

The Influence of Multiple Store Environment Cues on Perceived Merchandise Value and Patronage Intentions

Research on how store environment cues influence consumers' store choice decision criteria, such as perceived merchandise value and shopping experience costs, is sparse. Especially absent is research on the simultaneous impact of multiple store environment cues. The authors propose a comprehensive store choice model that includes (1) three types of store environment cues (social, design, and ambient) as exogenous constructs, (2) various store choice criteria (including shopping experience costs that heretofore have not been included in store choice models) as mediating constructs, and (3) store patronage intentions as the endogenous construct. They then empirically examine the extent to which environmental cues influence consumers' assessments of a store on various store choice criteria and how those assessments, in turn, influence patronage intentions. The results of two different studies provide support for the model. The authors conclude by discussing the results to develop an agenda for additional research and explore managerial implications.

There was a time not so long ago that retail environments had few standards to meet. A store should be clean and organized to maximize sales per square foot. It should also be pretty.... Today, though, the retail environment must tie in directly to the brand, and, in fact, speak the brand's value proposition.

—Nancy Green

How does the retail environment tie in to customers' perceptions of the value of a store's merchandise? In a broader sense, in what way does the retail environment ultimately influence a customer's decision to patronize a particular store? There is a dearth of research-based answers to such questions, though conventional wisdom and the actions of many retailers suggest that store environment has a critical bearing on consumers' store choice processes. Scholarly verification of this conventional wisdom and research-based insights for guiding the design of store environments are lacking. Prior store environment research has achieved the following:

- Demonstrated that various environmental elements, taken one at a time, affect consumer responses. Elements examined include music (e.g., Areni and Kim 1993; Hui, Dubé, and Chebat 1997; Milliman 1982), color (e.g., Bellizzi, Crowley, and Hasty 1983), scent (Spangenberg, Crowley, and Henderson 1996), and crowding (e.g., Eroglu and Machleit 1990; Hui and Bateson 1991);
- Examined how general constructs such as "store atmosphere" (e.g., Donovan and Rossiter 1982) or "physical attractiveness" of the store (e.g., Darden, Erdem, and Darden 1983) affect store patronage intentions; and
- Produced evidence suggesting that store environments trigger affective reactions in customers (e.g., Babin and Darden 1996; Baker, Grewal, and Levy 1992; Donovan et al. 1994; Hui and Bateson 1991; Wakefield and Blodgett 1999).

However, store environment research to date has not examined key issues such as how different store environment cues together shape consumers' merchandise value perceptions and how those perceptions, in turn, influence store patronage intentions. The extant literature also lacks empirical research on the relative impact of key antecedents of perceived merchandise value. For example, shopping experience costs, which include consumers' time and effort in obtaining products, as well as the psychological cost of shopping (e.g., irritation caused by loud music or crowding), have been suggested as potential determinants of merchandise value (Zeithaml 1988) and store choice (Bender 1964). However, a comprehensive model incorporating these constructs has not been tested in a retailing context.

To address the aforementioned research voids, we first propose a conceptual framework that incorporates the effects of three distinct store environment dimensions:

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design, social, and ambient.¹ We then describe and report results from two studies, the first designed to test our conceptual framework empirically and the second designed to verify the robustness of the results. Drawing on findings from the two studies, we offer implications for marketers and propose avenues for further research.

Conceptual Framework

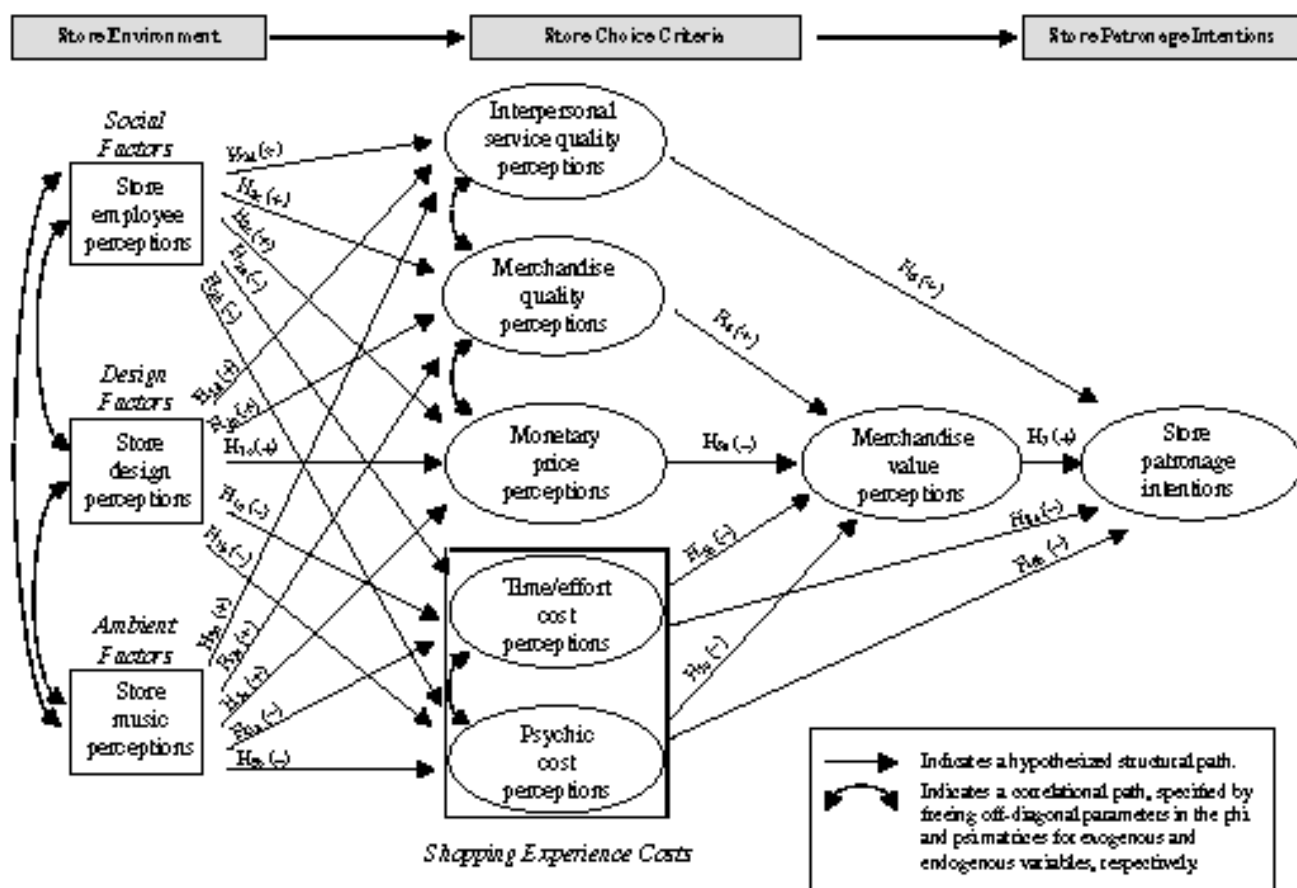
Our conceptual framework, shown in Figure 1, integrates theories from cognitive and environmental psychology with Zeithaml's (1988) proposal that value perceptions, which

