For Fun and Profit: Hedonic Value from Image Interactivity and Responses Toward an Online Store

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ABSTRACT

With the use of an on-line retailer's Web site and an experimental method with 103 university students, statistical support through path analysis was found for positive influences of optimum stimulation level (preferred level of environmental stimulation) and recreational shopping on hedonic value (trying an image-interactivity feature of an apparel Web site as a stimulating experience). The Web site's mix-and-match image interactivity feature allowed creation of visual images of product combinations. The path-analysis model revealed significant paths between hedonic value and resulting emotional pleasure and arousal variables. A pattern of significant paths was also found between these three variables and global attitude, willingness to purchase, and willingness to patronize the on-line store. Theoretical and managerial conclusions are provided. © 2005 Wiley Periodicals, Inc.

Holbrook (1986) proposed a Consciousness–Emotion–Value (C–E–V) model of the consumption experience. As will be explained in the fol-
lowing section, Holbrook’s model illustrated the role of emotion, hedonic value, and consumer characteristics in consumption experience. With the use of Holbrook’s model as a conceptual framework, the present Web-site design study tests linkages between emotion, hedonic value, consumer characteristics, and responses toward an on-line store.

Holbrook and Hirschman (1982) outlined that the consumption experience can be intrinsically satisfying, or satisfying for its own sake, when the experience provides pleasure to the senses, fun, feelings, and fantasies. Holbrook and Hirschman saw these forms of pleasure as the experiential (hedonic) value of the consumption experience. Hedonic value differs from instrumental (utilitarian) value, which entails shopping efficiency and making the right product choice based on logical assessment of product information. Products (e.g., Bell, Holbrook, & Solomon, 1991) and shopping environments (e.g., Babin, Darden, & Griffin, 1994) offer both hedonic and utilitarian value, concurrently (Sheth, Newman, & Gross, 1991).

Research supports that hedonic value and utilitarian value are derived from electronic shopping environments, and both affect consumer responses toward electronic shopping (Childers, Carr, Peck, & Carson, 2001; Hammond, McWilliam, & Diaz, 1998; Hoffman & Novak, 1996; Jaarvenpaa & Todd, 1996/1997) or toward a product or store (Fiore & Jin, 2003; Koufaris, Kambil, & LaBarbera, 2001/2002). These consumer responses affect profitability of the on-line retailer. However, value and resulting consumer responses may be moderated by characteristics of the consumer (Holbrook, 1986). A Web-site design feature with the intended purpose of enhancing instrumental value through facilitating assessment of product information may also offer hedonic value to the consumer who desires it. The present study focuses on consumer characteristics that may influence the importance of hedonic value from a Web-site design feature. The present study also examines the effect this hedonic value has on emotion and consumer responses towards the store. The hedonic experience may not be an end in itself, but may influence attitude and behavioral responses toward the on-line store.

CONSCIOUSNESS–EMOTION–VALUE MODEL

Building on the Holbrook and Hirschman (1982) experiential approach to consumption, Holbrook (1986) proposed a Consciousness–Emotion–Value (C–E–V) model of the consumption experience. Holbrook compared the C–E–V model to the emotion-deficient but widely held Cognition–Affect–Behavior (C–A–B) model. The C–E–V model is dynamic, with feedback loops between components. In Holbrook’s model, consciousness includes cognitions or beliefs about consumer products as well as mental events such as fantasies or imagery during the consumption experience. Emotion expands beyond affect (i.e., favorable disposition or liking) to include subjective feeling states, such as joy and excitement. Value taps what the consumer perceives he or she gains from the consumption experience.
experience. This includes hedonic value, such as play or fun, and aesthetic pleasure from sensory elements during consumption. The C–E–V-based consumption experience is influenced by inputs of the person variable (i.e., attributes of the individual, such as personality, intelligence, and gender, that influence thinking, feeling, and behavior). The experience is also influenced by the environment variable (i.e., the physical product/brand and the symbolic unit used to designate the product, such as a print advertisement or Web-site promotion). Last, the experience is influenced by person–environment interaction variable or the situation (e.g., shopping with female friends).

Research supports Holbrook’s proposition that emotion is a key link in the consumption experience. Literature (Eroglu, Machleit, & Davis, 2003; Menon & Kahn, 2002) illustrates the mediating effect of emotion created by the environment variable of Web-site design on approach responses. According to Mehrabian and Russell (1974), individuals engage or approach environmental stimuli that create pleasurable affective responses and avoid stimuli that create unpleasant affective responses. Approach responses include willingness to purchase a product and returning to the site or store. The mediating effects of emotion in Web-site design studies parallel those of bricks-and-mortar store-atmospherics literature (e.g., Baker, Levy, & Grewal, 1992; Bellizzi, Crowley, & Hasty, 1983; Bellizzi & Hite, 1992; Bruner, 1990; Crowley, 1993; Donovan, Rossiter, Marcoolyn, & Nesdale, 1994); emotional pleasure from Web sites had a consistently positive effect on approach responses, but emotional arousal (e.g., level of excitement) had mixed effects on approach responses. Menon and Kahn (2002) found that high arousal deterred the consumer. According to the researchers, a site’s mentally taxing complexity causes the consumer to seek less novel products and sites or to limit their Internet search altogether. Eroglu et al. (2003) found that both pleasure and arousal had significant positive effects on approach responses toward the site, but emotional pleasure had a stronger mediating effect than emotional arousal.

As proposed in Holbrook’s (1986) model, differences in the results of these two studies may be due, in part, to moderating person variables. Additionally, researchers of both Web-site design studies (Eroglu et al., 2003; Menon & Kahn, 2002) recognized that outcomes would be affected by the (hedonic or utilitarian) value derived by the shopper. In line with a C–E–V approach, the present Web-site design study tests linkages between person variables, hedonic value, emotion, and approach responses, including attitude towards the on-line store (see Figure 1).

