may be a precondition of a sense of control because a sense of control stems from a perception that the person can achieve the outcomes of the Web activity only by his or her own control (Guo & Poole, 2009).

Because of the conceptual similarity among several characteristics of online flow, many researchers have conceptualized online flow by categorizing these characteristics as antecedents, dimensions, or consequences of online flow. Conceptualization of online flow is still controversial because no previous studies have examined all the widely known elements of online flow (Guo & Poole, 2009). As shown in Table 2.1, most studies selectively adopted a few characteristics of online flow. Some researchers subjectively categorized these selected characteristic into antecedents, dimensions, and consequences of online flow (Chen, 2006; Chen et al., 1999; Guo & Poole, 2009), leading to inconsistent categorizations across researchers. For example, a sense of control is regarded as an antecedent by Chen (2006), a dimension of flow by Ho and Kuo (2010), and a consequence of flow by Hoffman and Novak (2009).

The inconsistent conceptualization results in different approaches to operationalizing online flow, and thus increased difficulty in measuring it. There are two opposing perspectives on the issue of how to measure online flow. One perspective is that online flow is a multi-dimensional construct (e.g., Li & Browne, 2006; Trevino & Webster, 1992; Wang et al., 2007; Webster et al., 1993). Researchers supporting this perspective measure online flow by combining multiple scales that measure various characteristics of flow, such as control, enjoyment, attention, and intrinsic interest. Researchers from the other perspective treat online flow as a uni-

dimensional construct (e.g., Hoffman & Novak, 1996; Novak et al., 2000). They propose a uni-dimensional measurement comprising a narrative description of online flow accompanying three items: "Do you think you have ever experienced flow on the Web?", "In general, how frequently would you say you have experienced 'flow' when you use the Web?", and "Most of the time I use the Web, I feel that I am in flow" (Novak et al., 2000, p. 28). Researchers supporting the uni-dimensional perspective argue that the multiple dimensions of online flow proposed by researchers who advocate the multidimensional perspective are actually antecedents of online flow, not dimensions of online flow.

However, some studies report that 20% to 40% of their respondents mentioned difficulty in understanding technical terms, such as flow, in the questionnaires (Chen et al., 1999; Pace, 2004); therefore, a multi-dimensional measurement of online flow is expected to be more reliable than a uni-dimensional measure. Compared to the uni-dimensional measurement of online flow, the multi-dimensional measurement provides concrete items that are less likely to be interpreted differently among respondents (Hoffman & Novak, 2009). For this reason, in the present study, online flow is considered as a multi-dimensional construct, comprising all known characteristics of flow. However, three previously identified characteristics -- a clear goal, immediate feedback, and a balance of skill and challenge -- are not included as the dimensions of online flow in the present study because many previous studies have regarded these characteristics as preconditions that enable online flow to occur (Ghani & Deshpande, 1994; Guo & Poole, 2009; Huang, 2006; Koufaris, 2002; Novak et al., 2000; Skadberg & Kimmel, 2004; Trevino & Webster, 1992; Wang et al., 2007; Webster et al., 1993). Moreover, the overlapping characteristics of online flow identified in previous studies can be merged into a single term. Thus, eight characteristics are used in the present study as dimensions of online flow: a sense of control, concentration, time

distortion, telepresence, mergence of action and awareness, loss of self-consciousness, curiosity, and autotelic experience.

Skill and challenge: Determinants of online flow. According to flow theory, online flow is expected to be determined by the level of a user's skill and an online task's challenge. Researchers have empirically verified that navigational skill and challenge influence online flow (Hoffman & Novak, 1996; Novak et al., 2000). However, navigational skill and challenge alone may be insufficient to cause online flow during online shopping because online browsing tasks present challenge and require skill that are beyond those constituting a navigation task. For example, a skillful Internet user may feel a low level of challenge in searching for information in the Web environment but a high level of challenge in judging a product's quality due to a lack of product knowledge. Therefore, conceptualization of skill and challenge in the context of online shopping needs to embrace more factors than navigational skill and challenge.

Skill in online shopping. Shopping skill has been defined as a wide array of abilities used for comparing product value prior to purchase (Bristol, 2001). Reece and Kinnear (1986) identify the components of grocery shopping skill among children, showing that grocery shopping skill consists of seven abilities: (1) ability to describe a shopping trip, (2) ability to name payment methods, (3) ability to handle shopping problems, (4) ability to match a product and a department, (5) awareness of alternative forms of a product, (6) ability to make price-quantity comparisons/unit pricing, and (7) awareness of freshness dating for food products. This finding implies that shopping skill is a complex concept requiring various kinds of ability for each step of the purchase decision making process.

In the context of apparel shopping, Tatzel (1982) suggests that skillful consumers are knowledgeable about stores, product quality, and fashion trends. More importantly, they need to know what to wear and what looks well on them, requiring an understanding of their own body (Tatzel, 1982). Reece and Kinnear (1986) suggest skill related to apparel shopping in a department store includes knowledge about appropriate locations for merchandize departments in a store, judgment of product quality, price comparison between alternative products, and appropriate style, color, and size selections.

With respect to the Web environment, online navigational skill is a prerequisite to online shopping (Chen et al., 1999; Csikszentmihalyi, 1991; Ghani & Deshpande, 1994; Guo & Poole, 2009; Hoffman & Novak, 2009; Mollen & Wilson, 2010; Moneta & Csikszentmihalyi, 1996) because online shoppers are fundamentally required to use the Internet (Pavlou & Fygenson, 2006). A lack of knowledge about using the Internet hinders consumers from achieving their online shopping goals even if they have sufficient traditional shopping skills. Therefore, the skill set for successful online apparel shopping can include both online navigation skill and traditional apparel shopping skill (Koufaris, 2002; Novak et al., 2000; Skadberg & Kimmel, 2004).

Flow theory has postulated that the level of skill determines flow in general (Csikszentmihalyi, 1991, 1997). Moreover, many prior studies show empirical evidence that navigational skill enhances online flow (Chen et al., 1999; Csikszentmihalyi, 1991; Ghani & Deshpande, 1994; Guo & Poole, 2009; Hoffman & Novak, 2009; Mollen & Wilson, 2010; Moneta & Csikszentmihalyi, 1996). Accordingly, online shopping skill, representing both online navigational skill and traditional apparel shopping skill, is likely to influence online flow positively. Based on this rationale, the following hypothesis can be proposed.

H1. The higher the online shopping skill, the greater the online flow.

Challenge in online shopping. Challenge has been described as a subjective perception that a task is difficult but worthwhile (Chen et al., 1999; Ghani & Deshpande, 1994). Pace (2004) argues the complex and dynamic nature of challenge identified by a given situation. Chen et al. (1999) report that challenge in the Web environment is dynamic depending on the activity that a user is involved in and the goal that a user is pursuing. The most dominant challenge in the Web environment is information search including selecting suitable key words, distinguishing relevant hyperlinks from irrelevant hyperlinks, scanning a Web page for relevant information, and understanding the contents of a Website (Pace, 2004).

Shopping is a worthwhile activity for consumers when they recognize the value for the time, money, and effort they spend. Regarding apparel shopping, Claxton and Ritchie (1979) propose five problems that can present a challenge to apparel shoppers: poor-quality materials and workmanship, non-standardized sizes, expensive prices, fabrics that do not live up to claims, and limited variety in product selection. These problems provoke a feeling of mental discomfort in apparel shopping. Thus, in the present study, challenge in online shopping is the level of a consumer's mental discomfort provoked by required effort to reach a purchase decision on a brand's Website and, unlike previous studies, includes both navigational challenge due to the Website design and shopping challenge related to characteristics of the selection of merchandise such as their quality, sizes, prices, and variety.

Based on flow theory, people are most likely to reach flow when both levels of skill and challenge are high (Csikszentmihalyi, 1991, 1997). If the level of challenge is low, people are less likely to reach flow despite their high level of skill. Thus, the relationship between skill and online flow is expected to be moderated by the level of challenge. Based on this rationale, the following hypothesis is proposed.

20

H2. Challenge moderates the relationship between skill and online flow such that the

relationship between skill and online flow is stronger when challenge is perceived to be

high (vs. low).

Brand Experience

Brand experience is based on cumulative consumer experiences in interacting with brand-related stimuli that are part of a brand's design and identity, packaging, communications, and environments (Brakus et al., 2009). An experience is a personal occurrence with emotional significance (Caru & Cova, 2003; Holbrook & Hirschman, 1982; LaSalle & Britton, 2002). Thus, brand experience includes emotional dimensions as well as rational dimensions. Because consumers do not typically make purchase decisions based on logical thinking only, brand experience needs to reflect the various dimensions of consumers' experience occurring through interactions with brand-related stimuli on a daily basis (Caru & Cova, 2003; Holbrook & Hirschman, 1982; LaSalle & Britton, 2002; Schmitt, 1999).

Brand experience is regarded as a multi-dimensional construct comprised of various dimensions such as sensory, affective, intellectual, behavioral, relational, spiritual, and lifestyle experiences (Gentile, Spiller, & Noci, 2007; LaSalle & Britton, 2002; Pine & Gilmore, 1999; Schmitt, 1999). Based on existing dimensions suggested by Pine and Gilmore (1999) as well as Schmitt (1999), Brakus et al. (2009) investigated the dimensionality of brand experience by using a scale development procedure. Although Brakus et al. (2009) initially included five dimensions of an experience (i.e., sensory, affective, intellectual, behavioral, and relational dimensions), the relational dimension was subsequently merged into the affective dimension as a result of exploratory and confirmatory factor analysis. Accordingly, Brakus et al. (2009)

21

identified the four dimensions of brand experience (i.e., sensory, affective, intellectual, and behavioral experiences). The present study adopts Brakus et al.'s (2009) four-dimensional construct of brand experience.

Sensory experience is encoded through the five senses (i.e., seeing, hearing, touching, smelling, and tasting) when consumers interact with brand-related stimuli (Schmitt, 1999). Consumers are immersed in the sights, sounds, and/or smells that surround them as an observer or a listener, thus sensory experience has a passive characteristic (Pine & Gilmore, 1998). Affective experience is classified as a passive experience because consumers' inner feelings and emotions can be provoked without effectuating two-way interactions with the stimuli (Pine & Gilmore, 1999; Schmitt, 1999). Intellectual experience corresponds to the learning experience accompanying cognitive problem-solving processes (Schmitt, 1999). This experience is more active than sensory or affective experiences because consumers are engaged in creative thinking (Pine & Gilmore, 1998; Schmitt, 1999). Behavioral experience involves people in some physical activity and accompanies changes in lifestyles and behaviors (Pine & Gilmore, 1998; Schmitt, 1999).

According to Brakus et al. (2009), brand experience is determined by interactions between a consumer and brand-related stimuli such as the brand's identity (e.g., name, symbol, sign, color-combination), packaging, marketing communications (e.g., advertisements, brochures, Websites), and marketing environments (e.g., stores, events, Websites). Because a brand's Website is typically both a marketing communication and a sales channel, a consumer's interaction with brand-related stimuli on the brand's Website contributes to the consumer's overall brand experience. Compelling online interactions with a brand's Website such as those described as outstanding, memorable, extraordinary, or optimal interactions, contribute to the

22

state of 'flow' (Caru & Cova, 2003; Csikszentmihalyi, 1991, 1997; Csikszentmihalyi & LeFevre, 1989; Gentile et al., 2007; Pine & Gilmore, 1998, 1999), and are expected to enhance the overall brand experience. Hoffman and Novak (1996, 2009) show a significant effect of online flow on positive subjective experiences, such as positive mood and satisfaction, in online environments. Thus, the researcher proposes the following hypothesis.

> *H3. The greater the online flow on a brand's Website, the more positive the brand experience.*

Brand Loyalty

In early studies, brand loyalty was understood as patronage behavior, focused only on repeated purchasing of a specific brand over time (Bloemer & Kasper, 1995; Traylor, 1981). However, brand loyalty measured by repeated purchase rates has been questioned by researchers who believe that brand loyalty is not only related to the patronage behavior, but also accompanied with consumers' commitment to a brand (Baldinger & Rubinson, 1996; Bloemer & Kasper, 1995). In particular, Bloemer and Kasper (1995) distinguish two distinct types of brand loyalty (i.e., spurious brand loyalty and true brand loyalty); true brand loyalty requires consumers' brand commitment, whereas spurious brand loyalty refers to mere repurchase behavior as a function of inertia.

According to Chaudhuri (1999), brand loyalty is considered as a consumer's preference over other brands within an industry category. Oliver (1999) builds upon and extends earlier findings by conceptualizing brand loyalty as four sequential phases: cognitive-affective-conative-actual loyalty. First, cognitive loyalty refers to a consumer's belief in the superiority of a brand over rival brands. Second, affective loyalty reflects a liking or favorable attitude toward

23

a brand. Third, conative loyalty constitutes the development of behavioral intentions characterized by a deeper level of brand commitment. Finally, action loyalty relates to the conversion of intentions to action, accompanied by a willingness to overcome impediments to such action.

More recently, brand loyalty is regarded as the result of the consumer's search and attribute evaluation process, which leads to beliefs of brand superiority as well as repeat purchase (Holland & Baker, 2001). Other studies have specified positive outcomes of strong brand loyalty. Brand loyalty can help increase market share (Reichheld & Schefter, 2000; VanParys, 2007) and facilitate customer retention efforts (Reichheld & Schefter, 2000). Furthermore, brand loyal customers are willing to spread favorable word-of-mouth (Iglesias, Singh, & Batista-Foguet, 2011) and pay a premium price as a result of the higher value they perceive (Chaudhuri & Holbrook, 2001). Thus, the present study posits that brand loyalty includes consumers' belief that a brand is preferable to others and their subsequent intention to engage in loyal behaviors (Oliver, 1999; van den Brink et al., 2006) such as recommending the brand to others and repeatedly purchasing the brand.

The relationship between brand experience and brand loyalty has been suggested by many researchers (Berry & Carbone, 2007; Berschler, 2005; Biedenbach & Marell, 2010; Brakus et al., 2009; Frow & Payne, 2007; Mascarenhas et al., 2006; Meyer & Schwager, 2007; VanParys, 2007) because brand loyalty is often built on the basis of long-term and close relationships between a customer and a brand. Some studies show empirical evidence that a positive brand experience can significantly increase brand loyalty (Biedenbach & Marell, 2010; Brakus et al., 2009). Therefore, the researcher predicts the following hypothesis.

H4. The more positive the brand experience on a brand's Website, the greater the brand loyalty.

Online flow may indirectly influence brand loyalty through enhancing brand experience. Focusing on holistic experiences with informational technologies, Agarwal and Karahanna (2000) show evidence that online flow enhances the perceived usefulness and perceived ease of use, which increase users' intention to use information technology. Their findings imply that online flow can indirectly influence behavioral intention to use information technology. Agarwal and Karahanna's (2000) findings may be applicable to the context of shopping a brand's Website as the Internet is an informational technology. Furthermore, Korzaan (2003) empirically supports the effect of online flow on consumers' purchase intention. These findings suggest that online flow on a brand's Website may influence consumers' brand loyalty, including behavioral intention to repurchase, revisit, recommend, and pay a price premium for a brand, as well as belief in the priority of a brand over other rival brands (Oliver, 1999; van den Brink et al., 2006; Zeithaml et al., 1996). Given H3 and H4 which predict the direct relationship between online flow and brand experience and between brand experience and brand loyalty, the researcher proposes that the influence of online flow on brand loyalty is mediated by brand experience. Thus, the following hypothesis is proposed.

H5. Brand experience mediates the relationship between online flow and brand loyalty.

Figure 2.3 shows a conceptual model reflecting the hypotheses proposed in this study. These hypotheses are tested in this study using data collected through an online survey. Prior to the main survey, a pilot test was conducted to validate the instruments. Next chapter (Chapter 3)

describes the methods and results from the pilot test, followed by Chapter 4 which presents the

methods and results from the main study.
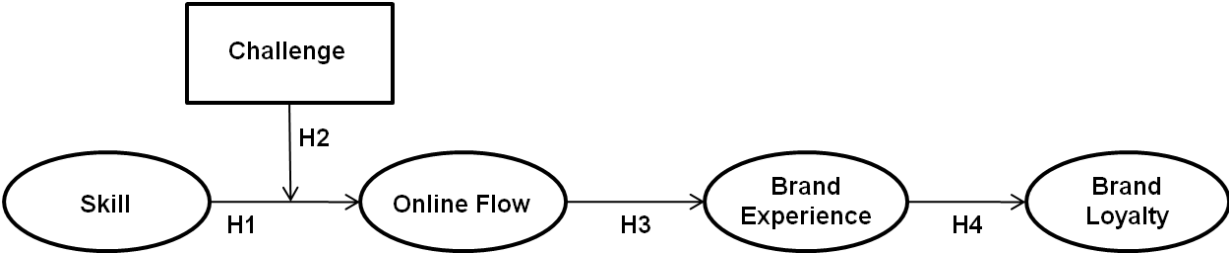
Note. H5 (i.e., mediating relationship) is not noted separately in this Figure.

Figure 2.3. Conceptual model

Chapter 3. Pilot Test

This chapter describes the method and results of the pilot test that aimed to examine the reliability and validity of survey instruments before conducting the main survey. Any issues with the instruments, detected in the pilot test, resulted in a revision of original instruments in order to minimize unwanted errors for the main survey. The following sections describe the instruments and sampling and data collection procedures used in the pilot test, followed by data analysis and results of the pilot test.

Instruments

The pilot test employed an online survey consisting of an online browsing task and an accompanying online questionnaire. The data collection for this study was done on the Internet because an online questionnaire allowed online flow to be measured immediately after survey respondents accomplished the online browsing task on a randomly assigned brand Website. Because online flow is a situated experience, it needs to be measured instantly after it is experienced (Chen et al., 1999).

Selection of brand Websites for online browsing task. Ten apparel brands' Websites were used as the context for the online browsing task completed in the pilot test. Apparel brands were used in this study because apparel firms tend to carry a diverse merchandise assortment, and their Websites tend to provide a plethora of product pictures and product information such as

size, color, design, price, and materials. Moreover, apparel brand Websites update information about new products, new trends, and discounted products frequently. The abundant and dynamic information available on apparel brand Websites could help respondents actively involved in processing the information and thus likely to be engaged in the assigned browsing task.

Because brand loyalty is built through repetitive experiences with a brand, well-known existing brands are more suitable to the context of this study than new or unknown brands. The apparel brands were selected from lists of top brands including (1) the top 100 apparel retailers ranked by *Women's Wear Daily* ("The Top 10: WWD," 2008) and (2) the top 100 online retailers ranked by *Internet Retailer* ("The Top 500 List," 2010), which ranked relevant companies based on annual sales. Only vertically-integrated brands, engaged in both manufacturing and retailing, were considered for the brand selection. Because most vertically-integrated brands sell their products on the brand's own Website, consumer experiences gained from the brand Website are likely to directly affect the overall evaluation of brand experience and brand loyalty. Accordingly, multi-brand apparel retailers (e.g., department stores) were excluded from consideration.

A panel of experts, consisting of two faculty members and one graduate student in the apparel merchandising field, examined the brands and selected 17 vertically-integrated apparel brands whose target market was judged to be consistent with the target population of the present study. The brand's target market was an important criterion in order to prevent respondents from having difficulties in experiencing the state of online flow during the browsing task due to the irrelevance of the brands to the respondents. Through content analysis of the 17 brands' Websites, 10 brands were selected for the pilot test because they provided enough product assortments for respondents to complete the assigned online browsing task (e.g., more than 100 shirts or tops under $50 were available on a brand's Website) (see Table 3.1). The 10 brands

28

selected included Nike, Ralph Lauren, Victoria Secret, Jones New York, Old Navy, Esprit,

Banana Republic, Express, Limited, and L.L.Bean. One of the 10 brands was randomly assigned

to each respondent.

Table 3.1

Content Analysis Results for 17 Brand's Websites

Brand	Total number of shirts or tops	Number of shirts or tops (under $50)
Nike	630	592
Ralph Lauren	567	246
Victoria Secret	421	352
Jones New York	378	184
Old Navy	329	329
Esprit	271	227
Banana Republic	205	134
Express	180	175
Limited	167	159
Guess	142	95
L.L.Bean	116	110
GAP	114	98
Calvin Klein	96	91
Ann Taylor	86	64
Eddie Bauer	68	45
Kenneth Cole	33	17
Nautica	29	29

Note. Selected Websites are presented in Italic.

Browsing task scenario development. An online browsing task was used in this study for

three purposes. First, the task provided survey respondents with a clear goal. Second, the task

allowed respondents to experience a sense of immediate feedback from the brand Website. A

clear goal and immediate feedback are antecedents to online flow (Chen et al., 1999;

Csikszentmihalyi, 1991; Guo & Poole, 2009). Finally, the online browsing task could potentially

generate varying levels of challenge for different respondents depending on their apparel

shopping expertise, Internet shopping expertise, and the characteristics of merchandise available

in their assigned brand's Website. The assigned task was created to challenge respondents to

simultaneously judge several product characteristics including quality, style, color, fit,

coordination with existing wardrobe, and price in relation to a need specified in the task. These

challenges are often considered to create difficulties in apparel shopping (Claxton & Ritchie,

1979). The participant instruction for the online browsing task is presented in Table 3.2.

Table 3.2

Online Browsing Task Instruction

You will be given a link to an apparel brand's Website. When you click on the link, a new window will pop up to show the apparel brand's Website.

On the brand's Website, please select a shirt or a top you would like to wear for the coming season. Your shirt or top must:
- be made by the given brand,
- be a style and color that suits you,
- have good quality in materials and workmanship,
- fit you well,
- go well with other apparel items you already have, and
- be under $50.

Measurements. The questionnaire contained measures for all variables included in the

conceptual model (see Table 3.3). All measurement items used a 7-point Likert scale with

endpoints of *strongly disagree* (1) and *strongly agree* (7), so that respondents indicated their

agreement with sets of statements addressing skill, challenge, online flow, brand experience, and

brand loyalty.

Table 3.3

Measurement Scales

Variable	Dimension	No.	Item	Source
Skill	General Shopping Skill	1	I usually know what to buy when I shop for something.	Developed by the researcher, based on Reece and Kinnear (1986)
		2	It is easy for me to find the right product that I am looking for in a store.	
		3	I easily narrow down product choices.	
		4	It is hard for me to compare product choices to decide what to buy. [R]	
	Clothing Shopping Skill	1	I am usually aware of how trendy a clothing product is.	
		2	I can judge whether a clothing product has high quality.	
		3	When I shop for clothing, I can choose the right style and color for me.	
		4	I can judge whether a clothing product fits me well.	
	E-Commerce Skill	1	I easily complete the purchase process on a shopping Website.	
		2	I have no trouble in buying something online.	
		3	I often have difficulties in purchase process on a shopping Website. [R]	
	Web Search Skill	1	I am skilled in using the Web.	Adapted from Novak et al. (2000)
		2	I have good Web search techniques.	
		3	I know somewhat less than most users about using the Web. [R]	
		4	I know how to find what I am looking for on the Web.	
Challenge (assessed after the task)		1	This task was challenging to me.	Adapted from Novak et al. (2000)
		2	This task challenged me to perform to the best of my ability.	
		3	This task provided a good test of my skills in online shopping.	
		4	I found that this task stretched my capabilities to my limits.	
Online Flow	Autotelic Experience	1	I really enjoyed doing this task.	Adapted from Jackson and Marsh (1996)
		2	I loved the feeling of accomplishing this task and wanted to do it again.	
		3	The experience of doing this task left me feeling great.	
		4	I found this task experience rewarding.	
		5	This task was interesting.	
		6	This task bored me. [R]	
		7	This task was fun for me.	
	Curiosity	1	This task stimulated my curiosity.	Adapted from Webster et al. (1993)
		2	This task made me curious.	
		3	This task stimulated my imagination.	
	Concentration	1	During this task, my attention was focused entirely on what I was doing.	Adapted from Jackson and Marsh (1996)
		2	During this task, I made an effort to keep my mind on what was happening. [R]	
		3	I had total concentration to accomplish this task.	
		4	I was completely focused on this task at hand.	

[R] Reverse-coded items.

Table 3.3 (continued)

Measurement Scales

Variable	Dimension	No.	Item	Source
Online Flow (continued)	Control	1	During this task, I felt in control.	Adapted from Novak et al. (2000)
		2	I clearly knew the right things to do to accomplish this task.	
		3	I felt confused about what to do to accomplish this task. [R]	
		4	I felt calm because I understood the process to accomplish this task.	
		5	I felt agitated because I was not sure what to do to accomplish this task. [R]	
	Loss of Self-Consciousness	1	I was self-conscious during this task. [R]	Adapted from Jackson and Marsh (1996)
		2	I was concerned how well I was completing this task. [R]	
		3	I was not worried how I was performing during this task.	
	Mergence of Action and Awareness	1	During this task, I made the correct movements without thinking.	
		2	Things just seemed to be happening automatically during this task.	
		3	I reacted to the Website automatically during this task.	
		4	During this task, I did things spontaneously and automatically without having to think.	
	Tele-presence	1	During this task, I felt I was in the world the Website created.	Adapted from Klein (2003)
		2	During this task, I forgot I was in the middle of a survey.	
		3	During this task, my body was in the room, but my mind was inside the world created by the computer.	
		4	The Website seemed to me "somewhere I visited" rather than "something I saw."	
		5	I felt I was more in the "Web world" than the "real world" around me when I was doing the task.	
		6	I forgot about my immediate surroundings when I was doing the task.	
		7	When I completed this task, I felt like I came back to the "real world" after a journey.	
	Time Distortion	1	During this task, time appeared to go by very quickly.	Adapted from Guo and Poole (2009)
		2	I lost track of time while doing this task.	
		3	Time flew during this task.	
Brand Experience	Sensory	1	This brand makes a strong visual impression.	Adapted from Brakus et al. (2009)
		2	I find this brand interesting in product displays, product texture, background music and/or use of fragrance.	
		3	This brand does not appeal to my senses of hearing, sight, touch, and/or smell. [R]	
	Affective	1	This brand induces my feelings and sentiments.	
		2	I do not have strong emotions for this brand. [R]	
		3	This brand provokes emotions.	
	Behavioral	1	I behave in a certain way when I wear this brand's clothes.	
		2	I act differently when I use this brand.	
		3	This brand does not result in a certain behavior. [R]	

[R] Reverse-coded items.

Table 3.3 (continued)

Measurement Scales

Variable	Dimension	No.	Item	Source
Brand Experience (continued)	Intellectual	1	I engage in a lot of thinking when I encounter this brand.	Adapted from Brakus et al. (2009)
		2	This brand does not make me think. [R]	
		3	This brand stimulates my thinking and problem solving.	
Brand Loyalty	Cognitive loyalty	1	I would always think of this brand over other brands because their products have consistent quality.	Developed by the researcher, based on del Rio et al. (2003); Grewal et al. (2009); Kwon and Lennon (2008); Oliver (1999); Sweeney and Soutar (2001); and van den Brink et al. (2006)
		2	I would pay a lot of attention to this brand over other brands because their products are well made.	
		3	I would always think of this brand over other brands because their products offer good value for money.	
		4	I would pay a lot of attention to this brand over other brands because their products are good for the price.	
		5	I would always think of this brand over other brands because this brand's employees are helpful.	
		6	I would pay a lot of attention to this brand over other brands because this brand's employees treat customers well.	
		7	I consider this brand my first choice because this brand provides excellent service.	
		8	I would always think of this brand over other brands because this brand provides a nice place to shop.	
		9	I would pay a lot of attention to this brand over other brands because this brand has a pleasing shopping atmosphere.	
		10	I consider this brand my first choice because this brand offers an attractive shopping environment.	
	Affective loyalty	1	I particularly like this brand.	Developed by the researcher, based on del Rio et al. (2003); Oliver (1999); Sweeney and Soutar (2001)
		2	I have a negative attitude toward this brand. [R]	
		3	This brand is one of my favorite.	
		4	This brand makes me feel good.	
	Conative loyalty	1	I will buy this brand next time.	Developed by the researcher, based on Kwon and Lennon (2009); Oliver (1999); van den Brink et al. (2006); and Zeithaml et al. (1996)
		2	I will revisit this brand next time.	
		3	I will recommend this brand to other people.	
		4	I will pay more in order to buy this brand.	

[R] Reverse-coded items.

Skill. Due to the lack of appropriate existing scales, a total of 15 skill items were

developed by the researcher to assess respondents' skills, including 11 shopping skill items and 4

online navigation skill items, by building on relevant literature. The 11 shopping skill items included four items addressing general shopping skill, four items addressing clothing-specific shopping skill, and three items addressing e-commerce shopping skill.

The general shopping skill items reflect four (i.e., ability to describe a shopping trip, ability to match a product and a department, awareness of alternative forms of a product, and ability to make price-quantity comparisons/unit pricing) of the seven components of shopping skill suggested by Reece and Kinnear (1986). The clothing shopping skill items reflect the abilities to select appropriate style, color, and size of apparel products, corresponding to the awareness of freshness dating suggested by Reece and Kinnear (1986) as a component of shopping skill. The e-commerce skill items reflect two shopping skill components suggested by Reece and Kinnear (1986) including the ability to name payment methods and the ability to handle shopping problems.

In addition to the 11 shopping skill items, four of Novak et al.'s (2000) six Web search skill items were adapted to measure online navigational skill. The other two items in Novak et al.'s (2000) scale (i.e., "How would you rate your skill at using the Web, compared to other things you do on the computer?" and "How would you rate your skill at using the Web, compared to the sport or game you are best at?") were excluded from the present study because they were based on a comparison of a given task and other activities, which was inappropriate for the context of the present study. Table 3.3 presents the 15 skill items.

Challenge. Challenge was measured by four items adapted from Novak et al.'s (2000) navigational challenge items. Novak et al.'s (2000) scale originally included six items, but two of them (i,e., "How much does the Web challenge you, compared to other things you do on the

computer?" and "How much does the Web challenge you, compared to the sport or game you are best at?") were excluded from the present study because they measured how challenging Web navigation was to a respondent compared to other activities, which was irrelevant to the purpose of the present study. The other four items were modified to better fit the context of the present study. Novak et al.'s (2000) scale originally measured the extent to which Web navigation challenged a respondent. In the present study, the item wording was revised to tap into the amount of challenge posed by the online browsing task assigned in this study. Challenge was measured in two time points: (1) assessed prior to the task using wording in the future tense in terms of the extent to which respondents predicted the online browsing task assigned in this study would challenge them and (2) assessed after the task using the past tense in terms of the extent to which respondents felt challenged during the actual task (see Table 3.3 for the items). The predicted challenge measure was irrelevant to the present study but included for another study that the researcher was conducting.

Online flow. To measure online flow, various existing scales including Guo and Poole (2009), Jackson and Marsh (1996), Klein (2003), Novak et al. (2000), and Webster et al. (1993) were carefully considered. Based on a scrutiny of these scales, eight dimensions of online flow (36 items) were identified with four items measuring mergence of action and awareness (Jackson & Marsh, 1996), four items measuring concentration (Jackson & Marsh, 1996), five items measuring control (Novak et al., 2000), three items measuring time distortion (Guo & Poole, 2009), three items measuring loss of self-consciousness (Jackson & Marsh, 1996), seven items measuring telepresence (Klein, 2003), seven items measuring autotelic experience (Jackson & Marsh, 1996; Webster et al., 1993), and three items measuring curiosity (Webster et al., 1993).