¹These dimensions, discussed by Baker (1987), are consistent with the ones Bitner (1992) uses in describing "servicescapes." Bitner's three dimensions are ambient; space/function (similar to design); and signs, symbols, and artifacts. Whereas marketing researchers traditionally have approached the design and ambient cues under the umbrella construct of store atmospherics, researchers in the field of environmental psychology distinguish between them for two fundamental reasons. First, ambient cues tend to affect nonvisual senses, whereas design cues are more visual in nature. Second, ambient cues tend to be processed at a more subconscious level than are design cues. There is some empirical evidence that design and ambient elements have differential effects on consumer responses (Wakefield and Baker 1998).

drive purchase decisions, are based on perceptions of product quality (what consumers get from an exchange) and price (the monetary and nonmonetary aspects of what consumers give up in an exchange). Figure 1 adapts the model proposed by Zeithaml (1988) to a retail setting and incorporates insights from Baker's (1998) and Bitner's (1992) conceptualizations of how the service environment can influence consumer decision making. The overall sequence of effects in our model is that store environmental dimensions influence consumers' perceptions of store choice criteria—namely, interpersonal service quality, shopping experience costs, and merchandise value (mediated through perceived quality, price, and shopping experience costs)—and these perceptions, in turn, affect store patronage intentions. Consumer perceptions in our model refer to inferences about the levels of quality, price, and value that consumers would expect in a store on the basis of store environment cues. As such, the model is especially appropriate when potential customers have limited a priori knowledge about a store's specific offerings, as well as in contexts in which a store undergoes a major remodeling, thereby exposing customers to a new set of store environment cues.

Four unique aspects of our model differentiate our study from previous studies. First, we explicitly identify two types

FIGURE 1
A Conceptual Model of the Prepurchase Process of Assessing a Retail Outlet on the Basis of Environmental Perceptions



of shopping experience costs—time/effort and psychic—and examine their influence on store patronage intentions. Our time/effort cost construct captures consumers' perceptions of the time and effort they are likely to expend shopping at a store. Economic pricing models acknowledge that time/effort costs influence consumers' perceptions of what they give up in an exchange (Becker 1965), and research anchored in Becker-based models (e.g., Marmorstein, Grewal, and Fiske 1992; Scharly 1971) suggests that time spent in stores looking or waiting for goods and services has an economic value to consumers.

The psychic cost construct represents consumers' mental stress or emotional labor during the shopping experience. Environmental psychologists (e.g., Mehrabian and Russell 1974) have focused on understanding these costs, which we view as consumers' negative affective reactions to a store and/or its environment. Studies in environmental psychology and marketing that have examined the affective influence of the environment primarily have taken a positive view of affect (i.e., what increases a person's pleasure). In line with Zeithaml's (1988) notion of nonmonetary costs, we focus on the negative affect stemming from store environments. This perspective is also consistent with the argument that positive and negative affect are distinct constructs (Babin, Darden, and Babin 1998; Watson, Clark, and Tellegen 1988) and that negative affect has a stronger impact on consumers (Babin and Darden 1996).

Although time/effort costs and psychic costs are conceptually related constructs (e.g., crowding can trigger both perceptions of physical density and a negative emotional reaction to physical density), researchers in economics and marketing have treated them as distinct (e.g., Bender 1964; Zeithaml 1988). In Figure 1, we depict the two constructs as distinct to capture both the rational and the emotional aspects of consumers' nonmonetary costs, while acknowledging the possible correlation between them.

