

Can a Retail Web Site Be Social?

Avatars are lifelike characters created by technology. Research suggests that avatars can increase the persuasiveness of online sales channels. The authors investigate how the social cues inherent in avatars influence consumers' affect and shopping value. In Study 1, social cues induce perceptions of Web site socialness, leading to increased pleasure and arousal, both of which positively influence flow, hedonic and utilitarian value, and patronage intentions. Study 2 finds that social cue-induced arousal leads to increased pleasure only for consumers who are involved with the product category. Moreover, the influence of arousal on hedonic value is stronger for women, flow does not lead to pleasure for older consumers, and utilitarian value is less important for this group than for their younger counterparts. The findings suggest that there is a competitive advantage for online retailers that use social cues that provide consumers with enhanced perceptions of human connection and the formation of emotional bonds.

Despite retailers' growing use of self-service formats, many consumers still want to receive personal attention from salespeople (Cox, Cox, and Anderson 2005). As more consumers shift to Internet shopping, it might seem that they must forgo this social aspect of shopping in a computer-mediated environment. Some researchers have even argued that social presence is not relevant to online marketers, because humans are absent from Web sites (Eroglu, Machleit, and Davis 2001).

However, retailers are beginning to include humanlike characteristics on their Web sites, perhaps to induce in consumers this important feeling of being served when shopping online. In the field of information technology, the use of humanlike, or social, cues on Web sites is regarded as one of the most exciting developments for human-computer interface applications and has been adopted rapidly by Web site designers (Prendinger and Ishizuka 2004). Social computing is predicted to be one of the four drivers in information technology spending for the period from 2008 to 2010 (McEachern 2005). Companies such as Rovion, iNago, and Artificial Life develop humanlike characters using multiple social cues and provide these characters to online retailers. For example, ANNA is a humanlike assistant on IKEA's Web site. This integration of social cues (i.e., cues based on human characteristics) into retail Web sites may heighten

the perception of employee presence and thus enhance consumers' online experiences.

Despite the considerable resources being applied to the creation of online social cues, only now has work begun to examine the effect of these cues on consumers in a retailing context. Holzwarth, Janiszewski, and Neumann (2006) find that the use of an avatar (virtual character) on a retail Web site to deliver product information leads to increased persuasiveness of a Web-based sales channel. Virtual characters created by social cues may also influence other important consumer responses. By examining the emotional effects of Web site social cues, we contribute to the gap in the literature and respond to researchers' calls for more systematic study of how people make sense of virtually presented others (Lee and Nass 2003). Empirical evidence of various effects of social cues on consumers will be important to researchers as they continually strive to understand and model online shopping behavior. Furthermore, this work can significantly help marketing practitioners in their decisions pertaining to how to allocate Web site resources and how to best manage relationships with their online customers.

Social response theory, which suggests that people treat computers as social actors even when they know that machines do not possess human traits (Moon 2000), may offer direction in answering marketing questions about the effectiveness of Web site social cues. The term "socialness" has been used to describe the phenomenon in which people treat computers as social actors (e.g., Reeves and Nass 1996; Steuer and Nass 1993). Adapting this term, we use "Web site socialness perceptions" to refer to the extent to which consumers detect social presence as a result of the use of social cues on a retail Web site.

This article has two major purposes. First, we attempt to determine whether Web site cues used to create humanlike characteristics result in Web site socialness perceptions in retail consumers. Second, we investigate the processes through which Web site socialness perceptions might influence consumers' shopping experiences with online providers. We conducted two empirical studies to test the efficacy of social response theory in online retail situations.

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On the basis of the results of these studies, we offer implications for marketing theory and online marketers and propose avenues for further research.

Theoretical Model and Hypotheses

Our conceptual model (see Figure 1) begins with the link that social response theory suggests between specific social cues and Web site socialness perceptions. The model then illustrates a series of relationships that we propose to explain the emotional effects of consumers' Web site socialness perceptions on purchase intentions.

Social Response Theory: The Computer as a Social Actor

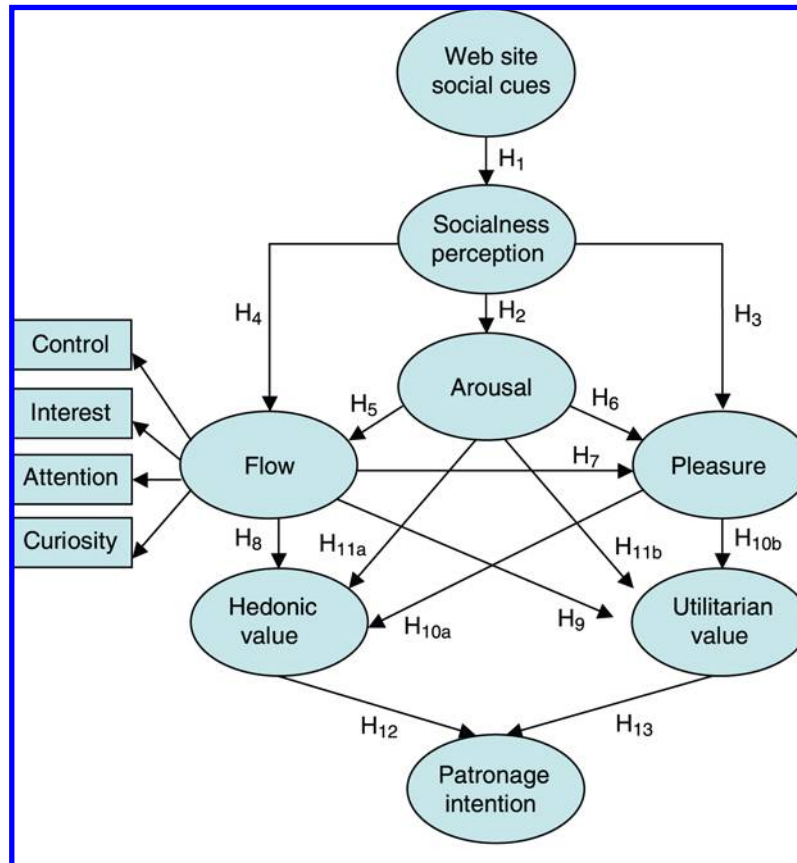
A growing body of research supports the contention that in human-computer interactions, people treat the computer as a social actor rather than only as a medium. The basis for this argument is social response theory, which states that people apply social rules to respond to computers when computers possess humanlike attributes, or social cues (Reeves and Nass 1996). In other words, people treat computers as social actors even though they are fully aware that they are interacting with machines. Several social responses that occur regularly in human-human interactions have been found to occur as well in computer-human interactions, including politeness (Nass, Moon, and Carney

1999), reciprocity (Moon 2000), interdependency among teammates (Nass, Fogg, and Moon 1996), interaction between similar and dissimilar personalities (Nass et al. 1995), gender stereotype (Nass, Moon, and Green 1997), flattery (Fogg and Nass 1997), and attribution responsibility (Moon and Nass 1998).