The original item wording was adapted to fit the context of this study (see Table 3.3 for the items).

Brand experience. Brand experience was measured by a 12-item scale adapted from Brakus et al. (2009), representing the dimensions of sensory (three items), affective (three items), behavioral (three items), and intellectual (three items) brand experience (see Table 3.3 for the items). Brakus et al.'s (2009) scale was developed not only for apparel brands, but also for service brands and general product brands; thus, some items were revised to clarify their meaning for the context of this study, particularly by choosing more specific words. For example, the original item "I engage in physical actions and behaviors when I use this brand" was modified to "I behave in a certain way when I wear this brand's clothes," which was more appropriate for apparel brands. The 12 statements of brand experience were presented with a direction, "Considering both your past experience with [A RANDOMLY ASSIGNED BRAND] and today's browsing task for this survey, please indicate your agreement, from 1—strongly disagree to 7—strongly agree, for each statement below."

Brand loyalty. Brand loyalty was operationalized to include cognitive, affective, and conative brand loyalty sub-constructs. Based on the definitions and recommendations from Oliver (1999) and existing measurement scales of brand loyalty (van den Brink et al., 2006), perceived quality (del Rio et al., 2001), perceived price/value (del Rio et al., 2001), brand beliefs (Uwaifo, 2008), store atmosphere (Louwerse et al., 2009), brand image (Grewal et al., 2003), and behavioral intention (Veletsianos & Miller, 2008; Zeithaml et al., 1996), the researcher developed 18 items to measure the three sub-constructs of brand loyalty (see Table 3.3 for the

items). Cognitive brand loyalty was measured by 10 items adapted from Oliver (1999) and van den Brink et al. (2006). These items addressed sources of cognitive loyalty based on judgment of information related to product quality (del Rio et al., 2001), price (del Rio et al., 2001), service (Uwaifo, 2008), and store environment (Louwerse et al., 2009) of an apparel brand. Affective brand loyalty was measured by four items developed on the basis of del Rio et al.'s (2003), Oliver's (1999), and Sweeney and Soutar's (2001) studies. Conative brand loyalty was measured by four items reflecting intentions regarding four loyalty behavior characteristics including purchase, revisit, recommendation, and premium price paying, suggested by Kwon and Lennon (2008) and Zeithaml et al. (1996). The 18 brand loyalty statements were presented with a direction "Considering both your past experience with [A RANDOMLY ASSIGNED BRAND] and today's browsing task for this survey, please indicate your agreement, from 1—strongly disagree to 7—strongly agree, for each statement below."

Finally, demographic characteristics of respondents were measured through questions asking their age, class standing, major, ethnicity, and annual household income. Further, an open-ended question "What apparel brands have you purchased online?" was included in order to inform the selection of brands used for the main study.

Sampling and Data Collection Procedure

First, approval from the Institutional Review Board (IRB) was obtained prior to conducting the pilot test and main survey (see Appendix A for the IRB Approval for Protocol #11-163 EP 1105). Upon the IRB approval, a convenience sample of 166 students enrolled for the Global Consumer Culture course at Auburn University participated in the pilot test for extra credit for the course as well as a chance to enter a random drawing for the product they selected

during the online browsing task assigned in the study. The sample for the pilot test was recruited via class email after the class instructor permitted the data collection (see Appendix B for the invitation email used in the pilot test). The email invitation contained a link to an information letter page where the study was explained along with a link to the survey Website (see Appendix C for the information letter used in the pilot test). Students who read the information letter and decided to participate in the study clicked on the survey Website link.

On the survey Website, respondents first completed the skill measure. Then, they were presented with the online browsing task instruction and completed the predicted challenge measure (which was irrelevant to this study). Then, respondents were reminded of the task instruction, followed by notification that they would have to provide information (i.e., product name, color, size, price, and other identification features) of the product they chose during the task and that they would enter a random drawing for a chance to obtain the chosen product (see Table 3.4). Requiring respondents to provide information about the selected product assured that the respondents actually conducted the online browsing task. Moreover, by linking the task output (i.e., item choice) to their reward, participants' involvement with the browsing task was expected to be greater. After performing the online browsing task on the Website of the brand randomly assigned among the 10 brands used in this study and providing the description of their selected product, respondents completed the remaining questionnaire including measures for challenge (perceived while conducting the task), online flow, brand experience, and brand loyalty as well as demographic questions and the open-ended question on brands shopped online (see Appendix D for the questionnaire used in the pilot test).

Table 3.4

Online Browsing Task Reminder

At the bottom of this instruction is the link to the brand Web site in which we would like you to complete the online browsing task.

When you put your selected shirt or top in the Shopping Bag/Cart on the brand Website, please STOP and return to the survey Website to describe your selected shirt/top and answer the remaining survey questions. DO NOT CHECK OUT. DO NOT give your credit card information or pay for the item!

Remember that the shirt/top of your final choice should meet ALL of the following criteria:
- It is made by the given brand,
- It is a style and color that suits you,
- It has good quality in materials and workmanship,
- It fits you well,
- It goes well with other apparel items you already have, and
- It is under $50.

Complete the browsing task at [URL OF A RANDOMLY ASSIGNED BRAND'S WEBSITE]

Below, please enter information about the shirt or top that you put in the Shopping Bag/Cart on the brand Web site during the online browsing task.

Product name? _____
Color? _____
Size? _____
Price? _____
Any other identification features? _____

One respondent will get their selected top (up to $50 value) for free. At the end of survey, your name and email address will be asked for the further contact.

Finally, respondents were directed to a closing page which thanked them for their time and asked them to provide their name and email address to receive the reward (see Appendix E for the closing page used in the pilot test).

Data Analyses and Results

Data cleaning. Among the 166 participants, 16 were male students; thus, their data were excluded from analysis because only female respondents were considered as potential customers

of the apparel brands used in this study. The remaining 150 responses from female students included no missing data or noticeable patterns. All respondents provided descriptions of the product of their choice during the task, confirming that respondents did conduct the task before responding to the measures relevant to the task experience. Thus, a total of 150 responses were used for data analysis, and more than 10 responses were collected for each of the 10 brands used (i.e., 11 responses for Limited, 16 responses for L.L.Bean, 15 responses for Jones New York, 19 responses for Express, 16 responses for Nike, 15 responses for Old Navy, 10 responses for Victoria Secret, 18 responses for Ralph Lauren, 16 responses for Esprit, and 14 responses for Banana Republic).

Sample characteristics. The sample consists of female respondents aged from 18 to 25 with the mean of 19.8 years old ($SD = 1.72$). As shown in Table 3.5, the respondents were from all class standing categories at the undergraduate level, with the most respondents in their sophomore year (35.3%), followed by juniors (34.7%), freshmen (19.3%) and seniors (10.7%); no graduate students participated in the pilot test. The majority of the respondents' majors were from the College of Human Sciences (84.7%), and the majority were Non-Hispanic White (85.3%), followed by Non-Hispanic Black (10.7%). The respondents' annual household incomes were distributed across all levels including 30% below $30,000, 18% between $30,000 and $79,999, 18.7% between $80,000 and $124,999, and 26.7% $125,000 or more.

Validity of brand selection and browsing task. Two of the selected 10 apparel brands (i.e., Jones New York and Esprit) were not mentioned in the responses to the open-ended question, indicating that no respondent had shopped for an apparel product on these two brands'

Table 3.5

Demographic Characteristics of the Sample (n = 150)

Variable	*F*	*%*
Current class in school		
Freshman	29	19.3
Sophomore	53	35.3
Junior	52	34.7
Senior	16	10.7
Graduate student	0	0.0
Major		
College of Agriculture	1	0.7
College of Architecture, Design & Construction	4	2.7
College of Business	4	2.7
College of Education	2	1.3
Samuel Ginn College of Engineering	1	0.7
School of Forestry and Wildlife Sciences	0	0.0
College of Human Sciences	127	84.7
College of Liberal Arts	6	4.0
School of Nursing	1	0.7
Harrison School of Pharmacy	1	0.7
College of Sciences and Mathematics	3	2.0
College of Veterinary Medicine	0	0.0
Ethnicity		
Non-hispanic white	128	85.3
Non-hispanic black	16	10.7
Hispanic	3	2.0
Asian/pacific islander	2	1.3
American Indian/Alaskan native	0	0.0
Other	1	0.7
Income		
Under $5,000	25	16.7
$5,000 to $9,999	5	3.3
$10,000 to $14,999	8	5.3
$15,000 to $19,999	2	1.3
$20,000 to $24,999	1	0.7
$25,000 to $29,999	4	2.7
$30,000 to $39,999	4	2.7
$40,000 to $49,999	5	3.3
$50,000 to $59,999	12	8.0
$60,000 to $69,999	6	4.0
$70,000 to $79,999	10	6.7
$80,000 to $89,999	6	4.0
$90,000 to $99,999	4	2.7
$100,000 to $124,999	18	12.0
$125,000 to $149,999	6	4.0
$150,000 to $199,999	10	6.7
$200,000 to $249,999	7	4.7
$250,000 or over	17	11.3

Websites. Because the target markets of Jones New York and Esprit may not overlap with the population of the present study, these two brands were eliminated from the main survey, leaving only eight brands.

To check whether the assigned browsing task resulted in varying levels of challenge, the frequency of respondents' composite scores (i.e., averages) of the four challenge items was calculated (see Figure 3.1). Respondents' challenge composite scores ($M = 3.5$, $SD = 1.16$) were widely distributed from 1 to 6.25 on a 7-point Likert scale, providing evidence that respondents perceived various levels of challenges while performing the browsing task. Thus, no revision on the online browsing task was necessary for the main survey.
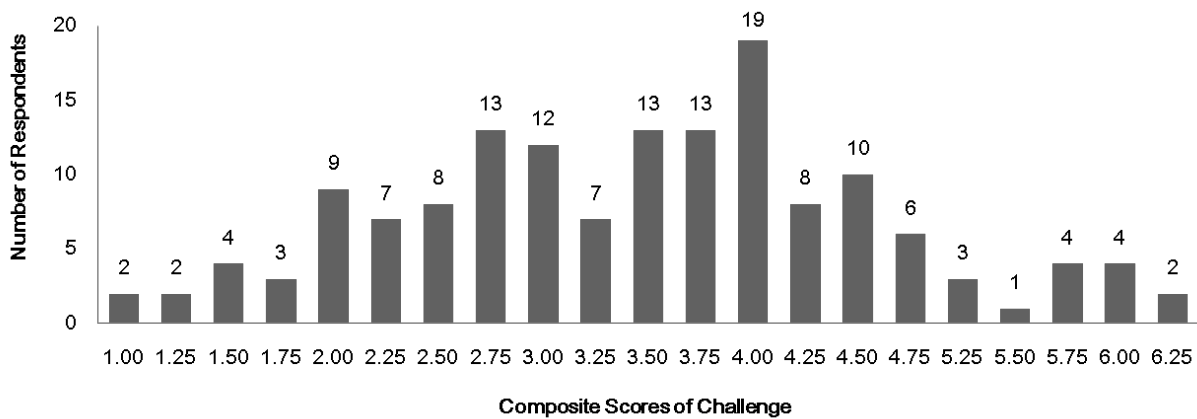
Figure 3.1. Frequency statistics of challenge composite scores

Measurement validity and reliability. The reliability and validity of the scales were assessed by using Cronbach's alphas and exploratory factor analysis (EFA), respectively. EFA was performed through principal component analysis with Varimax rotation in order to identify factors under each of the skill, challenge, online flow, brand experience, and brand loyalty constructs. The number of factors was determined by reviewing the factor structure based on

four criteria: (1) Kaiser's criterion (eigenvalue > 1), (2) scree plots, (3) factor loadings from rotated component matrices, and (4) conceptual meaning of measurement items. The pilot test sample size was large enough to consider that the variables were approximately normally distributed, based on the central limit theorem (Rice, 1995).

Skill. The EFA findings showed that the skill construct consisted of four factors (with eigenvalues of 1.0 or higher). These four factors and the items with high loadings (>.50) on each factor were consistent with the dimensionality of the skill construct originally conceptualized (see Table 3.6). Cronbach's alphas of all four skill factors exceeded .70 (see Table 3.6), establishing the reliability of the skill scale (Cronbach & Shavelson, 2004). Thus the skill measurement was determined to be maintained for the main study as it was in the pilot test with only one minor revision (one item, "I often have difficulties in purchase process on a shopping Website," was changed to "I often have difficulties in shopping online" for the main study in order to help respondents to understand its meaning).

Challenge. As presented in Table 3.7, the EFA results of the four challenge items (assessed after the online task) confirmed the uni-dimensionality of the challenge scale, and thus no revision was required for the challenge measurement in the main survey. Cronbach's alpha (.733) of the challenge scale exceeded .70, indicating the internal consistency of measurement scales (Cronbach & Shavelson, 2004).

Online flow. The initial EFA resulted in seven factors with eigenvalues above 1.0 from the 36 online flow items. The three items measuring loss of self-consciousness were eliminated

Table 3.6

Exploratory Factor Analysis Results for Skill (n = 150)

Measurement Item [a]	Factor Loading			
	Clothing Shopping Skill	Web Search Skill	E-Commerce Skill	General Shopping Skill
Clothing Shopping Skill 2	.800			
Clothing Shopping Skill 3	.770			
Clothing Shopping Skill 1	.734			
Clothing Shopping Skill 4	.697			
Web Search Skill 1		.839		
Web Search Skill 2		.828		
Web Search Skill 4		.783		
Web Search Skill 3 [R]		.686		
E-Commerce Skill 2			.873	
E-Commerce Skill 3 [R]			.825	
E-Commerce Skill 1			.800	
General Shopping Skill 3				.795
General Shopping Skill 4 [R]				.670
General Shopping Skill 2				.659
General Shopping Skill 1				.644
Eigenvalue	5.035	2.047	1.625	1.333
Variance explained	33.57%	13.65%	10.83%	8.88%
Cronbach's alpha	.818	.840	.817	.765

[R] Reverse-coded items.

[a] See Table 3.3 for the actual items corresponding to item abbreviations in this column.

Table 3.7

Exploratory Factor Analysis Results for Challenge (n = 150)

Measurement Item [a]	Factor Loading
Challenge 1	.823
Challenge 2	.788
Challenge 4	.734
Challenge 3	.630
Eigenvalue	2.233
Variance explained	55.83%
Cronbach's alpha	.733

[a] See Table 3.3 for the actual items corresponding to item abbreviations in this column.

for further EFAs because their factor loadings were below .5 on all factors. Because respondents may have been confused about the meaning of the loss of self-consciousness items, one of them, "I was not worried how I was performing during this task," was decided to be negatively worded (i.e., "I was worried how I was performing during this task.") for the main study so that all the loss of self-consciousness items were worded in the same direction. Following EFAs without the loss of self-consciousness items revealed that two additional items, both measuring time distortion, had loadings smaller than .50 on all factors and thus were eliminated for further EFA.

Table 3.8 presents the final EFA results from the remaining 31 items showing a six-factor solution. The first factor, labeled as *autotelic experience*, consisted of 10 items, originating from the dimensions of autotelic experience and curiosity of flow in the existing scales (Jackson & Marsh, 1996; Webster et al., 1993). These 10 items tended to address the extent to which respondents felt rewarded in performing the assigned browsing task, accompanied by enjoyment, interest, and curiosity. Cronbach's coefficient alpha of autotelic experience (.846) exceeded .70, confirming internal consistency of the measurements (Cronbach & Shavelson, 2004).

The second factor, labeled as *telepresence*, included eight items from existing flow scales--seven items measuring telepresence (Klein, 2003) and one item measuring time distortion (Guo & Poole, 2009). These items addressed the extent to which respondents felt as if they were in an environment created by the Website where they performed the task. Cronbach's alpha of telepresence (.894) exceeded .70, establishing reliability of the measurements (Cronbach & Shavelson, 2004).

The third factor, labeled as *concentration*, addressed the extent to which respondents perceived that they focused their attention on the task. Four items from concentration scale (Jackson & Marsh, 1996) clearly belonged to the third factor, but one of them "During this task, I

Table 3.8

Exploratory Factor Analysis Results for Online Flow (n = 150)

Measurement Item [a]	Factor Loading					
	Autotelic Experience	Tele-presence	Concentra-tion	Control	Mergence of Action and Awareness	Confusion
Autotelic Experience 1	.782					
Autotelic Experience 7	.765					
Curiosity 2	.760					
Curiosity 1	.744					
Autotelic Experience 5	.687					
Autotelic Experience 2	.677					
Autotelic Experience 6 [R]	.648					
Autotelic Experience 4	.638					
Autotelic Experience 3	.617					
Curiosity 3	.615					
Telepresence 3		.827				
Telepresence 6		.806				
Telepresence 7		.783				
Telepresence 1		.732				
Telepresence 5		.696				
Telepresence 2		.682				
Telepresence 4		.592				
Time Distortion 2		.544				
Concentration 1			.784			
Concentration 3			.770			
Concentration 4			.768			
Concentration 2 [R]			-.545			
Control 4				.671		
Control 2				.660		
Mergence of Action and Awareness 3				.617		
Control 1				.464		
Mergence of Action and Awareness 4					.813	
Mergence of Action and Awareness 1					.726	
Mergence of Action and Awareness 2					.524	
Control 3 [R]						.769
Control 5 [R]						.623
Eigenvalue	10.995	3.466	1.901	1.551	1.321	1.003
Variance explained	35.47%	11.18%	6.13%	5.00%	4.26%	3.23%
Cronbach's alpha	.846	.894	.375	.799	.790	.625

Note. Items excluded as a result of the EFA were Loss of Self-consciousness 1 [R], Loss of Self-consciousness 2 [R], Loss of Self-consciousness 3, Time Distortion 1, and Time Distortion 3.

[R] Reverse-coded items.

[a] See Table 3.3 for the actual items corresponding to item abbreviations in this column.

made an effort to keep my mind on what was happening" had a negative factor loading (-.545). This item prevented Cronbach's alpha of concentration (.375) from exceeding .70. This item was used for the main study as it was, but it was later eliminated.

The fourth factor, labeled as *control*, included four items which originally measured the dimensions of control (three items) (Novak et al., 2000) and mergence of action and awareness (one item) (Jackson & Marsh, 1996). These four items tended to address the extent which respondents felt that they could accomplish the task by themselves. Cronbach's alpha of control (.799) exceeded .70, confirming internal consistency of the measurements (Cronbach & Shavelson, 2004).

The other three items addressing mergence of action and awareness originating from Jackson and Marsh (1996) belonged to the fifth factor, labeled as *mergence of action and awareness*, addressing the extent to which respondents perceived that they responded to stimulus immediately after being aware of the stimulus during the task. Cronbach's alpha of the mergence of action and awareness (.790) exceeded .70, establishing reliability of the measurements (Cronbach & Shavelson, 2004).

The other two reverse-coded items measuring control (Novak et al., 2000) constituted the sixth factor, labeled as *confusion*, addressing the extent to which respondents felt a lack of confidence in completing the task. Cronbach's alpha of confusion (.625) failed to exceed .70, providing further support for the idea that reverse coded items needed to be modified for the main study. These two items were positively worded as the other control items were, in order to strengthen construct validity in the main survey.

Overall, because one reverse-coded item measuring loss of self-consciousness and two reverse-coded items measuring control (but loaded on the confusion factor) were modified to be

47

positively or negatively worded in a direction that was consistent with the other items in their factor, the factor structure of the entire 36 online flow items in the main study could be different from EFA results in the pilot test. For further investigation of the factor structure, no item was decided to be eliminated from the main study. Additionally, one item, "I loved the feeling of accomplishing this task and wanted to do it again," was changed to "I loved the feeling of accomplishing this task" for the main study in order to avoid using a compound sentence and help respondents understand its meaning.

Brand experience. The initial EFA of the 12 brand experience items resulted in a three-factor solution based on Kaiser's (1960) criterion (i.e., eigenvalue > 1). As shown in Table 3.9, the first factor, named *positive experience*, included two sensory experience, two affective experience, and two intellectual experience items from the original scale (Brakus et al., 2009). These six items were all positively worded, addressing the extent to which respondents perceived a brand to appeal to their senses, emotions, and capacity for rational thinking. The second factor contained the three items measuring *behavioral experience* (Brakus et al., 2009) and thus was labeled such. Finally, three negatively worded (reverse-coded) items loaded on the third factor, named *negative experience*. This factor consisted of one sensory experience, one affective experience, and one intellectual experience items from the original scale (Brakus et al., 2009). Cronbach's alphas of all three brand experience factors exceeded .70 (see Table 3.9), indicating the internal consistency of measurement scales (Cronbach & Shavelson, 2004). However, the clear split between the positively and negatively worded items into two separate factors suggests that respondents may have been confused about reverse-coded items. Thus, all the reverse-coded items of brand experience were modified to be positively worded in the main survey.

48

Table 3.9

Exploratory Factor Analysis Results for Brand Experience (n = 150)

Measurement Item [a]	Factor Loading		
	Positive Experience	Behavioral Experience	Negative Experience
Affective 3	.782		
Sensory 1	.775		
Sensory 2	.745		
Intellectual 1	.702		
Intellectual 3	.632		
Affective 1	.631		
Behavioral 1		.786	
Behavioral 2		.780	
Behavioral 3 [R]		.715	
Sensory 3 [R]			.809
Affective 2 [R]			.719
Intellectual 2 [R]			.679
Eigenvalue	4.399	1.078	
Variance explained	54.98%	13.48%	
Cronbach's alpha	.857	.718	.655

[R] Reverse-coded items.
[a] See Table 3.3 for the actual items corresponding to item abbreviations in this column.

Brand loyalty. The EFA for brand loyalty resulted in a two-factor solution, in which

only one reverse-coded item belonged to the second factor, whereas all the other items

measuring cognitive, affective, and conative brand loyalty were loaded on the first factor (see

Table 3.10). Because the EFA results did not show the expected dimensional structure of brand

loyalty (i.e., cognitive, affective, and conative loyalty), the researcher decided to retain only four

items addressing conative brand loyalty or loyalty behavioral intentions (i.e., "I will buy this

brand next time," "I will revisit this brand next time," "I will recommend this brand to other

people," and "I will pay more in order to buy this brand") for the main study. Further, three items

(i.e., "I will think of this brand over other brands," "I will pay a lot of attention to this brand over

other brands," and "I will consider this brand my first choice") were newly created to address the

Table 3.10

Exploratory Factor Analysis Results for Brand Loyalty (n = 150)

Measurement Item [a]	Factor Loading	
	Brand Loyalty	Negative Brand Loyalty
Cognitive 7	.881	
Cognitive 5	.850	
Conative 4	.844	
Cognitive 2	.826	
Cognitive 8	.817	
Cognitive 9	.816	
Cognitive 6	.809	
Conative 1	.801	
Cognitive 1	.796	
Cognitive 10	.793	
Cognitive 3	.774	
Affective 3	.747	
Cognitive 4	.726	
Affective 4	.725	
Conative 2	.721	
Affective 1	.709	
Conative 3	.631	
Affective 2 [R]		.872
Eigenvalue	12.785	1.043
Variance explained	71.03%	5.79%
Cronbach's alpha	.975	-

[R] Reverse-coded items.

[a] See Table 3.3 for the actual items corresponding to item abbreviations in this column.

attitudinal dimension of loyalty in the main survey by using the parts of the pilot test item wordings capturing respondents' preference over other brands. Behavioral and attitudinal loyalty are the most frequently emphasized dimensions of loyalty in the literature (Oliver, 1999; van den Brink et al., 2006; Zeithaml et al., 1996).

Chapter 4. Main Survey

This chapter presents the method and results of the main survey testing the research model and hypotheses proposed in Chapter 2. In this chapter, the instruments for the main survey, finalized based on the pilot test results described in Chapter 3, are presented, followed by sampling and data collection procedures used in the main survey. Subsequent sections describe data analysis procedure and results of the main survey including sample characteristics, the measurement validity and reliability, the hypothesis testing results, and additional analysis results for further discussion.

Instruments

Similar to the pilot test, the main survey was conducted on a survey Website containing an online browsing task and an online questionnaire.

Brand Website selection and browsing task scenario. As explained in Chapter 3, two (Jones New York and Esprit) of the 10 brands used in the pilot test were eliminated based on the pilot test results, so a total of eight brands' Websites (i.e., Nike, Ralph Lauren, Victoria Secret, Old Navy, Banana Republic, Express, Limited, and L.L.Bean) were used as the context for the online browsing task in the main survey. The online browsing task instruction remained the same as that used in the pilot test (see Table 3.2) because the pilot test indicated that the task successfully resulted in varying levels of challenges.

Measurements. The challenge measurements used in the pilot test remained the same in the main survey. The measures for the remaining variables (skill, online flow, brand experience, and loyalty) were revised as described in Chapter 3. The finalized measurement items are presented in Table 4.1. Finally, demographic items, including age, marital state, educational state, and ethnicity, were created to profile sample characteristics.

Sampling and Data Collection Procedure

A national sample of 815 adults in the United States who (a) were between 20 and 34 years old, (b) were female, and (c) had shopped online before participated in the main survey. The age criterion was used to assure the sample age range matched the age of target customers of the brands used in the main survey, which ranged from early 20s to mid 30s according to the companies' information ("Express Corporate Profile," 2011; "The GAP, Inc.," 2010; "L.L. Bean, Inc.," 2011; "Limited Brands Proxy Statement ," 2010; "The Limited Company," 2011; "Nike, Inc.," 2011; "Ralph Lauren Corporation," 2011). Because online flow is likely to occur when people are highly motivated and involved in an online activity (Hoffman & Novak, 1996, 2009; Novak et al., 2000), respondents who are not among the brands' target customers are unlikely to reach the state of online flow while performing a browsing task. For the same reason, subjects were restricted to women because they were the main target of the selected brands, and they typically enjoy shopping more (Seock & Bailey, 2008) and have higher levels of involvement with apparel products as compared to men (Reece & Kinnear, 1986).

The sample for the main survey was recruited via email from an online consumer panel of a market research firm, through a random sampling procedure. The email invitation contained a link to an information letter page and the survey Website (see Appendix F for the information

Table 4.1

Measurements Used in the Main Survey

Variable	Dimension [a]	No.	Item [b]	Source
Skill	General Shopping Skill	1	I usually know what to buy when I shop for something.	Developed by the researcher, based on Reece and Kinnear (1986)
		2	It is easy for me to find the right product that I am looking for in a store.	
		3	I easily narrow down product choices.	
		4	It is hard for me to compare product choices to decide what to buy. [R]	
	Clothing Shopping Skill	1	I am usually aware of how trendy a clothing product is.	
		2	I can judge whether a clothing product has high quality.	
		3	When I shop for clothing, I can choose the right style and color for me.	
		4	I can judge whether a clothing product fits me well.	
	E-Commerce Skill	1	I easily complete the purchase process on a shopping Website.	
		2	I have no trouble in buying something online.	
		3	*I often have difficulties in shopping online.* [R]	
	Web Search Skill	1	I am skilled in using the Web.	Adapted from Novak et al. (2000)
		2	I have good Web search techniques.	
		3	I know somewhat less than most users about using the Web. [R]	
		4	I know how to find what I am looking for on the Web.	
Challenge		1	This task was challenging to me.	Adapted from Novak et al. (2000)
		2	This task challenged me to perform to the best of my ability.	
		3	This task provided a good test of my skills in online shopping.	
		4	I found that this task stretched my capabilities to my limits.	
Online Flow	Autotelic Experience	1	I really enjoyed doing this task.	Adapted from Jackson and Marsh (1996)
		2	*I loved the feeling of accomplishing this task.*	
		3	The experience of doing this task left me feeling great.	
		4	I found this task experience rewarding.	
		5	This task was interesting.	
		6	This task bored me. [R]	
		7	This task was fun for me.	
	Curiosity	1	This task stimulated my curiosity.	Adapted from Webster et al. (1993)
		2	This task made me curious.	
		3	This task stimulated my imagination.	
	Concentration	1	During this task, my attention was focused entirely on what I was doing.	Adapted from Jackson and Marsh (1996)
		2	During this task, I made an effort to keep my mind on what was happening. [R]	
		3	I had total concentration to accomplish this task.	
		4	I was completely focused on this task at hand.	

[a] *A priori* dimension names originally planned before the pilot test.
[b] Items revised from the pilot test items are presented in Italic.
[R] Reverse-coded items.

Table 4.1 (continued)

Measurements Used in the Main Survey

Variable	Dimension [a]	No.	Item [b]	Source
Online Flow (continued)	Control	1	During this task, I felt in control.	Adapted from Novak et al. (2000)
		2	I clearly knew the right things to do to accomplish this task.	
		3	*I felt clear about what to do to accomplish this task.*	
		4	I felt calm because I understood the process to accomplish this task.	
		5	*I felt calm because I was sure what to do to accomplish this task.*	
	Loss of Self-Consciousness	1	I was self-conscious during this task. [R]	Adapted from Jackson and Marsh (1996)
		2	I was concerned how well I was completing this task. [R]	
		3	*I was worried how I was performing during this task. [R]*	
	Mergence of Action and Awareness	1	During this task, I made the correct movements without thinking.	
		2	Things just seemed to be happening automatically during this task.	
		3	I reacted to the Website automatically during this task.	
		4	During this task, I did things spontaneously and automatically without having to think.	
	Telepresence	1	During this task, I felt I was in the world the Website created.	Adapted from Klein (2003)
		2	During this task, I forgot I was in the middle of a survey.	
		3	During this task, my body was in the room, but my mind was inside the world created by the computer.	
		4	The Website seemed to me "somewhere I visited" rather than "something I saw."	
		5	I felt I was more in the "Web world" than the "real world" around me when I was doing the task.	
		6	I forgot about my immediate surroundings when I was doing the task.	
		7	When I completed this task, I felt like I came back to the "real world" after a journey.	
	Time Distortion	1	During this task, time appeared to go by very quickly.	Adapted from Guo and Poole (2009)
		2	I lost track of time while doing this task.	
		3	Time flew during this task.	
Brand Experience	Sensory Experience	1	This brand makes a strong visual impression.	Adapted from Brakus et al. (2009)
		2	I find this brand interesting in product displays, product texture, background music and/or use of fragrance.	
		3	*This brand appeals to my senses of hearing, sight, touch, and/or smell.*	
	Affective Experience	1	This brand induces my feelings and sentiments.	
		2	*I have strong emotions for this brand.*	
		3	This brand provokes emotions.	

[a] *A priori* dimension names originally planned before the pilot test.
[b] Items revised from the pilot test items are presented in Italic.
[R] Reverse-coded items.