Second, most price-quality research examines consumers' value judgments of a specific product-price combination. In contrast, our study focuses on the broader concept of retail store patronage (rather than product choice per se). We are interested in how people perceive the general price levels for a group of products sold in a store on the basis of what they observe in the store's environment. We label this group "merchandise" to distinguish it from a specific product or brand. Our study posits that merchandise value is a function of perceived merchandise price, merchandise quality, and shopping experience costs.

Third, Zeithaml's (1988) value model focuses primarily on the evaluation of product quality. But in a retail context, consumers evaluate service quality as well as merchandise quality (Mazursky and Jacoby 1986). Therefore, our model incorporates the two types of quality as related but distinct components. An important aspect of shopping in a retail store is the quality of the interactions between store employees and customers, a construct we label "interpersonal service quality." Interpersonal service quality is a part of overall service quality, as defined and measured by Parasuraman, Zeithaml, and Berry (1988). It includes customers being treated well and receiving prompt and personal attention from employees.

Fourth, our study is the first to examine empirically all the relationships in Figure 1 simultaneously. Table 1, which lists prior studies that offer conceptual or empirical support for various hypothesized relationships, shows that though each hypothesized link has conceptual support from one or more studies, 11 of the hypotheses have not been examined empirically. Moreover, only a handful of the studies have examined empirically the remaining hypotheses. Another void revealed by Table 1 is that each of these studies focuses on just a few of the hypothesized links; no study has examined all the links simultaneously.

Hypotheses

Store Environment Determinants of Store Choice Criteria

Insights derived from three interrelated theories—*inference theory*, *schema theory*, and the *theory of affordances*—constitute the overall conceptual foundation for our hypotheses about store environment influences. *Inference theory* argues that people make judgments about the unknown on the basis of information they receive from cues that are available to them (Huber and McCann 1982; Nisbett and Ross 1980). Schemas are cognitive structures of organized prior knowledge, abstracted from experience, that guide inferences and predictions (Fiske 1982). They help shape people's expectations in new or ambiguous contexts (Fiske and Linville 1980). Similarly, the *theory of affordances* suggests that people perceive their physical environment as a meaningful entity and that such a perception conveys information directly to them (Gibson 1979). These theories together imply that consumers attend to design, social, and ambient environment cues when evaluating stores, because they believe that these cues offer reliable information about product-related attributes such as quality, price, and the overall shopping experience (Bitner 1992). For example, a customer entering a store with tile floors, the smell of popcorn, fluorescent lighting, and Top-40 music may access from memory a "discount store" schema and infer that the store's merchandise is low priced and of average quality and that the store has minimal service. Empirical evidence supports the idea that information from environmental cues influences consumers' perceptions of service providers (Baumgarten and Hensel 1987) and helps consumers categorize service firms (Ward, Bitner, and Barnes 1992).

Store design cues. As environmental psychology theory argues, the most important role of a space (in this case, the store) is its ability to facilitate the goals of its occupants (Canter 1983). For many shoppers, the goal is convenience, which includes getting in and out of the store quickly and finding the merchandise they seek easily. Layout is an example of a design cue that may influence customers' expectations of their efficient movement through a store (Titus and Everett 1995). On the basis of the foregoing evidence, we hypothesize that

H_{1a}: As customers' perceptions of store design cues become more favorable, customers will perceive time/effort costs to be lower.

TABLE 1
Literature Support for the Links Hypothesized in Figure 1

Studies	Hypothesis																											
	H _{1a} : Per- cep- tions— Time/ Effort Costs (-)	H _{1b} : Per- cep- tions— Psy- chic Cost (-)	H _{1c} : Per- cep- tions— Mone- tary Price (+)	H _{1d} : Design Per- cep- tions— Inter- cep- tions— sonal Ser- vice Quality (+)	H _{1e} : Design Per- cep- tions— Mer- chan- dise Quality (+)	H _{2a} : Em- ployee Per- cep- tions— Time/ Effort Cost (-)	H _{2b} : Em- ployee Per- cep- tions— Psy- chic Cost (-)	H _{2c} : Em- ployee Per- cep- tions— Mone- tary Price (+)	H _{2d} : Em- ployee Per- cep- tions— sonal Ser- vice Quality (+)	H _{2e} : Em- ployee Per- cep- tions— Mer- chan- dise Quality (+)	H _{3a} : Music Per- cep- tions— Time/ Effort Costs (-)	H _{3b} : Music Per- cep- tions— Psy- chic Cost (-)	H _{3c} : Music Per- cep- tions— Mone- tary Cost (+)	H _{3d} : Music Per- cep- tions— sonal Ser- vice Quality (+)	H _{3e} : Music Per- cep- tions— Mer- chan- dise Quality (+)	H ₄ : Mer- chan- dise Quali- ty— Mer- chan- dise Value (+)	H _{5a} : Mone- tary Price— Mer- chan- dise Value (-)	H _{5b} : Time/ Effort Cost— Mer- chan- dise Value (-)	H _{5c} : Psy- chic Cost— Mer- chan- dise Value (-)	H ₆ : Inter- per- sonal Ser- vice Quali- ty— Patron- age Inten- tions (+)	H ₇ : Mer- chan- dise Val- ue— Patron- age Inten- tions (+)	H _{8a} : Time/ Effort Cost— Patron- age Inten- tions (-)	H _{8b} : Psy- chic Cost— Patron- age Inten- tions (-)					
Akhter, Andrews, and Durvasula (1994)									e																			
Alford and Sherrell (1996)*																												
Areni and Kim (1993)																												
Babin and Darden (1996)	C																											
Baker (1986)																												
Baker, Grewal, and Levy (1992)																												
Barker (1965)																												
Bellizzi, Crowley, and Hasy (1983)																												
Berry and Cooper (1992)																												
Bitner (1990)																												
Bitner (1992)	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
Boulding et al. (1993)*																												
Canter (1983)	C																											
Chebat (1997)																												
Chebat et al. (1998)*																												
Chebat, Geilinas- Chebat, and Filiatrault (1993)																												