**IMAGE INTERACTIVITY TECHNOLOGY FOR MARKETING**

**Web-Site Interactivity and Approach Responses**

Interactivity is repeatedly specified as an important feature in scholarly and industry literature on designing e-commerce Web sites to attract
and keep on-line customers (e.g., Choate, 2000; Gehrke & Turban, 1999; S. E. Kim, Shaw, & Schneider, 2003; Lohse & Spiller, 1998; Lui, Arnett, & Litecky, 2000; Zhang, Small, Von Dran, & Barcellos, 1999). In this literature, interactivity of a Web site offers facilitated communications, customization of presented information, image manipulation, and entertainment for the customer. Respective examples of such interactivity are 24/7 customer service representatives via e-mail, ASPs (active server pages) permitting customers to customize what information appears on the Web page, 3D virtual tours, and entertaining contests and games. Interactivity of a Web site, in general, is seen as offering utilitarian benefits of saving time/effort, reducing risk, and increasing likelihood of finding a superior alternative (Klein, 1998). Interactivity of a Web site is also credited with providing hedonic benefit of enjoyment (Koufaris et al., 2001/2002).

Factors dependent upon Web-site interactivity, such as community building and 3D virtual experiences, have been embraced by on-line marketers to entice the consumer to visit the site, purchase on-line, and be satisfied enough to become a repeat visitor/customer (Li, Daugherty, & Biocca, 2001; Mathwick, 2002). Moreover, the interactive nature of Web sites has been credited with enhancing attitude toward the on-line store, desire to browse or return to the Web site, and on-line purchasing (Gehrke & Turban, 1999; Hartnett, 2000; Li et al., 2001).

Empirical evidence supports the importance of incorporating interactivity to affect consumer attitude and behavior. Wu (1999), for instance, found that perceived interactivity was positively related to attitude toward two greeting card companies that allowed customers to personalize e-cards with added messages. Lohse and Spiller (1999) looked at actual sales of on-line retailers and found that interface design, particularly navigation features that reduced the time needed to purchase products on-line, accounted for the most variance in monthly sales. Kou-
faris et al. (2001/2002) concluded that perceived control and enjoyment from product search functions influenced new Web customers to return to the site. In another study, Griffith, Krampf, and Palmer (2001) reported that interface design influenced consumer involvement, defined as perceived relevance of the product to the consumer. The interface design, creating a vivid experience (i.e., similar to sensory and behavioral experience with the actual product), positively affected approach responses toward the product. In summary, approach responses toward a product or Web site result from utilitarian value (time savings, control, better product information) and hedonic value (enjoyment) elicited by interactivity. Both types of value, in unison, affect approach responses (Koufaris et al., 2001/2002).

**Image Interactivity and Approach Responses**

The present study focuses on one aspect of interactivity, image interactivity, which provides the ability to create and manipulate images of a product or environment on a Web site. For instance, image interactivity allows the viewer to alter a product’s design features, background, context, viewing angle or distance, and to simulate the product’s operation. Image interactivity also permits the viewer to simulate his/her navigation through an environment, such as a shopping mall.

A simple form of image interactivity technology (enlargement of front views of individual products) is used by more than 84% of major retail sites (Gill, 2002). In an effort to attract customers and increase sales, major apparel retailers such as Delia’s, Guess, Home Shopping Network, Lands’ End, and Lane Bryant have incorporated advanced image interactivity technology in their Web sites to enhance (visual) sensory information about the interactions of products and products with the body. This technology allows customers to select images of products and body attributes meeting the customer’s individual specifications, then see what the products would look like if worn together or worn together on the specified body form. For instance, Guess.com offered a Mix & Match image interactivity feature that enabled the Internet customer to coordinate an apparel ensemble on the screen. Lands’ End.com has led the industry with the My Virtual Model feature that allows the customer to create a human virtual model by selecting body features, facial features, and hair features similar to those of the customer. The model’s three-dimensional image can be texture mapped in Lands’ End products and rotated to view front, back, and side images of the product on the body.

Fiore and Jin (2003) proposed that image interactivity features of apparel retailers, such as the Mix & Match feature and My Virtual Model feature, provide consumers with more of the information available through direct contact with the product. The additional information evokes a sense of control, enjoyment, and involvement that generate approach responses. Fiore and Jin explained that image interactivity
features of apparel retailers require an active (cognitive) process when the consumer selects products, develops the body form, and evaluates the products’ level of coordination or appearance on the body form. These actions provide a sense of control because more product/body interaction information, needed in the decision-making process, is available (Katz & Aspden, 1997; “White Paper,” 1999). In addition, image interactivity features provide more of the visual sensory information (e.g., how products look together) and behaviors (e.g., checking the side and back views of the product on the body) found when shopping for the actual product. Enjoyment may arise from the entertaining and creative process involved in developing images of ensembles alone or on the body. Involvement (i.e., perceived relevance to the consumer) may be enhanced because the product can be evaluated in relationship to products already owns or on a body form similar to the consumer’s. The results of the Li et al. (2001) qualitative study support these propositions. Li et al. examined the effect of four image interactivity features on consumer evaluations of the experience. One feature allowed subjects to visualize level of coordination through rendered product images of chosen comforter and sheet patterns. From analysis of consumer comments, Li et al. posited that the image interactivity features resulted in consumption experiences characterized as offering rich product information and producing active cognitive processes (control), enjoyment, and involvement.

Whereas control, enjoyment, and involvement may affect approach responses, the present study focuses on the hedonic consumption experience of enjoyment (stimulation), as it is likely the most important value to the intrinsically motivated shopper segment. The present research proposes that for intrinsically motivated subjects, those with a high optimum stimulation level (Zuckerman, 1971) and recreational shopping orientation (Gehrt & Carter, 1992), image interactivity may offer a stimulating experience leading to emotional states that mediate approach responses.

EFFECTS OF PERSON VARIABLES AND DESIRED VALUE

Fiore and Jin (2003) found that an image interactivity feature had a positive influence on approach responses toward the on-line store. The present study furthers this line of research. It tests how person variables affect the value that motivates the consumer to try image interactivity features and examines the resulting effect these variables have on emotion and approach responses toward the on-line store.