Table 4.1 (continued)

Measurements Used in the Main Survey

Variable	Dimension [a]	No.	Item [b]	Source
Brand Experience (continued)	Behavioral Experience	1	I behave in a certain way when I wear this brand's clothes.	
		2	I act differently when I use this brand.	
		3	*This brand results in a certain behavior.*	
	Intellectual Experience	1	I engage in a lot of thinking when I encounter this brand.	
		2	*This brand makes me think.*	
		3	This brand stimulates my thinking and problem solving.	
Brand Loyalty		1	I will buy this brand next time.	Developed by the researcher, based on Kwon and Lennon (2009); Oliver (1999); van den Brink et al. (2006); and Zeithaml et al. (1996)
		2	I will revisit this brand next time.	
		3	I will recommend this brand to other people.	
		4	I will pay more in order to buy this brand.	
		5	*I will think of this brand over other brands.*	
		6	*I will pay a lot of attention to this brand over other brands.*	
		7	*I will consider this brand my first choice.*	

[a] *A priori* dimension names originally planned before the pilot test.
[b] Items revised from the pilot test items are presented in Italic.
[R] Reverse-coded items.

letter used in the main survey). On the survey Website, respondents were first asked three

screening questions: "Have you ever used the Internet for searching product information or

purchasing products?", "What is your gender?", and "What is your age?" to screen out

disqualified respondents. For the third question, the respondents were to select one among five

choices (i.e., Below 19, 20 to 24, 25 to 29, 30 to 34, and Over 35).

Respondents identified to qualify for the study through their responses to the screening

questions reached the survey questionnaire where they first completed the skill measure. Then,

the respondents viewed the online browsing task instruction (see Table 3.2) and the predicted

challenge measure (which is a measure to be used for another study). Then, the respondents read

another instruction reminding them about the task and the fact that they were to provide

information about their chosen product, which was identical to the instruction used in the pilot

test (see Table 3.4). After reading the reminder instruction, the respondents performed the online

browsing task and provided information about the product they chose during the task. After the task, respondents completed measures that assessed challenge perceived during the task, online flow, brand experience, and brand loyalty and answered demographic questions (see Appendix G for the questionnaire used in the main survey).

Finally, respondents were directed to a closing page where they were thanked for their time (see Appendix H for the closing page used in the main survey). The market research agency provided respondents with a small incentive. In addition to the small incentive, all respondents had a chance to enter a random drawing of five respondents to receive the product that they selected for the online browsing task.

Among the 815 responses, 24 included invalid data with a response-set tendency (e.g., responding all 1's, all 2's, etc. in some pages) and 16 left more than 20% of the items missing. These were removed from the data set. Moreover, 18 responses did not answer the questions related to the product chosen for the online browsing task, and thus also were removed from the data as it could not be ascertained that their responses were based on their experience with the assigned brand Website. After the data cleaning, a total of 757 responses were determined to be usable (73 responses for Banana Republic, 87 responses for Express, 185 responses for The Limited, 75 responses for L.L.Bean, 62 responses for Nike, 79 responses for Old Navy, 68 responses for Ralph Lauren, and 128 responses for Victoria Secret). Because it was desired for the data to be evenly distributed across the eight brands in order to avoid an unwanted effect resulting from an idiosyncrasy of a particular brand more highly represented in the data, the researcher randomly selected 62-63 responses from each brand (63 from Banana Republic, Express, The Limited, and L.L.Bean, and 62 from Nike, Old Navy, Ralph Lauren, and Victoria Secret), so that a total of 500 responses were used for further data analysis.

Data Analyses

Descriptive statistics of the questionnaire items were computed using Statistical Package for Social Science (SPSS) 18.0 software to screen unusable data and identify sample demographics. Since the sample size of this study is sufficiently large, the variables can be regarded being approximately normally distributed on the basis of the central limit theorem (Rice, 1995).

The reliability and validity of the skill, online flow, brand experience, and brand loyalty scales were assessed before testing the hypotheses. For all scales except for challenge, the data were randomly split into two sets by selecting approximately 50% of cases from the data in SPSS 18.0 software, and EFA was first conducted with one set of the data ($n = 247$) using SPSS 18.0. Then, using Analysis of Moment Structures (AMOS) 8.0 software, confirmatory factor analysis (CFA) was conducted for the other data set ($n = 253$) to confirm the dimensionality of each construct identified in EFA.

EFA was performed through principal component analysis with Varimax rotation in order to identify factors comprising each of the skill, challenge, online flow, brand experience, and brand loyalty constructs. The number of factors was determined by reviewing four criteria: (1) Kaiser's criterion (eigenvalue > 1), (2) scree plots, (3) factor loadings from rotated component matrices, and (4) conceptual meaning of measurement items.

The CFA was conducted using the Maximum Likelihood estimation method. The CFA model fit was determined by three fit indices: (1) comparative fit index (CFI), (2) Tucker-Lewis index (TLI), and (3) the root mean square error of approximation (RMSEA). The Chi-square statistic is also commonly used to evaluate model fit, but the significance of chi-square statistic is considered less reliable when sample size is either under 100 or over 200 (Singh, 2009). Thus,

CFI, TLI, and RMSEA were considered better estimates of the model fit in this study because they were considered to be relatively stable and independent of sample size as compared to other fit indices (Singh, 2009; Yuan, 2005). Hu and Bentler (1999) recommended a cutoff value close to.95 for CFI and TLI and a cutoff value close to.06 for RMSEA in order to have lower Type II error rates with acceptable costs of Type I error rates. Other researchers argued that CFI and TLI above .90 (Bentler, 1989) and RMSEA below .10 (Browne & Cudeck, 1992; MacCallum, Browne, & Sugawara, 1996) would be acceptable.

Based on the results of EFA and CFA, the measurements were further refined in order to establish their construct validity including convergent and discriminant validity (Hair, Black, Babin, & Anderson, 2009). Convergent validity was assessed by the average variance extracted (AVE) method, suggested by Fornell and Larcker (1981); AVE represents the amount of common variance in a latent variable in relation to the amount of error variance (Dillon & Goldstein, 1984). AVEs of .50 or above demonstrate convergent validity (Fornell & Larcker, 1981; Hair et al., 2009).

Discriminant validity was tested by two approaches. First, factor correlations and their confident intervals (i.e., the correlation plus and minus two standard errors) were assessed. Factor correlation confidence intervals must not contain 1.0 to establish discriminant validity (Anderson & Gerbing, 1988). Second, chi-square difference tests were conducted to compare the fit of the finalized CFA model and that of the restricted models with each factor correlation constrained to be one. A significant chi-square difference test results indicates a better fit of the unconstrained model, establishing the discriminant validity between the correlated factors (Anderson & Gerbing, 1988; Hair et al., 2009).

In addition to the validity check, reliability of the refined scales was checked by examining (1) Cronbach's alpha and (2) composite reliability (Fornell & Larcker, 1981). Cronbach's alphas and composite reliabilities exceeding .70 indicate the internal consistency of the scale (Fornell & Larcker, 1981; Hair et al., 2009).

On the other hand, for the challenge scale, the entire data set ($n = 500$) was used to run EFA to assure the unidimensionality of the scale and Cronbach's alpha to test its reliability. EFA was performed through principal components analysis with Varimax rotation. After the unidimensionality and reliability of the challenge scale were established, respondents were categorized into two groups – high and low challenge groups – using a median split based on their composite score (i.e., average) of the four challenge items to be used for testing H2.

To test the hypotheses, first, single-group SEM with maximum likelihood estimation was conducted using AMOS 8.0 software to test H1, H3, and H4. Second, H2, predicting that the relationship between skill and online flow would vary between the high and low challenge groups, was tested using multiple-group CFA (using AMOS 8.0). In addition, multivariate analysis of variance (MANOVA, using SPSS 18.0), conducted with the high versus low skill groups categorized based on a median split of the composite score of skill items, and the high versus low challenge groups categorized based on the median split of the challenge composite score as independent variables, and the composite scores of online flow dimensions as dependent variables, supplied further means to test H2. Finally, a series of single-group SEM with maximum likelihood estimation were used to test H5 predicting that brand experience would mediate the relationship between online flow and brand loyalty.

Results

Sample demographics. The sample used for the data analysis consisted of 500 women age 20 to 34 (*M* = 27.9, *SD* = 3.99). The age distribution of respondents showed that fewer women aged 20-24 (23.6%) were included in the data than those aged 25-29 (37.0%) or 30-34 (39.4%). Educational experience of the respondents varied greatly including the largest group with some college or technical school (42.4%), followed by those with a 4-year college degree (22.6%) and a high school degree (18.8%). A majority of the respondents were non-Hispanic White (69.6%), followed by non-Hispanic Black (12.0%), Hispanic (7.2%), and Asian (7.2%). In terms of annual household income in 2010, 36.6% of the respondents' households had an income below $30,000, 52.4% between $30,000 and $89,999, and 11.0% $90,000 or more. The sample represented a wide variety of occupations, with the largest number of respondents working as homemakers (32.6%), professional or technical jobs (16.6%), others (12.8%), and clerical workers (11.6%); most of the respondents who selected the "others" category further specified their occupations as students (*f* = 39) and unemployed (*f* = 20). Most respondents were either single and never married (45.0%) or married (48.2%). The frequencies and percentages of each sample demographic characteristic are shown in Table 4.2.

The sample characteristics were generally consistent with the U.S. national female population with ages of 20-35 years reported by the U.S. Census Bureau. In terms of age, the national female population has an almost equal distribution among 20-24 (33.9%), 25-29 (34.3%), and 30-34 (31.8%) age groups ("Annual Estimates of the Resident Population for the United States, " 2009). Since only 23.6% of the respondents were at the age of 20-24, the sample was slightly older than the national population, but not severely biased. With regard to educational levels, the U.S. population statistics for females age 18-34 ("Educational

60

Table 4.2

Demographic Characteristics of the Sample (n=500)

Variable	*f*	*%*
Age		
20 to 24	118	23.6
25 to 29	185	37.0
30 to 34	197	39.4
Education		
8th grade or less	2	0.4
Some high school	12	2.4
High school degree	94	18.8
Some college or technical school	212	42.4
College degree (4 years)	113	22.6
Some graduate school	19	3.8
Graduate degree	48	9.6
Ethnicity		
Non-hispanic white	348	69.6
Non-hispanic black	60	12.0
Hispanic	36	7.2
Asian/pacific islander	36	7.2
American Indian/Alaskan native	6	1.2
Other	14	2.8
Income		
Under $5,000	26	5.2
$5,000 to $9,999	27	5.4
$10,000 to $14,999	21	4.2
$15,000 to $19,999	22	4.4
$20,000 to $24,999	49	9.8
$25,000 to $29,999	38	7.6
$30,000 to $39,999	69	13.8
$40,000 to $49,999	64	12.8
$50,000 to $59,999	52	10.4
$60,000 to $69,999	34	6.8
$70,000 to $79,999	28	5.6
$80,000 to $89,999	15	3.0
$90,000 to $99,999	16	3.2
$100,000 to $124,999	23	4.6
$125,000 to $149,999	6	1.2
$150,000 to $199,999	7	1.4
$250,000 or over	3	0.6
Occupation		
Professional or technical	83	16.6
Manager or administrator	46	9.2
Sales worker	33	6.6
Clerical worker	58	11.6
Craftsworker	5	1.0
Machine operator or laborer	6	1.2
Farmer, farm manager, or farm laborer	1	0.2
Service worker or private household worker	39	7.8
Military	2	0.4

Table 4.2 (continued)

Demographic Characteristics of the Sample (n=500)

Variable	*f*	*%*
Occupation (continued)		
Homemaker	163	32.6
Other	64	12.8
Marital Status		
Single and never married	225	45.0
Married	241	48.2
Separated	13	2.6
Divorced	20	4.0
Widowed	1	0.2

Attainment," 2010) showed that 36% with some college or technical school, 24.9% with a high school degree, and 19.5% with a 4-year college degree. Considering that women aged 18-19, most of whom would fit the high school degree category, were not included in the sample, the sample naturally had a slightly lower proportion of respondents with a high school degree than the national population. Regarding ethnicity, national population consists of 65.4% of Non-Hispanic White, 15.0% of Hispanic, and 12.7% of Non-Hispanic Black ("Annual Estimates of the Resident Population by Sex," 2009). Thus, in the current sample, non-Hispanic Blacks were slightly over-represented while Hispanics were under-represented as compared to the national sample. In terms of income in 2010, 31.4% of households in the national population had an annual income below $30,000, 44.3% between $30,000 and $89,999, and 24.3% over $90,000 ("Income Distribution," 2010). Compared to the national population, the sample is over-represented in the low and middle income levels (36.6% below $30,000; 52.4% between $30,000 and $89,999) and under-represented in the high income group (11% $90,000 or more).

Measurement validity and reliability.

Skill. The initial EFA of the 15 skill items run on the first half of the data using principal component analysis with Varimax rotation resulted in five factors with eigenvalues of 1.0 or higher. However, the fifth factor was composed of three reverse-coded items with different conceptual meanings. Since respondents were likely to be confused about the reverse-coded items, two of the three reverse-coded items were eliminated (i.e., "It is hard for me to compare product choices to decide what to buy" and "I know somewhat less than most users about using the Web"). The remaining item had a primary factor loading of .662 on the fifth factor and a cross-loading of .534 on the fourth factor. This item was expected to load on the fourth factor when the second EFA was run and thus was maintained. The second EFA with the 13 remaining items confirmed the expected four factor structure (see Table 4.3). The four factors are labeled *clothing shopping skill*, *Web search skill*, *general shopping skill*, and *e-commerce skill*, corresponding to the original conceptual dimensions established in the literature review (also see Table 3.3).

The CFA of the 4-factor, 13-item model, run with the second half of the data, showed a good fit indicated by the CFI (.965), TLI (.954), and RMSEA (.065). The examination of the factor loadings, however, showed that the reverse-coded item, "I often have difficulties in shopping online" had a loading (.452) lower than .50, and thus was eliminated (Anderson & Gerbing, 1988). Another CFA was conducted with the four-factor model including the remaining 12 items (see Figure 4.1.), yielding a good fit, $\chi^2 = 87.009$, $df = 48$, CFI = .969, TLI = .978, and RMSEA = .057, with factor loadings of all items exceeding .50, and thus was finalized as the measurement model for skill to be used in the hypothesis testing.

Table 4.3

Final Exploratory Factor Analysis Results for Skill (n = 247)

Measurement Item [a]	Factor Loading			
	Clothing Shopping Skill	Web Search Skill	General Shopping Skill	E-Commerce Skill
Clothing Shopping Skill 1	.832			
Clothing Shopping Skill 2	.741			
Clothing Shopping Skill 3	.729			
Clothing Shopping Skill 4	.707			
Web Search Skill 2		.887		
Web Search Skill 1		.870		
Web Search Skill 4		.826		
General Shopping Skill 1			.827	
General Shopping Skill 3			.818	
General Shopping Skill 2			.772	
E-Commerce Skill 2				.828
E-Commerce Skill 3 [R]				.771
E-Commerce Skill 1				.734
Eigenvalue	5.389	1.769	1.286	1.069
Variance explained	41.46%	13.61%	9.90%	8.23%
Cronbach's alpha	.833	.926	.801	.798

Note. Two items, Web Search Skill 3 and General Shopping Skill 4, were excluded as a result of the initial EFA.
[R] Reverse-coded items.
[a] See Table 4.1 for the actual items corresponding to item abbreviations in this column.

Table 4.4 shows the AVEs, factor correlations, Cronbach's alphas, and composite reliabilities of the skill factors. The AVEs for all skill factors exceeded .50, thereby demonstrating convergent validity (Fornell & Larcker, 1981; Hair et al., 2009). Further, none of the confidence intervals for the factor correlation coefficients contained 1.0 (Anderson & Gerbing, 1988), and a series of chi-square difference tests that compared the unconstrained model (i.e., the original CFA model) with each of six constrained models (by restricting each factor correlation to be 1.0; see Table 4.5) showed the significantly superior fit of the unconstrained model (with four factors) than all six constrained models (see Table 4.5). Both results demonstrated the discriminant validity of the skill factors (Anderson & Gerbing, 1988;

Hair et al., 2009). All Cronbach's alphas and composite reliabilities exceeded .70, indicating the

internal consistency of the skill scale (Fornell & Larcker, 1981; Hair et al., 2009).
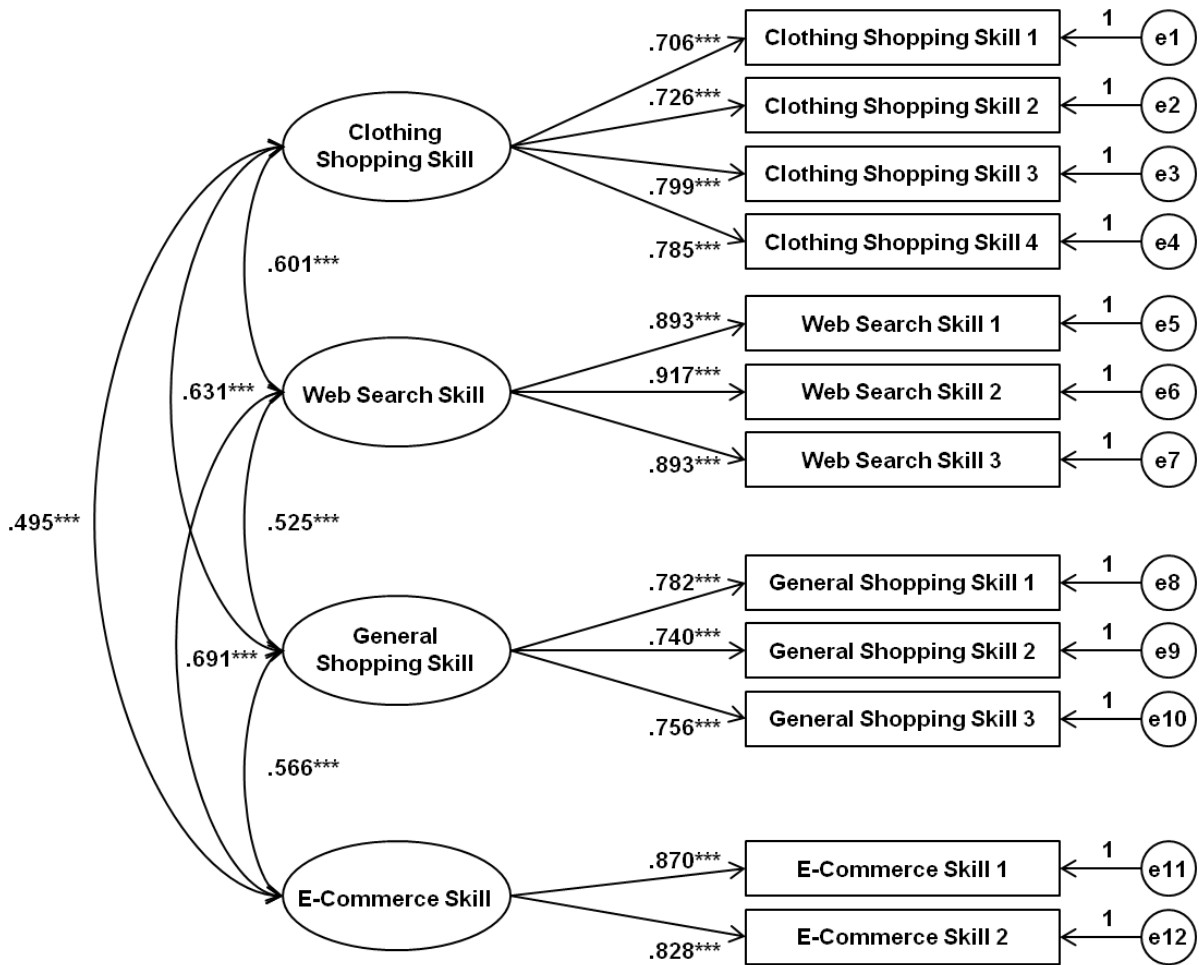
Notes. See Table 4.1 for the actual items corresponding to item abbreviations in this figure.
$\chi^2 = 87.009$, $df = 48$, $p < .001$, CFI = .969, TLI = .978, and RMSEA = .057
*** $p < .001$

Figure 4.1. Confirmatory factor analysis results for skills (*n* = 253)

Table 4.4

Validity and Reliability Check for Skills (n = 253)

	Clothing Shopping Skill	Web Search Skill	General Shopping Skill	E-Commerce Skill	Cronbach's alpha	Composite Reliability
Clothing Shopping Skill	**.570**	-	-	-	.841	.841
Web Search Skill	.601 (.049) [.503, .699]	**.812**	-	-	.928	.928
General Shopping Skill	.631 (.052) [.527, .735]	.525 (.056) [.413, .637]	**.577**	-	.802	.803
E-Commerce Skill	.495 (.060) [.375, .615]	.691 (.042) [.607, .775]	.566 (.057) [.452, .680]	**.721**	.837	.838

Note. AVEs are shown in the diagonal cells in bold. Correlations are shown in off-diagonal cells in the format of correlation coefficient (standard error) [confidence interval].

Table 4.5

Chi-square Difference Tests for Examining Discriminant Validity of Skill Factors (n = 253)

Model	Factor Correlation Constrained to Be 1	χ^2	df	Chi-square difference tests against the base (unconstrained) model		
				$\Delta\chi^2$	Δdf	p
Base Model	-	87.009	48	-	-	-
Model 1	Clothing Shopping Skill ⇔ Web Search Skill	318.149	49	231.140	1	< .001
Model 2	Clothing Shopping Skill ⇔ General Shopping Skill	203.367	49	116.358	1	< .001
Model 3	Clothing Shopping Skill ⇔ E-Commerce Skill	224.884	49	137.875	1	< .001
Model 4	Web Search Skill ⇔ General Shopping Skill	253.444	49	166.435	1	< .001
Model 5	Web Search Skill ⇔ E-Commerce Skill	183.157	49	96.148	1	< .001
Model 6	General Shopping Skill ⇔ E-Commerce Skill	203.570	49	116.561	1	< .001

Challenge. The EFA results from the entire data showed that the four challenge items

constituted a single factor (see Table 4.6). The Cronbach's alpha of the four challenge items

was .795, indicating adequate internal consistency (Cronbach & Shavelson, 2004).

Table 4.6

Exploratory Factor Analysis Results for Challenges (n = 500)

Measurement Item [a]	Factor Loading
Challenge 2	.826
Challenge 4	.816
Challenge 1	.793
Challenge 3	.709
Eigenvalue	2.479
Variance explained	61.97%
Cronbach's alpha	.795

[a] See Table 4.1 for the actual items corresponding to item abbreviations in this column.

Online flow. The initial EFA of the 36 online flow items, run with the first half of the data, resulted in six factors with eigenvalues above 1.0. The item, "During this task, I made an effort to keep my mind on the task" had a primary factor loading lower than .5. Therefore, another EFA was run without this item. Based on the second EFA results, three items originally conceptualized to measure time distortion were also eliminated because they were scattered across different factors. As a result, 32 of the 36 items were retained for the third EFA, which resulted in a clear five-factor solution (see Table 4.7).

The first factor, labeled as *autotelic experience*, combining the seven autotelic experience items and the three curiosity items from the originally planned dimensions (see Table 4.1; Jackson & Marsh, 1996; Webster et al., 1993). These 10 items addressed the feelings of reward such as enjoyment, interest, and curiosity experienced while performing the assigned browsing task. The second factor was labeled as *telepresence* because all items in this factor were identical to Klein's (2003) seven telepresence items. The third factor combined the five control items and the four mergence of action and awareness items from the originally planned dimensions (also see Table 4.1; Jackson & Marsh, 1996; Novak et al., 2000). These nine items assessed the extent to which respondents felt they could accomplish the task by immediately

Table 4.7

Exploratory Factor Analysis Results for Online Flow (n = 247)

Measurement Item [a, b]	Factor Loading				
	Autotelic Experience	Tele-presence	Control	Con-centration	Loss of Self-Conscious-ness
Autotelic Experience 1 (AE9)	.770				
Autotelic Experience 5 (AE5)	.769				
Curiosity 2 (AE2)	.736				
Autotelic Experience 7 (AE4)	.731				
Curiosity 1 (AE3)	.713				
Autotelic Experience 4 (AE6)	.694				
Autotelic Experience 6 [R]	.658				
Autotelic Experience 2 (AE8)	.627				
Curiosity 3 (AE1)	.625				
Autotelic Experience 3 (AE7)	.612				
Telepresence 3 (TP5)		.863			
Telepresence 6 (TP2)		.858			
Telepresence 1 (TP7)		.832			
Telepresence 5 (TP3)		.826			
Telepresence 6 (TP1)		.818			
Telepresence 2 (TP6)		.771			
Telepresence 4 (TP4)		.715			
Mergence of Action and Awareness 1 (CT1)			.780		
Control 5 (CT8)			.710		
Control 4 (CT7)			.707		
Mergence of Action and Awareness 4 (CT3)			.692		
Control 2 (CT5)			.679		
Control 3 (CT6)			.675		
Control 1 (CT4)			.637		
Mergence of Action and Awareness 2			.577		
Mergence of Action and Awareness 3 (CT2)			.558		
Concentration 3 (CC2)				.741	
Concentration 1 (CC3)				.726	
Concentration 4 (CC1)				.626	
Loss of Self-Consciousness 3 [R]					.813
Loss of Self-Consciousness 2 [R]					.805
Loss of Self-Consciousness 1 [R]					.714
Eigenvalue	12.309	5.093	1.801	1.542	1.162
Variance explained	38.47%	15.91%	5.63%	4.82%	3.63%
Cronbach's alpha	.884	.937	.903	.865	.785

Note. Four online flow items, Concentration 2, and Time Distortion 1-3, were eliminated based on the prior EFA results.

[R] Reverse- coded items.

[a] See Table 4.1 for the actual items corresponding to item abbreviations in this column.

[b] Parenthesized item codes are for cross-referencing indicator notations used in CFA figure (Figure 4.2).

responding to the stimulus during the task, and thus this factor was labeled as *control*. The fourth

and fifth factors were labeled as *concentration* and *loss of self-consciousness*, respectively,

echoing the conceptual meaning of the originally planned dimensions (see Table 4.1; Jackson &

Marsh, 1996).

The 32-item, 5-factor model of online flow suggested by the EFA results was subjected

to CFA with the second half of the data. However, the initial CFA failed to show a good fit. Even

though the CFI (.904) and RMSEA (.073) were acceptable, the TLI (.895) was lower than the

cutoff value of .90 recommended by Bentler (1989). Moreover, factor loadings of two items

("This task bored me" and "Things just seemed to be happening automatically during this task")

were lower than .50. After dropping the two low-loading items, a second CFA yielded adequate

goodness of fit, CFI = .925, TLI = .918, and RMSEA = .068. However, the factor, loss of the

self-consciousness, had significant, negative correlations with three other factors: telepresence (r

$= -.50, p < .001$), autotelic experience ($r = -.29, p < .001$), and concentration ($r = -.18, p < .05$).

These unexpected negative factor correlations may have resulted from a misunderstanding about

the loss of self-consciousness measurement items. That is, respondents who understood the task

as a test of their shopping abilities might intentionally keep conscious of the task to successfully

complete the task, and this could lead to response bias. Furthermore, respondents might have

also become confused because all loss of self-consciousness items were reverse-coded. Thus, the

items for loss of self-consciousness were eliminated, and another CFA was run with the

remaining four factors (autotelic experience, telepresence, control, and concentration) consisting

of 27 items. The final model fit was good, $\chi^2 = 740.301$, $df = 318$, CFI = .927, TLI = .920, and

RMSEA = .073, and the factor loadings of all items exceeded .50 (see Figure 4.2). Therefore, the

4-factor, 27-item model was finalized as the online flow measurement model for further

hypothesis testing.
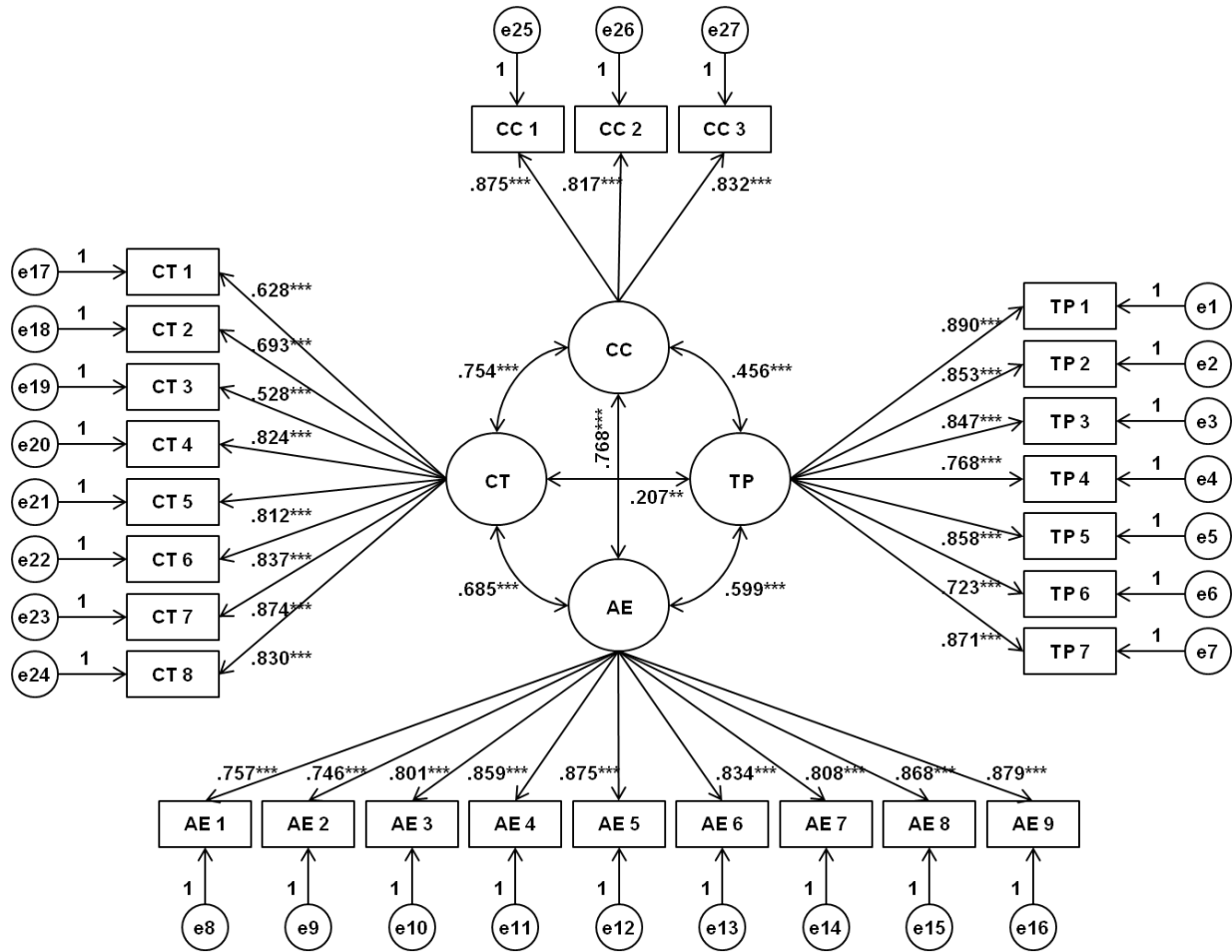
Notes. See Table 4.1 and Table 4.7 for the actual items corresponding to item abbreviations in this figure.
TP- Telepresence; AE- Autotelic experience; CT- Control; CC- Concentration
$\chi^2 = 740.301$, $df = 318$, $p < .001$, CFI = .927, TLI = .920, and RMSEA = .073
$^{**} p < .01$, $^{***} p < .001$

Figure 4.2. Confirmatory factor analysis results for online flow ($n = 253$)

The convergent and discriminant validity of the finalized online flow measurement was

assessed by checking AVEs, factor correlations, Cronbach's alphas, and composite reliabilities

(see Table 4.8). The AVEs of all four factors exceeded .50, establishing convergent validity

Table 4.8

Validity and Reliability Check for Online Flow (n = 253)

	Telepresence	Autotelic experience	Control	Concentration	Cronbach's alpha	Composite Reliability
Telepresence	**.692**	-	-	-	.939	.940
Autotelic experience	.599 (.044) [.511, .687]	**.683**	-	-	.950	.951
Control	.207 (.064) [.079, .335]	.685 (.037) [.611, .759]	**.581**	-	.908	.915
Concentration	.456 (.056) [.344, .568]	.768 (.032) [.704, .832]	.754 (.034) [.686, .822]	**.708**	.878	.879

Note. AVEs are shown in the diagonal cells in bold. Correlations are shown in off-diagonal cells in the format of correlation coefficient (standard error) [confidence interval].