TABLE 1
Continued

	Hypothesis																																		
	H _{1a} : Per- cep- tions— Time/ Effort Costs (-)	H _{1b} : Per- cep- tions— Psy- chic Cost (-)	H _{1c} : Per- cep- tions— Mone- tary Price (+)	H _{1d} : Design Per- cep- tions— Inter- cep- tions— sonal Ser- vice Quality (+)	H _{1e} : Per- cep- tions— Mer- chan- dise Quality (+)	H _{2a} : Em- ployee Per- cep- tions— Time/ Effort Cost (-)	H _{2b} : Em- ployee Per- cep- tions— Psy- chic Cost (-)	H _{2c} : Em- ployee Per- cep- tions— Mone- tary Price (+)	H _{2d} : Em- ployee Per- cep- tions— sonal Ser- vice Quality (+)	H _{2e} : Em- ployee Per- cep- tions— Mer- chan- dise Quality (+)	H _{3a} : Music Per- cep- tions— Time/ Effort Costs (-)	H _{3b} : Music Per- cep- tions— Psy- chic Cost (-)	H _{3c} : Music Per- cep- tions— Mone- tary Cost (+)	H _{3d} : Music Per- cep- tions— sonal Ser- vice Quality (+)	H _{3e} : Music Per- cep- tions— Mer- chan- dise Quality (+)	H ₄ : Mer- chan- dise Quali- ty— Mer- chan- dise Value (+)	H _{5a} : Mone- tary Price— Mer- chan- dise Value (-)	H _{5b} : Time/ Effort Cost— Mer- chan- dise Value (-)	H _{5c} : Psy- chic Cost— Mer- chan- dise Value (-)	H _{5d} : Time/ Effort Cost— Mer- chan- dise Value (-)	H ₆ : Inter- per- sonal Ser- vice Quali- ty— Patron- age Inten- tions (+)	H ₇ : Mer- chan- dise Val- ue— Patron- age Inten- tions (+)	H _{8a} : Time/ Effort Cost— Patron- age Inten- tions (-)	H _{8b} : Psy- chic Cost— Patron- age Inten- tions (-)											
Crane and Clarke (1988)				C																															
Darden and Babin (1994)*	C																																		
Darden and Schwinghammer (1985)*				C																															
Darley and Gilbert (1985)	C							C																											
Dodds, Monroe, and Grewal (1991)																																			
Donovan and Rossiter (1982)	C										C																								
Donovan et al. (1994)	C																																		
Eroglu and Harrell (1986)																																			
Gardner and Siomkos (1985)																																			
Greenland and McGoldrick (1994)											C																								
Grewal and Baker (1994)																																			
Grewal et al. (1998)				C																															
Grewal, Monroe, and Krishnan (1998)*																																			

**TABLE 1
Continued**

Studies	Hypothesis																									
	H _{1a} :	H _{1b} :	H _{1c} :	H _{1d} :	H _{1e} :	H _{2a} :	H _{2b} :	H _{2c} :	H _{2d} :	H _{2e} :	H _{3a} :	H _{3b} :	H _{3c} :	H _{3d} :	H _{3e} :	H ₄ :	H _{5a} :	H _{5b} :	H _{5c} :	H ₆ :	H ₇ :	H _{8a} :	H _{8b} :			
	Per- cep- time/	Per- cep- time/	Per- cep- price	Per- cep- price	Per- cep- design	Em- ployee cep- time/	Em- ployee cep- time/	Em- ployee cep- price	Em- ployee cep- price	Em- ployee cep- price	Per- cep- time/	Per- cep- time/	Per- cep- time/	Per- cep- time/	Per- cep- time/	Mer- chan- dis- e- qual- ity	Mer- chan- dis- e- price	Mer- chan- dis- e- price	Psy- chic Cost-	Inter- per- sonal Ser- vice Quali- ty	Inter- per- sonal Ser- vice Quali- ty	Mer- chan- dis- e- val- ue	Mer- chan- dis- e- time/	Psy- chic Cost-		
Grewal and Sharma (1991)																										
Hartline and Ferrell (1996)																										
Heath (1995)					e																					
Helson (1964)			C					C																		
Hui and Bateson (1991)																										
Hui, Dub, and Chebat (1997)																										
Kellaris and Mantel (1994)																										
Kerin, Jain, and Howard (1992)*																										
Kotler (1973)			C		C																					
Mazursky and Jacoby (1986)					e																					
Mehrabian and Russell (1974)																										
Nagle (1987)	C		C																							
Olshavsky (1985)					C																					
Parasuraman, Zeithaml, and Berry (1988)					C																					
Schary (1971)																										
Sirohi, McLaughlin, and Wittink (1998)																										
Spies, Hesse, and Loesch (1997)																										
Stratton (1992)																										

Prior studies offer empirical support for the link between the general, holistic environment and affect (e.g., Babin and Darden 1996; Donovan and Rossiter 1982; Wakefield and Baker 1998). Thus, poorly designed stores (e.g., a confusing store layout) may cause consumers to incur psychic costs. Mehrabian and Russell's (1974) stimulus–organism–response theory, which posits that the influence of physical environments is primarily affective, also suggests that poorly designed store environments may reduce shopping pleasure and lead to the deterioration of customers' moods (Spies, Hesse, and Loesch 1997). We therefore propose that

H_{1b}: As customers' perceptions of store design cues become more favorable, customers will perceive psychic costs to be lower.