OSL characterizes an individual’s general response to environmental stimuli. Every organism has a preferred level of stimulation, termed the optimum stimulation level (Zuckerman, 1971). An individual seeks this level of stimulation from environment stimuli. According to Kish and Donnenwerth (1969), high OSL individuals find stimulation in situa-
tions, activities, and ideas that are novel, changing, complex, surprising, and intense. Raju (1980) illustrated that high-OSL individuals are characterized as having a higher degree of exploratory tendencies (i.e., exploring the environment) driven by variety seeking, curiosity, and risk taking. The Steenkamp and Baumgartner (1992) comprehensive review of OSL literature and empirical study confirmed the relationship between OSL and consumer behaviors driven by variety seeking, intrinsic curiosity, and risk taking. OSL was positively correlated with exploratory tendency factors of innovativeness (i.e., brand switching for change or novelty, eagerness to know about or try new products or services, and selecting products that involve perceived risk). Steenkamp and Baumgartner concluded that high-OSL individuals were driven by an intrinsic need to seek information for its own sake, rather than utilitarian “purposive” search behavior.

Individuals who seek high levels of stimulation are more likely to engage in exploratory behaviors during shopping to maintain an optimum level of arousal (Raju, 1980; Steenkamp & Baumgartner, 1992). In support, Wahlers, Dunn, and Etzel (1986) found that OSL was positively correlated with the exploratory tendency factor, exploration through shopping. Similarly, Hanna and Wagle (1989) concluded that level of consumer effort and stimulation during shopping was positively associated with level of OSL. Mittelstaedt, Grossbart, Curtis, and Devere (1976) found a positive relationship between OSL and adoption of new retail facilities. Individuals with higher OSLs tried and adopted new facilities more than individuals with lower OSLs. High-OSL individuals have a multitude of ways to satisfy their exploratory tendencies. Shopping for rapidly changing fashion products may be an outlet for these exploratory behaviors, particularly for college-aged consumers (Stanforth, 1995). Fashion leadership and importance of clothing were associated with OSL’s arousal from change, unusual stimuli, and risk taking (Kwon & Workman, 1996). Ample support for exploratory tendencies being fed through consumer products and shopping suggests that OSL will predict recreational shopping.

Recreational shopping (Gehrt & Carter, 1992) entails browsing or non-purposive exploration of products and the enjoyment of the shopping experience for its own sake. Recreational shoppers are prone to browse stores for information, but many times lack purchase intentions. Bellenger and Korgaonkar (1980) indicated recreational shoppers are those who enjoy spending their time shopping and consider shopping as leisure, and economic shoppers are those who try to minimize time and effort and seek convenience while shopping. Economic shoppers would be concerned with the image interactivity feature’s ability to reduce effort and risk involved in purchasing products from images presented on-line. Because of the nonpurposive, exploratory information search nature of recreational shopping and the high level of stimulation offered by fashion products and shopping environments, the following is proposed.
**H1:** OSL will predict recreational shopping.

Fiore, Lee, and Kunz (2004) found that OSL was associated with value desired from new mass-customization technology of apparel that permits consumers to have input during the design of their apparel product. High-OSL subjects reported trying mass customization of apparel not only for the uniqueness of the resulting aesthetic product, but also because the process offered an exciting experience. Turning attention to on-line stores selling mass-produced products, image interactivity features provide a new means for consumers to explore products purposively or non-purposively and to explore new product combinations. High-OSL individuals are driven by variety seeking, intrinsic curiosity, and risk taking and have more positive responses toward new stimuli and situations than low OSL individuals (Raju, 1980). Therefore, high-OSL individuals would value the stimulating experience offered by new Web-site features that allow nonpurposive exploration of new product combinations.

Similarly, recreational shoppers enjoy the stimulation offered by product newness and the process of exploring new and interesting shops (Gehrt & Carter, 1992). They tend to pursue hedonic experience by creating fantasies and positive emotional arousal while purchasing and consuming products (Babin et al., 1994). The store environment contributes to sensory, emotional, and cognitive stimulation (e.g., Donovan et al., 1994; Fiore, Yan, & Yoh, 2000), which enhance the hedonic experience. Likewise, the image interactivity feature of the on-line store may increase the recreational shopper’s level of stimulation due to novelty and creative exploration of product combination. Therefore, the following hypotheses are given.

**H2:** OSL will predict trying the image interactivity feature as a stimulating experience.

**H3:** Recreational shopping will predict trying the image interactivity feature as a stimulating experience.

Image interactivity features on Web sites may serve not only the needs-driven, rational consumer, but also the consumer who seeks (hedonic) experiential aspects of consumption. These aspects consist of sensory pleasure, satisfying emotional experiences, mental play, and fantasies, according to Holbrook and Hirschman (1982). Mental play and fantasies may generate an emotional experience (Fiore & Yu, 2001); in the present case, emotional experience may be generated during mental play when coordinating product images with the use of the image interactivity feature.