(Fornell & Larcker, 1981; Hair et al., 2009). Confidence intervals of none of the factor correlations contained 1.0, thereby indicating discriminant validity among the online flow factors (Anderson & Gerbing, 1988). In addition, through a series of chi-square difference tests, the unconstrained model (i.e., the finalized CFA model) showed a significantly better fit over all the constrained models with a factor correlation coefficient of 1.0 (see Table 4.9), reaffirming the discriminant validity of the four online flow factors (Anderson & Gerbing, 1988; Hair et al., 2009). Reliability of the online flow scale was established through Cronbach's alphas and composite reliabilities, which all exceeded .70 (see Table 4.8; Fornell & Larcker, 1981; Hair et al., 2009).

Brand experience. The initial EFA of the 12 brand experience items with the first half of the data resulted in a one-factor solution based on Kaiser's (1960) criterion (i.e., eigenvalue > 1). However, the scree plot suggested a possibility of two factors. Thus, another EFA was conducted using the option of fixed two factors. As shown in Table 4.10, the first factor, labeled *non-*

Table 4.9

Chi-square Difference Tests of Discriminant Validity for Online Flow (n = 253)

Model	Factor Correlation Constrained to Be 1	χ^2	df	Chi-square difference tests against the base (unconstrained) model		
				$\Delta\chi^2$	Δdf	p
Base Model	-	740.031	318	-	-	-
Model 1	Telepresence ⇔ Concentration	1063.009	319	322.978	1	< .001
Model 2	Telepresence ⇔ Control	1862.651	319	1122.620	1	< .001
Model 3	Telepresence ⇔ Autotelic experience	1602.637	319	862.606	1	< .001
Model 4	Control ⇔ Concentration	901.710	319	161.679	1	< .001
Model 5	Autotelic experience ⇔ Concentration	899.973	319	159.942	1	< .001
Model 6	Autotelic experience ⇔ Control	1303.369	319	563.338	1	< .001

Table 4.10

Exploratory Factor Analysis Results for Brand Experience (n = 247)

Measurement Item [a]	Factor Loading	
	Non-sensory Experience	Sensory Experience
Intellectual 3	.846	
Behavioral 1	.842	
Behavioral 2	.839	
Behavioral 3	.834	
Affective 1	.833	
Intellectual 1	.828	
Affective 3	.817	
Intellectual 2	.806	
Affective 2	.791	
Sensory 2		.883
Sensory 1		.836
Sensory 3		.713
Eigenvalue	8.732	.969
Variance explained	72.77%	8.08%
Cronbach's alpha	.970	.874

[a] See Table 4.1 for the actual items corresponding to item abbreviations in this column.

sensory experience, combined the three affective brand experience items, three behavioral brand experience items, and three intellectual brand experience items (Brakus et al., 2009). The second factor, named *sensory*, contained the three items originally conceptualized as sensory brand experience (also see Table 4.1; Brakus et al., 2009).

However, the CFA run with the second half of the data based on the two-factor model showed a poor model fit (i.e., χ^2 = 345.052, *df* = 53, CFI = .916, TLI = .895, and RMSEA = .148) with a TLI value below .90 and RMSEA value above .10, thereby failing to confirm the two-factor model. Brakus et al. (2009) originally examined the structure of brand experience, comparing a four-factor model (including sensory, affective, behavioral, and intellectual factors) with other alternative models and concluded that the four-factor model was the best model. Hence, a second run of CFA was conducted to assess the fit of the four-factor model verified by Brakus et al. (2009). All fit indices suggested an adequate fit (i.e., χ^2 = 116.388, *df* = 48, CFI = .980, TLI = .973, and RMSEA = .075), and the standardized regression coefficients of all items exceeded .50 at the alpha level of .001 (see Figure 4.3).

Given that the four-factor structure was not extracted from the EFA results from the first data set, accepting the four-factor model CFA results may be vulnerable to criticism in spite of the good model fit. To check whether the four-factor model could fit the entire data set adequately, the third run of CFA was conducted with the entire data set (*n* = 500). This third CFA again resulted in a good model fit (i.e., χ^2 = 149.345, *df* = 48, CFI = .985, TLI = .979, and RMSEA = .063); thus, the four-factor model was accepted as the final measurement model of brand experience for hypothesis testing. The four factors were labeled *sensory*, *affective*, *behavioral*, and *intellectual* experiences, following the original names suggested by Brakus et al. (2009).
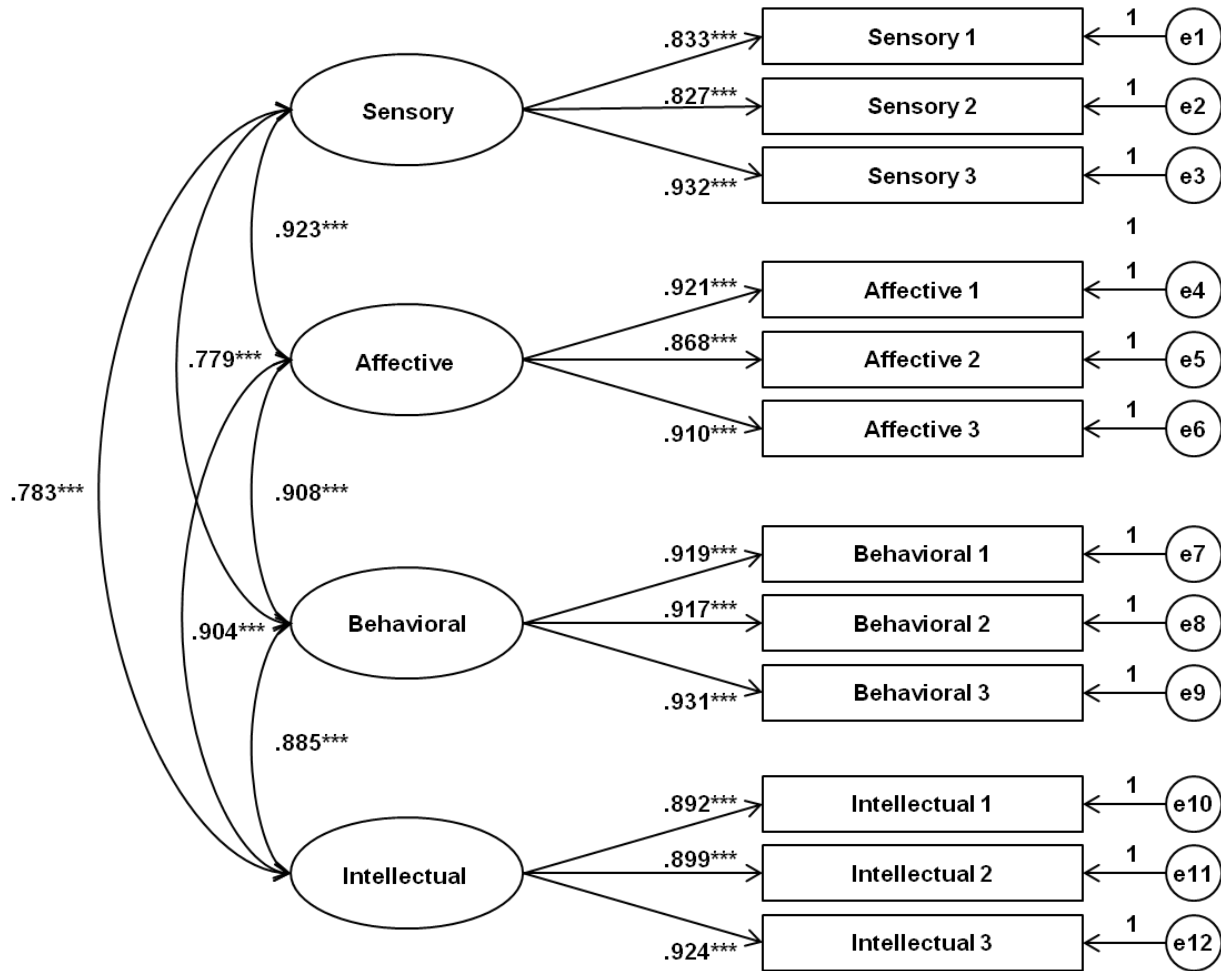
Notes. See Table 4.1 for the actual items corresponding to item abbreviations in this figure.
$\chi^2 = 116.388$, $df = 48$, $p < .001$, CFI = .980, TLI = .973, and RMSEA = .075
*** $p < .001$

Figure 4.3. Confirmatory factor analysis results for brand experience (*n* = 253)

As shown in Table 4.11, AVEs, factor correlations, Cronbach's alphas, and composite reliabilities were assessed based on CFA results from the entire data (*n* = 500). The AVEs of all four factors were over .50, providing evidence for convergent validity (Fornell & Larcker, 1981; Hair et al., 2009). No factor correlation confidence intervals (i.e., plus and minus two standard errors around the factor correlation coefficients) contained 1.0 (see Table 4.11), providing evidence for discriminant validity (Anderson & Gerbing, 1988). A series of chi-square difference

74

tests again established discriminant validity (Anderson & Gerbing, 1988; Hair et al., 2009), as

the unconstrained four-factor model showed a significantly better fit than six constrained models

with one of the factor correlations restricted to be 1.0 (see Table 4.12). All Cronbach's alphas

and composite reliabilities were above .70, thereby establishing measurement reliability of the

brand experience scale (Fornell & Larcker, 1981; Hair et al., 2009).

Table 4.11

Validity and Reliability Check for Brand Experience (n = 500)

	Sensory	Affective	Behavioral	Intellectual	Cronbach's alpha	Composite Reliability
Sensory	**.726**	-	-	-	.891	.888
Affective	.883 (.015) [.853, .913]	**.828**	-	-	.934	.935
Behavioral	.772 (.022) [.728, .816]	.922 (.010) [.902, .942]	**.843**	-	.941	.941
Intellectual	.782 (.022) [.738, .826]	.919 (.011) [.897, .941]	.884 (.013) [.858, .910]	**.820**	.932	.932

Note. AVEs are shown in the diagonal cells in bold. Correlations are shown in off-diagonal cells in the format of correlation coefficient (standard error) [confidence interval].

Table 4.12

Chi-square Difference Tests of Discriminant Validity for Brand Experience (n = 500)

Model	Factor Correlation Constrained to Be 1	χ^2	*df*	Chi-square difference tests against the base (unconstrained) model		
				$\Delta\chi^2$	Δdf	*p*
Base Model	-	149.345	48	-	-	-
Model 1	Sensory ⇔ Affective	302.757	49	153.412	1	< .001
Model 2	Sensory ⇔ Behavioral	505.776	49	356.431	1	< .001
Model 3	Sensory ⇔ Intellectual	478.75	49	329.405	1	< .001
Model 4	Affective ⇔ Behavioral	289.707	49	140.362	1	< .001
Model 5	Affective ⇔ Intellectual	281.045	49	131.7	1	< .001
Model 6	Behavioral ⇔ Intellectual	386.133	49	236.788	1	< .001

Brand loyalty. The EFA with the first half of the data resulted in a one-factor solution for the seven brand loyalty items with all factor loadings above .80 (see Table 4.13). The adequacy of the one-factor model was assessed through CFA using the second half of the data. The values of CFI (.944) and TLI (.916) were greater than .90, but the value of RMSEA (.169) was greater than .10, indicating an unacceptable fit (Browne & Cudeck, 1992; MacCallum et al., 1996). Thus, the initial model was adjusted by adding covariances between error terms. Because a high degree of overlap in item content could trigger error covariances (Byrne, 2009), related items were identified on the basis of literature review. Three items ("I will buy this brand next time," "I will revisit this brand next time," and "I will recommend this brand to other people"), adopted from Kwon and Lennon (2009) and Zeithaml et al. (1996), addressed loyalty behavioral intention, and thus their error terms were specified to co-vary. On the other hand, another set of three items ("I will think of this brand over other brands," "I will pay a lot of attention to this brand over other brands," and "I will consider this brand my first choice") addressed consumers' cognitive preference over other brands; thus, their error terms were again specified to co-vary. The remaining one item "I will pay more in order to buy this brand" was also adopted from Kwon and Lennon (2009) as a loyalty behavioral intention item; however, Kwon and Lennon (2009) reported that the mean score of this item was only half of the mean scores of the other loyalty behavioral intention items (e.g., intents to repurchase, revisit, and recommend a brand), suggesting the lack of connection between this item with other behavioral intention items. Thus, no error covariance was specified for this item. Figure 4.4 presents the CFA model with the aforementioned error covariances. The modified model demonstrated a good fit (i.e., $\chi^2 = 19.451$, $df = 8$, $p < .05$, CFI = .994, TLI = .983, and RMSEA = .075), and all items had factor loadings above .50. The Cronbach's alpha of the brand loyalty scale was .954, and the composite

reliability was .949; thus, reliability of the scale was established (Fornell & Larcker, 1981; Hair

et al., 2009). Therefore, the finalized one-factor model with error covariances was used as the

brand loyalty measurement model for hypothesis testing.

Table 4.13

Exploratory Factor Analysis Results for Brand Loyalty (n = 247)

Measurement Item [a]	Factor Loading
Brand Loyalty 5	.929
Brand Loyalty 1	.912
Brand Loyalty 6	.897
Brand Loyalty 2	.892
Brand Loyalty 7	.888
Brand Loyalty 3	.848
Brand Loyalty 4	.848
Eigenvalue	5.521
Variance explained	78.87%
Cronbach's alpha	.954

[a] See Table 4.1 for the actual items corresponding to item abbreviations in this column.
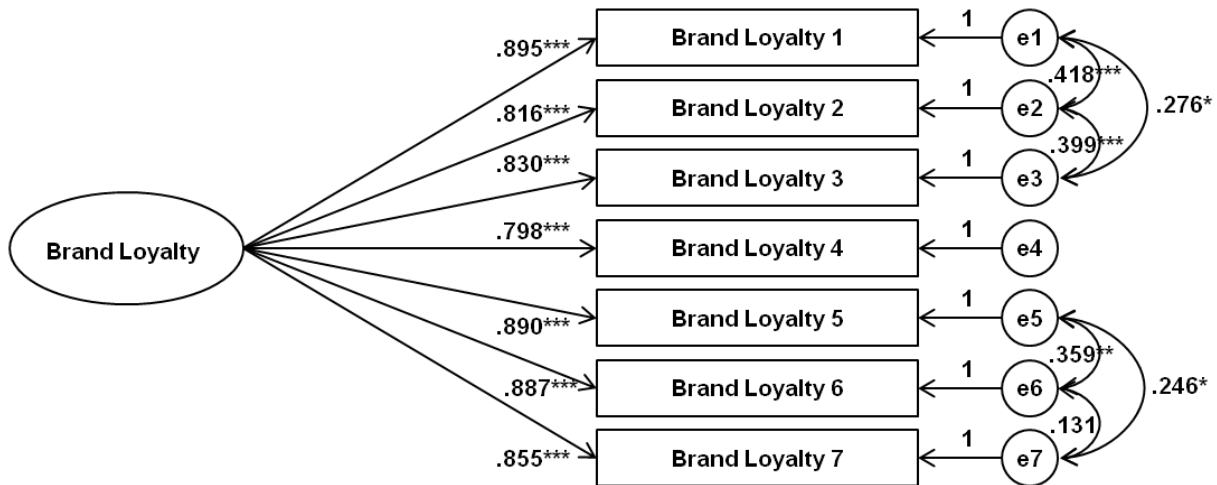
Notes. See Table 4.1 for the actual items corresponding to item abbreviations in this figure.
$\chi^2 = 19.451$, $df = 8$, $p < .05$, CFI = .994, TLI = .983, and RMSEA = .075
[*] $p < .05$, [**] $p < .01$, [***] $p < .001$

Figure 4.4. Confirmatory factor analysis results for brand loyalty ($n = 253$)

Hypothesis testing.

Direct relationships. All hypothesized direct relationships (i.e., H1, H3, and H4) were tested through a single-group SEM with maximum likelihood estimation. A SEM model (Model 1) was created by using item parceling (i.e., combining items into small groups of items within scales or subscales) for indicators of three of the four latent variables—skill, online flow, and brand experience -- resulting in a more optimal indicator-to-sample size ratio and thus more stable parameter estimates (Bandalos & Finney, 2001). Isolated parceling, in which items were parceled with other items sharing the same source of variance (i.e., scores of the items loading on the same factor according to the finalized CFA results reported in the previous section were averaged to create a single indicator), was used, so the model fit would not be inflated (Hall, Snell, & Foust, 1999). For the brand loyalty latent variable, indicators were specified using the finalized measurement model in the previous section (see Figure 4.4). The sample size ($n = 500$) was adequate for hypothesis testing using this method because the parceled model resulted in 47 parameters to be estimated, requiring a minimal sample size of 470 according to Byrne's (2009) recommendation. The SEM results are presented in Figure 4.5.

The SEM results indicated that the model had an acceptable fit, $\chi^2 = 802.871$, $df = 143$, $p < .001$, CFI = .918, TLI = .902, and RMSEA = .096, and thus the significance of the hypothesized paths were investigated. The standardized regression coefficients indicated that skill positively influenced online flow ($\beta = .544$, $p < .001$), supporting H1. The positive influence of online flow on brand experience also was significant ($\beta = .569$, $p < .001$), supporting H3. Moreover, brand experience had a significant, positive influence on brand loyalty ($\beta = .803$, $p < .001$), thereby supporting H4.
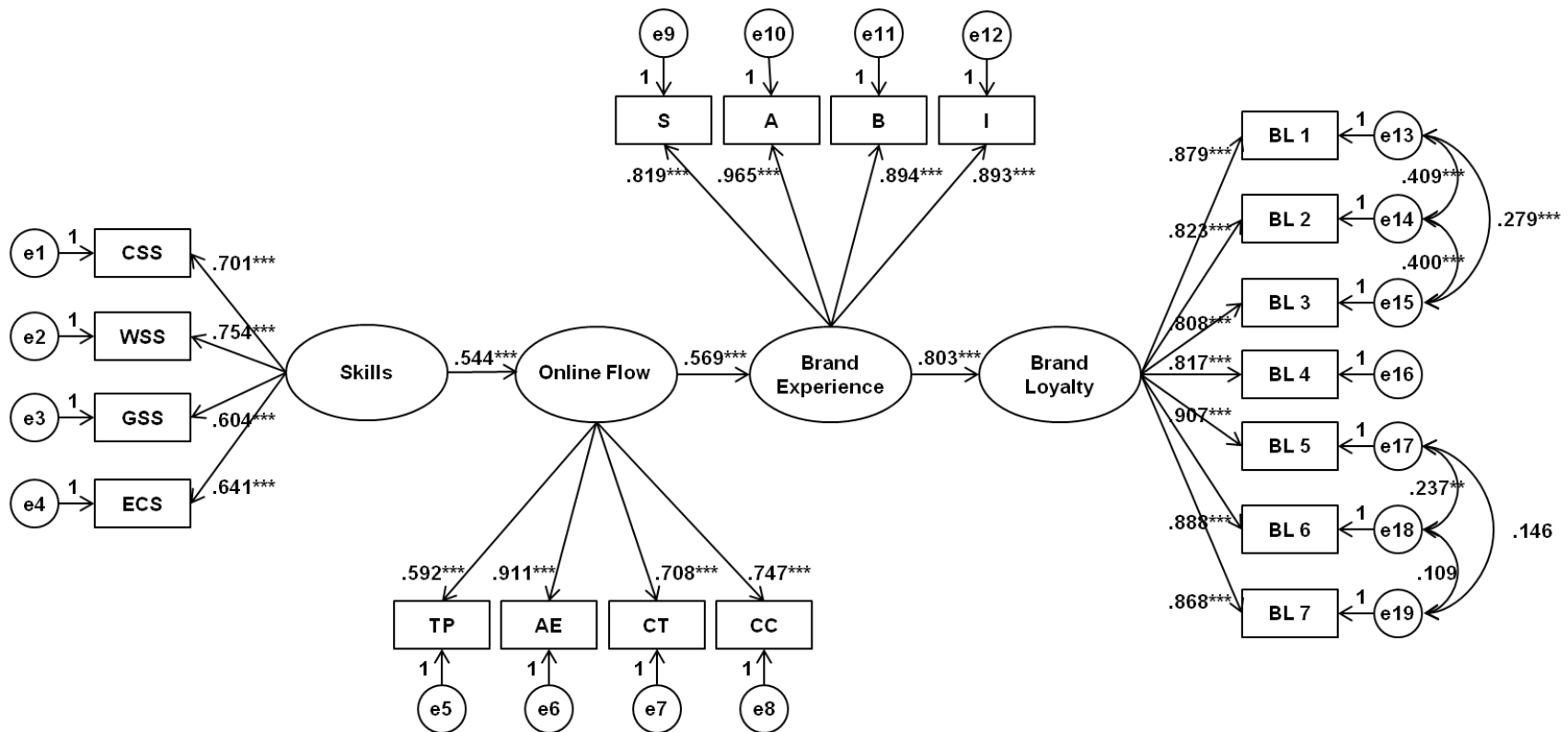
Notes. CSS- Clothing shopping skill; WSS- Web search skill; GSS- General shopping skill; ECS- E-commerce skill; TP- Telepresence; AE- Autotelic experience; CT- Control; CC- Concentration; S- Sensory experience; A- Affective experience; B- Behavioral experience; I- Intellectual experience; BL- Brand loyalty
See Table 4.1 for the actual items corresponding to BL indicators.
$\chi^2 = 802.871$, $df = 143$, $p < .001$, CFI = .918, TLI = .902, and RMSEA = .096
$^{**} p < .01$, $^{***} p < .001$

Figure 4.5. Model 1: Structural equation model for testing H1, 3, and 4 ($n = 500$)

Moderating effect test. H2 predicted the moderating effect of challenge on the

relationship between skill and online flow. Two approaches were used to test this hypothesis.

The first approach is to use multiple-group CFA with maximum likelihood estimation.

Respondents were categorized into high- versus low-challenge groups by perceived challenge

median split so that each group had an equal sample size ($n = 250$). A CFA model (Model 2) was

created by using item parceling method for indicators of the skill and online flow latent variables.

As shown in Figure 4.6, the CFA results indicated that the correlation coefficient between skill
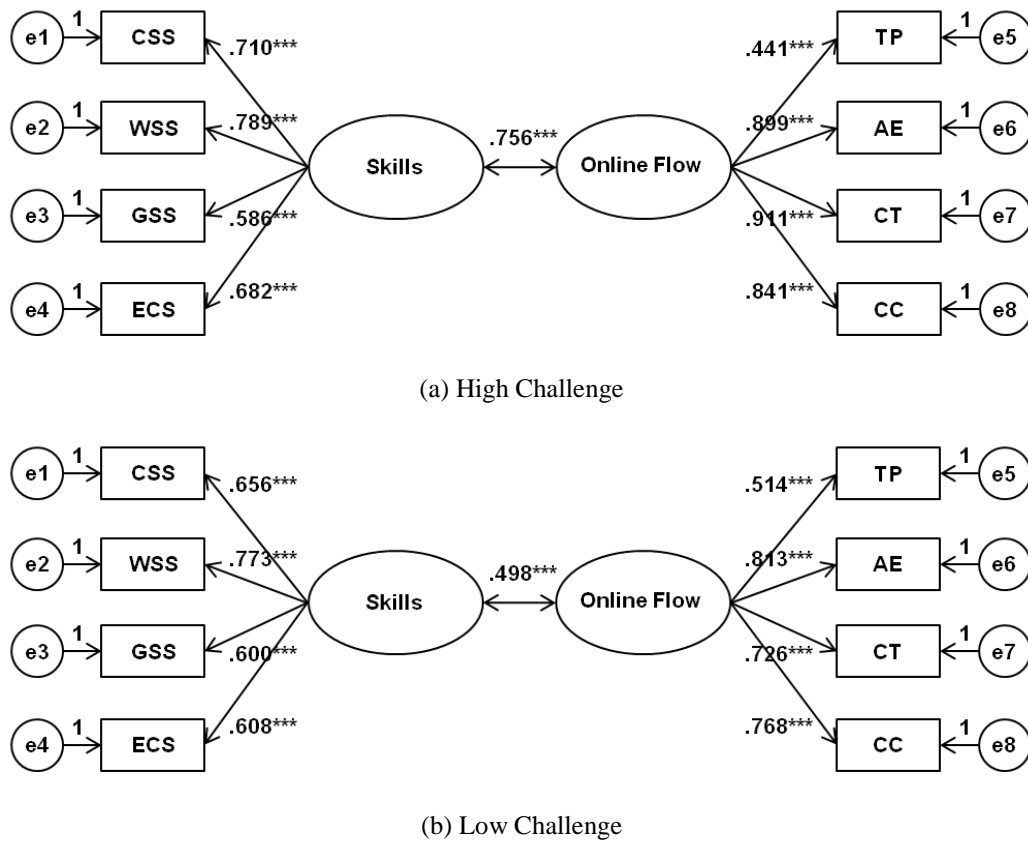
(a) High Challenge

(b) Low Challenge

Notes. CSS- Clothing shopping skill; WSS- Web search skill; GSS- General shopping skill; ECS- E-commerce skill;
TP- Telepresence; AE- Autotelic experience; CT- Control; CC- Concentration
$\chi^2 = 184.006$, $df = 38$, $p < .001$, CFI = .914, TLI = .873, and RMSEA = .088
*** $p < .001$

Figure 4.6. Model 2: Structural equation model for testing H2 ($n = 500$)

and online flow was higher for the high-challenge group ($r = .756$, $p < .001$) than for the low-challenge group ($r = .498$, $p < .001$). To examine whether this correlation difference between the two challenge groups is statistically significant, a chi-square difference test was run between Model 2 and another multiple-group CFA model (Model 3) with a constraint that the correlation coefficient was equal between the high- and low-challenge groups. Results from the chi-square difference test ($\Delta \chi^2 = 11.862$, $\Delta df = 1$, $p < .001$) revealed that Model 2 with a higher correlation for the high (vs. low) challenge group ($\chi^2 = 184.006$, $df = 38$) had a significantly better fit than Model 3, the constrained model ($\chi^2 = 195.868$, $df = 39$), thereby supporting H2.

The second approach to test H2 is to test the skill $\times$ challenge interaction effect using MANOVA, followed by analyses of variance (ANOVAs). For this test, both skill and challenge were converted into categorical variables. The median-split high and low challenge groups were again used for the challenge variable. Another median split was conducted based on respondents' composite scores of the four skill factors (i.e., averages of the four averages representing each factor—average of clothing shopping skill items, average of Web-search skill items, average of general shopping skill items, and average of e-commerce skill items) to classify each respondent into high- versus low-skill groups. Then, MANOVA was run with the skill and challenge categorical variables as two fixed factors and four online flow factor composite scores (i.e., averages of the items from each factor)-- telepresence, autotelic experience, control, and concentration— as four dependent variables. MANOVA results showed the significant skill $\times$ challenge interaction effect (Wilks' $\lambda = .974$, $F_{4, 493} = 3.294$, $p = .011$) as well as significant main effects of skill (Wilks' $\lambda = .804$, $F_{4, 493} = 30.061$, $p < .001$) and challenge (Wilks' $\lambda = .804$, $F_{4, 493} = 30.103$, $p < .001$). Follow-up ANOVAs revealed that the skill $\times$ challenge interaction effect was significant for all four dependent variables (see Table 4.14). The effects of skill in increasing

81

Table 4.14

ANOVA Results for Testing H2

Dependent Variable	Effect	Sum of Square	Mean Square	*F*	*df*	Error *df*	*p*
Telepresence	Skill	31.823	31.823	15.864	1	496	< .001
	Challenge	110.710	110.710	55.191	1	496	< .001
	Skill × Challenge	13.505	13.505	6.732	1	496	.010
Autotelic Experience	Skill	68.476	68.476	56.404	1	496	< .001
	Challenge	79.962	79.962	65.865	1	496	< .001
	Skill × Challenge	10.712	10.712	8.823	1	496	.003
Control	Skill	94.177	94.177	117.190	1	496	< .001
	Challenge	0.107	0.107	0.133	1	496	.715
	Skill × Challenge	4.714	4.714	5.866	1	496	.016
Concentration	Skill	74.384	74.384	57.692	1	496	< .001
	Challenge	12.808	12.808	9.934	1	496	.002
	Skill × Challenge	12.695	12.695	9.846	1	496	.002

telepresence, autotelic experience, control, and concentration were greater in the high-challenge group than in the low-challenge group (see Figure 4.7), supporting H2.

The ANOVAs also revealed significant main effects of skill on all four online flow dimensions and significant main effects of challenge on all online flow dimensions but control. Online flow scores were significantly more positive for high-skill or high-challenge respondents than low-skill or low-challenge respondents in the aforementioned dimensions (see Table 4.15).