Researchers suggest that mindlessness is the reason for these responses (Nass and Moon 2000), which occur as a result of unconscious attention to a subset of contextual cues (e.g., human characteristics) on the computer screen. These cues trigger people's various scripts, labels, and expectations in accordance with their prior experiences (Langer 1989). When a computer possesses social cues, people tend to respond automatically to the computer with their own simplistic social scripts (e.g., reciprocating seemingly kind comments from a computer with courtesy). The social response perspective assumes that a person's orientation is toward the most proximate source of information (Sundar and Nass 2000).

Extending social response theory to the context of consumer behavior, we propose that during an online commercial experience, consumers may respond positively to social cues that are designed to portray a representative of the firm, such as a service employee or shopping guide. Steuer and Nass (1993) suggest that four cues are particularly relevant to eliciting social responses: language, human voice, interactivity, and social role.

FIGURE 1
The Conceptual Model



Language includes both written and spoken communication. Turkle (1984) finds that children think that computers are alive because computers use human language and sometimes can speak. Moon (2000) demonstrates that humans and computers engage in intimate self-disclosure exchanges when the language on the computer is entirely text based. Creating “dominant” and “submissive” personalities for computers, Nass and colleagues (1995) find that using strong or weak language in the text displayed on the screen successfully creates the perception of two types of computer personalities. Traditionally, Web sites have incorporated language in the form of written text but not spoken language.

The use of voice is appearing in a growing number of computer systems and online stores (*The Economist* 2002). Voice, or human-sounding speech, is processed differently from other types of sound (Moore 1982). Because humans are uniquely capable of speech, voice is likely to encourage the use of rules associated with human–human relations (Reeves and Nass 1996; Steuer and Nass 1993). Steuer and Nass (1993) find that people respond to different voices on the same computer as if they are different social actors and that people respond to the same voice on different computers as if it is the same social actor.

Interactivity is a third social cue. Liu and Shrum (2002) suggest that interactivity is a multidimensional construct that consists of active control, two-way communication, and synchronicity. Synchronicity refers to the degree to which users’ input into a communication and the response they receive from the communication are simultaneous, which is considered immediate feedback. Two-way communication and immediate feedback are key characteristics in interpersonal communication. Ha and James (1998) find that the more communication in a user–machine interaction resembles interpersonal communication, the more interactive people consider the communication. Likewise, McMillan and Hwang (2002) argue that a person’s perception of two-way communication is a requirement for Internet interactivity to occur. All Web sites have some degree of interactivity due to the nature of Web browsing. When Web site communication is designed to be similar to the immediate and two-way responses typical of human interpersonal interactions, consumers should respond to the computer as if it were a social actor.

A social role cue is likely to elicit responses to the computer as a social actor. The social development literature argues that people define other entities and themselves as humans by observing the roles that the entities fill (Wallace 1983). A social role could be filled simply by giving a label to an entity. People tend to take labels at face value because doubt requires greater thought (Steuer and Nass 1993). Research has demonstrated that people perceive computers as filling roles and then respond accordingly simply by physically labeling or referring to the computers in their role (e.g., “tutor”) (Steuer and Nass 1993).

Note that the research we cite has found that people’s automatic social responses to human–computer interaction are based on their propensity to employ information-processing heuristics and are not based on naïveté or initial curiosity about new technology. Human–computer inter-

action elicits social responses from even the most technologically astute people (Reeves and Nass 1996). Thus, these effects are not likely to dissipate as a result of increased familiarity with techniques that heighten perceptions of Web site socialness.

To summarize, social response theory posits that consumers may respond to a Web site that exhibits humanlike characteristics in much the same way they respond during human–human interactions. Furthermore, the combination of language, voice, interactivity, and social role should create a Web site that consumers perceive as incrementally more social than a Web site that uses only language (in text format) and limited interactivity. Therefore, we hypothesize the following:

H₁: Consumers perceive a Web site that uses language, voice, interactivity, and social role as being significantly more social than a Web site that uses only text and limited interactivity.

The Effects of Web Site Socialness Perceptions

The rest of the links in our proposed model (Figure 1) focus on the role of Web site socialness perceptions in inducing positive affect (assuming that the social cues are perceived positively). Zaltman (2003) maintains that people’s emotions contribute to and are essential for decision making. This contention is supported by a strong research stream in marketing that has found affect to be a key contributor to consumer response (e.g., Gardner 1985; Mano and Oliver 1993; Pham 1998; Wyer and Srull 1989). For the examination of the role of affect in our research, we draw on Mehrabian and Russell’s (1974) stimulus → organism → response framework and on cognitive mediation theory, both of which argue that rapid, sometimes unconscious perceptions precede affective responses (Kaplan 1987). Furthermore, both agree that environmental “prompts” are the starting point of an intentional or unintentional psychological and/or behavioral process (Clitheroe, Stokols, and Zmuidzinas 1998; Mehrabian and Russell 1974). For this study, social cues on the Web site serve as environmental prompts for consumers.

The influence of socialness perceptions on pleasure and arousal. Previous research using Mehrabian and Russell’s (1974) classic affect model has supported the notion that stimuli in the physical environment influence people’s arousal and pleasure responses in bricks-and-mortar stores (e.g., Baker, Grewal, and Levy 1992; Donovan and Rossiter 1982), as well as in Internet stores (Eroglu, Machleit, and Davis 2003). Social factors, such as employees, are important characteristics of the physical environment in retail and service organizations (Baker 1987; Brady and Cronin 2001). For example, Baker, Grewal, and Levy (1992) find that more visible and friendly store employees have a positive influence on participants’ arousal and pleasure. Moreover, Berry, Carbone, and Haeckel (2002) suggest that cues emitted by people are an important component of emotion that influences customers’ experiences.

Compared with a text-only Web site, one that includes four social cues offers more additional interfaces and demands more activity from consumers (cf. Mehrabian and Russell 1974). Reeves and Nass (1996) suggest that giving

technology more social cues “turns up the social volume,” which implies that Web site socialness perceptions may increase arousal levels in consumers.

Computer-based social presence can also influence users’ pleasure (Lombard and Ditton 1997). Adding social cues to a Web site may make the human–computer interaction more “natural,” as if consumers were interacting with a social actor, such as a friendly employee. Thus, consumers may feel more comfortable and emotionally satisfied (Sproull et al. 1996). On the basis of the evidence, we expect the following:

H₂: Web site socialness perceptions have a positive effect on arousal.

H₃: Web site socialness perceptions have a positive effect on pleasure.