Trying the image interactivity feature as a stimulating experience taps the subject’s desired value—attaining a positive emotional experience. The stimulating (emotional) experience involved in the con-
sumption process can be effectively represented by two dimensions, that of emotional arousal and emotional pleasure (Donovan & Rossiter, 1982; Holbrook, 1986). Emotional arousal refers to the degree to which one feels stimulated, excited, or alert in the situation, whereas emotional pleasure is the evaluation dimension of affect referring to the degree to which one feels good, happy, or satisfied (Mehrabian & Russell, 1974). The process of mixing and matching product images may provide both emotional experience dimensions. Creating attractive, novel, or complex ensembles to one’s liking may generate emotional arousal and pleasure. Based on the seminal work of Berlyne (1971), the aesthetic elements of created ensembles may offer order, novelty, and complexity that lead to stimulation and positive affective responses. The novelty of the new technology (Fiore et al., 2004) and its ability to facilitate a curiosity-driven search for information (Vogt, Fesenmaier, & MacKay, 1993) may also result in emotional arousal and pleasure. Therefore, the following are proposed:

**H4:** Trying the image interactivity feature as a stimulating experience will predict emotional arousal.

**H5:** Trying the image interactivity feature as a stimulating experience will predict emotional pleasure.

As stated, Fiore and Jin (2003) showed that adding an image interactivity feature to an apparel Web site enhanced approach responses toward an on-line store. Image interactivity increased global attitude, willingness to purchase, and patronage-related variable such as willingness to return to the site and spend more time than planned at the on-line store. Fiore and Jin suggested that the image interactivity feature’s value lies in providing more of the risk-reducing sensory information available during direct contact with the product. In line with an information-processing perspective, this more complete information is necessary to evaluate the product accurately and to overcome hesitancy to purchase on-line (Lee, 2002; Li et al., 2001), resulting in a positive effect on approach responses. The additional information from image interactivity helps the problem-solving consumer arrive at a carefully considered evaluation or cognitive response, the outcome of information processing.

Approach responses toward the on-line store may result for a different reason according to the researchers of the present study. In line with the Holbrook and Hirschman conceptualization, researchers (Batra & Ahtola, 1991; Crowley, Sprangenberg, & Hughes, 1992) have shown that consumer attitude is inherently bidimensional, based on both utilitarian and hedonic value. The present researchers propose that for those high in OSL and recreational shopping, value lies in providing a stimulating experience that produces emotional pleasure and arousal. This hedonic
value from the image interactivity feature may result from augmented sensory pleasure from aesthetic aspects of coordinated ensembles and from cognitive stimulation during the noninstrumental search for information, feeding variety-seeking, novelty-seeking, and mental play experiences. The result of the sensory and cognitive stimulation for high-OSL individuals and recreational shoppers will be positive attitudes toward the on-line store.

In line with research (Mattila & Wirtz, 2001) that showed that pleasurable stimulation from store atmospherics increased impulse buying behavior, the stimulating experience will enhance willingness to purchase from the on-line store in the present study. Shih (1998) hypothesized that vividness and control from interactivity provides hedonic pleasure that will increase the time spent on-line and increase the probability of repeat visits. This is likely for high-OSL individuals and recreational shoppers, because intrinsic pleasure is an important element of the shopping experience for them. The stimulating (pleasurable and arousing) experience from creating a myriad of new ensembles with the image interactivity feature will give the consumer impetus to return to the site, and the sustained stimulation needed to extend the visit on the site. In addition, increased time spent in a retail environment is associated with increased impulse purchases (Bloch, Sherrell, & Ridgway 1986). Thus, the following are proposed.

**H6: (a)** Trying the image interactivity feature as a stimulating experience will predict attitude toward the on-line store.

**H6: (b)** Trying the image interactivity feature as a stimulating experience will predict willingness to purchase from the on-line store.

**H6: (c)** Trying the image interactivity feature as a stimulating experience will predict willingness to patronize the on-line store (i.e., patronize the on-line store, visit the on-line store again, stay longer than planned on the on-line store).

As illustrated in the discussion of the C–E–V model (Holbrook, 1986), emotion created by a promotional environment (ads) mediated approach responses toward products. As an extension, emotion from the interactivity of a retailer’s Web site may mediate responses toward that store. The pleasure dimension of emotion, or positive affect, is defined as the primary component of many intrinsically motivated consumption experiences and a key aspect of hedonic value (Holbrook, 1986). Therefore, the pleasure dimension will likely be a mediating variable between the intrinsic motivation of trying the image interactivity feature as a stimulating experience and approach responses.

For the stimulation-driven high-OSL consumer or recreational shopper, arousal should also be an important mediating variable between the desired value from the image interactivity feature and approach
responses. The present study is set in a context of a hedonic consumption experience. Therefore, arousal should not have a negative effect, as it did during a high information-processing context, where impaired cognitive processing led to a decrease in confidence in decision-making (Pham, 1996). Research that examined the role of emotion created by store atmosphere on approach responses toward the store supports the importance of pleasure to increase approach responses (Baker et al., 1992; Bellizzi et al., 1983; Bellizzi & Hite, 1992; Bruner, 1990; Crowley, 1993; Donovan et al., 1994). These studies, however, did not provide unequivocal support for the influence of arousal on approach responses. The results may be affected by the nonlinear nature of arousal and positive affect (Berlyne, 1971; Cox & Cox, 1994), where a medium level of arousal produces a more positive state than high arousal. As found in the Eroglu et al. (2003) study, the results may also be due to differences in person variables of the sample. OSL and recreational shopping may affect the level of arousal perceived to be positive, and that leads to enhanced approach response. It is proposed that emotional arousal will predict approach responses of high-OSL individuals and recreational shoppers, who desire stimulation.

**H7:**
(a) Emotional arousal will predict attitude toward the on-line store.
(b) Emotional arousal will predict willingness to purchase from the on-line store.
(c) Emotional arousal will predict willingness to patronize the on-line store.

**H8:**
(a) Emotional pleasure will predict attitude toward the on-line store.
(b) Emotional pleasure will predict willingness to purchase from the on-line store.
(c) Emotional pleasure will predict willingness to patronize the on-line store.