Nagle (1987) argues that an important determinant of consumers' responses to price is their perception of the entire purchase situation, which includes store environment. Moreover, in-store atmospherics may generate price beliefs independent of the actual prices and be used to create price differences for essentially undifferentiated products (Kotler 1973). Applying adaptation-level theory (Helson 1964), which posits that contextual factors shape a person's frame of reference for focal stimuli, to a retailing context suggests that store environment cues will influence consumers' price expectations. For example, Thaler (1985) finds that subjects infer that the price of beer is higher if the beer is purchased in an upscale store environment than if it is purchased in a run-down store. Grewal and Baker (1994) report that more favorable store environment perceptions increase the acceptability of the price of a picture frame. However, prior research has not examined how the aspects of store environment influence consumers' general price-level expectations for an entire store. If, for example, consumers had limited price knowledge about the clothing products carried by Gap, what would be their expectations of general price levels, based on store environment cues, before they even examined the price tags? To explore this issue, we formally propose that

H_{1c}: As customers' perceptions of store design cues become more favorable, customers will perceive monetary prices to be higher.

Theoretical arguments suggest a direct link between retail store design and perceptions of interpersonal service quality (Baker 1987; Bitner 1992), as do a few empirical studies. For example, in comparing modern-style with traditional-style bank branches, Greenland and McGoldrick (1994) report that consumers find employees in the modern-style branches more approachable. Crane and Clarke (1988) find that consumers rely on office design to assess the scope and nature of four services (bank, doctors, dentists, and hair-stylists). Kotler (1973) notes that a store's atmosphere communicates its level of concern for its customers. Therefore, we propose that

H_{1d}: As customers' perceptions of store design cues become more favorable, customers will perceive interpersonal service quality to be higher.

The design of a retail store environment can serve as an important basis for consumers' evaluations of merchandise

quality (Kotler 1973; Olshavsky 1985). Mazursky and Jacoby (1986) find that pictures of a store's interior are heavily accessed as cues (even more so than price cues) that consumers use to evaluate merchandise quality. In a study by Gardner and Siomkos (1985), respondents evaluated the same brand of perfume more favorably when the store design was described as having "high-image" attributes (e.g., carpeted floors, wide aisles) than when it was depicted as having "low-image" attributes (e.g., tile floor, narrow aisles). In a restaurant setting, Heath (1995) finds that rest room cleanliness is an important factor in influencing customers' perceptions of overall food quality. The preceding evidence suggests that

H_{1e}: As customers' perceptions of store design cues become more favorable, customers will perceive merchandise quality to be higher.

Store social (employee) cues. Eroglu and Machleit (1990) suggest that store social elements (e.g., too many people in too little space) can influence the perception of crowding; however, no empirical research has examined the relationship between store employee cues and consumers' perceptions of time/effort costs in a retail setting. Insights from the limited conceptual research suggest that the number of salespeople on the floor influences customers' time/effort cost perceptions; for example, the presence of more salespeople may indicate that customers will spend less time searching for merchandise. Therefore,

H_{2a}: As customers' perceptions of store employee cues become more favorable, customers will perceive time/effort costs to be lower.

Prior research suggests that salespeople play a critical role in influencing consumers' moods and satisfaction (Grewal and Sharma 1991). According to a component of Barker's (1965) theory of behavioral ecology, when the number of people in a facility is less than the setting requires to function properly, a condition identified in sociology as "understaffing" occurs. The understaffing framework suggests that the number of employees in a store influences customers' perceptions and responses (Wicker 1973). Thus, when too few salespeople are on the floor (relative to customer density), customers can become frustrated and annoyed. Therefore,

H_{2b}: As customers' perceptions of store employee cues become more favorable, customers will perceive psychic costs to be lower.

On the basis of adaptation-level theory and using the same logic we used to develop H_{1c}, we also hypothesize that

H_{2c}: As customers' perceptions of store employee cues become more favorable, customers will perceive monetary prices to be higher.

The understaffing framework (Wicker 1973) also suggests that store employee cues are likely to influence interpersonal service quality perceptions (Baker 1987). The number and appearance of employees in a retail setting are tangible signals of service quality (Parasuraman, Zeithaml, and Berry 1988). Recent research also suggests that employee–customer interactions affect consumers' assess-

ments of service quality (Hartline and Ferrell 1996). Therefore, cues of positive interactions between customers and employees, such as acknowledging customers as they enter the store, also may influence interpersonal service quality perceptions. We predict that

H_{2d}: As customers' perceptions of store employee cues become more favorable, customers will perceive interpersonal service quality to be higher.

Store employee cues are expected to have a positive influence on merchandise quality perceptions. Two studies that include descriptions of store employees as part of the overall store scenario find a positive influence of store environment on merchandise quality perceptions. Gardner and Siomkos (1985) depict salespeople as either sloppily dressed, nasty, and uncooperative or sophisticated, friendly, and cooperative. Akhter, Andrews, and Durvasula (1994) describe store employees in terms of their friendliness and knowledge. Therefore,

H_{2e}: As customers' perceptions of store employee cues become more favorable, customers will perceive merchandise quality to be higher.