The influence of socialness perceptions on flow. Hoffman and Novak (1996) argue that the success of online marketers depends on how well their Web sites encourage consumers’ flow states. Flow is a psychological state that people reach during engagement in activities (Novak, Hoffman, and Yung 2000). In a computer-mediated environment, flow is characterized by a seamless sequence of responses facilitated by machine interactivity. Consumers who are in a flow state tend to enjoy their online experience more and stay online longer than those who are not in a flow state (Hoffman and Novak 1996).

Flow is a multidimensional construct (e.g., Ghani and Deshpande 1994; Trevino and Webster 1992; Webster, Trevino, and Ryan 1993). In the human–computer interaction experience, flow is composed of the following dimensions (Trevino and Webster 1992):

1. *The user feels a sense of control over the computer interaction.* An online retailer offers an environment that allows for a level of consumer control that is impossible with traditional media (Hoffman and Novak 1996). Online shoppers are not passive consumers, because they have control over what to see and when to receive information.
2. *The user’s attention is focused on the interaction.* When a person browses a Web site, his or her focus of attention is narrowed to the limited computer screen. Because of the reduced field of focus in the computer-mediated environment, the person tends to become absorbed in the activity (i.e., in a flow state) (Csikszentmihalyi 1977).
3. *The user’s interest is increased during the interaction.* Csikszentmihalyi (1977) maintains that when in a flow state, people evaluate the activity as intrinsically interesting.
4. *The user’s curiosity is evoked.* Malone (1980) suggests that curiosity accompanies a state of flow. Humans are social animals, so they are evolutionarily biased toward a social orientation and curious about other people (Reeves and Nass 1996).

Csikszentmihalyi (1990) claims that being with other people is an important aspect of flow; thus, the four components of flow may all be influenced by social cues. During human–computer exchanges, interactions with Web sites that consumers perceive as high in socialness are likely to focus attention in ways that create flow states. A feeling of control can be engendered through the use of computer technologies, such as responsive interactive elements (e.g., intelligent agents). In addition, interactivity can result from

the real or perceived presence of other people. Novak, Hoffman, and Yung (2000) find that Web sites with higher levels of interactivity boost people’s flow states. Because people tend to have an inherent interest in and curiosity about other people, a Web site exhibiting social cues may increase a person’s curiosity and interest in human–computer interactions. Thus:

H₄: Web site socialness perceptions have a positive effect on flow.

Relationships Among Pleasure, Arousal, and Flow

The relationships among pleasure, arousal, and flow have not been examined together in an online environment. Novak, Hoffman, and Yung (2000) find that arousal is a positive antecedent of flow. Similarly, researchers argue that flow cannot occur when a person is in a low-arousal state (i.e., is bored) (Csikszentmihalyi 1990). Sociologists suggest that boredom can result from the absence of external stimulation, which causes a loss of concentration on the current activity (Conrad 1997). In contrast, when people are aroused by external stimulation, their energy and attention is likely to increase. The extant evidence suggests the following:

H₅: Arousal has a positive effect on flow.

Kaltcheva and Weitz (2006) suggest that arousal can be experienced as either pleasant or unpleasant. They empirically demonstrate that arousal mediates the relationship between a physical store’s environment and pleasure. Thus:

H₆: Arousal has a positive effect on pleasure.

Csikszentmihalyi (1990) suggests that pleasure and flow are correlated. Flow has been described as an intrinsically enjoyable state (Hoffman and Novak 1996), which should result in pleasant feelings (Hedman and Sharafi 2004). Thus:

H₇: Flow has a positive effect on pleasure.

Hedonic and Utilitarian Value

What consumers value in any shopping experience, whether it is a bricks-and-mortar or an online experience, includes both utilitarian and hedonic benefits (Babin, Darden, and Griffin 1994; Fisher and Arnold 1990; Mathwick, Malhotra, and Rigdon 2001). Consumers who are interested in utilitarian value are concerned with making purchases in an efficient and timely manner to achieve their goals with a minimum of irritation (Childers et al. 2001). Conversely, hedonic value focuses on fun and playfulness, reflecting shopping’s potential entertainment and emotional worth rather than the achievement of any prespecified end goal (Babin, Darden, and Griffin 1994).

Senecal, Gharbi, and Nantel (2002) find that flow positively influences consumers’ online shopping experiences, mainly through hedonic value. Flow has also been found to be directly related to surfing fun (Diehl 2001) and perceived play (Mathwick and Rigdon 2004), both of which are conceptual components of hedonic value.

Scholars claim that flow might provide utilitarian value to consumers whose motivation is goal directed (e.g., Koufaris 2002). In a computer-mediated environment, flow occurs when an online shopper experiences a seamless sequence of responses facilitated by machine interactivity. This seamlessness implies no interruption and goal attainment, which should have a positive effect on utilitarian value. Therefore, we hypothesize the following:

- H₈: Flow has a positive effect on hedonic value.
- H₉: Flow has a positive effect on utilitarian value.

Researchers maintain that affect provides value to a consumer's experience (Babin, Darden, and Griffin 1994; Berry, Carbone, and Haeckel 2002; Holbrook and Hirschman 1982). Pleasure should increase consumers' hedonic value through fun or entertainment and/or their utilitarian value by facilitating completion of product acquisition (Isen 1987). Positive arousal may manifest as excitement or adventure in the context of a Web site experience. Babin, Darden, and Griffin (1994) find that both pleasure and arousal are positively correlated with both hedonic and utilitarian values. However, these relationships have not been tested in an online environment. Thus, we predict the following:

- H₁₀: Pleasure has a positive effect on (a) hedonic value and (b) utilitarian value.
- H₁₁: Arousal has a positive effect on (a) hedonic value and (b) utilitarian value.

Web Site Patronage Intention

A consumer's online experience is a critical determinant of his or her shopping behavior (e.g., Childers et al. 2001; Wolfenbarger and Gilly 2001). Hoffman and Novak (1996) find that favorable experiences result in longer Web site stay times and more frequent online usage. Similarly, Mathwick, Malhotra, and Rigdon (2001) find that Internet-based experiential value perceptions are positively associated with retail patronage intentions. Shopping is composed of both hedonic and utilitarian values (Babin, Darden, and Griffin 1994). Thus:

- H₁₂: Hedonic value has a positive effect on Web site patronage intentions.
- H₁₃: Utilitarian value has a positive effect on Web site patronage intentions.

Method

To test the conceptual model, we asked study respondents to browse experimental Web sites and then complete questionnaires that contained items to measure the model's constructs. We conducted one study to test the model shown in Figure 1 and a second study to examine the robustness of the results and to extend the model.