**METHOD**

**Subjects**

The 103 usable subjects for the present study were enrolled in five courses at a large midwestern university in the United States. In order to encourage cooperation, students who volunteered for this experiment received either extra credit or $4.00 as an incentive. The subjects came from a variety of colleges on campus, mainly the Colleges of Family and Consumer Sciences (38.8%), Business (20.4%), Liberal Arts and Sciences (13.6%), and Engineering (12.6%). Seventy percent were female and 30%
were male. Because a sample size of 31 males is too small for testing the present set of hypotheses through path analysis, the statistical results from the combined sample was used for testing the hypotheses. Ninety-seven percent were between the ages of 18 and 25 years. Subjects of this age and education were likely to have higher than average OSL scores (Raju, 1980), thus ensuring a significant range in OSL scores to test the theoretical propositions. All subjects had previous experience with the Internet and a majority (88.3%) reported with the use of the Internet for gaining product information before purchasing a product. Moreover, 32% reported using the Internet to purchase apparel. The subjects had no prior experience with the image interactivity feature on the Web site used as the stimulus, but 16.5% had visited the Web site in the past, which may influence general attitude toward the stimulus Web site (Balabanis & Reynolds, 2001). Because the effect of the image interactivity feature on approach responses was the focus of the study, subjects were retained as long as they did not have experience with the site’s image interactivity feature.

**Stimulus**

The Mix & Match feature from Guess.com was determined to be the best stimulus for the study. Guess.com offered a wide variety of products and offered the Mix & Match feature for both men’s and women’s products. The target market for Guess.com products is mainly teen-age and college-age customers, making the site appropriate for use with the present sample. Image interactivity features from two apparel retailers (Lands’ End, Lane Bryant) were eliminated because the target market did not match the sample. Delia.com’s Mix & Match feature was eliminated because it worked with only a limited number of products. Information from six pre-test respondents confirmed that they and other college students liked the Guess brand.

**Instrument**

The general instructions for the subjects included a statement that the “study is looking at consumers’ evaluation of an apparel retailers’ Web site.” Nine-point scales (−4 to +4) were used for all variables involved in hypothesis testing. A variety of scales have been used frequently to measure OSL, and alternative scales continue to be introduced (Grande, 2000). The 32-item Arousal Seeking Tendency II Scale (AST II Scale) was implemented in the present study because research (Steenkamp & Baumgartner, 1992; Wahlers et al., 1986) confirms that the AST II Scale was the best measure of consumer exploratory behavior tendencies of OSL. The AST II Scale measures preference for arousal from change, unusual stimuli, risk, sensuality, and new environments. The scale’s developers (Mehrabian & Russell, 1974) and other researchers (see Steenkamp &
Baumgartner, 1992) found the AST II Scale to be reliable and valid. The
13-item Recreational Shopping Scale used in studies by Dawson, Bloch,
and Ridgway (1990) and Gehrt and Carter (1992) was used in the pres-
ent study. Reported reliability was 0.81 (Dawson et al., 1990).

Five items developed by the present researchers to tap desired value
from trying the image interactivity feature were based on hedonic shop-
ning literature (Babin et al., 1994). These items assessed trying the image
interactivity feature as an exciting experience, to satisfy curiosity, for
its novelty, for exploring new worlds, and as a novel experience.

Emotional response toward the on-line store was measured with the
use of 12 bipolar adjective pairs from the Mehrabian and Russell (1974)
semantic-differential scale, which has been used extensively to gauge
emotional response toward brick-and-mortar retail environments (e.g.,
Baker et al., 1992; Bateson & Hui, 1992; Bellizzi & Hite, 1992; Crowley,
1993; Dawson et al., 1990; Donovan et al., 1994; Fiore, Yan, & Yoh, 2001).
Holbrook (1986) proposed that the Mehrabian and Russell (1974) emo-
tion indices may be more useful than Plutchik’s (1980) indices in inves-
tigating emotional response of consumption experience. Six adjective
pairs measuring the pleasure dimension included happy–unhappy,
annoyed–pleased, and unsatisfied–satisfied. Six adjective pairs meas-
uring arousal included aroused–unaroused, calm–excited, and dull–jit-
tery. The original scale included three emotional dimensions: pleasure,
arousal, and dominance. However, items that measure dominance were
not included in the present questionnaire because atmospherics stud-
ies (e.g., Donovan et al., 1994) revealed nonsignificant effects of domi-
nance on approach responses. Additionally, dominance was not used in
studies on the effect of emotional response from Web-site design on con-
sumer behavior (Eroglu et al., 2003; Menon & Kahn, 2002). The Mehra-
bian and Russell scale was found to be valid and reliable (Donovan et
al., 1994; Eroglu et al., 2003; Mehrabian & Russell, 1974; Menon &
Kahn, 2002).

Fourteen items assessed approach responses toward the on-line store.
These items were derived by modifying items developed by Engel, Black-
well, and Miniard (1995) to tap approach responses toward the on-line
store instead of product preference. The four-item global attitude meas-
ure tapped how much the respondent liked the on-line store, the overall
evaluation of the on-line store, how good the on-line store was, and over-
all level of liking of the on-line store. Five items to assess willingness to
purchase included, “After seeing the Web site, how likely is it that you
would buy clothes from this on-line store?” and “I would be willing to
purchase clothes through this on-line store.” Three items to measure
willingness to patronize the on-line store were created by the present
researchers. These items asked subjects if they would patronize the on-
line store, visit the on-line store again, and probably spend more time than
planned on the on-line store. Three demographic (age range, gender,
major) and six Internet usage information items (e.g., use of the Inter-
Experimental Procedure

Six students pilot tested the instrument and procedure to ensure clarity of item wording and instructions, to determine time needed to sufficiently explore the on-line products and image interactivity feature, and to test for potential computer/network problems. Their responses were not included in data for hypotheses testing. In a laboratory experiment, subjects completed the OSL, recreational shopping, and Internet usage scales. Five subjects at a time, each on his/her own computer, navigated the Guess.com product offerings for 5 minutes. Subjects then completed the emotional pleasure and arousal questions and approach response questions (not used in the present study). Subjects navigated the image interactivity feature for another 5 minutes to examine how products (tops and bottoms) of their choosing would look together. Subjects then completed the remainder of the questionnaire related to emotional pleasure and arousal, reasons for trying the image interactivity feature, and approach responses. Exposure to a stimulus was controlled because level of exposure can affect evaluation, with an increase in exposure leading to more positive responses toward the stimulus (Zajonc, 2001). All subjects used the same model PCs with the latest version of Internet Explorer to ensure the speed and look of the site would be similar.