Store ambient (music) cues. Research suggests that music that is perceived as favorable may influence consumers' perceptions of the time spent waiting (e.g., Chebat, Gelinias-Chebat, and Filiatrault 1993; Hui, Dubé, and Chebat 1997) and thus should reduce consumers' perceptions of time/effort costs.² Therefore, we hypothesize that

H_{3a}: As customers' perceptions of store music cues become more favorable, customers will perceive time/effort costs to be lower.

Ambient elements also have been associated with affective reactions (e.g., Donovan and Rossiter 1982; Greenland and McGoldrick 1994; Wakefield and Baker 1998), which consumers may experience as psychic costs in a retailing context. Some studies have demonstrated empirically that music influences affective responses in general (e.g., Hui, Dubé, and Chebat 1997) and can alleviate stress in subjects who are forced to wait (Stratton 1992). However, there is a lack of research on the effects of music on psychic costs in retail settings. To address this void and on the basis of the aforementioned studies, we propose that

H_{3b}: As customers' perceptions of store music cues become more favorable, customers will perceive psychic cost to be lower.

Invoking adaptation-level theory and using the same logic we used to develop H_{1c} and H_{2c}, we further hypothesize that

H_{3c}: As customers' perceptions of store music cues become more favorable, customers will perceive monetary prices to be higher.

Ambient cues also may influence customers' perceptions of interpersonal service quality. Several researchers

have advanced conceptual arguments in support of a link between service quality and store environment perceptions as a whole (Baker 1987; Bitner 1992; Greenland and McGoldrick 1994; Kotler 1973). However, no empirical study has examined the specific relationship between in-store music cues and perceived interpersonal service quality. To test whether such a relationship exists, we propose that

H_{3d}: As customers' perceptions of store music cues become more favorable, customers will perceive interpersonal service quality to be higher.

In an observational study, shoppers purchased more expensive (inferred higher quality) wine when classical music was played in a wine store than when Top-40 music was played (Areni and Kim 1993). Furthermore, previous research supports a link between music cues and merchandise quality. One study (Gardner and Siomkos 1985) describes the ambient environment as having either no soothing background music or soothing mood music playing in the background, and another (Akhter, Andrews, and Durvasula 1994) describes it in terms of the pleasantness of the music. On the basis of this evidence, we predict that

H_{3e}: As customers' perceptions of store music cues become more favorable, customers will perceive merchandise quality to be higher.

Determinants of Merchandise Value

Based on Zeithaml's (1988) work, our model proposes that store patronage intentions are a function of merchandise value, interpersonal service quality, and shopping experience cost perceptions. Extensive prior research suggests a positive relationship between perceptions of product quality and value (Dodds, Monroe, and Grewal 1991; Grewal et al. 1998; Sirohi, McLaughlin, and Wittink 1998). Extending this finding to retail settings, we expect that

H₄: The higher consumers' merchandise quality perceptions, the higher their perceptions of merchandise value will be.

Previous studies examining the impact of monetary price on value (e.g., Dodds, Monroe, and Grewal 1991; Grewal et al. 1998; Sirohi, McLaughlin, and Wittink 1998) consistently suggest a negative linkage; that is, the higher the price perceptions, the lower are the product value perceptions. Prior research primarily has examined the effects of manipulated price levels, whereas we focus on the effects of merchandise price level that consumers infer entirely from store environment cues (i.e., when no price information is provided). Nevertheless, we anticipate a similar negative link between perceived monetary price and value in our study. Therefore,

H_{5a}: The higher consumers' monetary price perceptions, the lower their perceptions of merchandise value will be.

The relationship between shopping experience costs and merchandise value remains largely untested. Prior research suggests that consumers incur time/effort costs during the purchase process (Bender 1964; Zeithaml 1988) and that they place a premium on their time (Marmorstein, Grewal, and Fiske 1992). Moreover, "every product has a 'time price' that is implicitly included [in consumers' evaluations]" (Schary 1971, p. 54). Therefore,

²The perceived favorableness of music depends on both the pleasantness of the music and the extent to which the music is perceived as appropriate for the context in which it is played (MacInnis and Park 1991). Both these aspects were captured by our measure of perceived favorableness of store music.

H_{5b}: The higher consumers' time/effort cost perceptions, the lower their perceptions of merchandise value will be.

Using similar logic and consistent with Zeithaml's (1988) model, if consumers are frustrated or annoyed with the in-store experience, they may develop a feeling of "giving up more than I am getting," which may be transferred to the merchandise itself. Thus, negative emotions in the form of psychic costs may decrease perceived merchandise value. As such, we predict that

H_{5c}: The higher consumers' psychic cost perceptions, the lower their perceptions of merchandise value will be.

Determinants of Store Patronage

Although research consistently has shown that the effects of product quality on behavior are largely mediated by value perceptions (Dodds, Monroe, and Grewal 1991), previous studies have found a direct link between service quality and patronage intentions (e.g., Sirohi, McLaughlin, and Wittink 1998; Zeithaml, Berry, and Parasuraman 1996). Therefore,

H₆: The higher consumers' interpersonal service quality perceptions, the higher their store patronage intentions will be.

Perceived product value is regarded as the primary driver of purchase intentions and behavior (Zeithaml 1988). Our research focuses on the broader concept of store patronage intentions, which includes the likelihood of both intending to shop at the store and recommending it to others (see Dodds, Monroe, and Grewal 1991; Zeithaml, Berry, and Parasuraman 1996). Consistent with prior research, we expect a positive link between perceived merchandise value and store patronage intentions.