Mediation test. H5, which predicted mediating effect of brand experience on the relationship between online flow and brand loyalty, was tested by running another SEM model (Model 4, see Figure 4.8) created by adding the direct regression path from online flow to brand loyalty to Model 1 (which was used to test H1, H3, and H4). In Model 1, the effect of online

Low Challenge   High Challenge

4.88

4.04

3.43   3.61

Low Skill   High Skill

(a) Telepresence

Low Challenge   High Challenge

6.04

5.01

4.50   4.95

Low Skill   High Skill

(b) Autotelic Experience

Low Challenge   High Challenge

6.16

5.32

5.99

5.09

Low Skill   High Skill

(c) Control

Low Challenge   High Challenge

6.18

5.08

5.08   5.54

Low Skill   High Skill

(d) Concentration
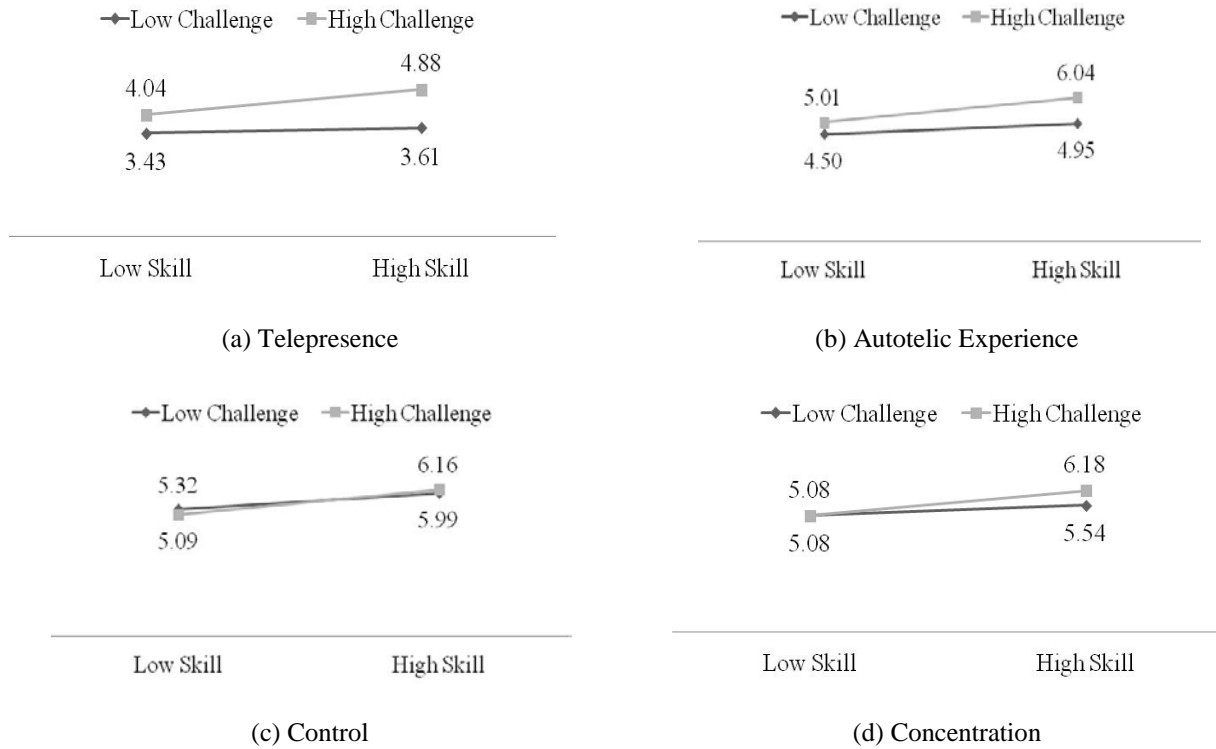
Figure 4.7. Mean scores of online flow dimensions depending on skill and challenge levels

Table 4.15

Mean Scores of Online Flow Dimensions Depending on Skill and Challenge Levels

	Low Challenge	High Challenge	Low Skill	High Skill
Telepresence	3.52	4.46	3.74	4.25
Autotelic Experience	4.73	5.53	4.76	5.50
Control	5.54	5.74	5.21	6.08
Concentration	5.31	5.63	5.08	5.86

flow on brand experience (β = .569) and the effect of brand experience on brand loyalty (β = .803) were both significant. In Model 4, the direct effect of online flow on brand loyalty (β = .199, p < .001) was significant, while the effect of online flow on brand experience (β = .557, p < .001) and the effect of brand experience on brand loyalty (β = .689, p < .001) still remained significant, providing evidence for partial mediation rather than full mediation of brand
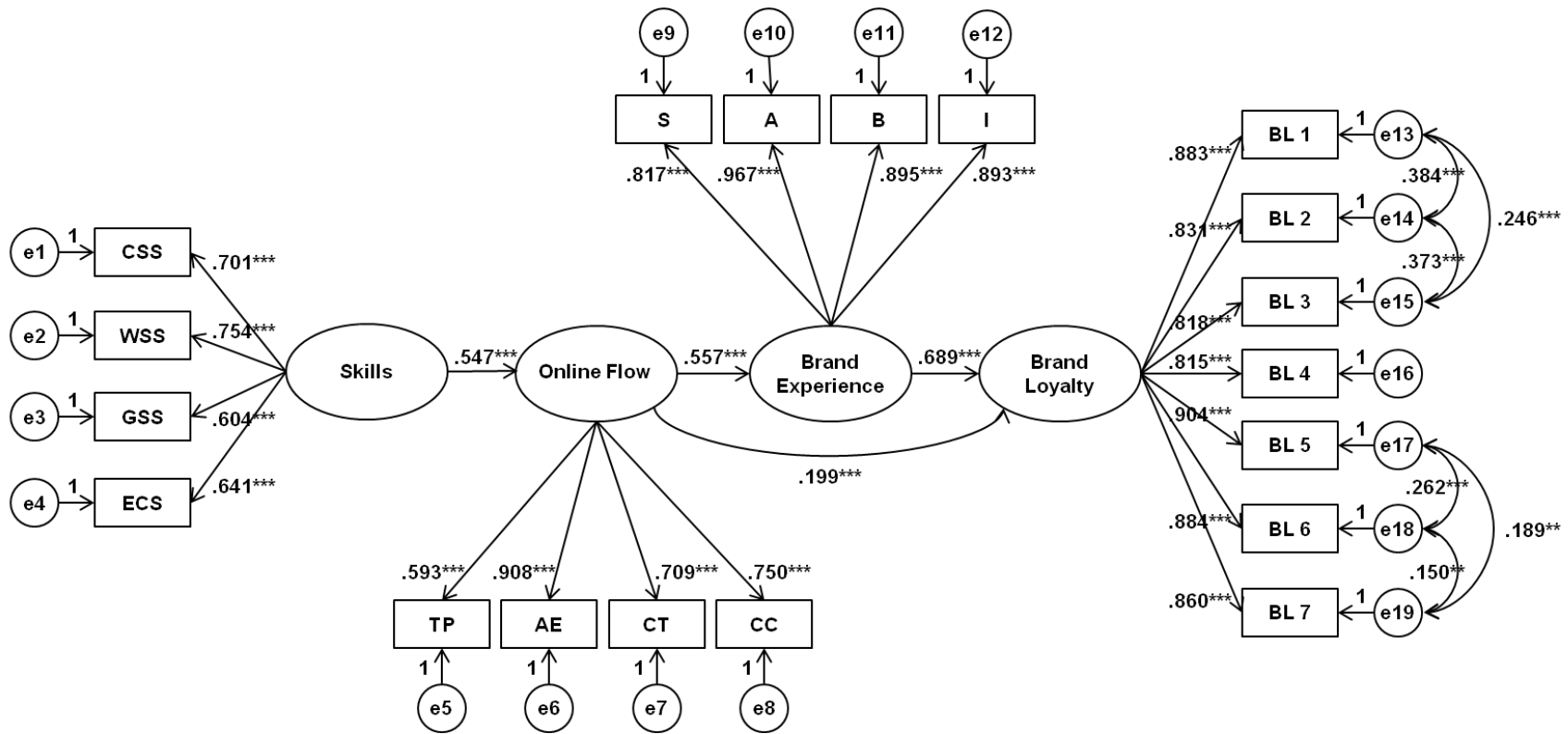
Notes. CSS- Clothing shopping skill; WSS- Web search skill; GSS- General shopping skill; ECS- E-commerce skill; TP- Telepresence; AE- Autotelic experience; CT- Control; CC- Concentration; S- Sensory experience; A- Affective experience; B- Behavioral experience; I- Intellectual experience; BL- Brand loyalty

See Table 4.1 for the actual items corresponding to BL indicators.

$\chi^2 = 778.337$, $df = 142$, $p < .001$, CFI = .921, TLI = .905, and RMSEA = .095

** $p < .01$, *** $p < .001$

Figure 4.8. Model 4: Structural equation model for testing H5 ($n = 500$)

experience for the relationship between online flow and brand loyalty. Therefore, H5 was not supported.

Additional analyses. Additional analyses were conducted through a series of single-group SEM with maximum likelihood estimation in order to explore whether some dimensions of an independent variable had more influence than other dimensions on a dependent variable in the hypothesized direct relationships.

The effect of skill dimensions on online flow. In order to explore which dimensions of skill were more relevant to explaining online flow, a new model (Model 5, see Figure 4.9) was specified by replacing the skill latent variable in Model 1 with four skill latent variables reflecting the four skill factors from the finalized CFA model of skill (see Figure 4.1). Indicators of the other three latent variables, online flow, brand experience, and brand loyalty, were specified in the same manner they were in Model 1. The fit indices indicated that the model was acceptable, $\chi^2 = 1040.800$, $df = 306$, $p < .001$, CFI = .932, TLI = .922, and RMSEA = .069. The standardized regression coefficients indicated that clothing shopping skill ($\beta = .372$, $p < .001$) and e-commerce skill ($\beta = .144$, $p < .05$) were the skill dimensions that significantly influenced online flow. The effects of Web search skill ($\beta = .133$, $p = .061$) and general shopping skill ($\beta = -.060$, $p = .393$) on online flow were not significant.

Relationships between skill, online flow dimensions, and brand experience. An additional SEM model (Model 6) was specified to explore (1) which online flow dimensions were more influenced by skill and (2) which online flow dimensions were more relevant to
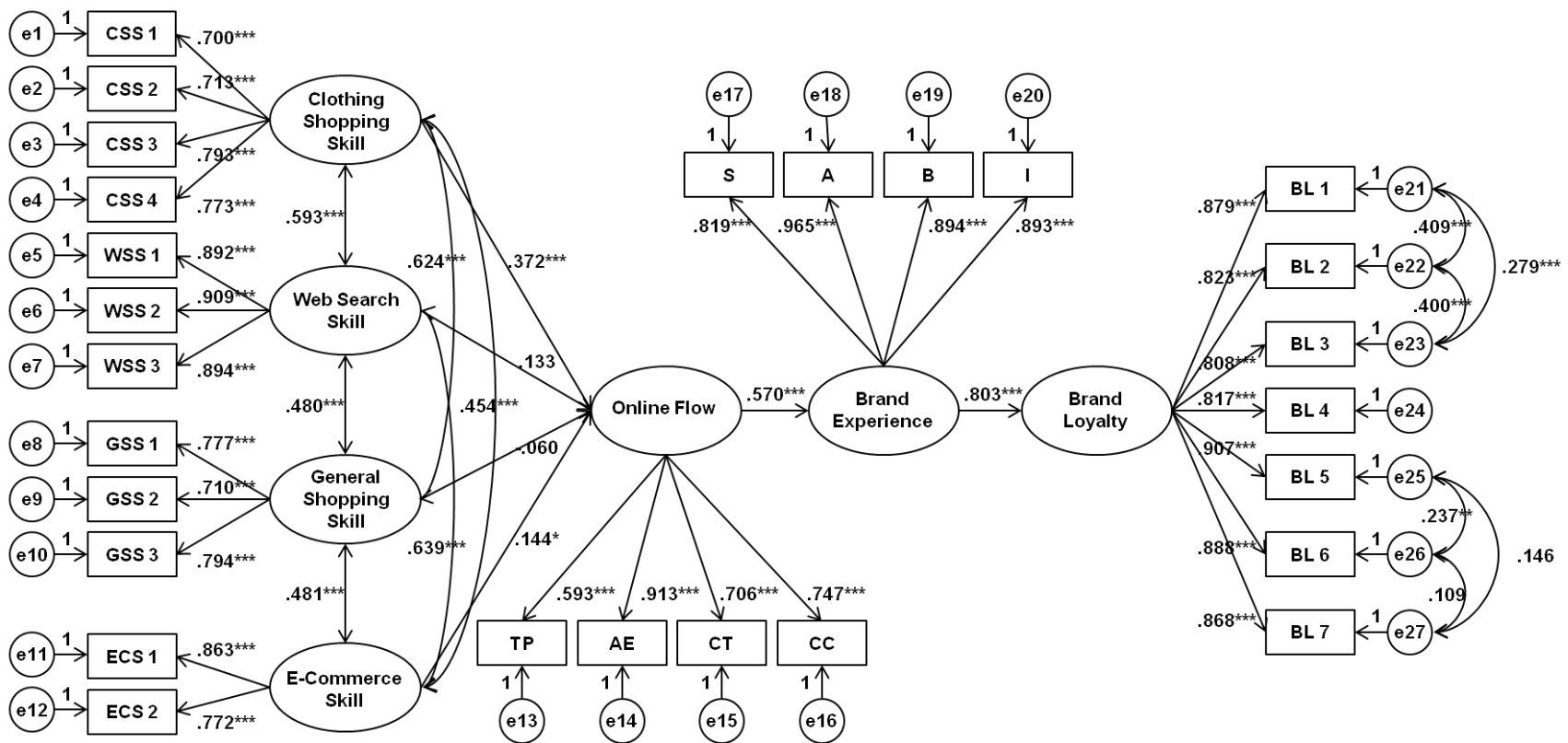
85

Notes. CSS- Clothing shopping skill; WSS- Web search skill; GSS- General shopping skill; ECS- E-commerce skill; TP- Telepresence; AE- Autotelic experience; CT- Control; CC- Concentration; S- Sensory experience; A- Affective experience; B- Behavioral experience; I- Intellectual experience; BL- Brand loyalty
See Table 4.1 for the actual items corresponding to indicators of the four skill and one brand loyalty latent variable.
$\chi^2 = 1040.800$, $df = 306$, $p < .001$, CFI = .932, TLI = .922, and RMSEA = .069
$^*p < .05$, $^{**}p < .01$, $^{***}p < .001$

Figure 4.9. Model 5: Structural equation model for testing the effect of skill dimensions on online flow ($n = 500$)

explaining brand experience. Model 6 (see Figure 4.10) was specified by replacing the online

flow latent variable in Model 1 with four latent variables representing the four online flow

factors from the finalized CFA model of online flow (see Figure 4.2). Indicators of the other

three latent variables, skill, brand experience, and brand loyalty, were specified in the same

manner they were in Model 1. The CFI (.910), TLI (.904), and RMSEA (.063) indicated an

adequate model fit (Bentler, 1989; Browne & Cudeck, 1992; MacCallum et al., 1996). The

standardized regression coefficients indicated that skill had significantly positive effects on all

four dimensions of online flow. In the order of effect size, the control ($\beta = .861$, $p < .001$) and

concentration ($\beta = .832$, $p < .001$) dimensions of online flow were most influenced by skill,

followed by the autotelic experience ($\beta = .783$, $p < .001$) and telepresence ($\beta = .397$, $p < .001$)

dimensions of online flow. The standardized regression coefficients also indicated that the

autotelic experience ($\beta = .498$, $p < .001$) and telepresence ($\beta = .443$, $p < .001$) dimensions of

online flow positively influenced brand experience, whereas control ($\beta = -.159$, $p < .05$)

negatively influenced brand experience, and concentration ($\beta = -.084$, $p = .204$) did not

significantly influence brand experience. The negative influence of control on brand experience

was in the opposite direction to the hypothesized overall effect of online flow on brand

experience.

The regression estimates in the opposite direction might result from a suppressor effect

(Burkholder & Harlow, 2003). Suppressor effect can occur when the squared zero-order

correlation between an independent variable (or a suppressor) and a dependent variable is lower

than the squared semi-partial correlation between the suppressor and the dependent variable

(after other independent variables are partialed out) (Maassen & Bakker, 2001), and it often

results in the suppressor's regression coefficient with a sign opposite to the hypothesized
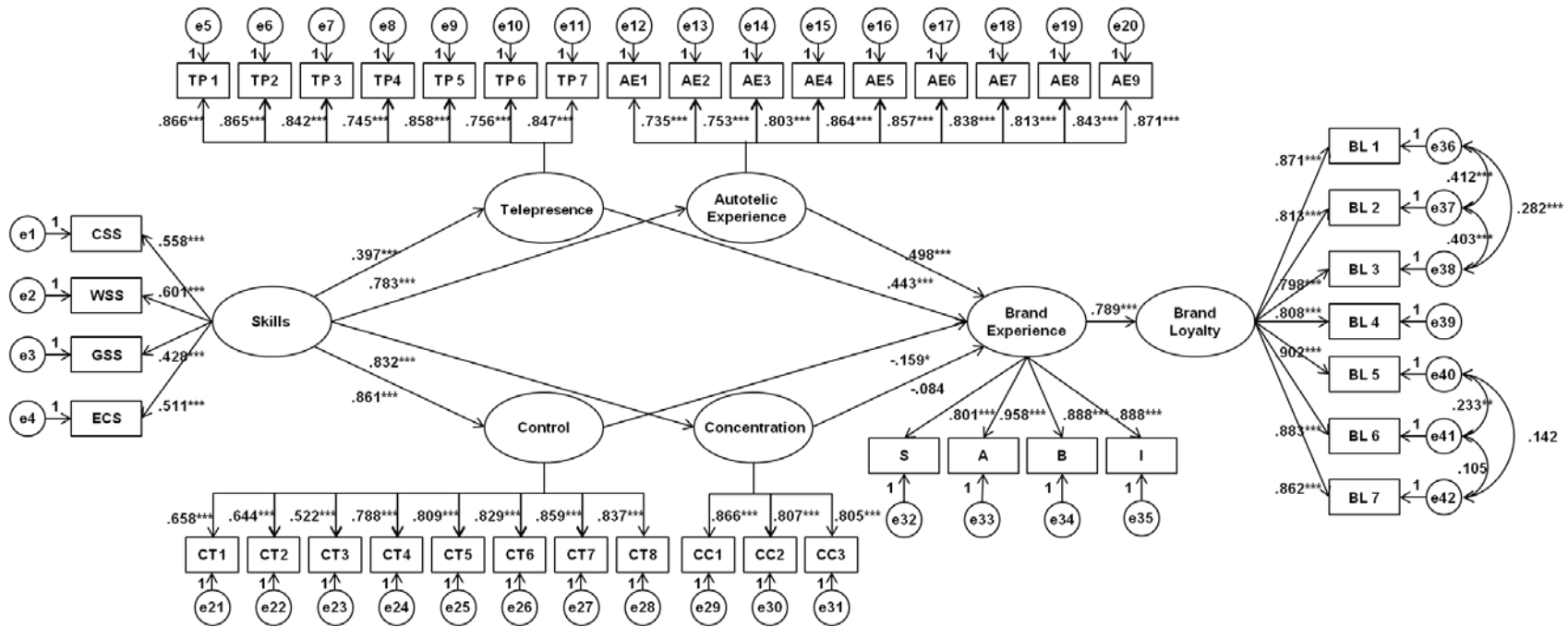
Notes. CSS- Clothing shopping skill; WSS- Web search skill; GSS- General shopping skill; ECS- E-commerce skill; TP- Telepresence; AE- Autotelic experience; CT- Control; CC- Concentration; S- Sensory experience; A- Affective experience; B- Behavioral experience; I- Intellectual experience; BL- Brand loyalty

See Table 4.1 and Table 4.7 for the actual items corresponding to indicators of the four online flow latent variables.

See Table 4.1 for the brand loyalty indicator item wording.

$\chi^2 = 2507.963$, $df = 845$, $p < .001$, CFI = .910, TLI = .904, and RMSEA = .063

$^*p < .05$, $^{**}p < .01$, $^{***}p < .001$

Figure 4.10. Model 6: Structural equation model testing the effect of online flow dimensions on brand experience ($n = 500$)

direction, as exemplified in the negative influence of control on brand experience. To further examine signs of possible suppressor effects, a five-factor CFA model (Model 7) was specified including the four online flow factors and the brand experience factor (see Figure 4.11), which showed a positive (not negative) correlation between control and brand experience ($r = .178$, $p < .001$). However, this correlation was smaller than the correlations between brand experience and the other online flow factors (see Figure 4.11). These results, along with the relatively high correlations between control and two other online flow factors ($r_{autotelic\ experience-control} = .672$, $p < .001$; $r_{control-concentration} = .755$, $p < .001$), suggest that the suppressor effect was a very likely explanation for the negative regression coefficient of control.

Therefore, another SEM model (Model 8, see Figure 4.12) was run after deleting control (the potential suppressor) and concentration (which did not have a significant influence on brand experience), from Model 6, in order to further investigate the dimensional relationships between skill, online flow dimensions, and brand experience. Model 8 showed an adequate fit (CFI = .920, TLI = .913, and RMSEA = .069), and the standardized regression coefficients from this model indicated that skill had significantly positive effects on telepresence and autotelic experience, and these two dimensions of online flow had significantly positive effects on brand experience (see Figure 4.12).

Relationships between online flow, brand experience dimensions, and brand loyalty. To explore the relationships of each brand experience factor with online flow and brand loyalty, an additional SEM model (Model 9, see Figure 4.13) was specified by replacing the brand experience latent variable in Model 1 with the four brand experience latent variables reflecting the four brand experience factors from the finalized CFA model of brand experience (see Figure
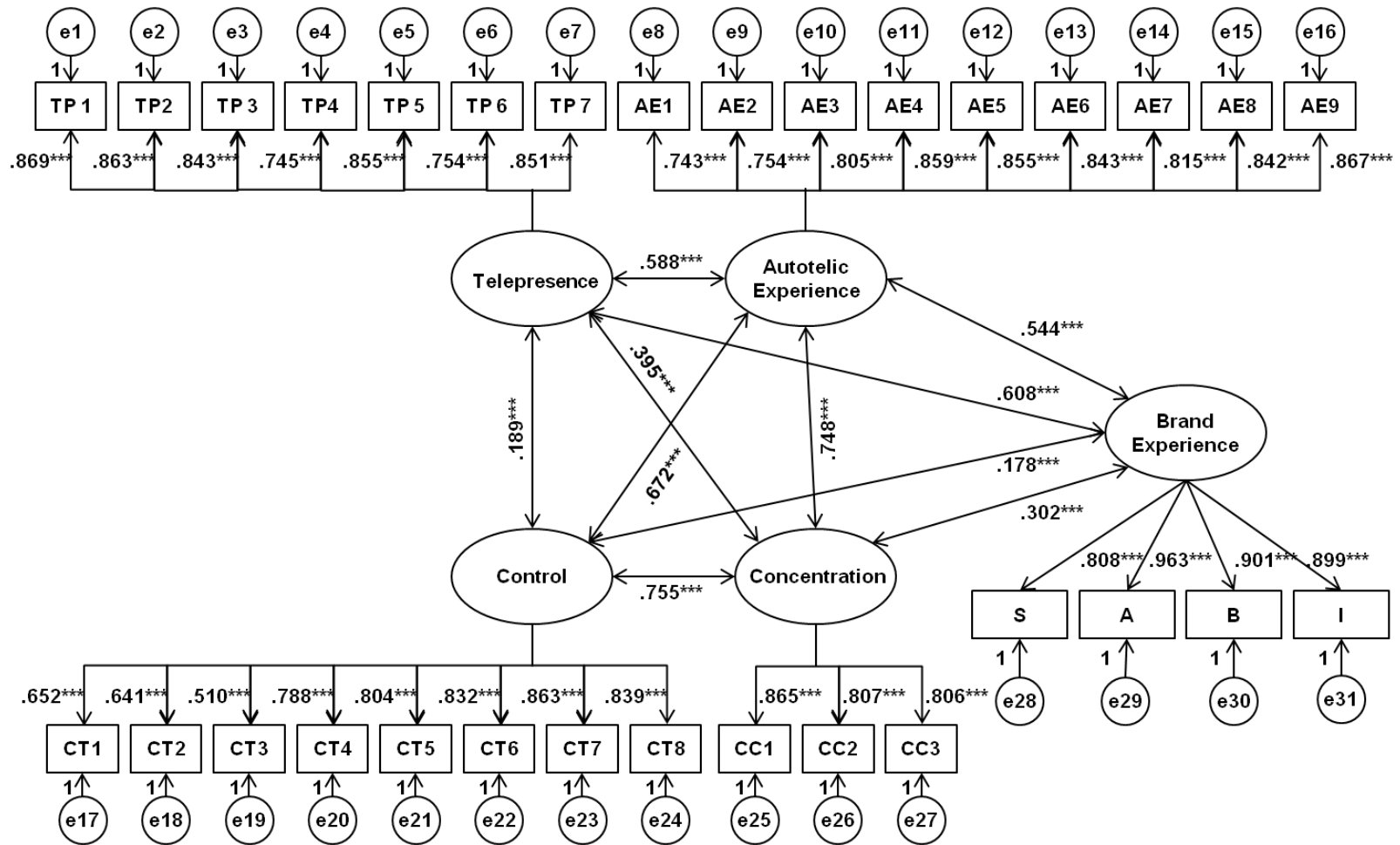
Notes. See Table 4.1 and Table 4.7 for the actual items corresponding to indicators of the four online flow factors.

TP- Telepresence; AE- Autotelic experience; CT- Control; CC- Concentration; S- Sensory; A- Affective; B- Behavioral; I- Intellectual

$\chi^2 = 1223.393$, $df = 424$, $p < .001$, CFI = .939, TLI = .933, and RMSEA = .061

*** $p < .001$

Figure 4.11. Model 7: CFA model for testing the correlations between online flow dimensions on brand experience ($n = 500$)
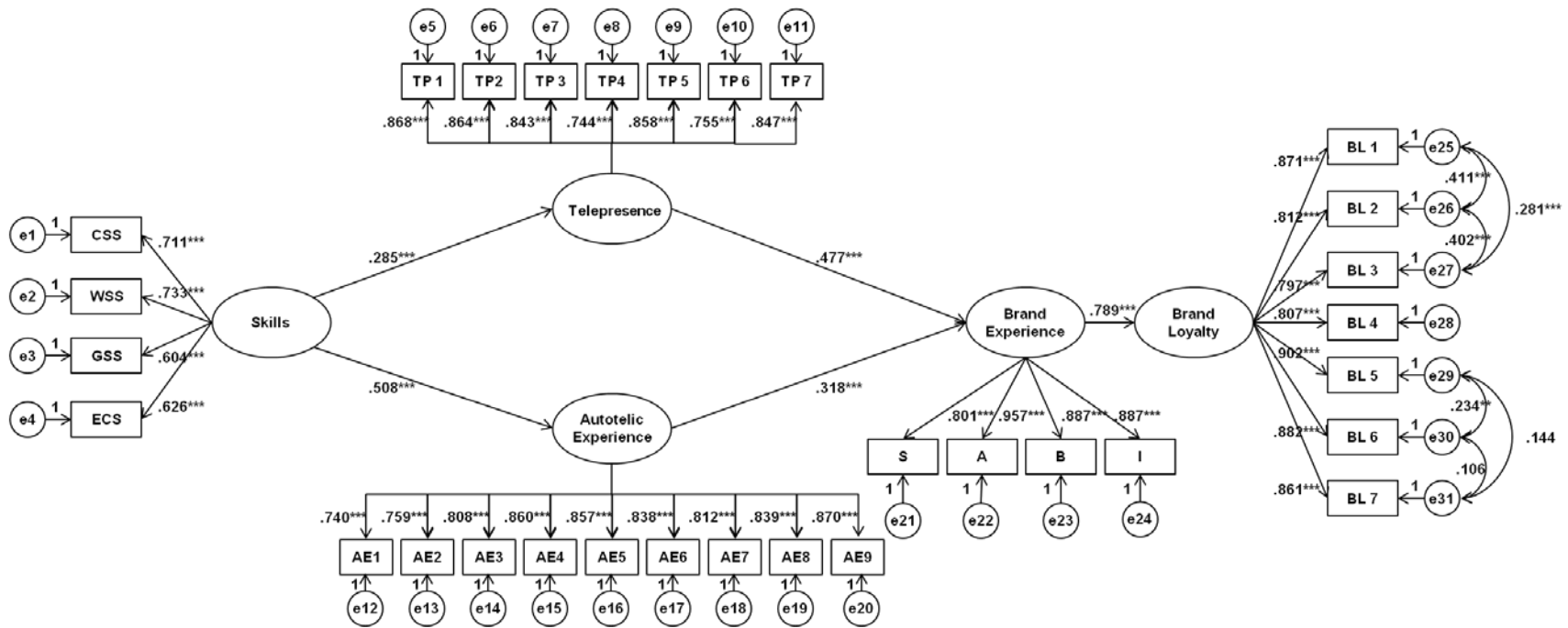
Notes. CSS- Clothing shopping skill; WSS- Web search skill; GSS- General shopping skill; ECS- E-commerce skill; TP- Telepresence; AE- Autotelic experience; CT- Control; CC- Concentration; S- Sensory experience; A- Affective experience; B- Behavioral experience; I- Intellectual experience; BL- Brand loyalty
See Table 4.1 and Table 4.7 for the actual items corresponding to indicators of the four online flow latent variables.
See Table 4.1 for the brand loyalty indicator item wording.
$\chi^2 = 1635.729$, $df = 485$, $p < .001$, CFI = .920, TLI = .913, and RMSEA = .069
** $p < .01$, *** $p < .001$

Figure 4.12. Model 8: Revised structural equation model testing the effect of online flow dimensions on brand experience ($n = 500$)
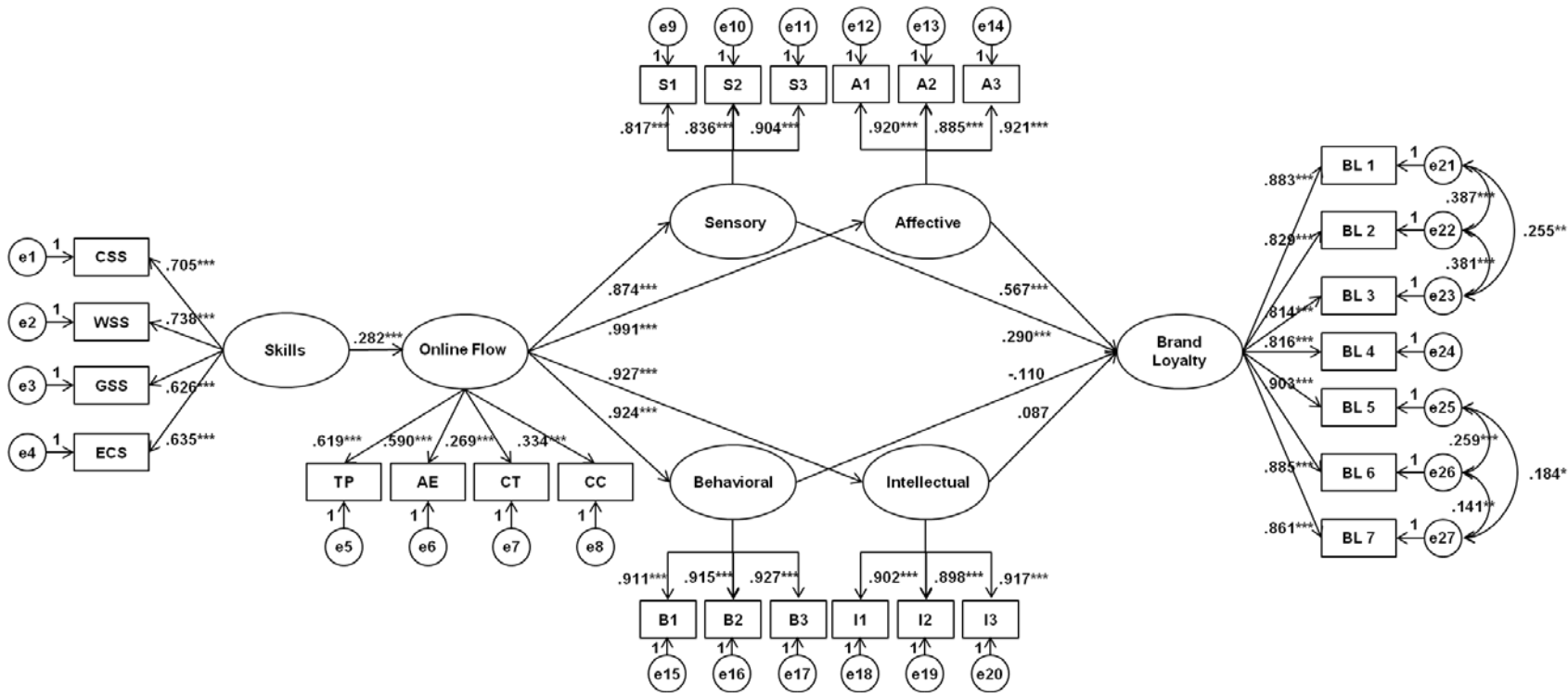
Notes. CSS- Clothing shopping skill; WSS- Web search skill; GSS- General shopping skill; ECS- E-commerce skill; TP- Telepresence; AE- Autotelic experience; CT- Control; CC- Concentration; S- Sensory experience; A- Affective experience; B- Behavioral experience; I- Intellectual experience; BL- Brand loyalty

See Table 4.1 for the actual items corresponding to the indicators of the brand loyalty and four online flow latent variables.