RESULTS

The conceptual model consists of OSL, recreational shopping, trying image interactivity as a stimulating experience, arousal, pleasure, global attitude toward on-line store, willingness to purchase via the on-line store, and willingness to patronize the on-line store. For path analysis, multiple items for each construct were summed to create a variable. Each construct achieved an alpha coefficient over 0.70, suggested by Nunnally and Bernstein (1994) to be a measure of reliability. Cronbach-alpha coefficients for the OSL scale, recreational shopping, and trying image interactivity as a stimulating experience were 0.80, 0.94, and 0.85, respectively. Alpha coefficients for the arousal and pleasure responses were 0.90 and 0.93, respectively. The coefficients for global attitude toward on-line store, willingness to purchase via on-line store, and willingness to patronize the on-line store were 0.94, 0.93, and 0.89, respectively. Therefore, measures used to test the proposed hypotheses were reliable.

The hypotheses, presented in the conceptual model (Figure 1), were tested with the use of AMOS (Analysis of Moment Structures). Correlations among construct measures for the model are shown in Table 1. Figure 2 provides a revised model with squared multiple correlations ($R^2$)
for the constructs as well as path coefficients and $t$ values for each statistically significant path.

All hypotheses except three were statistically supported. Those not supported related to the effects of trying image interactivity as a stimulating experience on willingness to patronize the on-line store [H6(c)], emotional arousal on global attitude [H7(a)], and emotional pleasure on willingness to purchase from the on-line store [H8(b)]. Hypotheses 1–3 examined person variables and their effects on hedonic desire for trying image interactivity of the on-line apparel store. Hypothesis 1, predicting a positive relationship between OSL and recreational shopping, was supported ($\beta_1^{*} = 0.24, t = 2.45, p < .05$). The proposed relationship between OSL and trying image interactive as a stimulating experience (H2) was also supported ($\beta_2^{*} = 0.36, t = 4.04, p < .001$). Hypothesis 3, predicting a positive relationship between recreational shopping and trying image interactivity as a stimulating experience, was supported ($\beta_3^{*} = 0.31, t = 3.56, p < .001$).

### Table 1. Correlation Matrix of Model Constructs.

<table>
<thead>
<tr>
<th>Model Constructs</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. OSL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Recreational shopping</td>
<td>.25$^{*}$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Image interactivity</td>
<td>.43$^{***}$</td>
<td>.40$^{***}$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Arousal response</td>
<td>.23$^{*}$</td>
<td>.26$^{**}$</td>
<td>.51$^{***}$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Pleasure response</td>
<td>.27$^{**}$</td>
<td>.29$^{**}$</td>
<td>.52$^{***}$</td>
<td>.85$^{***}$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Global attitude</td>
<td>.26$^{*}$</td>
<td>.36$^{***}$</td>
<td>.51$^{***}$</td>
<td>.61$^{***}$</td>
<td>.68$^{***}$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Willingness to purchase</td>
<td>.18</td>
<td>.19</td>
<td>.44$^{***}$</td>
<td>.49$^{***}$</td>
<td>.49$^{***}$</td>
<td>.77$^{***}$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Willingness to patronize</td>
<td>.21$^{*}$</td>
<td>.25$^{*}$</td>
<td>.34$^{***}$</td>
<td>.51$^{***}$</td>
<td>.51$^{***}$</td>
<td>.75$^{***}$</td>
<td>.82$^{***}$</td>
<td></td>
</tr>
</tbody>
</table>

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

**Figure 2.** A revised model showing $R^2$ and $t$ values for significant hypotheses.
Hypotheses 4, 5, and 6(a)–6(c) examined the effect of desired hedonic value from trying the image interactivity feature on emotion and approach responses. Hypotheses 4 and 5, predicting positive relationships between trying the image interactivity feature as a stimulating experience and the two emotional responses (emotional arousal and pleasure), were statistically supported. Results revealed that trying the image interactivity feature as a stimulating experience was positively associated with level of emotional arousal ($\beta_4^* = 0.52, t = 6.13, p < .001$) as well as level of emotional pleasure ($\beta_5^* = 0.52, t = 6.12, p < .001$). Hypotheses 6(a) and 6(b), testing positive relationships between trying the image interactivity feature as a stimulating experience and two approach responses (global attitude and willingness to purchase via the on-line store), received statistical support. Trying the image interactivity feature as a stimulating experience positively predicted global attitude toward the on-line store ($\beta_{6a}^* = 0.20, t = 2.12, p < .05$) and willingness to purchase via the on-line store ($\beta_{6b}^* = 0.23, t = 2.07, p < .05$). However, the relationship between trying the image interactivity feature as a stimulating experience and willingness to patronize the on-line store (H8) was not statistically supported ($\beta_{6c}^* = 0.07, t = 0.60, p = .55$).

Hypotheses 7(a)–7(c) tested the relationships between level of emotional arousal from the Web-site image interactivity feature and the three approach responses. Hypothesis 7(a), examining the relationship between level of arousal and global attitude toward the on-line apparel store, did not receive statistical support ($\beta_{7a}^* = 0.05, t = 0.55, p = .58$). Level of arousal predicted willingness to purchase apparel products via the on-line store ($\beta_{7b}^* = 0.23, t = 2.30, p < .05$) and willingness to patronize the on-line store ($\beta_{7c}^* = 0.30, t = 2.99, p < .01$). Therefore, Hypotheses 7(b) and 7(c) received statistical support.

Hypotheses 8(a) and 8(c), testing relationships between emotional pleasure and two approach responses (global attitude and willingness to patronize the on-line store), received statistical support. Level of pleasure predicted global attitude toward the on-line store ($\beta_{8a}^* = 0.55, t = 6.51, p < .001$) and willingness to patronize the on-line store ($\beta_{8c}^* = 0.24, t = 2.37, p < .05$). However, the relationship between level of pleasure and willingness to purchase via the on-line store (H8b) did not receive statistical support ($\beta_{8b}^* = 0.19, t = 1.87, p = .06$).