H₇: The higher consumers' merchandise value perceptions, the higher their store patronage intentions will be.

Although Zeithaml's (1988) model predicts that the influence of time/effort and psychic costs will operate solely through merchandise value, some prior research also suggests that there are direct effects of these costs on store patronage intentions. The poverty-of-time literature (e.g., Berry and Cooper 1992), the crowding literature (e.g., Eroglu and Harrell 1986; Hui and Bateson 1991), and studies on consumer responses to waiting (e.g., Hui, Dubé, and Chebat 1997; Taylor 1994) all suggest that if consumers believe they will spend too much time in a store, they may avoid even entering the store without first processing information about the merchandise value or interpersonal service quality. Thus,

H_{8a}: The higher consumers' perceived time/effort costs, the lower their store patronage intentions will be.

Similarly, there may be a direct link between psychic costs and store patronage intentions. Such a link is consistent with the association between affective reactions and behavioral response posited by Mehrabian and Russell (1974) and supported by marketing studies (e.g., Baker, Grewal, and Levy 1992; Donovan et al. 1994; Hui and Bateson 1991; Wakefield and Baker 1998). We therefore predict that

H_{8b}: The higher consumers' perceived psychic costs, the lower their store patronage intentions will be.

Method

To test the conceptual model, we used videotapes to simulate a store environment experience. This approach has proved effective for environmental representation (e.g., Bateson and Hui 1992; Chebat, Gelinias-Chebat, and Filiatrault 1993; Voss, Parasuraman, and Grewal 1998). The store in the videotape was a card-and-gift store located in a large, southwestern U.S. city. Subjects viewed a five-minute videotape that visually "walked" them through the store environment, simulating a shopping or browsing experience. They then completed a questionnaire that contained items to measure the model constructs.

We conducted one study to test the model shown in Figure 1 and a second study to examine the robustness of the results. In Study 1, the subjects were 297 undergraduate students at a large, southwestern U.S. university. In Study 2, the subjects were 169 undergraduate students at a southeastern U.S. university. The majority of the students were business majors who ranged in age from 20 to 25 years. Shopping in a card-and-gift store is within the realm of experience for the student samples used in both studies; 98% of the subjects indicated that they had shopped in a card-and-gift store.

Experimental Design and Stimuli

To create variation in the environmental stimuli, we produced eight videotaped store scenarios representing low and high levels of design, social, and ambient components in a $2 \times 2 \times 2$ between-subjects research design. The store we videotaped was being remodeled, which enabled us to implement the design manipulations (consisting of changes in color, display accent trim, layout, and general organization of the merchandise) within the same store space. We produced videotapes before the remodeling to represent the low design condition (beige/white color, no gold accent trim, grid layout, and messy displays) and then after the remodeling to represent the high design condition (peach/green color, gold accent trim, free-form layout, and organized displays). We also manipulated store employee cues during the videotaping sessions. The high social level featured three salespeople wearing professional-looking aprons, one of them greeting "customers" (respondents) as they visually entered the store. The low social level featured just one salesperson who did not wear an apron and did not greet customers. Type of music, which is relatively easy and inexpensive to change from a retailer's standpoint, represented the ambient dimension in our study. We manipulated it by dubbing onto the finished videotapes either classical music (high level) or Top-40 music (low level).³ Both music

³Five types of music—classical, Top-40, country-and-western, oldies, and easy listening—were pretested. The respondents (157 upper-level undergraduate business students) listened to all five selections and used seven-point scales to rate the likelihood that each selection would be heard at high- and low-image stores. The five selections then were rank ordered from highest to lowest on the basis of the mean ratings. The classical selection ranked as the music most associated with the high-image store. The Top-40 selection was the second lowest ranked music but was chosen because this type of music was deemed more likely to be used by a card-and-gift store than was country-and-western music, which was the lowest ranked music.

selections had a slow tempo to avoid any possible tempo effect. Although the ambient dimension includes elements other than music (e.g., scent, temperature), we could not vary those elements in the videotaped scenarios.

To identify specific environmental attributes to be included in the videotaped scenarios, we invoked insights from the marketing and retailing literature and conducted two focus groups (one student and one nonstudent) to elicit what consumers considered high and low levels of each dimension. Manipulation checks indicated that the treatment manipulations had the intended effect on the three measured factors (i.e., perceived store design cues, store employee cues, and store music cues).⁴

Measures

We used multi-item scales to measure the model constructs (Table 2 contains the scale items). Literature from environmental psychology (e.g., Mehrabian and Russell 1974; Russell and Pratt 1981), retailing (e.g., Donovan and Rossiter 1982), and marketing (e.g., Bitner 1990; Gardner and Siomkos 1985) provided the basis for the store environment perception and psychic cost scales. We derived scale items for the other constructs from the price, quality, and value literature. Time/effort cost items were based on Zeithaml's (1988) conceptualization of nonmonetary price and adapted from Dodds, Monroe, and Grewal's (1991) scales. We developed monetary price measures from items suggested by Dodds, Monroe, and Grewal (1991) and Zeithaml (1984). We adapted the four interpersonal service quality items from the SERVQUAL scale (Parasuraman, Zeithaml, and Berry 1988). We measured merchandise quality, merchandise value, and store patronage intentions with scales developed by Dodds, Monroe, and Grewal (1991). We pretested the questionnaire several times and refined it on the basis of the pretest results.⁵