$\chi^2 = 1682.491$, *df* = 309, *p* < .001, CFI = .894, TLI = .880, and RMSEA = .094

* *p* < .05, ** *p* < .01, *** *p* < .001

Figure 4.13. Model 9: Structural equation model testing the effect of brand experience dimensions on brand loyalty (*n* = 500)

4.3). The CFI (.894) and TLI (.880) of Model 9 did not reach the recommended cutoff value

of .90 (Bentler, 1989), but the RMSEA (.094) indicated an acceptable level of model fit (Browne

& Cudeck, 1992; MacCallum et al., 1996). Since RMSEA is the most stable of commonly used

fit indices (Yuan, 2005), the regression coefficients from the model were further examined. The

standardized regression coefficients indicated that online flow had positive effects on all

dimensions of brand experience, including sensory ($\beta = .874$, $p < .001$), affective ($\beta = .991$, p

$< .001$), intellectual ($\beta = .924$, $p < .001$), and behavioral ($\beta = .927$, $p < .001$) brand experience.

The standardized regression coefficients also indicated that brand loyalty was influenced by

affective ($\beta = .567$, $p < .001$) and sensory ($\beta = .290$, $p < .001$) brand experience, but not by

behavioral ($\beta = -.110$, $p = .254$) or intellectual ($\beta = -.087$, $p = .384$) brand experience.

Chapter 5. Discussion and Conclusion

This chapter discusses the findings of the present study that examines the relationships between skill, challenge, online flow, brand experience, and brand loyalty. The theoretical, methodological, and managerial implications of the findings are also presented. Then, the limitations of this study are explained, and the recommendations for future research are suggested.

Discussion

Skill, challenge, and online flow. The first purpose of the present study was to examine interaction between skill and challenge as an antecedent to online flow, illuminating how a brand's Website can facilitate reaching online flow. The results demonstrated both the main effect of skill and the skill × challenge interaction effects on online flow. Findings with regard to the skill main effect (the higher the skill, the greater the online flow) corroborate the existing literature that demonstrates the relationship between navigational skill and online flow (Hoffman & Novak, 1996; Novak et al., 2000). Findings of this study provide further insights by showing that two particular dimensions of skill -- clothing shopping skill and e-commerce skill -- are influential in increasing online flow during online browsing tasks. This finding may imply that specific skills (e.g., clothing-specific shopping skill and navigational skill specific to e-commerce Websites) tend to involve consumers in the state of online flow more than general skills. However, since all respondents in the present study were female adults in their 20s and

94

30s, they were probably skillful in shopping for something and navigating on the World Wide Web generally; therefore, if a study uses a sample of young children or others who are learning how to shop for something or how to use the Internet, the effects of general skills (i.e., general shopping skill and Web search skill) on online flow may reach the established significance level, which warrants future research.

This study also shows that skill positively influences all four dimensions of online flow (i.e., telepresence, autotelic experience, control, and concentration). This finding provides support for the notion that skillful consumers tend to be totally involved in shopping on a brand's Website. In other words, they are also likely to feel as if they were in the Web-created environment (i.e., telepresence) and feel rewarded through the activity (i.e., autotelic experience). Moreover, they are likely to perceive their controllability to achieve the shopping activity (i.e., control) and focus their attention on online shopping (i.e., concentration).

This study also reveals a significant moderating effect of challenge on the relationship between skill and online flow. This result is consistent with prior studies (Ghani & Deshpande, 1994; Koufaris, 2002; Novak et al., 2000; Skadberg & Kimmel, 2004), which state that online flow is determined by the matched high skill and high challenge. Flow theory also postulates that consumers can reach flow only when they have sufficient skills to complete a task that is manageably challenging (Csikszentmihalyi, 1991, 1997). In this study, the effect of skill on online flow was found to be greater among the high-challenge group than among the low-challenge group, supporting the above notion of flow theory (Csikszentmihalyi, 1991, 1997).

Online flow and brand experience. The second purpose of the present study was to examine the direct effect of online flow on brand experience. Results showed that online flow

95

had a positive effect on brand experience, thereby underscoring the important role of a brand's Website in enhancing brand experience. This finding supports the notion that a brand's Website is crucial in conveying brand experience because consumers can actively interact with the brand's offerings on its Website (Berthon et al., 1996; Keller, 2010; Müller et al., 2008; Pine & Gilmore, 1998). Prior research has not empirically linked online flow to brand experience; therefore, the present study contributes to the literature by providing empirical evidence that the state of online flow can result in enhanced brand experience in all four dimensions of brand experience (sensory, affective, intellectual, and behavioral experiences).

This study also reveals that the two online flow dimensions of telepresence and autotelic experience are particularly relevant to enhancing brand experience. This finding indicates that a brand's Website can be more powerful in conveying brand experience when consumers are completely immersed in the virtual environment created on the brand's Website and feel enjoyment and curiosity on it. For example, using high-resolution images on a brand's Website to increase telepresence and embedding interesting contents to enhance autotelic experience may need to be considered when online retailers design their Websites. Using rich interactive applications on a brand's Website may also help enhance consumers' telepresence and autotelic experience. In fact, Nah, Eschenbrenner, and DeWester (2011) recently reported that a three-dimensional virtual world environment, compared to two-dimensional environment, provoked higher telepresence and enjoyment, leading to the state of flow and in turn resulted in increased brand equity. Nah et al.'s (2011) findings are consistent with the findings of this study that telepresence and autotelic experience increase brand experience.

Brand experience and brand loyalty. The third purpose of the present study was to examine the relationship between brand experience and brand loyalty. The present finding showing a direct effect of brand experience on brand loyalty -- the more positive the brand experience, the greater the brand loyalty -- supports previous literature that positive brand experience leads to brand loyalty (Biedenbach & Marell, 2010; Brakus et al., 2009) and underscores the importance of enhancing the consumer's brand experience in order to build strong brand loyalty.

This study shows that specifically the sensory and affective brand experiences are significant predictors of brand loyalty, whereas intellectual and behavioral brand experiences have no influences on brand loyalty. This result is inconsistent with Brakus et al.'s (2009) findings that brand loyalty could be enhanced by favorable behavioral and intellectual experiences as well as sensory and affective experiences with a brand. The discrepancy between findings from this study and Brakus et al. (2009) may have been because Brakus et al. (2009) examined the conceptual structure of brand experience in a more general context including service brands and general product brands, whereas the present study focused on only brands from the apparel product category in which sensory and affective benefits tend to be highly valued (Fiore, 2002).

The mediation effect of brand experience. The last purpose of the present study was to examine the mediating role of brand experience on the relationship between online flow and brand loyalty. This study reveals that online flow positively influences brand loyalty directly as well as indirectly through the mediation of brand experience. This result demonstrates the

significant role of online flow in enhancing consumers' responses in diverse levels of brand related variables (e.g., brand experience, brand loyalty).

Implications

The present study contributes to the literature by providing significant theoretical, methodological, and managerial implications.

Theoretical implications. The present study offers several important theoretical implications. First, this study sheds additional light on flow theory in the context of shopping on a brand's Website by showing that skill, challenge, and online flow are critical determinants influencing brand experience as well as brand loyalty when consumers browse a brand's Website. Since flow theory has been frequently applied to computer science research (e.g., Agarwal & Karahanna, 2000; Chen, 2006; Ghani & Deshpande, 1994; Ho & Kuo, 2010; Koufaris, 2002) rather than to branding and marketing research, this study expanded the applicability of the theory by applying the key constructs of flow theory (i.e., skill, challenge, and online flow) to a study in the branding and marketing domain. The present study shows that more skillful consumers are more likely to experience the state of online flow on a brand's Website, which in turn enhances their brand experience and subsequent brand loyalty. Furthermore, the level of online shopping task challenge moderates the strength of the relationship between skill and online flow in that the positive impact of skill on online flow is greater when the task is perceived to be more challenging. These findings confirm, in the context of online shopping, the premise of flow theory that flow occurs at the conditions of high skill and high challenge. In other words, even skillful consumers may feel bored without challenging aspects of their online

98

shopping activity, emphasizing the importance of challenge in explaining how consumers can reach the state of online flow. Thus, both skill and challenge should be considered as essential variables and included in a theoretical framework related to online flow.

Second, the present study contributes to brand experience and brand loyalty research by responding to recent calls for research examining how to build strong and positive brand experiences that lead to enhanced brand loyalty (Ballard, 2011; Iglesias et al., 2011). In particular, Gabisch (2011) underscores the important role of brand experience built on the World Wide Web by verifying the impact of consumers' brand experience in their virtual world on their purchase intention and behavior in the real world. The main focus in the present study is investigating the role of a brand's Website in enhancing brand experience and brand loyalty beyond the online context. The present study theorized the concept of online flow on a brand's Website as a key factor improving consumers' overall brand experience and thus brand loyalty. Previous online flow studies have examined online learning (e.g., Hoffman & Novak, 1996; Skadberg & Kimmel, 2004) or exploratory behavior (e.g., Agarwal & Karahanna, 2000; Hoffman & Novak, 1996; Huang, 2006; Korzaan, 2003; Novak et al., 2003) as consequences of online flow, but no published study has linked online flow to the seemingly unrelated constructs of brand experience or brand loyalty. Therefore, the present study makes theoretical contributions and provides empirical evidence to address this gap in the literature. Because overall brand experience and brand loyalty were found to be enhanced by consumers' flow state experienced on a brand's Website, researchers focusing on marketing and branding may further examine how to make consumers reach the state of online flow in the context of shopping. Finally, this study disentangles many of the hypothesized relationships regarding specific dimensions of the corresponding constructs through several additional analyses. For example,

online flow was influenced by clothing shopping skill and e-commerce skill. Among online flow dimensions, telepresence and autotelic experience were found to enhance brand experience. Brand loyalty was influenced by sensory and affective brand experience. The identification of specific dimensions of the independent and dependent variables that are more germane to the hypothesized relationships contributes to a better understanding about how to build strong brand loyalty and positive brand experience through online flow because the results of the present study can yield more specific implications than findings of prior studies that have investigated the phenomenon only from a holistic view.

Methodological implications. Regarding operationalization, the present study developed the measurement of skill to the context of online apparel shopping. First, in contrast to most prior studies regarding online flow that operationalized skill specific to online navigational tasks only (Hoffman & Novak, 1996), the present study reviewed all possible types of skill specific to online browsing tasks for apparel products. Further, this study developed a browsing task by using several product characteristics (i.e., quality, style, color, fit, coordination with existing wardrobe, and price in relation to a need specified in the task) designed to provoke survey respondents to perceive challenge.

A second methodological contribution is that the present study comprehensively considered all dimensions of online flow found in prior studies (Agarwal & Karahanna, 2000; Chen, 2006; Chen et al., 1999; Ghani & Deshpande, 1994; Guo & Poole, 2009; Huang, 2006; Koufaris, 2002; Novak et al., 2000; Pace, 2004; Skadberg & Kimmel, 2004; Trevino & Webster, 1992; Wang et al., 2007; Webster et al., 1993). These prior studies have measured the state of online flow by using selective dimensions of online flow, instead of using all possible

100

dimensions of online flow. Since their selections were frequently not empirically justified, these prior studies can be criticized in terms of their operationalization of flow. In order to address this problem, the present study included all possible dimensions of online flow in the measurement scale and statistically narrowed them to four dimensions (i.e., telepresence, autotelic experience, control, and concentration) that explain the state of online flow that consumers experience on a brand's Website. Thus, the present study identifies the dimensions of online flow that are most relevant to the context of online shopping for apparel products.

The third methodological contribution of the present study is related to sampling. Many previous online flow studies were conducted with a relatively small sample of college students (e.g., Chen, 2006; Guo & Poole, 2009). Thus, the use of a national sample in this study enhances the generalizability of the findings to a large population.

Managerial implications. Enhancing brand experience and brand loyalty has recently been considered a noteworthy marketing goal, and some companies have incorporated brand experience management in their mission statements (Verhoef et al., 2009). The present study aids marketers and brand managers in achieving this marketing goal of enhancing brand experience and brand loyalty. Findings of the present study suggest that it is important to understand how to build brand loyalty through a brand's Website. Consistent with the recent writing of Gabisch (2011), the present study empirically demonstrates that optimal experience on a brand's Website is a critical factor in successfully managing brand experience and brand loyalty because experiencing online flow significantly leads to a positive brand experience, which in turn enhances brand loyalty.

Further, the present study finds that consumers' skill has a positive effect on online flow. This finding will be useful for Website designers and managers to provide information that can compensate a lack of consumer skill. Specifically, this study demonstrates that online flow is significantly influenced by clothing shopping skill and e-commerce skill. Thus, online retailers may boost consumers' online flow by providing online information or tools that can enhance consumers' ability to choose the right product, such as size charts, fabric descriptions, price comparison tools, and detailed information about payment and return processes. Further, online retailers must present a user-friendly Website layout that facilitates consumers' ability to navigate through their Website.

The present study further finds that online flow influences brand loyalty directly as well as indirectly through enhancing sensory and affective brand experiences in the context of apparel online shopping. This findings shows the importance of a brand's Website as a marketing communication channel that affects brand loyalty. Accordingly, apparel brand marketers may focus on conveying sensory and affective brand experiences through their Websites, perhaps by using high resolution images and rich interactive applications on Website, to promote the efficiency of brand experience management.

Limitations and Recommendations for Future Research

As all measures used in this study were 7-point Likert scales based on respondent self-reports, the findings may be affected by common method variance, defined as "systematic error variance shared among variables measured with and introduced as a function of the same method and/or source" (Richardson, Simmering, & Sturman, 2009, p. 763). The method variance includes variance due to response format and self-report response bias (Bagozzi & Yi, 1990).

102

That is, some respondents might answer the measurement items used in the present study without reading them carefully, or other respondents might overreport or underreport, depending on their situations, in order to present themselves favorably according to some socially desirable behavior (Mick, 1996). To ameliorate the potential for common method bias, different kinds of research designs could be used for future research examining the relationships among online flow, brand experience, and brand loyalty. Inserting several questions or tasks irrelevant to study objectives in a research design may prevent respondents from divining objectives of a study and distorting their responses. Specifically, the present study could not control the environment in which respondents performed the given browsing task on a brand's Website and answered the measurement items. Since respondents answered the questionnaire in difference times and places by using different computers that varied in Internet connection speed and screen resolution, uncontrollable method variances are likely. Moreover, there is a possibility that some respondents did not genuinely finish the browsing task before answering all dependent measures, even though they were directed to report the description of their selected product as evidence of successfully conducting the task. A laboratory experimental research design may help to control the environment in which future researchers collect data from participants because researchers can identify computer specifications, manage the conditions of computers, and instruct about each step of research procedure. However, this approach is not practical with a national sample.

Future research could improve generalizability of study findings. Since the context of present study is specific to apparel shopping on a brand's Website, the ability to generalize findings to other contexts is limited. Thus, future researchers may examine the relationships addressed in this study by using different products, shopping tasks, and/or stimulus Websites as the context for their studies to enhance the external validity of the findings of this study. Other

103

product categories, such as electronic devices and books, could be used in order to test whether the findings of the present study can be repeated with different product brands. Moreover, assigned tasks can be revised so that researchers may verify whether the significance of the relationships among skill, challenge, and online flow can be repeated in different settings.

Future research could also use different scales measuring challenge, brand experience, and loyalty. Although the browsing task used in the present study provoked respondents to be challenged, the challenge scale did not actually measure various aspects of challenge. To clearly identify all possible types of challenge influencing online flow in the context of online shopping, the challenge scale may have developed a measure for multiple dimensions of challenge, instead of a single challenge dimension. The statistical results did not perfectly support the theoretical dimensionality of the brand experience and brand loyalty scales used in the present study. The construct of brand experience was inconsistent between EFA results (two-factor solution) and CFA results (four-factor solution) in the main survey. Moreover, the dimensions of brand loyalty were not clearly distinguished from one another in the pilot test; thus, only seven items measuring conative brand loyalty dimension were used in the main survey. This gap between theoretical framework and statistical results indicates that the item wording of brand experience and brand loyalty scales could be improved for future research.

Future research could test the reliability of the research model examined in the present study. Since this study used a sample of female adults at their 20s and 30s in the U.S., the study should be replicated by using a different sample in order to investigate whether the similar findings emerge again. For example, other consumer groups in the U.S. or consumers in other countries may be driven by experience rather than functionality (Iglesias et al., 2011), further highlighting the importance of brand experience. Moreover, it would be useful to know whether

104

gender differences can impact the relationships verified in the present study. Since men have a stronger patronage intention to revisit a shopping center providing enjoyable shopping experience than women (Hart, Farrell, Stachow, Reed, & Cadogan, 2007), using a sample of male adults may result in different results from the findings of present study.

The theoretical framework of the present study can be expanded by adding relevant variables to the current framework. In particular, the current model focuses only on two determinants of online flow (i.e., skill and challenge) previously identified in flow theory. A more comprehensive model including the aesthetic attributes, functionality, or interactivity of a brand's Website as determinants of online flow could provide even more valuable insights about how Website designers and managers develop a brand's Website in order to encourage visitors to reach the state of online flow. Furthermore, the present study does not include a dependent variable representing objective outcomes or performance evaluations, such as a firm's sales volume. Future researchers might examine consumers' brand loyalty and firms' sales data together so that practitioners could gain confidence that strong brand loyalty leads to actual sales increase.

References

Agarwal, R., & Karahanna, E. (2000). Time flies when you're having fun: Cognitive absorption and beliefs about information technology usage. *MIS Quarterly, 24*(4), 665-694.

Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin, 103*(3), 411-423. doi: 10.1037/0033-2909.103.3.411

Annual Estimates of the Resident Population by Sex, Race, and Hispanic Origin for the United States: April 1, 2000 to July 1, 2009 (NC-EST2009-03). (2009). Retrieved from http://www.census.gov/popest/data/national/asrh/2009/index.html

Annual Estimates of the Resident Population for the United States, Regions, States, and Puerto Rico: April 1, 2000 to July 1, 2009 (NST-EST2009-01). (2009). Retrieved from http://www.census.gov/popest/data/national/totals/2009/index.html

Bagozzi, R. P., & Yi, Y. (1990). Assessing method variance in multitrait–multimethod matrices: The case of self-reported affect and perceptions at work. *Journal of Applied Psychology, 75*(5), 547-560.

Baldinger, A. L., & Rubinson, J. (1996). Brand loyalty: The link between attitude and behavior. *Journal of Advertising Research, 36*(6), 22-34.

Ballard, P. (2011). Customer experience is hot. *New Media Age,* 25.

Bandalos, D. L., & Finney, S. J. (2001). Item parceling issues in structural equation modeling. In

    G. A. Marcoulides & R. E. Shumaker (Eds.), *Advanced structural equation modeling:*

    New developments and techniques. Mahwah, NJ: Lawrence Erlbaum Associates.

Bentler, P. M. (1989). *EQS Structural Equations Program Manual*. Los Angeles: BMDP

    Statistical Software.

Berry, L. L., & Carbone, L. P. (Eds.). (2007). *Build loyalty through experience management* (Vol.

    40).

Berschler, H. (2005). Brand loyalty is all about the experience. *Brand Strategy, 198,* 14.

Berthon, P., Pitt, L. F., & Watson, R. T. (1996). The World Wide Web as an advertising medium:

    Toward an understanding of conversion efficiency. *Journal of Advertising Research,*

    36(1), 43-54.

Biedenbach, G., & Marell, A. (2010). The impact of customer experience on brand equity in a

    business-to-business services setting. *Journal of Brand Management, 17*(6), 446-458.

Blackwell, R. D., Miniard, P. W., & Engel, J. F. (2006). *Consumer behavior* (10th ed.).

    Beauceville,QC, Canada: Thomson South-Western.

Bloemer, J. M., & Kasper, H. D. P. (1995). The complex relationship between consumer

    satisfaction and brand loyalty. *Journal of Economic Psychology, 16*(2), 311-329.

Brakus, J. J., Schmitt, B. H., & Zarantonello, L. (2009). Brand experience: What is it? How is it

    measured? Does it affect loyalty? *Journal of Marketing, 73*(3), 52-68.

Bridges, E., & Florsheim, R. (2008). Hedonic and utilitarian shopping goals: The online

    experience. *Journal of Business Research, 61*(4), 309-314.

Bristol, T. (2001). Understanding the adolescent's consumption world: Shopping, influencing,

    deceiving. *Advances in Consumer Research, 28*, 16-18.

Browne, M. W., & Cudeck, R. (1992). Alternative ways of assessing model fit. *Sociological Methods & Research, 21*(2), 230-258. doi: 10.1177/0049124192021002005

Burkholder, G. J., & Harlow, L. L. (2003). An illustration of a longitudinal cross-lagged design for larger structural equation models. *Structural Equation Modeling: A Multidisciplinary Journal, 10*(3), 465-486. doi: 10.1207/S15328007SEM1003_8

Byrne, B. M. (2009). *Structural Equation Modeling With AMOS: Basic Concepts, Applications, and Programming* (2nd ed.). New York: Routledge.

Caru, A., & Cova, B. (2003). Revisiting consumption experience: A more humble but complete view of the concept. *Marketing Theory, 3*(2), 267-286.

Chaudhuri, A. (1999). Does brand loyalty mediate brand equity outcomes? *Journal of Marketing Theory & Practice, 7*(2), 136-146.

Chaudhuri, A., & Holbrook, M. B. (2001). The chain of effects from brand trust and brand affect to brand performance: The role of brand loyalty. *Journal of Marketing, 65*(2), 81-93.

Chen, H. (2006). Flow on the net-detecting Web users' positive affects and their flow states. *Computers in Human Behavior, 22*(2), 221-233.

Chen, H., Wigand, R. T., & Nilan, M. S. (1999). Optimal experience of Web activities. *Computers in Human Behavior, 15*(5), 585-608.

Claxton, J. D., & Ritchie, J. R. B. (1979). Consumer prepurchase shopping problems: A focus on the retailing component. *Journal of Retailing, 55*(3), 24-43.

Cronbach, L. J., & Shavelson, R. J. (2004). My current thoughts on coefficient alpha and successor procedures. *Educational and Psychological Measurement, 64*(3), 391-418. doi: 10.1177/0013164404266386

Crosby, L. A., & Lunde, B. S. (2008). Customer experience or communication? *Marketing Management, 17,* 12-13.

Csikszentmihalyi, M. (1991). *Flow: The psychology of optimal experience* New York: Harper Perennial.

Csikszentmihalyi, M. (1997). *Finding flow: The psychology of engagement with everyday life*. New York: Basic Books.

Csikszentmihalyi, M., & LeFevre, J. (1989). Optimal experience in work and leisure. *Journal of Personality and Social Psychology, 56*(5), 815-822.

del Rio, A. B., Vazquez, R., & Iglesias, V. (2001). The role of the brand name in obtaining differential advantages. *The Journal of Product and Brand Management, 10*(6/7), 452-465.

Dillon, W. R., & Goldstein, M. (1984). *Multivariate Analysis: Methods and Applications*. New York: Wiley.

Educational Attainment of the Population 18 Years and Over, By Age, Sex, Race, and Hispanic Origin: 2010. (2010). Retrieved from http://www.census.gov/hhes/socdemo/education/data/cps/2010/tables.html

Express Corporate Profile. (2011). Retrieved from http://www.express.com/content.jsp?pageName=Investor

Fiore, A. M. (2002). Effects of experiential pleasure from a catalogue environment on approach responses toward fashion apparel. *Journal of Fashion Marketing and Management, 6*(2), 122-133. doi: 10.1108/13612020210429467

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39-50.

Frow, P., & Payne, A. (2007). Towards the 'perfect' customer experience. *Journal of Brand Management, 15*(2), 89-101.

Gabisch, J. A. (2011). Virtual world brand experience and its impact on real world purchasing behavior. *Journal of Brand Management, 19*(1), 18-32. doi: 10.1057/bm.2011.29

The GAP, Inc. 2010 Annual Report. (2010). Retrieved from http://media.corporate-ir.net/media_files/IROL/11/111302/GPS_AR_10.pdf

Gentile, C., Spiller, N., & Noci, G. (2007). How to sustain the customer experience: An overview of experience components that co-create value with the customer. *European Management Journal, 25*(5), 395-410.

Ghani, J. A., & Deshpande, S. P. (1994). Task characteristics and the experience of optimal flow in human-computer interaction. *Journal of Psychology, 128*(4), 381.

Grewal, D., Baker, J., Levy, M., & Voss, G. B. (2003). The effects of wait expectations and store atmosphere evaluations on patronage intentions in service-intensive retail stores. *Journal of Retailing, 79*, 259-268.

Guo, Y. M., & Poole, M. S. (2009). Antecedents of flow in online shopping: A test of alternative models. *Information Systems Journal, 19*(4), 369-390.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2009). *Multivariate Data Analysis* (7th ed.). Upper Saddle River, NJ: Prentice Hall.

Hall, R. J., Snell, A. F., & Foust, M. S. (1999). Item parceling strategies in SEM: Investigating the subtle effects of unmodeled secondary constructs. *Organizational Research Methods, 2*(3), 233-256. doi: 10.1177/109442819923002

Hart, C., Farrell, A. M., Stachow, G., Reed, G., & Cadogan, J. W. (2007). Enjoyment of the

      shopping experience: Impact on customers' repatronage intentions and gender influence.

      Service Industries Journal, 27(5), 583-604. doi: 10.1080/02642060701411757

Ho, L.-A., & Kuo, T.-H. (2010). How can one amplify the effect of e-learning? An examination

      of high-tech employees' computer attitude and flow experience. *Computers in Human*

      Behavior, 26(1), 23-31.

Hoffman, D. L., & Novak, T. P. (1996). Marketing in hypermedia computer-mediated

      environments: Conceptual foundations. *Journal of Marketing, 60*(3), 50-68.

Hoffman, D. L., & Novak, T. P. (1997). A new marketing paradigm for electronic commerce.

      Information Society, 13(1), 43-54.

Hoffman, D. L., & Novak, T. P. (2009). Flow Online: Lessons Learned and Future Prospects.

      Journal of Interactive Marketing, 23(1), 23-34.

Holbrook, M. B., & Hirschman, E. C. (1982). The experiential aspects of consumption:

      Consumer fantasies, feelings, and fun. *Journal of Consumer Research, 9*(2), 132-140.

Holland, J., & Baker, S. M. (2001). Customer participation in creating site brand loyalty. *Journal*

      of Interactive Marketing, 15(4), 34-45.

Hu, L. t., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis:

      Conventional criteria versus new alternatives. *Structural Equation Modeling: A*

      Multidisciplinary Journal, 6(1), 1-55. doi: 10.1080/10705519909540118

Huang, M.-H. (2003). Designing website attributes to induce experiential encounters. *Computers*

      in Human Behavior, 19(4), 425-442.

Huang, M.-H. (2006). Flow, enduring, and situational involvement in the Web environment: A

      tripartite second-order examination. *Psychology & Marketing, 23*(5), 383-411.

Iglesias, O., Singh, J. J., & Batista-Foguet, J. M. (2011). The role of brand experience and

    affective commitment in determining brand loyalty. *Journal of Brand Management, 18*(8),

    570-582. doi: 10.1057/bm.2010.58

Income Distribution to $250,000 or More for Households: 2010. (2010). Retrieved from

    http://www.census.gov/hhes/www/cpstables/032011/hhinc/new06_000.htm

Jackson, S. A., & Marsh, H. W. (1996). Development and validation of a scale to measure

    optimal experience: The flow state scale. *Journal of Sport & Exercise Psychology, 18*,

    17-35.

Kaiser, H. F. (1960). The application of electronic computers to factor analysis. *Educational and*

    Psychological Measurement, 20(1), 141-151. doi: 10.1177/001316446002000116

Keller, K. L. (2010). Brand equity management in a multichannel, multimedia retail environment.

    Journal of Interactive Marketing, 24(2), 58-70.

Klein, L. R. (2003). Creating virtual product experiences: The role of telepresence. *Journal of*

    Interactive Marketing, 17(1), 41-55.

Korzaan, M. L. (2003). Going with the flow: Predicting online purchase intentions. *Journal of*

    Computer Information Systems, 43(4), 25.

Kotler, P., & Keller, K. (2009). *Marketing Management* (13th ed.). Upper Saddle River, NJ:

    Prentice Hall.

Koufaris, M. (2002). Applying the technology acceptance model and flow theory to online

    consumer behavior. *Information Systems Research, 13*(2), 205-223.

Kwon, W.-S., & Lennon, S. J. (2009). What induces online loyalty? Online versus offline brand

    images. *Journal of Business Research, 62*(557-564).

L.L. Bean, Inc. Company Description. (2011). Retrieved from

    http://subscriber.hoovers.com.spot.lib.auburn.edu/H/company360/fulldescription.html?co

    mpanyId=40271000000000

LaSalle, D., & Britton, T. A. (2002). *Priceless: Turning ordinary products into extraordinary*

    experiences. Boston: Harvard Business School Press.

Li, D., & Browne, G. J. (2006). The role of need for cognition and mood in online flow

    experience. *Journal of Computer Information Systems, 46*(3), 11-17.