A decomposition of direct, indirect, and total effects of predictor variables was conducted (Table 2) to further examine the effects of person variables (OSL and recreational shopping) and the desired hedonic value (trying the image interactivity feature as a stimulating experience) on emotional responses (emotional arousal and pleasure) and approach responses (global attitude, willingness of purchase, and willingness to patronize the on-line store). The person variables, OSL and recreational shopping, had significant but indirect effects on the approach response variables, supporting the important mediating effect of trying the image interactivity feature as a stimulating experience.
Overall, the proposed conceptual model explained a moderate amount of variance for global attitude toward the on-line store ($R^2 = 0.48$), and all predictor variables except arousal had significant direct or indirect effects. The level of pleasure from the Web-site image interactivity feature had the strongest direct effect (0.55) on global attitude toward the on-line store, but trying the image interactivity feature as a stimulating experience also had a strong direct effect (0.20) on this approach response variable.

The proposed model also explained a fair amount of variance for willingness to purchase via the on-line store ($R^2 = 0.26$), and all predictor variables except pleasure had significant direct and/or indirect effects. Trying the image interactivity feature as a stimulating experience and arousal had the strongest direct effects (0.23 and 0.23, respectively). Trying the image interactivity feature as a stimulating experience had the strongest indirect effect (0.22) and total effect (0.45) on willingness to purchase apparel products via on-line store.

Finally, the model also explained a fair amount of the variance for willingness to patronize the on-line store ($R^2 = 0.23$) and all predictor vari-
ables had significant direct and/or indirect effect. Trying the image interactivity feature as a stimulating experience had the strongest indirect effect (0.28), but arousal (0.30) and pleasure (0.24) had the strongest direct effects on willingness to patronize the on-line store. The strong direct effects suggest that emotional arousal and pleasure mediated the effect of trying the image interactivity feature as a stimulating experience on willingness to patronize the on-line store.

**DISCUSSION**

Holbrook’s (1986) C–E–V model of the consumption experience was useful for determining variables that affect approach responses toward an on-line store in the present study, as the model has been for other Web site design studies (Eroglu et al., 2003; Menon & Kahn, 2002). The present study illustrates that desired hedonic value of a stimulating experience and emotional pleasure and arousal, produced by a Web site’s image interactivity feature (environment variable), predicted approach responses toward an on-line apparel store with a few exceptions. Optimum stimulation level and recreational shopping (person variables) influenced the role hedonic value played in approach responses toward the on-line store. The model explained a moderate amount of variance for global attitude toward the on-line store, and fair amounts of the variance for willingness to purchase from and willingness to patronize the on-line store. Therefore, hedonic value from the consumption experience may not be an end in itself for consumers, but a contributor to approach responses toward the on-line store that have a direct impact on viability of the firm. On-line marketers should consider adding image interactivity features to the retail site to increase approach responses, such as willingness to purchase from the site and returning to the site.

However, Klein (2003) claimed that advanced product presentations were not necessary to influence customers. Furthermore, image interactivity features can be costly to develop and maintain because of proprietary software, extensive programming, and databases of fashion-product images that need frequent updating. Determining the effectiveness of these features, on a cost/revenue basis, will help a firm make best use of available resources and enhance profitability. On-line sales of apparel grew by 54% in 2003, eclipsing the growth rates of on-line stalwarts such as books, music, videos, software, and hardware (Marlin, 2004). With on-line apparel sales burgeoning, understanding the impact of image interactivity features on the on-line apparel customer and resulting profitability of the firm increases in saliency.

According to Venkatraman and MacInnis (1985), hedonic consumers seek to engage in exploratory behaviors (variety-seeking and innovativeness) with products that provide sensory stimulation, emotional stimulation, and/or imagery. Image interactivity, such as a mix-and-match
feature, may promote emotional stimulation, sensory stimulation, and imagery during creation of new ensembles. Image interactivity may also offer utilitarian value (Fiore & Jin, 2003) from better product coordination information (e.g., how will the new top look with pants I already own). Entertainment combined with good information was found to be necessary to satisfy customers in Internet shopping (S. E. Kim & Lim, 2001). This suggests that image interactivity may influence satisfaction level for both hedonic and utilitarian Internet shoppers.

Future research should examine whether the effects on approach responses vary for different types and examples of image interactivity features. The present research looked at one mix-and-match feature. This type of feature differs in level of realism. Some mix-and-match features overlap products to better represent how the products would look when worn together. Other mix-and-match features (including Guess.com’s Mix & Match) simply show the top (e.g., shirt) positioned above the bottom (e.g., pants) with a gap between the garment images. Some mix-and-match features use three-dimensional graphics of the product, whereas others use photographic images. There appears to be a trend among larger on-line stores toward combining the mix-and-match feature with the three-dimensional model feature to allow the customer to see the coordinated ensemble on a body form similar to the customer’s own body form. Shih (1998) proposed that vividness of the image had a positive effect on approach responses toward the Web site. Therefore, level of realism of the image or completeness of sensory information created by an image interactivity feature may influence the feature’s effect on approach response variables.

The present model, as hypothesized, showed that OSL and recreational shopping predicted hedonic value as the motivation for trying image interactivity; individuals with a high OSL or recreational shopping tried the image interactivity feature as a stimulating experience. Both OSL and recreational shopping had significant indirect effects on the three approach responses, suggesting that these person variables may be useful in psychographic profiles of market segments for products and services. This recommendation is in line with the Kwon and Workman (1996) recommendation that apparel marketers segment their target market based on OSL because an individual with higher OSL differs from an individual with lower OSL in terms of preference of products and promotional media.