Study 1: Testing the Proposed Model

For Study 1, we tested the hypotheses in a laboratory experiment using a between-subjects design. We chose a

service organization to evaluate the model in Study 1 because consumers' experiences with service retailers tend to be comparatively more employee interactive than experiences with goods retailers. Thus, a service organization provides a strong context in which to examine the proposed relationships. We manipulated Web site socialness as high or low by varying the number and type of humanlike social cues incorporated into the Web site. Measured variables included perceptions of Web site socialness, pleasure, arousal, flow, hedonic value, utilitarian value, and Web site patronage intentions.

A recent study reported that more than 95% of the college-age market uses the Internet, and more than 91% of that group makes online purchases (Lester, Forman, and Loyd 2005). Therefore, we deemed it to be appropriate to use a college student sample for Study 1.

The results of a pretest revealed that travel was the most frequently purchased online service by the student group to be sampled, so we chose travel as the context for Study 1. To eliminate potential bias due to participants' prior experiences with a particular online travel company, we developed a fictitious company named "Caribbean Travel Net" (CTN). We designed CTN to provide travel information regarding accommodations, places to eat, and points of interest for two islands in the Caribbean.

Web Site Socialness Perceptions

Two CTN Web sites were created to vary the levels of Web site socialness as high or low (see Table 1). Both Web sites used the same framed-page design and were created for legibility and ease of navigation. Except for some additional language that was necessary to incorporate a social role in the high-socialness condition, the information provided in text form was identical on both Web sites.

The high-social Web site contained a graphically represented female character in the form of a tour guide to be consistent with the travel theme of the Web site. In keeping with the social response literature, this Web site was designed to include social role, human voice, interactivity, and language. The tour guide character was designed to exhibit appropriate employee-like attributes, such as a friendly attitude, a professional-looking appearance, customized assistance, and greetings. The character was not animated. Table 1 contains detailed descriptions of the four social cues.

The low-social Web site contained language in the form of written text only. This treatment condition also contained a limited amount of interactivity because of the nature of navigation technology that customarily responds to consumers' requests for information.

We conducted a second pretest with 72 student participants to evaluate Web site socialness perception levels for the two Web sites. We used a five-item measure adapted from scales in the social response literature (McMillan and Hwang 2002; Nass, Fogg, and Moon 1996; Steuer and Nass 1993) to measure perceptions of Web site socialness. The items were "helpful," "intelligent," "polite," "informative," and "interactive" (coefficient $\alpha = .80$). The results showed that pretest participants perceived the high-social Web site

TABLE 1
Manipulation of Web Site Socialness: Study 1



Social Cues	High-Social Web Site	Low-Social Web Site
Language	Written text and spoken language	Written text
Social role	Using voice, a female interactive character identified herself as a tour guide. She greeted participants in a pop-up window on the home page. She also said "good-bye" when participants logged off.	No tour guide
Voice	In addition to the use of voice to create social role, the female voice gave a brief summary of each Web page.	No voice incorporated
Interactivity	Interactive Web pages: Before linking to the next page that participants selected from the home page, two interactive Web pages intervened. <ul style="list-style-type: none"> •First page: The tour guide asked, "Have you ever been to the Caribbean?" •Second page: The tour guide replied, "Thanks! That will help me provide you with the most appropriate travel information." 	Not included

as significantly more social than the low-social Web site ($X_{\text{high social}} = 5.84 > X_{\text{low social}} = 5.34, p = .027$).

Procedure and Sample

We conducted Study 1 in a computer lab using a campus network. All the personal computers' model numbers, monitor sizes, speeds of access, and volume levels were identical. All participants wore headphones to prevent the potential distraction of hearing the voice in the high-social condition on another participant's computer. Participants were randomly assigned to either high- or low-social Web sites. They browsed the assigned Web site first and then answered a paper-and-pencil self-report questionnaire.

A total of 337 undergraduate business students from a large Southwestern university participated in this study with an incentive of extra class credit. The sample consisted of 49% women and 51% men, and 97% of the sample ranged from 18 to 35 years of age. Approximately 80% reported having had prior online shopping experience.

Measures

We used self-report surveys to gather data for this study. Measures included perceptions of Web site socialness, pleasure, arousal, flow, hedonic value, utilitarian value, and Web site patronage intention. All scale items used in this study appear in Table 2.

Web site socialness perceptions. We adapted the items used to measure respondent perceptions of Web site socialness from several previous social response studies (McMillan and Hwang 2002; Nass, Fogg, and Moon 1996; Steuer and Nass 1993). Using seven-point scales, respondents indicated how well the following adjectives described the Web site they had visited: "polite," "helpful," "intelligent," "useful," and "interactive."

Pleasure and arousal. We adapted Mehrabian and Russell's (1974) scales to measure affective responses to Web site socialness perceptions. We assessed pleasure and arousal using 4 items for pleasure and 5 items for arousal

TABLE 2
Confirmatory Factor Analysis

Scale (α = Study 1/Study 2)	Study 1	Study 2
Socialness Perceptions (α = .79/.94)		
Helpful	.796	.897
Intelligent	.598	.887
Polite	.678	.822
Informative	.782	.922
Interactive	.512	.896
Pleasure (α = .92/.94)		
Unhappy–happy	.882	.852
Annoyed–pleased	.885	.943
Not contented–contented	.792	.939
Despairing–hopeful	.666	.903
Arousal (α = .80/.86)		
Relaxed–stimulated	.886	.706
Unaroused–aroused	.700	.839
Frenzied–sluggish	.644	.653
Calm–excited	.569	.784
Sleepy–wide awake	.424	.753
Flow (Second-Order Factor; α = .80/.92)		
Interest (α = .82/.82)		
Browsing on this Web site bored me. (R)		
This Web site was fun for me to navigate.		
Browsing on this Web site was interesting.	.920	.875
Curiosity (α = .87/.96)		
Interacting with this Web site made me curious.		
Browsing on the Web site aroused my imagination.		
Browsing on this Web site excited my curiosity.	.833	.918
Attention (α = .57/.86)		
When navigating on this Web site:		
I was aware of distractions. (R)		
I was totally absorbed in what I was doing.		
I thought about other things. (R)	.588	.831
Control (α = .72/.97)		
I felt that I had no control over my interaction with this Web site. (R)		
This Web site allowed me to control the computer interaction.		
When navigating on this Web site, I felt in control.	.457	.827
Hedonic Value (α = .88/.97)		
During the navigating process, I felt the excitement of the hunt.	.854	.903
While navigating on this Web site, I felt a sense of adventure.	.831	.922
I enjoyed being immersed in exciting new information on this Web site.	.839	.918
Compared to other things I could have done, the time spent shopping online at this Web site was truly enjoyable.	.796	.935
I enjoyed this online shopping trip for its own sake, not just for the services that I might need for a trip to the Caribbean.	.598	.929
This online shopping trip was not a very nice time out. (R)	.553	.924
Utilitarian Value (α = .84/.96)		
If I want to make reservations for a trip to the Caribbean, I could accomplish just what I might need on this Web site.	.770	.896
Shopping from this Web site would make my life easier.	.796	.856
I think of this Web site as an expert in the services (products) it offers.	.852	.815
Shopping from this Web site would fit with my schedule.	.565	.883
If I want to make reservations for a trip to the Caribbean, the information and services on this Web site would be what I would look for.	.736	.896
On this Web site, I couldn't get the information or services that I might need. (R)	.430	.917
Web Site Patronage Intentions (α = .91/.92)		
I would be willing to make reservations on this Web site.	.875	.864
The likelihood that I would make reservations on this Web site is very high.	.895	.899
I would be willing to recommend this Web site to my friends.	.843	.906