Limited Brands Proxy Statement for the 2010 Annual Meeting of Stockholders and 2009 Annual

    Report. (2010). Retrieved from

    https://materials.proxyvote.com/Approved/532716/20100329/CMBO_58396/images/Lim

    ited_Brands-2010.pdf

The Limited Company Description. (2011). Retrieved from

    http://www.thelimited.com/customer-service/company/our_company

Liu, Y. (2003). Developing a scale to measure the interactivity of websites. *Journal of*

    Advertising Research, 43(2), 207-216.

Louwerse, M. M., Graesser, A. C., Mcnamara, D. S., & Lu, S. (2009). Embodied conversational

    agents as conversational partners. *Applied Cognitive Psychology, 23*, 1244-1255.

Müller, B., Florès, L., Agrebi, M., & Chandon, J.-L. (2008). The branding impact of brand

    Websites: Do newsletters and consumer magazines have a moderating role? *Journal of*

    Advertising Research, 48(3), 465-472.

Maassen, G. H., & Bakker, A. B. (2001). Suppressor variables in pathmodels: Definitions and

    interpretations. *Sociological Methods & Research, 30*(2), 241-270. doi:

    10.1177/0049124101030002004

MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and

determination of sample size for covariance structure modeling. *Psychological Methods,
1*(2), 130-149. doi: 10.1037/1082-989x.1.2.130

Mascarenhas, O. A., Kesavan, R., & Bernacchi, M. (2006). Lasting customer loyalty: A total

customer experience approach. *Journal of Consumer Marketing, 23*(7), 397-405.

McMillan, S. J., & Hwang, J.-S. (2002). Measures of perceived interactivity: An exploration of

the role of direction of communication, user control, and time in shaping perceptions of

interactivity. *Journal of Advertising, 31*(3), 29-42.

Meyer, C., & Schwager, A. (2007). Understanding customer experience. *Harvard Business

Review, 85*(2), 116-126.

Mick, D. G. (1996). Are studies of dark side variables confounded by socially desirable

responding? The case of materialism. *Journal of Consumer Research, 23*(2), 106-119.

Mollen, A., & Wilson, H. (2010). Engagement, telepresence and interactivity in online consumer

experience: Reconciling scholastic and managerial perspectives. *Journal of Business

Research, 63*(9-10), 919-925.

Moneta, G. B., & Csikszentmihalyi, M. (1996). The effect of perceived challenges and skills on

the quality of subjective experience. *Journal of Personality, 64*(2), 275-310.

Nah, F. F.-H., Eschenbrenner, B., & DeWester, D. (2011). Enhancing brand equity through flow

and telepresence: A comparison of 2D and 3D virtual worlds. [Article]. *MIS Quarterly,
35*(3), 731-A719.

Nike, Inc. 2011 Annual Report. (2011). Retrieved from

http://investors.nikeinc.com/Theme/Nike/files/doc_financials/AnnualReports/2011/docs/

Nike_2011_10-K.pdf

Novak, T. P., Hoffman, D. L., & Duhachek, A. (2003). The influence of goal-directed and

    experiential activities on online flow experiences. *Journal of Consumer Psychology,*

    13(1/2), 3.

Novak, T. P., Hoffman, D. L., & Yung, Y.-F. (2000). Measuring the customer experience in

    online environments: A structural modeling approach. *Marketing Science, 19*(1), 22.

Oliver, R. L. (1999). Whence consumer loyalty? *Journal of Marketing, 63*(4), 33-44.

Pace, S. (2004). A grounded theory of the flow experiences of Web users. *International Journal*

    of Human-Computer Studies, 60(3), 327-363.

Pavlou, P. A., & Fygenson, M. (2006). Understanding and prediction electronic commerce

    adoption: An extension of the theory of planned behavior. *MIS Quarterly, 30*(1), 115-143.

Pine, B. J., II, & Gilmore, J. H. (1998). Welcome to the experience economy. *Harvard Business*

    Review, 76(4), 97-105.

Pine, B. J., II, & Gilmore, J. H. (1999). *The experience economy: Work is theatre and every*

    business a stage. Boston: Harvard business school press.

Ralph Lauren Corporation Company Description. (2011). Retrieved from

    http://subscriber.hoovers.com.spot.lib.auburn.edu/H/company360/overview.html?compan

    yId=40369000000000

Reece, B. B., & Kinnear, T. C. (1986). Indices of consumer socialization for retailing research.

    Journal of Retailing, 62(3), 267-280.

Reichheld, F. F., & Schefter, P. (2000). E-loyalty. *Harvard Business Review, 78*(4), 105-113.

Rice, J. (1995). *Mathematical Statistics and Data Analysis* (2nd ed.). Belmont, CA: Duxbury

    Press.

Richardson, H. A., Simmering, M. J., & Sturman, M. C. (2009). A tale of three perspectives: Examining post hoc statistical techniques for detection and correction of common method variance. *Organizational Research Methods, 12*(4), 762-800. doi: 10.1177/1094428109332834

Schmitt, B. (1999). Experiential marketing. *Journal of Marketing Management, 15*(1-3), 53-67.

Seock, Y.-K., & Bailey, L. R. (2008). The influence of college students' shopping orientations and gender differences on online information searches and purchase behaviours. *International Journal of Consumer Studies, 32*(2), 113-121. doi: 10.1111/j.1470-6431.2007.00647.x

Shaw, C., & Ivens, J. (2005). *Building Great Customer Experiences*. New York: MacMillan.

Singh, R. (2009). Does my structural model represent the real phenomenon?: A review of the appropriate use of Structural Equation Modelling (SEM) model fit indices. *Marketing Review, 9*(3), 199-212. doi: 10.1362/146934709x467767

Skadberg, Y. X., & Kimmel, J. R. (2004). Visitors' flow experience while browsing a Web site: its measurement, contributing factors and consequences. *Computers in Human Behavior, 20*(3), 403-422.

Tatzel, M. (1982). Skill and motivation in clothes shopping: Fashion-conscious, independent, anxious, and apathetic consumers. *Journal of Retailing, 58*(4), 90.

The Top 10: WWD. (2008). *WWD: Women's Wear Daily,* 46.

The Top 500 List. (2010).   Retrieved October 11, 2010, from Internet Retailer http://www.internetretailer.com/top500/list/

Traylor, M. B. (1981). Product involvement and brand commitment. *Journal of Advertising Research, 21*(6), 51-56.

Trevino, L. K., & Webster, J. (1992). Flow in computer-mediated communication: Electronic

    mail and voice mail evaluation and impacts. *Communication Research, 19*(5), 539-573.

Uwaifo, S. O. (2008). Computer anxiety as predictor of librarians' perceived ease of use of

    automated library systems in Nigerian university libraries. *African Journal of Library,*

    Archives, & Information Science, 18(2), 147-155.

van den Brink, D., Odekerken-Schröder, G., & Pauwels, P. (2006). The effect of strategic and

    tactical cause-related marketing on consumers' brand loyalty. *Journal of Consumer*

    Marketing, 23(1), 15-25.

VanParys, B. (2007). Customer experience committees: A new take on enhancing customer

    loyalty. *CPA Practice Management Forum, 3,* 5-8.

Veletsianos, G., & Miller, C. (2008). Conversing with pedagogical agents: A phenomenological

    exploration of interacting with digital entities. *British Journal of Educational Technology,*

    39(6), 969-986.

Verhoef, P. C., Lemon, K. N., Parasuraman, A., Roggeveen, A., Tsiros, M., & Schlesinger, L. A.

    (2009). Customer experience creation: Determinants, dynamics and management

    strategies. *Journal of Retailing, 85*(1), 31-41.

Wang, L. C., Baker, J., Wagner, J. A., & Wakefield, K. (2007). Can a retail web site be social?

    Journal of Marketing, 71(3), 143-157.

Webster, J., Trevino, L. K., & Ryan, L. (1993). The dimensionality and correlates of flow in

    human-computer interactions. *Computers in Human Behavior, 9*(4), 411-426.

Yuan, K.-H. (2005). Fit indices versus test statistics. *Multivariate Behavioral Research, 40*(1),

    115-148. doi: 10.1207/s15327906mbr4001_5

Zeithaml, V. A., Berry, L. L., & Parasuraman, A. (1996). The behavioral consequences of

service quality. *Journal of Marketing, 60*(2), 31-46.

APPENDIX A

IRB Approval for Protocol #11-163 EP 1105

AUBURN UNIVERSITY INSTITUTIONAL REVIEW BOARD for RESEARCH INVOLVING HUMAN SUBJECTS
R E S E A R C H   P R O T O C O L   R E V I E W   F O R M

For Information or help contact **THE OFFICE OF RESEARCH COMPLIANCE**, 115 Ramsay Hall, Auburn University
Phone: 334-844-5966   **e-mail:** hsubjec@auburn.edu   **Web Address:** http://www.auburn.edu/research/vpr/ohs/

Revised 03.26.11 – DO NOT STAPLE, CLIP TOGETHER ONLY.   [Save a Copy]

1. PROPOSED START DATE of STUDY: Aug 24, 2011

PROPOSED REVIEW CATEGORY (Check one):   **FULL BOARD**   **EXPEDITED**   ✓ **EXEMPT**

2. PROJECT TITLE: CONSUMERS' BRAND EXPERIENCE ON APPAREL BRAND WEB SITES

3. Soo In Shim   Ph. D. candidate   Consumer Affairs   (334) 444-4533   szs0029@tigermail.auburn.edu
   PRINCIPAL INVESTIGATOR   **TITLE**   **DEPT**   **PHONE**   **AU E-MAIL**

   308 Spidle Hall, Auburn, Alabama 36849   (334) 844-1340   sooinshim@gmail.com
   MAILING ADDRESS   **FAX**   **ALTERNATE E-MAIL**

4. SOURCE OF FUNDING SUPPORT: ✓ Not Applicable ⌐ Internal ⎯ External Agency:_____ ⌐ Pending ⌐ Received

5. LIST ANY CONTRACTORS, SUB-CONTRACTORS, OTHER ENTITIES or IRBs ASSOCIATED WITH THIS PROJECT:

6. GENERAL RESEARCH PROJECT CHARACTERISTICS

6A. Mandatory CITI Training	6B. Research Methodology
Names of key personnel who have completed CITI: Soo In Shim Dr. Sandra Forsythe Dr. Wi-Suk Kwon CITI group completed for this study: ✓ Social/Behavioral ⌐ Biomedical **PLEASE ATTACH TO HARD COPY _ALL_ CITI CERTIFICATES FOR _EACH_ KEY PERSONNEL**	Please check all descriptors that best apply to the research methodology. Data Source(s): ✓ New Data Existing Data Will recorded data directly or indirectly identify participants? Yes ✓ No Data collection will involve the use of: ⎯ Educational Tests (cognitive diagnostic, aptitude, etc.) ⎯ Interview / Observation ⎯ Physical / Physiological Measures or Specimens (see Section 6E) ✓ Surveys / Questionnaires ✓ Internet / Electronic ⎯ Audio / Video / Photos ⎯ Private records or files

6C. Participant Information	6D. Risks to Participants
Please check all descriptors that apply to the participant population. ✓ Males ✓ Females ✓ AU students **Vulnerable Populations** ⎯ Pregnant Women/Fetuses ⎯ Prisoners ⎯ Children and/or Adolescents (under age 19 in AL) **Persons with:** ⌐ Economic Disadvantages ⌐ Physical Disabilities ⌐ Educational Disadvantages ⌐ Intellectual Disabilities **Do you plan to compensate your participants?** ✓ Yes ⎯ No	Please identify all risks that participants might encounter in this research. ⌐ Breach of Confidentiality* ⌐ Coercion ⌐ Deception ⌐ Physical ⌐ Psychological ⌐ Social ✓ None ⌐ Other: RECEIVED MAY 0 5 2011 _____ *Note that if the investigator is using or accessing confidential or identifiable data, breach of confidentiality is always a risk.

Do you need IBC Approval for this study? ✓ No ⌐ Yes - BUA #_____   **Expiration date** _____

FOR OHSR OFFICE USE ONLY	
DATE RECEIVED IN OHSR: 5-5-11 by 4b	PROTOCOL # 11-163 EP 1105
DATE OF IRB REVIEW: 5/21/11 by KJE	APPROVAL CATEGORY: 45 CFR 46.110 (7)
DATE OF IRB APPROVAL: 5/21/11 by KJE	INTERVAL FOR CONTINUING REVIEW: 1 year
COMMENTS: revisions 6/10/11; approved 6/16/11 -SRA	

7. PROJECT ASSURANCES

PROJECT TITLE: CONSUMERS' BRAND EXPERIENCE ON APPAREL BRAND WEB SITES

A. PRINCIPAL INVESTIGATOR'S ASSURANCES

1. I certify that all information provided in this application is complete and correct.
2. I understand that, as Principal Investigator, I have ultimate responsibility for the conduct of this study, the ethical performance this project, the protection of the rights and welfare of human subjects, and strict adherence to any stipulations imposed by the Auburn University IRB.
3. I certify that all individuals involved with the conduct of this project are qualified to carry out their specified roles and responsibilities and are in compliance with Auburn University policies regarding the collection and analysis of the research data.
4. I agree to comply with all Auburn policies and procedures, as well as with all applicable federal, state, and local laws regarding the protection of human subjects, including, but not limited to the following:
   a. Conducting the project by qualified personnel according to the approved protocol
   b. Implementing no changes in the approved protocol or consent form without prior approval from the Office of Human Subjects Research
   c. Obtaining the legally effective informed consent from each participant or their legally responsible representative prior to their participation in this project using only the currently approved, stamped consent form
   d. Promptly reporting significant adverse events and/or effects to the Office of Human Subjects Research in writing within 5 working days of the occurrence.
5. If I will be unavailable to direct this research personally, I will arrange for a co-investigator to assume direct responsibility in my absence. This person has been named as co-investigator in this application, or I will advise OHSR, by letter, in advance of such arrangements.
6. I agree to conduct this study only during the period approved by the Auburn University IRB.
7. I will prepare and submit a renewal request and supply all supporting documents to the Office of Human Subjects Research before the approval period has expired if it is necessary to continue the research project beyond the time period approved by the Auburn University IRB.
8. I will prepare and submit a final report upon completion of this research project.

My signature indicates that I have read, understand and agree to conduct this research project in accordance with the assurances listed above.

SOO IN SHIM	_signature_	May 4, 2011
Printed name of Principal Investigator	**Principal Investigator's Signature** (SIGN IN BLUE INK ONLY)	**Date**

B. FACULTY ADVISOR/SPONSOR'S ASSURANCES

1. By my signature as faculty advisor/sponsor on this research application, I certify that the student or guest investigator is knowledgeable about the regulations and policies governing research with human subjects and has sufficient training and experience to conduct this particular study in accord with the approved protocol.
2. I certify that the project will be performed by qualified personnel according to the approved protocol using conventional or experimental methodology.
3. I agree to meet with the investigator on a regular basis to monitor study progress.
4. Should problems arise during the course of the study, I agree to be available, personally, to supervise the investigator in solving them.
5. I assure that the investigator will promptly report significant adverse events and/or effects to the OHSR in writing within 5 working days of the occurrence.
6. If I will be unavailable, I will arrange for an alternate faculty sponsor to assume responsibility during my absence, and I will advise the OHSR by letter of such arrangements. If the investigator is unable to fulfill requirements for submission of renewals, modifications or the final report, I will assume that responsibility.
7. I have read the protocol submitted for this project for content, clarity, and methodology

Wi-Suk Kwon / Sandra Forsythe	_signature_	5/4/11
Printed name of Faculty Advisor / Sponsor	**Signature (SIGN IN BLUE INK ONLY)**	**Date**

C. DEPARTMENT HEAD'S ASSURANCE

By my signature as department head, I certify that I will cooperate with the administration in the application and enforcement of all Auburn University policies and procedures, as well as all applicable federal, state, and local laws regarding the protection and ethical treatment of human participants by researchers in my department.

Carol Warfield	_Carol L. Warfield_	5/4/11
Printed name of Department Head	**Signature (SIGN IN BLUE INK ONLY)**	**Date**

2

8. **PROJECT OVERVIEW: Prepare an abstract that includes:**
   (400 word maximum, in language understandable to someone who is not familiar with your area of study):

   I.) **A summary of relevant research findings leading to this research proposal:**
      (*Cite sources; include a "Reference List" as Appendix A.*)
   II.) **A brief description of the methodology,**
   III.) **Expected and/or possible outcomes, and,**
   IV.) **A statement regarding the potential significance of this research project.**

   Brand loyalty is reflected by customers' emotional attachment to a brand and their patronage behavior toward the brand (Chaudhuri & Holbrook, 2001). Favorable experiences with a brand can enhance brand loyalty (Brakus et al., 2009). A brand's Web site is one of the most efficient marketing communication channels to enrich brand experiences (Pine & Gilmore, 1998). An optimal online experience, called online flow (Hoffman & Novak, 1996), on a brand's Web site can positively influence the consumer's overall brand experience. Moreover, according to flow theory (Csikszentmihalyi, 1991), consumers can reach flow only when they have sufficient skill to complete a task that is manageably challenging.

   We expect that flow theory can be applied to the online shopping context in order to explain how to enhance brand experience and thereby, brand loyalty; consumers who have a high level of skill and challenge may experience online flow on a brand's Web site, which in turn may enhance brand experience. Furthermore, we expect that the enhanced brand experience may strengthen cognitive, affective, and conative brand loyalty.

   To address these issues, the investigators will conduct an online survey. First, to examine the reliability and validity of the measures, a pretest of the questionnaire will be conducted using a convenience sample of 100 Auburn University females over age 19 enrolled in the college of Human Sciences. Next, questionnaire items will be refined based on the pretest results, and the main survey will be conducted using a national sample of approximately 500 women, age 20 - 34, in the United States. All participants will browse a randomly assigned brand's Web site, select an item they may wish to purchase, and then answer the questionnaire based on their shopping experience. The questionnaire includes items to measure each of the key constructs, including perceived skill and challenge in online shopping, online flow on a brand's Web site, overall experience toward the brand, and cognitive, affective, and conative loyalty toward the brand.

   Findings from this project are expected to provide insight into the mechanism by which cognitive, affective, and conative brand loyalty is enhanced through a positive brand experience resulting from online flow on a brand's Web site. The findings can also contribute to the literature by extending the application of flow theory to the context of online shopping.

   Marketers can use the findings of this study to determine the impact of brand experience on brand loyalty, and to establish a more effective strategy for brand experience management. Furthermore, this increased knowledge can help marketers better understand the important role of online flow in enriching brand experience and thereby, to more effectively operate their brand's Web sites to improve brand experience management.

9. **PURPOSE.**
   a. **Clearly state all of the objectives, goals, or aims of this project.**
   The purpose of this project is to examine the relationships between skill, challenge, online flow, brand experience, and cognitive, affective, and conative brand loyalty.

   b. **How will the results of this project be used? (e.g., Presentation? Publication? Thesis? Dissertation?)**
   The results of this project will be used for (1) the dissertation of the principal investigator, (2) poster/oral presentations at academic conferences, and (3) publication at peer-reviewed academic journals.

3

10a. KEY PERSONNEL. Describe responsibilities. Include information on research <u>training or certifications</u> related to this project. **CITI is required. Be as specific as possible.** (Attach extra page if needed.) *All non AU-affiliated key personnel must attach **<u>CITI certificates of completion.</u>***

Principle Investigator Soo In Shim **Title:** Ph. D. candidate **E-mail address** szs0029@tigermail.auburn.edu
Dept / Affiliation: Department of Consumer Affairs, Auburn University

Roles / Responsibilities:
She is responsible for questionnaire development, data collection, data analysis, and reporting.

Individual: Dr. Sandra Forsythe **Title:** Wrangler Professor **E-mail address** forsysa@auburn.edu
Dept / Affiliation: Department of Consumer Affairs, Auburn University

Roles / Responsibilities:

She is responsible for advising principle investigator throughout the entire research process including questionnaire development, data collection, data analysis, and reporting.

Individual: Dr. Wi-Suk Kwon **Title:** AssociateProfessor **E-mail address** kwonwis@auburn.edu
Dept / Affiliation: Department of Consumer Affairs, Auburn University

Roles / Responsibilities:

She is responsible for advising principle investigator throughout the entire research process including questionnaire development, data collection, data analysis, and reporting.

Individual: _____ **Title:** _____ **E-mail address** _____
Dept / Affiliation: _____

Roles / Responsibilities:

Individual: _____ **Title:** _____ **E-mail address** _____
Dept / Affiliation: _____

Roles / Responsibilities:

Individual: _____ **Title:** _____ **E-mail address** _____
Dept / Affiliation: _____

Roles / Responsibilities:

11. **LOCATION OF RESEARCH. List all locations where data collection will take place.** (School systems, organizations, businesses, buildings and room numbers, servers for web surveys, etc.) **Be as specific as possible. Attach permission letters in Appendix E.**
(See sample letters at http://www.auburn.edu/research/vpr/ohs/sample.htm)
The online survey will be hosted on Qualtrics.com, and the survey data will be stored initially on the server of Qualtrics.com. Participants will complete the online survey using their personal computer or any other computer at their convenience.

4

12. PARTICIPANTS.
   a. Describe the participant population you have chosen for this project.

   Check here if there is existing data; describe the population from whom data was collected & include the # of data files.

   For the pretest, participants will be Auburn University undergraduate and graduate students over age 19 enrolled in the college of Human Sciences.

   For main survey, a sampling company (thesamplenetwork.com) will be hired for sample recruitment (through the company's online consumer panel). So, the population consists of female consumers age 20 to 34 in the United States, who are members of the sampling company's (thesamplenetwork.com) online consumer panel and have used the Internet for searching product information or purchasing products.

   b. Describe why is this participant population is appropriate for inclusion in this research project. (Include criteria for selection.)

   For the pretest, student population is considered appropriate in order to check the readability and clarity of the questionnaire items. For the main survey, the participant population should be consistent with chosen brands' target customer profile. Apparel brands targeting females of 20-34 years of ages are selected as contexts of the online survey in this study. Thus, sampling participants from this gender and age group is appropriate for the main survey. In addition, since this study deals with online shopping contexts, it is important that participants have experienced online shopping before. So, the presence of prior online shopping experience is an appropriate criterion for sampling. Sampling companies such as thesamplenetwork.com maintain consumer panels from which a sample that meets the age, gender, and online shopping criteria for this study can be easily obtained. Thus, the aforementioned population and sampling methods are considered appropriate for the main study.

   c. Describe, step-by-step, all procedures you will use to recruit participants. *Include in Appendix B a copy of all e-mails, flyers, advertisements, recruiting scripts, invitations, etc., that will be used to invite people to participate. [See sample documents at http://www.auburn.edu/research/vpr/ohs/sample.htm.)*

   For the pretest, the principal investigator will send students an invitation e-mail containing information about the study purpose, participation procedure, and the link to the information letter with the class instructor's permission (see Appendix B-1). If students click the link in the invitation e-mail, they will view the information letter which communicates more detailed information about the purpose of this project, the researchers, the survey procedure, confidentiality, and contact information of the researchers (see Appendix B-2). If participants read the information letter and click on the "Continue to Survey" button at the bottom of the letter, it will lead them to a survey questionnaire, followed by a thank-you page.

   For the main survey, we will hire a sampling company (thesamplenetwork.com) to recruit the sample. The company will recruit a sample for this project from their online consumer panel by sending an e-mail invitation to randomly selected panel members. Members who accept the invitation will access the survey Web site which shows (1) information letter, (2) screening questions, (3) survey questionnaire, and (4) thank-you message, in this order. The information letter used for the main survey is presented in Appendix B-3.

   What is the minimum number of participants you need to validate the study? 300_____

   Is there a limit on the number of participants you will recruit? ☑ No ☐ Yes – the number is _____

   Is there a limit on the number of participants you will include in the study? ☑ No ☐ Yes – the number is _____

   d. Describe the type, amount and method of compensation and/or incentives for participants.
   (If no compensation will be given, check here ___.)

   Select the type of compensation: ___ Monetary ✓ Incentives
   ✓ Raffle or Drawing incentive (Include the chances of winning.)
   ✓ Extra Credit (State the value)
   ___ Other

   Description:
   For the pretest, participants will receive extra credit, amount of which will be determined by their class instructor, and an opportunity to enter a random drawing for the product that they selected from the brand's Web site. At the end of the survey, participants will enter their name and email, which will be automatically stored in a separate file from their survey responses. Participants' names and emails will be provided to the class instructor, so they can receive the extra credit; and a winner of the random drawing will be notified by the researcher via email. For the main study, as participants complete the survey, their unique IDs (assigned by the sampling company) will be automatically collected, from which the researchers will randomly draw product winners and notify the sampling company who will then inform the winners to contact the researchers to claim their product.

5

13. PROJECT DESIGN & METHODS.

a. Describe, step-by-step, all procedures and methods that will be used to consent participants.
(⌐ Check here if this is "not applicable"; you are using existing data.)

An information letter will appear on the page prior to the questionnaire. The information letter will provide information about the study and state that having read the information provided, the respondents must decide if they want to participate in this research project. If they decide to participate, the data they provide will serve as their agreement to do so.

b. Describe the procedures you will use in order to address your purpose. Provide a step-by-step description of how you will carry out this research project. Include specific information about the participants' time and effort commitment. (*NOTE: Use language that would be understandable to someone who is not familiar with your area of study. Without a complete description of all procedures, the Auburn University IRB will not be able to review this protocol. If additional space is needed for this section, save the information as a .PDF file and insert after page 6 of this form.*)

An online survey questionnaire will be posted on the internet, and participants will be recruited following the procedures and criteria specified in item #12 above. Participants will participate in the online survey in their natural setting (e.g., home).
For the pretest, participants will be recruited via e-mail (see item #12-c above). Participants who are interested in participating will click on the link contained in the email that leads to the information letter (see Appendix B-2). If participants decide to participate in the study after reading the information letter, they will click on the "CONTINUE TO SURVEY" button at the bottom of the information letter which will lead to the online survey. The online survey includes a short online browsing task on an apparel brand website assigned by the researcher and questions regarding the website experience and the assigned brand and questions addressing the participant's demographic and other individual characteristics (e.g., online shopping skill). The entire survey will take approximately 30 minutes including the online browsing task and filling out the questionnaire. When participants click on the "SUBMIT" button at the end of the questionnaire, they will view a thank-you page where their name and email address will be asked for providing the extra credit and a note saying that a winner of the random drawing may receive a check instead of a product in case the product of their choice is out of stock. The amount of extra credits will be determined by class instructor, not by researchers. Moreover, one participant will be a winner of the prize, so the odds of winning drawing will be 1/100 to 1/200 depending on number of participants. Information about compensation (i.e., the extra credit and random drawing) is shown in the information letter (see Appendix B-2).
If the results of pretest demonstrate a need to change the questionnaire or procedures of the main survey, a modification will be filed with the IRB.
The procedures for the main survey are as same as the procedures for the pretest, except compensation. The compensation for the main survey does not include the extra credit because the main survey will use a national sample. Moreover, five participants will be winners of the prizes, so the odds of winning drawing in the main survey will be 1/100. Information about compensation is shown in the information letter (see Appendix B-3).
The survey data will be analyzed using statistical analysis techniques, such as Cronbach's alpha, exploratory factor analysis, confirmatory factor analysis, and structural equation modeling, to meet the project objectives.

6

125

13c. List all data collection instruments used in this project, in the order they appear in Appendix C.

(e.g., surveys and questionnaires in the format that will be presented to participants, educational tests, data collection sheets, interview questions, audio/video taping methods etc.)

The data collection instrument used in this study is an online survey questionnaire. The pretest survey questionnaire is presented in Appendix C-1. The main survey questionnaire will be refined based on the pretest results (see Appendix C-2).

d. Data analysis: Explain how the data will be analyzed.

Descriptive statistics of the questionnaire items will be computed using the Statistical Package for Social Science (SPSS) 18.0 software to screen useless data, identify sample demographics, and test the normality and equal variances of major variables in this study. Exploratory factor analysis and confirmatory factor analysis will be conducted to check construct validity of scale items. Reliability of the refined scales will be checked by calculating Cronbach's alpha. Structural equation modeling will be used to test relationships among the variables, using Analysis of Moment Structures (AMOS) 18.0 software.

14. RISKS & DISCOMFORTS: List and describe all of the risks that participants might encounter in this research. *If you are using deception in this study, please justify the use of deception and be sure to attach a copy of the debriefing form you plan to use in Appendix D.* (Examples of possible risks are in section #6D on page 1.)

No apparent major risks to respondents are expected during participation in this project. For the pretest with students, coercion may be a potential risk. Thus, an alternative class activity for the same amount of extra credit will be determined and announced by class instructor.

7

15. **PRECAUTIONS.** Identify and describe all precautions you have taken to eliminate or reduce risks as listed in #14. If the participants can be classified as a "vulnerable" population, please describe additional safeguards that you will use to assure the ethical treatment of these individuals. ***Provide a copy of any emergency plans/procedures and medical referral lists in Appendix D.***

   Not Applicable as all responses are anonymous.

   If using the Internet to collect data, what confidentiality or security precautions are in place to protect (or not collect) identifiable data? Include protections used during both the collection and transfer of data.
   (These are likely listed on the server's website.)

   For the pretest, the participant names and email addresses will be collected at the end of the survey for the purpose of giving extra credit and entering the random drawing of product awards. But, these personal data will be automatically stored in a separate file from the survey response data, so the survey data can remain anonymous.

   For the main study, no participant identifying information is collected except for the unique ID assigned to each participant by the sampling company. The researchers will not have access to participants' personal information (e.g., name, email address, home address) associated with the unique IDs, and the sampling company will not have access to participants' survey response data. So, the identifying information will never be linked to the survey data. In addition, for the product award drawing, winners will be randomly drawn from all participants' unique IDs, and the winner IDs will be informed to the sampling company who will then identify the winners from their consumer panel database. The sampling company will inform the researchers of the winners' names and will inform the winners of the researchers' contact information to claim their product award. As the winners contact the researchers to claim their product award, the researchers will double check the congruence between their names and the winner names received from the sampling company, and mail out the product award (or a check with the dollar amount equivalent to the product price, if the chosen product is out of stock) to each individual winner using the mailing address they provide to the researchers individually. In this process, only the key personnel on this protocol will have access to the product winners' contact information. Once the winners confirm their receipt of the products, their personal information will be eliminated for good.

16. **BENEFITS.**

   a. **List all realistic direct benefits participants can expect by participating in this specific study.**
      (Do not include "compensation" listed in #12d.) Check here if there are no direct benefits to participants. ✓
      No direct participant benefits are expected by participating in this study.

   b. **List all realistic benefits for the general population that may be generated from this study.**
      This study is expected to generate insight into how to improve brand Web sites to provide better experience to consumers. As marketers utilize the insight generated by this study to improve their brand Web sites, the general consumer population may benefit from it.