Present results support the Holbrook (1986) proposition that emotion should be a key link in the consumption experience approach to consumer behavior. Trying image interactivity as a stimulating experience, as hypothesized, predicted emotional arousal and emotional pleasure. Both emotional arousal and pleasure mediated the relationship between trying image interactivity as a stimulating experience and willingness to patronize the on-line store. Arousal had a direct effect on the two approach responses, willingness to purchase from and willingness to
patronize the on-line store, whereas pleasure had a direct effect on the two approach responses of global attitude toward and willingness to patronize the on-line store.

The three nonsignificant paths may be explained from statistical or theoretical perspectives. From a statistical perspective, multicollinearity (high correlation) between arousal and pleasure may affect the three nonsignificant paths between (a) arousal and global attitude, (b) pleasure and willingness to purchase, and (c) image interactivity and willingness to patronize. These three paths were significant when simple regression was run between each set of two variables. Deleting one of these two variables (emotional arousal or pleasure) could solve this multicollinearity issue (Mendenhall & Sincich, 1996); however, deleting one of the variables is not supported theoretically, as both variables were important to the present research question and model. Thus, the proposed theoretical model was retained and the statistical issue was reported. Level of correlation between the emotion variables was not reported in the Eroglu et al. (2003) and Menon and Kahn (2002) studies, but these studies may have had to address the same issue.

In the present study, an image interactivity feature on an existing Web site was used as the stimulus for the sake of realism. On-line image interactivity features are likely to produce both emotional arousal and pleasure. Image interactivity features that do not produce both emotional states may appear contrived or may not be easily developed, leading to methodological issues. Future research may address the issue of developing image interactivity features for use as stimuli that appear bona fide yet do not lead to multicollinearity between emotional pleasure and arousal.

From a theoretical perspective, the nonsignificant paths may have a number of possible explanations. First, hedonic consumption experience may terminate with pleasure from affective evaluation during the product search stage rather than the purchase decision stage. The hedonic experience during product search is intrinsically satisfying and becomes the end result sought instead of an intermediate step in the purchase decision process. Therefore, subjects may not go through the cognitive process of determining if they would purchase, leading to a nonsignificant effect on willingness to purchase. Second, the Menon and Kahn (2002) findings may offer another explanation. They found that pleasure increased the desire to seek stimulation through browsing of more sites. Perhaps emotional pleasure in the present study whetted the subject’s appetite for further Internet browsing before the subject would consider purchasing from the site. For those who were willing to purchase, emotional arousal more than emotional pleasure may have been the influential outcome of the stimulating experience. Menon and Kahn (2002) found that high arousal led to actions to limit further arousal; high arousal led to a decrease in willingness to browse more sites. Thus, in the present study
arousal may have led to the curtailment of the exploratory process and a willingness to purchase from this site.

A third possible explanation of the nonsignificant path between emotional pleasure, and willingness to purchase lies with security concerns that may have derailed the path from emotional pleasure to willingness to purchase. Pleasure affected global attitude and willingness to patronize, but was not sufficient to entice consumers to be willing to purchase. On-line shopping concerns such as having credit-card information stolen, reputation of the vendor, lack of privacy in on-line transactions, and loss of time and money if products need to be returned (Miyazaki & Fernandez, 2001; Swinyard & Smith, 2003) may cause even the risk-tolerant high-OSL individual to avoid on-line purchasing even though the process of on-line search was pleasurable. Future studies may include perceived on-line shopping risk to the model proposed in the present study. Whatever the explanation, the present findings suggest that marketers should make certain that e-commerce Web-site features create both pleasure to affect attitude and arousal to entice the consumer to purchase and come back to the on-line retailer’s site.

Related to the third explanation, perhaps the nonsignificant path between emotional pleasure and willingness to purchase and the significant path between arousal and willingness to purchase reflect on-line nonshopper (Fun Seekers) and shopper (Adventurous Seekers) segments (Swinyard & Smith, 2003), respectively. Both segments use the Internet heavily for entertainment, but Fun Seekers do not use the Internet to shop on-line very frequently, whereas the Adventurous Seekers rely heavily on the Internet for purchases. Fun Seekers may have found image interactivity to be entertaining, which led to liking and willingness to patronize the on-line retailer’s Web site. However, because of security concerns regarding shopping on-line, Fun Seekers were not willing to purchase on-line. Adventurous Seekers may have found image interactivity to be entertaining and were willing to purchase because of their lack of on-line shopping reticence. Future research may add these psychographic variables to the model tested in the present study. The 32% of present subjects who had purchased apparel on-line may have belonged to the Adventurous Seekers segment. Past purchase experience, in itself, may be a useful variable to include in a future model predicting future purchase behavior (Keen, 2000).

An actual Web site’s image interactivity feature was used to enhance external validity. However, approach responses toward this site may have been influenced by previous exposure (Balabanis & Reynolds, 2001) for 16% of subjects who had previously visited the Guess.com site but lacked experience with the image interactivity feature. Future research may examine a stimulus site with products unfamiliar to the sample and devoid of brand information to measure the effect of an image interactivity feature without the potential confounding effect of previous expo-
sure. Existing attitude toward the site before exposure may be used as a covariate in future studies as well.

Demand bias could have affected the scores of emotional pleasure and arousal and approach responses, because these measures were completed twice (before and after exposure to the image interactivity feature). Demand bias was not likely a problem, given that differences in before and after scores were not used to test the hypotheses. Additionally, significant paths were found throughout the model, regardless of when the variable measurement occurred.

As one last point, the college-aged sample does not permit generalization of the results to all Internet users. The sample was appropriate for the present study because it reflected many of the demographic characteristics of the Guess.com customer. However, the sample was very computer literate and felt comfortable with new technology, which may have affected the level of pleasure and arousal created by image interactivity features. Internet users with less experience may find image interactivity features too complex, leading to low pleasure but very high arousal, which will likely lead to avoidance rather than approach responses.

REFERENCES


Keen, C. M. (2000). The attribute structure of Internet shopping: What is important and what tradeoffs are possible between Internet, retail, and catalog formats. Dissertation Abstracts International, Section A, 60, 4096.


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