Notes: Study 1: $\chi^2_{474} = 950.2$, $p < .01$; TLI = .91; GFI = .85; CFI = .93; and RMSEA = .05. Study 2: $\chi^2_{474} = 1062.9$, $p < .01$; TLI = .91; GFI = .76; CFI = .92; and RMSEA = .08. R = reverse scored.

(we eliminated items from Mehrabian and Russell's original 12 items that had high correlated error terms); we used a seven-point semantic differential scale to assess these items.

Flow. We designed the flow scale to reflect attention, interest, curiosity, and control, and we adapted it from measures in the literature designed to measure flow states in human-computer interaction (Trevino and Webster 1992; Webster, Trevino, and Ryan 1993). This measure had 12 items, each of which was assessed using seven-point Likert scales. Moreover, we measured flow immediately after respondents finished browsing the experimental Web sites. Flow represents a temporary subjective experience of human-computer interaction, and therefore it can be captured most reliably when measured during or immediately after the interaction (Webster, Trevino, and Ryan 1993).

Hedonic and utilitarian value perceptions. We adapted items from two validated hedonic and utilitarian scales in the literature (Babin, Darden, and Griffin 1994; Mathwick, Malhotra, and Rigdon 2001). The measure had six items for each construct and used a seven-point Likert scale.

Web site patronage intention. The scale of patronage intentions is well established and has been frequently used in previous research (e.g., Baker et al. 2002). This measure uses seven-point Likert scales and includes three items: (1) likelihood to shop, (2) willingness to buy, and (3) willingness to recommend to friends.

Analysis and Results

Web site socialness perceptions. We used an analysis of variance to test H_1 . Compared with the Web site with only written text and limited interactivity, we expected the high-social Web site to induce a significant increment in consumers' perceptions of Web site socialness. The results confirmed H_1 ; the degree of socialness associated with the high-social Web site ($M_{\text{high socialness}} = 5.60$) was significantly higher than that of the low-social Web site ($M_{\text{low socialness}} = 5.27$; $F = 11.68$, $p < .01$). Gender, age, and prior online shopping experience did not significantly influence these perceptions.

In addition, the overall average ratings of the interactive character, her voice, and her pleasantness were above the scale midpoint (4.6, 4.4, and 4.7, respectively), indicating that participants perceived the social character favorably. Therefore, we ruled out the possibility of negative effects derived from the character on the high-social Web site.

Confirmatory factor analysis. We employed structural equation modeling to model the relationships among the constructs and to test the remaining hypotheses. We first confirmed the factor structure and then tested the proposed model, thus providing evidence for convergent and discriminant validity (Anderson and Gerbing 1988). As Bagozzi and Heatherton (1994) suggest, when dealing with a large number of scales and items, large scales can be disaggregated into subscales, and the composites of the subscales can then be treated as indicators. Thus, in keeping with the previously described theory, we modeled the flow construct as a second-order factor reflective of the composite subscale constructs of attention, interest, curiosity, and control.

Given the large sample size ($N = 333$) and degrees of freedom (474), it is not surprising that we found a significant chi-square ($\chi^2_{474} = 950.2$, $p = .00$). Otherwise, the fit indexes indicate that the measurement model produces adequate fit to the data, as evidenced by the goodness-of-fit index (GFI) of .85, Tucker-Lewis index (TLI) of .91, comparative fit index (CFI) of .93, and root mean square error of approximation (RMSEA) of .05.

Structural model. We estimated the model by testing the effect of Web site socialness perceptions on pleasure, arousal, and flow using the level of socialness that respondents attributed to the Web sites rather than with the experimental manipulations. In keeping with cognitive mediation theory and prior research (Baker et al. 2002), this approach accounts for the individual respondent's perception of the socialness of the Web sites rather than merely the static manipulation of the low (0) versus high (1) socialness dichotomy.

Table 3 contains the standardized coefficients and t -values for each hypothesized path, the fit indexes, and the

TABLE 3
Results of Structural Equation Models: Studies 1 and 2

Hypothesis	Proposed Model Paths	Study 1	Study 2
H ₂	Socialness → arousal	.610 (9.64)	.545 (8.26)
H ₃	Socialness → pleasure	.339 (4.58)	.358 (5.37)
H ₄	Socialness → flow	.306 (5.19)	.510 (8.26)
H ₅	Arousal → flow	.649 (10.15)	.367 (5.86)
H ₆	Arousal → pleasure	.276 (2.92)	.322 (5.02)
H ₇	Flow → pleasure	.337 (3.16)	.256 (3.45)
H ₈	Flow → hedonic value	.363 (4.31)	.278 (4.54)
H ₉	Flow → utilitarian value	.294 (2.57)	.226 (2.69)
H _{10a}	Pleasure → hedonic value	.194 (3.22)	.419 (6.42)
H _{10b}	Pleasure → utilitarian value	.311 (3.67)	.473 (5.29)
H _{11a}	Arousal → hedonic value	.434 (5.34)	.268 (4.38)
H _{11b}	Arousal → utilitarian value	.215 (2.00)	.002 (.03)
H ₁₂	Hedonic value → patronage intentions	.506 (5.92)	.448 (6.63)
H ₁₃	Utilitarian value → patronage intentions	.410 (4.70)	.384 (5.74)

Notes: Study 1 ($N = 333$): $\chi^2_{480} = 1032.2$, $p < .01$; GFI = .84; CFI = .92; TLI = .91; and RMSEA = .06. Study 2 ($N = 250$): $\chi^2_{480} = 1303.1$, $p < .01$; GFI = .76; CFI = .91; TLI = .90; and RMSEA = .08.

squared multiple correlations for each endogenous variable. The structural model again produced adequate fit to the data (GFI = .84, TLI = .91, CFI = .93, and RMSEA = .06). Model estimates were consistent with each of the paths hypothesized in the proposed model (see Figure 1). All the hypothesized paths are supported ($p < .05$).