8

17. **PROTECTION OF DATA.**

    a. **Will data be collected as anonymous?**   ☐ Yes   ☑ No   *If "YES", skip to part "g".*
        ("Anonymous" means that you will <u>not</u> collect any identifiable data.)

    b. **Will data be collected as confidential?**   ☑ Yes   ☐ No
        ("Confidential" means that you <u>will</u> collect and protect identifiable data.)

    c. **If data are collected as confidential, will the participants' data be coded or linked to identifying information?**
        ■ **Yes** (If so, describe how linked.)   **No** ■

    d. **Justify your need to code participants' data or link the data with identifying information.**

        Participant names and email addresses (for Pretest) or participant unique IDs (for Main Study) are needed only to identify participants to give them extra credit (for Pretest) and enter their names for the random drawing for product awards (for Pretest and Main Study). Participant information will never be linked to their survey data.

    e. **Where will code lists be stored?** (Building, room number?)
        Participant names and email addresses (for Pretest) and unique IDs (for Main Study) will be stored first in the online survey server protected with a user name and a password) and then moved to the investigators' personal drive (protected with a user name and a password).

    f. **Will data collected as "confidential" be recorded and analyzed as "anonymous"?**   ☑ Yes   ☐ No
        (If you will maintain identifiable data, protections should have been described in #15.)

    g. **Describe how and where the data will be stored** (e.g., hard copy, audio cassette, electronic data, etc.), **and how the location where data is stored will be secured in your absence. For electronic data, describe security. If applicable, state specifically where any IRB-approved and participant-signed consent documents will be kept on campus for 3 years after the study ends.**

        Data (with no participants' identifying information) will be initially stored in the online survey server, Qualtrics (protected with a user name and a password). Qualtrics has SAS 70 Certification and meets the rigorous privacy standards imposed on health care records by the Health Insurance Portability and Accountability Act (HIPAA). All Qualtrics accounts are hidden behind passwords and all data is protected with real-time data replication.

        Once the data collection is complete, the data will be moved to the investigators' personal drive (protected with a user name and a password).

    h. **Who will have access to participants' data?**
        (*The faculty advisor should have full access and be able to produce the data in the case of a federal or institutional audit.*)
        The key personnel included in this protocol.

    i. **When is the latest date that** <u>confidential</u> **data will be retained?** (Check here if only anonymous data will be retained. ✓)

    j. **How will the** <u>confidential</u> **data be destroyed?** (*NOTE: Data recorded and analyzed as "anonymous" may be retained indefinitely.*)
        NA

9

APPENDIX B

Invitation E-mail (Pilot Test)

Hi, I'm Soo In Shim, a Ph. D. student in the Department of Consumer Affairs.   I invite you to an online survey seeking your opinions about an apparel brand's website for extra credit for [COURSE NUMBER & NAME] with the permission of [INSTRUCTOR'S NAME].   This survey is conducted for my Ph.D. dissertation research under the supervision of Dr. Sandra Forsythe and Dr. Wi-Suk Kwon in the Department of Consumer Affairs.   The survey will ask you to conduct a short shopping task on an assigned apparel website and complete an online questionnaire.   The entire participation is expected to take about 30 minutes.   In addition to the extra credit, you will also have a chance to enter a random drawing to win the product you select as part of the assigned shopping task.   If you are interested in participating in this study, please click on the link below to view the study information and participation instructions.   I'd appreciate your participation very much.

[PROVIDE THE LINK TO THE INFORMATION LETTER HERE]

APPENDIX C

Information Letter (Pilot Test)

Auburn university
College of human sciences
Department of consumer affairs

INFORMATION LETTER
for a Research Study entitled
"Consumers' Brand Experience on Apparel Brand Web Sites"

You are invited to participate in a research study to examine consumers' brand experience on apparel brand Web sites. The study is being conducted by Soo In Shim, Ph. D. student in the Department of Consumer Affairs, under the direction of Dr. Sandra Forsythe, Wrangler Professor, and Dr. Wi-Suk Kwon, Human Sciences Associate Professor of Retailing, at the Department of Consumer Affairs, Auburn University. You were selected as a possible participant because you are an Auburn University student and are age 19 or older.

What will be involved if you participate? If you decide to participate in this study, you will be asked to complete a survey. During the survey, you will also be asked to click on an assigned apparel brand Web site and complete an online browsing task on it. You will choose a product that meets the criteria given in the participant directions within the survey. After completing the browsing task, you will be asked to fill out the remaining survey. The survey questionnaire will ask questions about your demographic information and perceptions of the online browsing experience and the brand. Your total time commitment will be approximately 30 minutes.

Are there any risks or discomforts? We assure that the participation in this study would put you in no physical or psychological risks other than the minimal inconvenience of completing the survey. Your response to this survey will be kept confidential and used only for the purpose of this study. No identifiers will be used to link your responses to your identity.

Are there any benefits to yourself or others? This study is expected to generate insight into how to improve brand Web sites to provide better experience to consumers. The consumer population may benefit as marketers utilize the insight generated by this study to improve their brand Web sites.

Will you receive compensation for participating? To thank you for your time, you will be offered extra credit for the class from which you are recruited. The extra credit amount will be determined by your class instructor. You must check with your instructor to see how extra credit will be allocated in your class. In addition, you will have the option of entering a random drawing to earn the product that you select as a result of your browsing task on your assigned Web site. The chance of winning your selected item is 1/100 to 1/200 depending on number of participants.

To provide the extra credit and inform the winner of the random drawing, we will collect your name and e-mail address at the end of survey. As your name and e-mail address are collected, they will be automatically stored in a different file from the survey data file, so that your survey responses will never be linked to your identifying information (name and e-mail address), and thus your responses will remain anonymous. The identifying information collected on last page of survey will be used only for the compensation purposes.

If you change your mind about participating, you can withdraw at any time during the study. Your participation is completely voluntary. If you choose to withdraw, your data can be withdrawn as long as it is identifiable. Your decision about whether or not to participate or to stop participating will not jeopardize your future relations with Auburn University, the Department of Consumer Affairs.

Your privacy will be protected. Any information obtained in connection with this study will remain anonymous. Information obtained through your participation may be published in professional journals and/or presented at professional meetings. If so, none of your identifiable information will be included.

If you have questions about this study, please contact Soo In Shim at szs0029@tigermail.auburn.edu. You can print out this document to keep.

If you have questions about your rights as a research participant, you may contact the Auburn University Office of Human Subjects Research or the Institutional Review Board by phone (334)-844-5966 or e-mail at hsubjec@auburn.edu or IRBChair@auburn.edu.

132

HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE WHETHER OR NOT YOU WISH TO PARTICIPATE IN THIS RESEARCH STUDY. IF YOU CLICK THE CONTINUE TO SURVEY LINK BELOW AND PROVIDE DATA, YOUR DATA INDICATE YOUR WILLINGNESS TO PARTICIPATE.

CONTINUE TO SURVEY

The Auburn University Institutional Review Board has approved this document for use from May 21, 2011 to May 20, 2012. Protocol #11-163 EP 1105.

APPENDIX D

Questionnaire (Pilot Test)

Please indicate **your agreement**, from 1—strongly disagree to 7—strongly agree, for each statement below.

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
It is hard for me to compare product choices to decide what to buy.	O	O	O	O	O	O	O
It is easy for me to find the right product that I am looking for in a store.	O	O	O	O	O	O	O
I usually know what to buy when I shop for something.	O	O	O	O	O	O	O
I easily narrow down product choices.	O	O	O	O	O	O	O

Please indicate **your agreement**, from 1—strongly disagree to 7—strongly agree, for each statement below.

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
I can judge whether a clothing product has high quality.	O	O	O	O	O	O	O
I am usually aware of how trendy a clothing product is.	O	O	O	O	O	O	O
I can judge whether a clothing product fits me well.	O	O	O	O	O	O	O
When I shop for clothing, I can choose the right style and color for me.	O	O	O	O	O	O	O

Please indicate **your agreement**, from 1—strongly disagree to 7—strongly agree, for each statement below.

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
I easily complete the purchase process on a shopping Web site.	O	O	O	O	O	O	O
I often have difficulties in shopping online.	O	O	O	O	O	O	O
I have no trouble in buying something online.	O	O	O	O	O	O	O

Please indicate **your agreement**, from 1—strongly disagree to 7—strongly agree, for each statement below.

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
I am skilled in using the Web.	O	O	O	O	O	O	O
I know somewhat less than most users about using the Web.	O	O	O	O	O	O	O
I have good Web search techniques.	O	O	O	O	O	O	O
I know how to find what I am looking for on the Web.	O	O	O	O	O	O	O

135

Now, we would like you to complete the following online browsing task for a chance to get your selected product for free! Please read the following instruction very carefully.

On next page, you will be given a link to an apparel brand's Web site. When you click on the link, a new window will pop up to show the apparel brand's Web site.

On the brand's Web site, please select a shirt or a top you would like to wear for the coming season. Your shirt or top <u>must</u>:
- **be made by the given brand,**
- **be a style and color that suits you,**
- **have good quality in materials and workmanship,**
- **fit you well,**
- **go well with other apparel items you already have, and**
- **be under $50.**

Before moving to next page, please indicate **your agreement**, from 1—strongly disagree to 7—strongly agree, for each statement below.

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
This task is going to be challenging to me.	O	O	O	O	O	O	O
This task is going to provide a good test of my skills in online shopping.	O	O	O	O	O	O	O
This task is going to challenge me to perform to the best of my ability.	O	O	O	O	O	O	O
I expect that this task is going to stretch my capabilities to my limit.	O	O	O	O	O	O	O

At the bottom of this instruction is the link to the brand Web site in which we would like you to complete the online browsing task.

When you put your selected shirt or top in the Shopping Bag/Cart on the brand Web site, **please STOP and return to the survey Web site** to describe your selected shirt/top and answer the remaining survey questions. **DO NOT CHECK OUT. DO NOT give your credit card information or pay for the item!**

Remember that the shirt/top of your final choice should meet ALL of the following criteria:
- **It is made by the given brand,**
- **It is a style and color that suits you,**
- **It has good quality in materials and workmanship,**
- **It fits you well,**
- **It goes well with other apparel items you already have, and**
- **It is under $50.**

Complete the browsing task at http://www.thelimited.com

Below, please enter information about the shirt or top that you put in the Shopping Bag/Cart on the brand Web site during the online browsing task.

Product name?	
Color?	
Size?	
Price?	
Any other identification features?	

> One respondent will get their selected top (up to $50 value) for free. At the end of survey, your name and email address will be asked for the further contact.

Based on **your experience in this online browsing task**, please indicate **your agreement**, from 1—strongly disagree to 7—strongly agree, for each statement below.

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
This task challenged me to perform to the best of my ability.	○	○	○	○	○	○	○
This task provided a good test of my skills in online shopping.	○	○	○	○	○	○	○
This task was challenging to me.	○	○	○	○	○	○	○
I found that this task stretched my capabilities to my limits.	○	○	○	○	○	○	○

Please indicate **your agreement**, from 1—strongly disagree to 7—strongly agree, for each statement below.

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
During this task, my attention was focused entirely on what I was doing.	○	○	○	○	○	○	○
During this task, I made an effort to keep my mind on the task.	○	○	○	○	○	○	○
I really enjoyed doing this task.	○	○	○	○	○	○	○
I felt confused about what to do to complete this task.	○	○	○	○	○	○	○
This task stimulated my imagination.	○	○	○	○	○	○	○
I was completely focused on this task at hand.	○	○	○	○	○	○	○
	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
The experience of doing this task left me feeling great.	○	○	○	○	○	○	○
This task was fun for me.	○	○	○	○	○	○	○
This task stimulated my curiosity.	○	○	○	○	○	○	○
I had total concentration to complete this task.	○	○	○	○	○	○	○

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
This task made me curious.	O	O	O	O	O	O	O
This task bored me.	O	O	O	O	O	O	O

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
I loved the feeling of completing this task.	O	O	O	O	O	O	O
Things just seemed to be happening automatically during this task.	O	O	O	O	O	O	O
During this task, time appeared to go by very quickly.	O	O	O	O	O	O	O
During this task, I felt in control.	O	O	O	O	O	O	O
Time flew during this task.	O	O	O	O	O	O	O

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
I felt agitated because I was not sure what to do to complete this task.	O	O	O	O	O	O	O
During this task, I did things spontaneously and automatically without having to think.	O	O	O	O	O	O	O
I was self-conscious during this task.	O	O	O	O	O	O	O
I clearly knew the right things to do to complete this task.	O	O	O	O	O	O	O
This task was interesting.	O	O	O	O	O	O	O
When I completed this task, I felt like I came back to the "real world" after a journey.	O	O	O	O	O	O	O
During this task, I forgot I was in the middle of a survey.	O	O	O	O	O	O	O
I forgot about my immediate surroundings when I was doing the task.	O	O	O	O	O	O	O

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
The Web site seemed to me "somewhere I visited" rather than "something I saw."	O	O	O	O	O	O	O
I felt I was more in the "Web world" than the "real world" around me when I was doing the task.	O	O	O	O	O	O	O
During this task, I felt I was in the world the Web site created.	O	O	O	O	O	O	O
During this task, my body was in the room, but my mind was inside the world created by the computer.	O	O	O	O	O	O	O
I reacted to the Web site automatically during this task.	O	O	O	O	O	O	O
During this task, I made the correct movements without thinking.	O	O	O	O	O	O	O
I was not worried how I was performing during this task.	O	O	O	O	O	O	O

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
I felt calm because I understood the process to complete this task.	O	O	O	O	O	O	O
I lost track of time while doing this task.	O	O	O	O	O	O	O
I found this task experience rewarding.	O	O	O	O	O	O	O
I was concerned how well I was completing this task.	O	O	O	O	O	O	O

Considering both your past experience with Limited and today's browsing task for this survey, please indicate **your agreement**, from 1—strongly disagree to 7—strongly agree, for each statement below.

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
This brand provokes emotions.	O	O	O	O	O	O	O
I engage in a lot of thinking when I encounter this brand.	O	O	O	O	O	O	O
I behave in a certain way when I wear this brand's clothes.	O	O	O	O	O	O	O
This brand does not result in a certain behavior.	O	O	O	O	O	O	O
I do not have strong emotions for this brand.	O	O	O	O	O	O	O
I find this brand interesting in product displays, product texture, background music and/or use of fragrance.	O	O	O	O	O	O	O
This brand makes a strong visual impression.	O	O	O	O	O	O	O
This brand does not make me think.	O	O	O	O	O	O	O
This brand does not appeal to my senses of hearing, sight, touch, and/or smell.	O	O	O	O	O	O	O
This brand induces my feelings and sentiments.	O	O	O	O	O	O	O
I act differently when I use this brand.	O	O	O	O	O	O	O
This brand stimulates my thinking and problem solving.	O	O	O	O	O	O	O

Considering both your past experience with Limited and today's browsing task for this survey, please indicate **your agreement**, from 1—strongly disagree to 7—strongly agree, for each statement below.

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
I consider this brand my first choice because this brand offers an attractive shopping environment.	O	O	O	O	O	O	O
I would always think of this brand over other brands because their products offer good value for money.	O	O	O	O	O	O	O
I will pay more in order to buy this brand.	O	O	O	O	O	O	O
I will revisit this brand next time.	O	O	O	O	O	O	O
I will buy this brand next time.	O	O	O	O	O	O	O
I will recommend this brand to other people.	O	O	O	O	O	O	O
	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
I have a negative attitude toward this brand.	O	O	O	O	O	O	O
This brand is one of my favorites.	O	O	O	O	O	O	O
I would always think of this brand over other brands because this brand's employees are helpful.	O	O	O	O	O	O	O

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
I would pay a lot of attention to this brand over other brands because their products are good for the price.	O	O	O	O	O	O	O
I would always think of this brand over other brands because their products have consistent quality.	O	O	O	O	O	O	O
I would pay a lot of attention to this brand over other brands because this brand's employees treat customers well.	O	O	O	O	O	O	O
I would pay a lot of attention to this brand over other brands because this brand has a pleasing shopping atmosphere.	O	O	O	O	O	O	O
I would always think of this brand over other brands because this brand provides a nice place to shop.	O	O	O	O	O	O	O
I consider this brand my first choice because this brand provides excellent service.	O	O	O	O	O	O	O
This brand makes me feel good.	O	O	O	O	O	O	O
I would pay a lot of attention to this brand over other brands because their products are well made.	O	O	O	O	O	O	O
I particularly like this brand.	O	O	O	O	O	O	O

Please answer the following questions by filling the blanks or checking the appropriate choice.

1. What is your **gender?**

O Male

O Female

2. What is your **age**? (years old)

3. What is **your current class in school?**

O FRESHMAN

O SOPHOMORE

O JUNIOR

O SENIOR

O GRADUATE STUDENT

4. What College/School is your primary major**?**

5. Which of the following **ethnic groups** do you consider yourself to be a member of?

○ NON-HISPANIC WHITE

○ NON-HISPANIC BLACK

○ HISPANIC

○ ASIAN/PACIFIC ISLANDER

○ AMERICAN INDIAN/ALASKAN NATIVE

○ OTHER (Please specify)

[ ]

6. Which of the following ranges indicates your **total annual household income** from all sources before taxes in 2010?

[ ]

10. **What apparel brands** have you purchased online?

[ ]

APPENDIX E

Closing Page (Pilot Test)

Thank you very much for your participation in this study!

If you want to receive extra credit, please provide your name and email addressbelow. Your name will also be entered the random drawing to earn the product you chose earlier from the assigned brand Web site.

Participant Name

Participant email address
(...@auburn.edu)

Please note that in case you win the random drawing but the product you selected is no longer available on the brand's Web site, we will provide you with a check with the dollar amount corresponding to the respective product price (with a maximum of $50).

Thank you again for your participation in this study!

If you have questions about this study, please contact Soo In Shim by email at szs0029@tigermail.auburn.edu.

APPENDIX F

Information Letter (Main Study)

Auburn university
College of human sciences
Department of consumer affairs

INFORMATION LETTER
for a Research Study entitled
"Consumers' Brand Experience on Apparel Brand Web Sites"

You are invited to participate in a research study to examine consumers' brand experience on apparel brand Web sites. The study is being conducted by Soo In Shim, Ph. D. student in the Department of Consumer Affairs, under the direction of Dr. Sandra Forsythe, Wrangler Professor, and Dr. Wi-Suk Kwon, Human Sciences Associate Professor of Retailing, at the Department of Consumer Affairs, Auburn University. You were selected as a possible participant because you are a female consumer, are between age 20 and 34, and are a member of the consumer panel of The Sample Network.

What will be involved if you participate? If you decide to participate in this research study, you will be asked to complete a survey. During the survey, you will also be asked to access an assigned apparel brand Web site and complete an online browsing task on it. This browsing task will involve choosing a product that meets specific criteria given in the participant direction within the survey. After completing the browsing task, you will be asked to continue to fill out the remaining survey. The survey questionnaire will ask questions about your demographic information and perceptions of the online browsing experience and the brand. Your total time commitment will be approximately 30 minutes.

Are there any risks or discomforts? We assure that the participation in this study would put you in no physical or psychological risks other than the minimal inconvenience of completing the survey. Your response to this survey will be kept confidential and used only for the purpose of this study. No identifiers will be used to link your responses to your identity.

Are there any benefits to yourself or others? This study is expected to generate insight into how to improve brand Web sites to provide better experience to consumers. As marketers utilize the insight generated by this study to improve their brand Web sites, the general consumer population may benefit from it.

Will you receive compensation for participating? To thank you for your time, you will have the option of entering a random drawing to earn the product that you select on your assigned apparel brand's Web site. The winners of the random drawing will be notified via email by The Sample Network. The chance of winning your selected item is 1/100.

If you change your mind about participating, you can withdraw at any time during the study. Your participation is completely voluntary. If you choose to withdraw, your data can be withdrawn as long as it is identifiable. Your decision about whether or not to participate or to stop participating will not jeopardize your future relations with Auburn University, the Department of Consumer Affairs.

Your privacy will be protected. Any information obtained in connection with this study will remain anonymous. Information obtained through your participation may be published in professional journals and/or presented at professional meetings. If so, none of your identifiable information will be included.

If you have questions about this study, please contact Soo In Shim at szs0029@tigermail.auburn.edu. You can print out this document to keep.

If you have questions about your rights as a research participant, you may contact the Auburn University Office of Human Subjects Research or the Institutional Review Board by phone (334)-844-5966 or e-mail at hsubjec@auburn.edu or IRBChair@auburn.edu.

HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE WHETHER OR NOT YOU WISH TO PARTICIPATE IN THIS RESEARCH STUDY. IF YOU CLICK THE CONTINUE TO SURVEY LINK BELOW AND PROVIDE DATA, YOUR DATA INDICATE YOUR WILLINGNESS TO PARTICIPATE.

CONTINUE TO SURVEY

APPENDIX G

Questionnaire (Main Study)

Screen Q1

Have you ever used the Internet for searching product information or purchasing products?

○ Yes

○ No

Screen Q2

What is your gender?

○ Male

○ Female

Screen Q3

What is your age?

○ Below 19

○ 20 to 24

○ 25 to 29

○ 30 to 34

○ Over 35

On this page, we would like to learn about **YOUR SHOPPING STYLES**. Please indicate **your agreement** for each statement below.

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
I usually know what to buy when I shop for something.	○	○	○	○	○	○	○
It is easy for me to find the right product that I am looking for in a store.	○	○	○	○	○	○	○
I easily narrow down product choices.	○	○	○	○	○	○	○
It is hard for me to compare product choices to decide what to buy.	○	○	○	○	○	○	○

Please indicate **your agreement** for each statement below.

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
I am usually aware of how trendy a clothing product is.	○	○	○	○	○	○	○
I can judge whether a clothing product has high quality.	○	○	○	○	○	○	○
When I shop for clothing, I can choose the right style and color for me.	○	○	○	○	○	○	○
I can judge whether a clothing product fits me well.	○	○	○	○	○	○	○

148

Please indicate **your agreement** for each statement below.

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
I easily complete the purchase process on a shopping Web site.	O	O	O	O	O	O	O
I have no trouble in buying something online.	O	O	O	O	O	O	O
I often have difficulties in shopping online.	O	O	O	O	O	O	O

Please indicate **your agreement** for each statement below.

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
I am skilled in using the Web.	O	O	O	O	O	O	O
I have good Web search techniques.	O	O	O	O	O	O	O
I know somewhat less than most users about using the Web.	O	O	O	O	O	O	O
I know how to find what I am looking for on the Web.	O	O	O	O	O	O	O

Now, we would like you to complete the following online browsing task for a chance to get your selected product for free! Please read the following instruction very carefully.

On next page, you will be given a link to an apparel brand's Web site. When you click on the link, a new window will pop up to show the apparel brand's Web site.

On the brand's Web site, please select a shirt or a top you would like to wear for the coming season. Your shirt or top <u>must</u>:
- **be made by the given brand,**
- **be a style and color that suits you,**
- **have good quality in materials and workmanship,**
- **fit you well,**
- **go well with other apparel items you already have, and**
- **be under $50.**

Before moving to next page, please indicate **your agreement** for each statement below.

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
This task is going to be challenging to me.	O	O	O	O	O	O	O
This task is going to challenge me to perform to the best of my ability.	O	O	O	O	O	O	O
This task is going to provide a good test of my skills in online shopping.	O	O	O	O	O	O	O
I expect that this task is going to stretch my capabilities to my limit.	O	O	O	O	O	O	O

149

At the bottom of this instruction is the link to the brand Web site to complete the online browsing task.

When you put your selected shirt or top in the Shopping Bag/Cart on the brand Web site, **please STOP and return to the survey Web site** to describe your selected shirt/top and answer the remaining survey questions. **DO NOT CHECK OUT. DO NOT give your credit card information or pay for the item!**

Remember that the shirt/top of your final choice should meet ALL of the following criteria:
- **It is made by the given brand,**
- **It is a style and color that suits you,**
- **It has good quality in materials and workmanship,**
- **It fits you well,**
- **It goes well with other apparel items you already have, and**
- **It is under $50.**

Complete the browsing task at http://www.thelimited.com

Enter information about the shirt or top that you put in the Shopping Bag/Cart on the brand Web site during the online browsing task.

Product name?	
Color?	
Size?	
Price?	
Any other identification features?	

Remember some of respondents will get their selected top (up to $50 value) for free.
We will contact you later if you are selected as the lottery winner.

Based on **your experience in this online browsing task**, please indicate **your agreement** for each statement below.

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
This task was challenging to me.	O	O	O	O	O	O	O
This task challenged me to perform to the best of my ability.	O	O	O	O	O	O	O
This task provided a good test of my skills in online shopping.	O	O	O	O	O	O	O
I found that this task stretched my capabilities to my limit.	O	O	O	O	O	O	O

150

Based on **your experience in this online browsing task**, please indicate **your agreement** for each statement below.

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
During this task, I made the correct movements without thinking.	○	○	○	○	○	○	○
Things just seemed to be happening automatically during this task.	○	○	○	○	○	○	○
I reacted to the Web site automatically during this task.	○	○	○	○	○	○	○
During this task, I did things spontaneously and automatically without having to think.	○	○	○	○	○	○	○
During this task, my attention was focused entirely on what I was doing.	○	○	○	○	○	○	○
During this task, I made an effort to keep my mind on the task.	○	○	○	○	○	○	○
I had total concentration to complete this task.	○	○	○	○	○	○	○
I was completely focused on this task at hand.	○	○	○	○	○	○	○

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
During this task, I felt in control.	○	○	○	○	○	○	○
I clearly knew the right things to do to complete this task.	○	○	○	○	○	○	○
I felt clear about what to do to accomplish this task.	○	○	○	○	○	○	○
I felt calm because I understood the process to complete this task.	○	○	○	○	○	○	○
I felt calm because I was sure about what to do to accomplish this task.	○	○	○	○	○	○	○
During this task, time appeared to go by very quickly.	○	○	○	○	○	○	○
I lost track of time while doing this task.	○	○	○	○	○	○	○
Time flew during this task.	○	○	○	○	○	○	○

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
I was self-conscious during this task.	○	○	○	○	○	○	○
I was concerned about how well I was completing this task.	○	○	○	○	○	○	○
I was worried about how I was performing during this task.	○	○	○	○	○	○	○
During this task, I felt I was in the world the Web site created.	○	○	○	○	○	○	○
During this task, I forgot I was in the middle of a survey.	○	○	○	○	○	○	○
During this task, my body was in the room, but my mind was inside the world created by the computer.	○	○	○	○	○	○	○
The Web site seemed to me "somewhere I visited" rather than "something I saw."	○	○	○	○	○	○	○
I felt I was more in the "Web world" than the "real world" around me when I was doing the task.	○	○	○	○	○	○	○

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
I forgot about my immediate surroundings when I was doing the task.	O	O	O	O	O	O	O
When I completed this task, I felt like I came back to the "real world" after a journey.	O	O	O	O	O	O	O
I really enjoyed doing this task.	O	O	O	O	O	O	O
I loved the feeling of completing this task.	O	O	O	O	O	O	O
The experience of doing this task left me feeling great.	O	O	O	O	O	O	O
I found this task experience rewarding.	O	O	O	O	O	O	O
This task was interesting.	O	O	O	O	O	O	O
This task bored me.	O	O	O	O	O	O	O

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
This task was fun for me.	O	O	O	O	O	O	O
This task stimulated my curiosity.	O	O	O	O	O	O	O
This task made me curious.	O	O	O	O	O	O	O
This task stimulated my imagination.	O	O	O	O	O	O	O

Considering both your past experience with the Limited brand and today's browsing task for this survey, please indicate **your agreement** for each statement below.

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
This brand makes a strong visual impression.	O	O	O	O	O	O	O
I find this brand interesting in product displays, product texture, background music and/or use of fragrance.	O	O	O	O	O	O	O
This brand appeals to my senses of hearing, sight, touch, and/or smell.	O	O	O	O	O	O	O
This brand induces my feelings and sentiments.	O	O	O	O	O	O	O
I have strong emotions for this brand.	O	O	O	O	O	O	O
This brand provokes emotions.	O	O	O	O	O	O	O
I behave in a certain way when I wear this brand's clothes.	O	O	O	O	O	O	O
I act differently when I use this brand.	O	O	O	O	O	O	O
This brand results in a certain behavior.	O	O	O	O	O	O	O
I engage in a lot of thinking when I encounter this brand.	O	O	O	O	O	O	O
This brand makes me think.	O	O	O	O	O	O	O
This brand stimulates my thinking and problem solving.	O	O	O	O	O	O	O

Considering both your past experience with the Limited brand and today's browsing task for this survey, please indicate **your agreement** for each statement below.

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
I will buy this brand next time.	O	O	O	O	O	O	O
I will revisit this brand next time.	O	O	O	O	O	O	O
I will recommend this brand to other people.	O	O	O	O	O	O	O
I will pay more in order to buy this brand.	O	O	O	O	O	O	O
	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
I will think of this brand over other brands.	O	O	O	O	O	O	O
I will pay a lot of attention to this brand over other brands.	O	O	O	O	O	O	O
I will consider this brand my first choice.	O	O	O	O	O	O	O

Please answer the following questions by filling the blanks or checking the appropriate choice.

1. What is your **gender?**

O Male

O Female

2. What is your **age**? (years old)

3. What is **the highest level of education** you have completed?

O 8TH GRADE OR LESS

O SOME HIGH SCHOOL

O HIGH SCHOOL DEGREE

O SOME COLLEGE OR TECHNICAL SCHOOL

O COLLEGE DEGREE (4 YEARS)

O SOME GRADUATE SCHOOL

O GRADUATE DEGREE (MASTER'S, DOCTORATE, ETC.)

4. Which of the following **ethnic groups** are you a member of?

O NON-HISPANIC WHITE

O NON-HISPANIC BLACK

O HISPANIC

O ASIAN/PACIFIC ISLANDER

O AMERICAN INDIAN/ALASKAN NATIVE

O OTHER (Please specify)

153

5. Which of the following ranges indicates your **total annual household income** from all sources before taxes in 2010?

[ ]

6. Which of the following best describes your current occupation?

○ PROFESSIONAL OR TECHNICAL (for example, accountant, artist, computer specialist, engineer, nurse, doctor, teacher)

○ MANAGER OR ADMINISTRATOR (NON-FARM)

○ SALES WORKER (for example, insurance salesperson, real estate salesperson, sales clerk, stockbroker)

○ CLERICAL WORKER (for example, bank teller, bookkeeping, office clerk, postal worker, secretary, teacher's aide)

○ CRAFTSWORKER (for example, baker, carpenter, electrician, foreman, jeweler, mechanic, plumber, tailor)

○ MACHINE OPERATOR OR LABORER (for example, bus driver, conductor, factory worker, truck driver)

○ FARMER, FARM MANAGER, OR FARM LABORER

○ SERVICE WORKER OR PRIVATE HOUSEHOLD WORKER (for example, barber, bartender, cook, firefighter, police officer, waiter)

○ MILITARY

○ HOMEMAKER

○ OTHER (Please specify)
[ ]

7. Which of the following described your current marital status?

○ SINGLE AND NEVER MARRIED

○ MARRIED

○ SEPARATED

○ DIVORCED

○ WIDOWED

APPENDIX H

Closing Page (Main Study)

Thank you for your participation, you have successfully completed this survey.