Findings compared with Mehrabian and Russell's model. The dominant affect model in the retailing and services literature is Mehrabian and Russell's (1974) model. Researchers using this model typically test a direct link between affect and behavior (e.g., Baker, Grewal, and Levy 1992; Donovan and Rossiter 1982; Eroglu, Machleit, and Davis 2003). Because we measured the stimulus, organism, and response factors that define Mehrabian and Russell's model, we had the opportunity to explore the effects of pleasure and arousal on behavioral intentions when we included hedonic and utilitarian value in the model.

We substituted the direct paths from pleasure and arousal to Web site patronage intentions in place of the paths of pleasure and arousal to hedonic and utilitarian value in Figure 1. The results showed that the substitution of these paths produced no significant effects between arousal and patronage intentions ($-.036$, $t = -.428$) or pleasure and patronage intentions ($.031$, $t = .633$). Furthermore, the substitution of these paths substantially worsens model fit ($\Delta\chi^2 = 35.00$). Thus, the introduction of hedonic and utilitarian value into Mehrabian and Russell's (1974) traditional model challenges the direct link between affect and patronage intention. The results indicate that after we accounted for the variance explained by functional and hedonic value on patronage intentions, pleasure and arousal produced no significant direct effects (only indirect effects through functional and hedonic value) on patronage intentions. The results do not rule out the influence of affect on patronage intention; rather, they provide a richer explanation about how pleasure, arousal, and hedonic and utilitarian value work together to drive consumers' Web site patronage intentions.

Study 2: Validating and Extending the Model

The results of Study 1 provided initial evidence that introducing social cues on Web sites can enhance consumer experience. In Study 2, we replicated the model in a field setting. In addition, we varied the industry, the social cues, and the sample. Because a travel site represents a hedonic service, we chose a utilitarian good for Study 2—namely, custom-made home window blinds. The guide was an animated video of a real person rather than a graphically represented character, and the study used a nonstudent adult sample.

Kaltcheva and Weitz (2006) argue that it is important to investigate possible moderating factors in the relationship between arousal and pleasure. Therefore, we extended the model by investigating the effect of consumer involvement on the link between arousal and pleasure. Involvement is a person's perceived relevance of an object based on his or her needs, values, and interests (Zaichowsky 1985). Several studies have found that higher involvement leads to height-

ened arousal with the consumption experience (e.g., Mano and Oliver 1993; Wakefield and Blodgett 1994). Wakefield and Baker (1998) show that shopping involvement has a positive influence on customers' excitement, which has elements of arousal and pleasure. Thus, consumers who are more involved in the product category may experience a higher level of emotional response than those who are not involved. On the basis of the extant evidence, we hypothesize the following:

H₁₄: Arousal leads to higher levels of pleasure for consumers who are more involved with the product category than for those who are less involved.

Procedure and Sample

As in Study 1, we compared a high-social Web site (using social cues) with a low-social Web site (text and limited interactivity only). In cooperation with a leading provider of online social actors in the industry, we tested the effects of a streaming video of a person on a Web site selling custom-made blinds for the home. Using Rovion's In-Person technology, a female guide is superimposed on the screen with a message provided to the visitor to explore the site, including some form of direct request for interaction ("Click on me to ..."). Table 4 provides details about the social manipulations.

Subsequent pages also contained the guide providing more product or service information than the page the visitor selected. This technology was ideal for field experiment comparisons because the video of the guide was hosted by the provider and applied to the client's Web site without any visible change to its contents, appearance, or functioning.

We chose the window blind retailer among other clients in an attempt to control for confounding factors. For example, we were careful to select a site on which the guide was not promoting a price discount and one that did not already exhibit a high level of social cues.

Participants were randomly recruited from a national online panel of 1.5 million consumers. They were screened according to whether they were homeowners; nonhomeowners were omitted from the sample because they would not typically be part of the target market for custom-made window blinds. From that point, participants were directed to the Web site and were instructed to spend a few minutes browsing the site and clicking through to view several sections. They were also asked to make certain the sound for their computers was turned on.

Adult participants were evenly split between men and women and distributed across age groups of 21–35 years (32.5%), 36–50 years (42%), and over 50 (26.5%). Nearly all participants had shopped online (99%), with 38.5% reporting online shopping at least once a week. Participants were predominantly Caucasian (80%).

Over the course of the 48-hour data collection period, 250 participants who were recruited for the study were exposed to the Web site. During this time, 20% of participants were not exposed to the guide. A manipulation check substantiated that participants detected the guide. In addition, click-through data from the provider of the guide indicated that few of the visitors to the site muted the sound or stopped the visual presentation including the guide. These

TABLE 4
Manipulation of Web Site Socialness: Study 2



Social Cues	High-Social Web Site	Low-Social Web Site
Language	Written text and spoken language	Written text
Social role	A female interactive character acting as a shopping guide appears on-screen, speaking to the visitor.	No shopping guide
Voice	In addition to the use of voice to create social role, the female voice gave a brief summary of each Web page: <ul style="list-style-type: none"> •<i>Homepage</i>: What's your style? Honey-combed shades or verticals? Roller shades or sheer? Well, click on me to see the most popular blinds in wood, fabric, wovens, and even, yes, woven woods, which just so happens to be my personal favorite. So, go ahead, select the product category that best fits your style. •<i>Product overview</i>: To view individual products, click on "view colors" in the gallery under the product description. To decorate your windows, simply click on the titled link. To compare all products in this category, select the "compare products" link at the bottom of the screen. 	No voice incorporated
Interactivity	The character asks visitors to "click on her" to find out more about various products. The character provides oral directions on how to use the various Web page links and shopping aids.	Not included

results indicated that the majority of participants were exposed to all four social cues when visiting the experimental Web site.

Measures

There was a slight rewording of several items that was necessary to accommodate the change from a travel service site to a custom-made window blinds site. Otherwise, all measurement items were the same as those used in Study 1.

Results and Analysis

Table 4 presents the differentiating factors between the high- and the low-social Web sites for Study 2. The analysis of variance results revealed that respondents who were exposed to the social cues perceived the site as significantly ($F = 4.96, p = .03$) more social ($M_{\text{high socialness}} = 5.47$) than those who viewed the identical site without the social cues ($M_{\text{low socialness}} = 5.06$), again in support of H_1 .

The results of the structural analysis testing the remaining hypotheses for Study 2 largely confirmed the results we found in Study 1 (see Tables 2, 3, and 5). The confirmatory factor analysis and the structural equation model fit is similar to that of Study 1, with the CFI and TLI indicating

proper fit to the data. All hypothesized paths were significant and in the anticipated direction, with the exception of H_{11b} (arousal \rightarrow utilitarian value, .002, $t = .003$).

Table 5 shows the direct, indirect, and total effects of the predictor variables on hedonic and utilitarian value and Web site patronage intentions. Web site socialness perceptions across the two studies had strong positive total effects on hedonic value, utilitarian value, and Web site patronage intentions. These effects were due to the positive direct influences of Web site socialness perceptions on pleasure, arousal, and flow. In turn, pleasure, arousal, and flow directly influenced hedonic and utilitarian value perceptions. The lack of support for the link between arousal and utilitarian value in Study 2 was puzzling and deserves further research. Finally, hedonic value and utilitarian value were significant contributors to Web site patronage intentions.

Involvement. To assess the effects of involvement (H_{14}), we compared a model that constrained the paths to be equal between low- and high-involvement participants exposed to the social cues with a model that allowed the specified path (arousal \rightarrow pleasure) to vary. As we expected, the difference between the two models was significant ($\Delta\chi^2 = 4.90, p <$

TABLE 5
Indirect, Direct, and Total Effects of Predictor Variables on Experiential Value and Web Site Patronage Intentions

A: Study 1: Travel									
Predictor Variables	Indirect Effects			Direct Effects			Total Effects		
	Hedonic Value	Utilitarian Value	Patronage	Hedonic Value	Utilitarian Value	Patronage	Hedonic Value	Utilitarian Value	Patronage
Socialness	.656	.558	.561				.656	.558	.561
Arousal	.331	.345	.617	.434	.215		.765	.562	.617
Pleasure			.225	.194	.311		.194	.311	.225
Flow	.065	.105	.380	.363	.294		.428	.399	.380
Hedonic value						.506			.506
Utilitarian value						.410			.410

B: Study 2: Blinds									
Predictor Variables	Indirect Effects			Direct Effects			Total Effects		
	Hedonic Value	Utilitarian Value	Patronage	Hedonic Value	Utilitarian Value	Patronage	Hedonic Value	Utilitarian Value	Patronage
Socialness	.643	.500	.480				.643	.500	.480
Arousal	.277	.280	.352	.268	.002		.544	.282	.352
Pleasure			.370	.419	.473		.419	.473	.370
Flow	.107	.121	.306	.278	.226		.385	.347	.306
Hedonic value						.448			.448
Utilitarian value						.384			.384

.05); arousal led to increased pleasure (.329; $t = 4.09$, $p < .01$) for those who were highly involved with the product category but not for those who were less involved (.029; $t = .231$, not significant).

Demographics. Given that we conducted Study 2 using a national online sample that was more representative of different age, gender, and online shopping frequency groups than the Study 1 sample, we examined the possibility that individual differences influence responses to Web site socialness. We compared a series of constrained models holding all paths equal for age, gender, and online shopping frequency with separate unconstrained models, freeing each individual path one at a time. In general, the model and the significant paths remained constant between age and gender groups, and some notable differences emerged. The relationships in the model were consistent for men and women for all paths, with one exception. Whereas arousal led to hedonic value for both, the effect was significantly stronger ($\Delta\chi^2 = 5.70$, $p < .05$) for women (.339; $t = 4.75$, $p < .01$) than for men (.196; $t = 2.48$, $p < .01$).

The analysis produced similar results for young (21–35), middle-aged (36–50), and older (50+) online shoppers, with three notable exceptions for the oldest segment. First, flow led to pleasure for the young (.399; $t = 3.77$, $p < .01$) and middle-aged (.342; $t = 3.07$) segments but not for the oldest segment (.076; $t = .582$, not significant; $\Delta\chi^2 = 6.70$, $p < .05$). Second, pleasure led to utilitarian value for all three age groups but was significantly weaker ($\Delta\chi^2 = 7.00$, $p < .05$) for the oldest segment (.356; $t = 2.50$, $p < .01$) than for the middle-aged (.613; $t = 5.51$, $p < .01$) and young

(.601; $t = 4.87$, $p < .01$) segments. Third, utilitarian value led to patronage for all age groups but produced a significantly different ($\Delta\chi^2 = 6.80$, $p < .05$) effect for the oldest segment (.356; $t = 2.86$, $p < .01$) versus the middle-aged (.551; $p = 5.34$, $p < .01$) and young (.477; $t = 3.93$, $p < .01$) segments.

Finally, we examined possible moderating effects between frequent online shoppers (77% who shop online at least once a month) and infrequent online shoppers (23% who shop online less than once a month). The paths in the structural model were not significantly different between the two shopping groups, as Table 3 shows (Study 2). Compared with infrequent online shoppers, those who frequently shop online did not differ by age or gender.

Discussion

Our research makes an important contribution to the marketing literature by providing a rich explanation of how consumers emotionally process retail online social cues. The results of two studies provide strong, consistent evidence of the existence and influence of Web site socialness perceptions.

Theoretical Implications

A chief contribution of our research is that through its marketing application of social response theory, it provides empirical support for the effects of social cues in a retailing context. Previously, researchers have typically expressed doubt or held divided positions as to the existence of such

effects (Eroglu, Machleit, and Davis 2001). The current findings should encourage further consideration of social cues as the domain of online retailing theory continues to develop.

We were able to show that some of the expected responses to customer–employee interactions found in bricks-and-mortar stores can be induced by using social cues on Web sites as well. Therefore, in addition to supporting the notion of online social factors, this work provides a theoretical rationale for their means of influence on consumer experiences. The results show that social cues can facilitate the development of Web site socialness perceptions that have an indirect, but critical influence on hedonic and utilitarian value perceptions and, ultimately, on Web site patronage intentions. Therefore, researchers investigating the effects of retail organizations' Web sites should recognize the potential importance of Web site socialness perceptions and the idea that social cues may have a positive impact on customer responses.

Our work also has theoretical implications for extant research by providing additional support or extending its findings regarding several constructs. The results confirm previous research that shows that affect is as central to consumers' shopping experiences on the Internet (e.g., Eroglu, Machleit, and Davis 2003) as it is in bricks-and-mortar stores (e.g., Donovan and Rossiter 1982). Participants' responses to experimental Web sites in both studies were primarily driven by pleasure and arousal. It is important to include these constructs in further research on Web site marketing.

Prior conceptual research has suggested that flow has a strong influence on consumer online experiences (e.g., Hoffman and Novak 1996), but with one exception (Senecal, Gharbi, and Nantel 2002), little empirical evidence has documented this relationship. Our studies confirm that flow is indeed an important contributor to consumers' perceptions of hedonic and utilitarian value. The findings also provide empirical evidence that supports Csikszentmihalyi's (1990) proposition that social factors are one source for the creation of flow. Finally, although early conceptual work suggested the relationship between affect and flow (Csikszentmihalyi 1990; Novak, Hoffman, and Yung 2000), empirical evidence of this relationship was lacking. Our study confirms that pleasure and arousal are positively related to flow.

Given that the findings revealed the critical roles of hedonic value and utilitarian value in predicting Web site patronage intentions, online marketing researchers should include these in their models. In addition, few, if any, academic models of bricks-and-mortar retailing to date have explicitly included hedonic and utilitarian value. The strong positive effect of these shopping values on patronage intentions we found herein suggests that they also should be investigated in the context of traditional retailers.

The research adds to the literature that is beginning to find support for the notion that factors such as motivational orientation (Kaltcheva and Weitz 2006) may moderate the relationship between arousal and pleasure. Study 2 showed that arousal led to higher levels of pleasure for participants who were more involved with the product category than for

those who were less involved. Thus, involvement should be considered for inclusion in models in which affect is an important component.

Study 2 also found support for the moderating effects of individual differences. The path from arousal to hedonic value was stronger for women than for men. Previous research showed that emotional and social experiential concerns when shopping were more important to women than to men (Arnold and Reynolds 2003; Dittmar, Long, and Meek 2004); thus, the arousal due to social cues may provide more fun and playfulness for women than for men. In addition, we found differences in several model paths for the oldest consumers in Study 2 compared with the young and middle-aged consumers. These results suggest that it is important to examine the effects of consumer demographics in Web site patronage models.

Finally, the findings revealed that the stimulus → organism → response (Mehrabian and Russell 1974) model may be too simplistic in nature to describe retail patronage intentions fully. Future inquiry into the effects of retail stimuli should include hedonic and utilitarian value as two important contributors to customer experience.

Managerial Implications

Overall, business investment in technology is rapidly increasing, and firms are spending billions of dollars on digital and online marketing venues (Arnold 2004). Firms are attempting to design Web sites that will first attract and then retain customers. Our studies' empirical support for the effects of Web site socialness perceptions suggests several intriguing implications for enhancing customers' experiences with online retailers.

The social interactions between customers and employees are usually missing on retail Web sites. The findings show support for the role of social cues in creating customer perceptions of socialness. Online social cues provided the perception of a human connection that enhanced customers' online experiences without actually needing to create a one-on-one interaction between the character and each participant. Given this, the four online social cues tested in these studies should be considered potentially powerful marketing tools in retail Web site design.

Because we found hedonic and utilitarian value to be significant determinants of patronage intention in both studies, online practitioners should devote resources to creating Web sites that provide the most compelling experience to their current and potential customers. Retail Web sites should be designed to include not only elements that help customers complete their tasks but also elements that offer fun or playfulness.

The results suggest that retailers can contribute to consumers' online experiences by adding social cues that enhance their flow, pleasure, and arousal. The characters in our studies and their corresponding voices were designed or selected to avoid a negative reaction from consumers. Therefore, it is important for online firms to test specific social cues within the context of specific Web sites to ensure that customers are receiving these cues positively. For example, if a voice sounds more like a robot than a human voice, people may become annoyed, and any poten-

tial positive effect of a Web site character or other social cues may be lost. Matching the personality of a voice to the commercial context (e.g., a teenager welcoming a customer to a bank's Web site may not inspire confidence) and matching a voice to locale (e.g., using a regional accent) may be important issues for some online companies to explore (*The Economist* 2002). Similarly, practitioners need to develop and test other Web site elements that may contribute to positive customer experience, such as legibility or design. Retailers whose market includes older adults need to find ways to increase utilitarian value for their customers, which could involve strategies to enhance arousal and flow.

The influence of social cues in our studies operated through affect. Emotional bonds between companies and customers are difficult to create and thus could provide a valuable competitive advantage if developed (Berry, Carbone, and Haecel 2002). The findings suggest that consumers' Web site socialness perceptions could ultimately increase their emotional bonds (through pleasure and arousal) with an organization. We advise retail firms with a significant online presence to investigate whether social cues help customers develop stronger emotional bonds with them and, if so, which cues are most effective. Moreover, because pleasure and arousal are positively associated with flow, e-tailers can get extra marketing mileage out of increasing customers' affective states. Given the enhanced responses of the more highly involved participants and the female participants in our research, it would seem that online retailers would benefit by finding ways to increase positive arousal through social cues and/or other Web site stimuli for these customer segments.

The findings indicate that online retailers that can induce flow states in their customers may be able to create a competitive advantage. Web sites that grab customers' attention, pique their curiosity and interest, and give them some control over the shopping process should increase patronage. Our studies used social cues to enhance flow, but other Web site elements, such as color, navigation cues, and pictures, are also potentially important. Further research should be conducted to investigate the elements and cues that would most likely increase flow states. However, when targeting primarily older customers, flow as a path to creating pleasure may be of lesser importance.

Finally, these studies are encouraging to Web technology companies that develop interactive technologies, such as social actors. The studies provide empirical support to help justify the investment on interactive Web technologies for improving consumers' online experiences.

Limitations and Further Research

As do other experimental studies, our research has some limitations. The two studies empirically established that Web site socialness perceptions influence consumers' pleasure, arousal, flow, and experiential value (hedonic and utilitarian) in two different product contexts. We encourage researchers to question whether the effects of Web site socialness hold in other contexts. A better understanding of the most appropriate Web sites in which to induce socialness perceptions would help retailers use online social cues wisely.

This research examined the effects of social cues on only a few constructs of importance in the retail patronage decision. Therefore, future studies should investigate whether and how Web site socialness perceptions might influence other customer responses and evaluations that have been shown to be important in the marketing literature, such as quality of customer service, satisfaction, and overall value (e.g., Cronin, Brady, and Hult 2000).

The two samples we used in our studies serve to increase the external validity and generalizability of the findings. However, the results cannot be generalized to all groups of online consumers, such as preteens and teenagers, who are heavy users of the Internet and who we did not include in either of our study samples. Thus, the customer segmentation issue provides a promising focus for further research. In addition, it would be worthwhile to test this, or similar models, in the context of business buyers. Some of the unique characteristics of the business buying process may result in different perceptions and responses to a service provider's use of Web site social cues.

Researchers should examine other moderators of the relationships we tested in our model, such as consumer search strategy. Previous studies have shown mixed results regarding whether flow would be more likely to occur during exploratory online search or goal-directed search (Novak, Hoffman, and Duhachek 2003; Novak, Hoffman, and Yung 2000). A better understanding of how search strategy influences the perceptions of hedonic and utilitarian value that form during the browsing process may help online marketers better meet individual customer needs while benefiting themselves from enhanced Web site patronage.

Finally, atmospheric research suggests that other environmental elements, such as ambient or design cues (e.g., Baker 1987), can also increase users' pleasure and arousal levels. Therefore, further research should investigate the effects of these other elements on affect, flow, and hedonic and utilitarian value in the context of retail Web sites.

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