⁴To ensure that the manipulations produced the intended effects, we conducted manipulation checks in a pretest and again in the main study. In the high store employee level, the salesperson was perceived as significantly more friendly and helpful than in the low level (pretest means = 5.52 versus 4.12, $p < .05$ [one-sided]; main study means = 5.25 versus 4.01, $p < .01$). The high design level was perceived to be more attractive and pleasing than was the low level (pretest means = 5.55 versus 5.16, $p < .05$; main study means = 5.61 versus 5.35, $p < .05$). Finally, subjects perceived the classical music as creating a more positive ambience than the Top-40 music (pretest means = 5.58 versus 3.64, $p < .01$; main study means = 5.42 versus 3.85, $p < .01$). Thus, the three experimentally manipulated variables created the desired variation.

⁵The purpose of the experimental manipulations in our study was to create sufficient variation in perceived environmental conditions. To estimate the paths in our structural model (Figure 1), we pooled the scaled responses across treatments. However, to ensure that such pooling was justifiable, one reviewer suggested that we conduct analyses of variance to examine if there were any significant interaction effects. We assessed the impact of all two-way and three-way treatment interactions on each of the seven endogenous variables across the two studies—a total of 56 interaction tests. The results indicated that only 5 of the 56 interaction effects were significant at the $p < .05$ level; moreover, none of the interaction effects was significant in both studies. These results suggest that any interaction effect among the endogenous variables was negligible.

Following Anderson and Gerbing (1988), we conducted confirmatory factor analysis to assess the reliability and validity of the multi-item scales for the ten model constructs (Table 2). Although the chi-square (χ^2) value for the measurement model was significant for both data sets ($p < .01$), this statistic is sensitive to sample size and model complexity; as such, the goodness-of-fit index (GFI), nonnormed fit index (NNFI), and comparative fit index (CFI) are more appropriate for assessing model fit here (e.g., Bagozzi and Yi 1988; Bearden, Sharma, and Teel 1982).

For Study 1, the GFI (.89), NNFI (.94), and CFI (.95) indicate satisfactory model fit. Furthermore, all the individual scales exceeded the recommended minimum standards proposed by Bagozzi and Yi (1988) in terms of construct reliability (i.e., greater than .60) and percentage of variance extracted by the latent construct (greater than .50). Although the measurement model fit the Study 2 data somewhat less well, the construct reliability scores again exceeded .60, and the percentage of variance extracted by the latent construct exceeded .50 for all scales except the merchandise value perception scale.

Next, we assessed whether the measurement model satisfied three conditions that demonstrate discriminant validity: (1) For each pair of constructs, the squared correlation between the two constructs is less than the variance extracted for each construct; (2) the confidence interval for each pairwise correlation estimate (i.e., \pm two standard errors) does not include the value of 1; and (3) for every pair of factors, the χ^2 value for a measurement model that constrains their correlation to equal 1 is significantly greater than the χ^2 value for the model that does not impose such a constraint. Collectively, these conditions represent 360 individual tests of discriminant validity. Of these 360 tests, only 1 suggested that two of our constructs might not be distinct; namely, the squared correlation between perceived merchandise value and store patronage intentions for the Study 2 data exceeded the variance extracted for the perceived merchandise value construct. On the basis of these results, we conclude that our scales measure ten distinct constructs. Construct correlation estimates, along with standard errors for both data sets, are provided in Table 3.⁶

Analysis and Results

The purpose of Study 1 was to examine how well the proposed conceptual model (Figure 1) fit the data and to explore improvements to the model. The purpose of Study 2 was to evaluate the robustness of the Study 1 results by (1) reestimating the model suggested by the Study 1 sample to determine if the same relationships held for a new sample and (2) statistically comparing the parameter estimates from the two samples to ascertain whether there were significant differences.

⁶The pairwise correlations presented in Table 3 indicate that the magnitude of correlation for the closely related constructs of time/effort cost perceptions and psychic cost perceptions ranges from .39–.47, which implies that the shared variance between this pair of constructs is in the range of 15%–22%. We believe that this is a relatively low degree of overlap, likely due to the perceptions sharing a “common cause”: They are all triggered by the same set of store environment cues.

TABLE 2
Measurement Model Results for Study 1 and Study 2

Items	Study 1				Study 2			
	Lambda Loadings	Construct Reliability	Variance Extracted	Mean (Standard Deviation)	Lambda Loadings	Construct Reliability	Variance Extracted	Mean (Standard Deviation)
Design Perceptions		.76	.52	5.53		.82	.61	5.77
Pleasing color scheme	.75			(1.04)	.84			(1.08)
Attractive facilities	.74				.81			
Organized merchandise	.66				.68			
Employee Perceptions		.89	.73	4.62		.92	.80	4.13
Well-dressed employees	.73			(1.44)	.81			(1.83)
Friendly employees	.94				.97			
Helpful employees	.88				.91			
Music Perceptions		.90	.75	4.63		.87	.70	4.99
Pleasant music	.95			(1.77)	.96			(1.65)
Appropriate music	.84				.80			
Bothersome music	.79				.73			
Time/Effort Cost Perceptions		.76	.52	3.25		.78	.55	3.17
Shopping effort	.65			(1.23)	.67			(1.28)
Time sacrifice	.77				.78			
Search effort	.73				.77			
Psychic Cost Perceptions		.79	.56	1.66		.86	.67	1.68
Unpleasant atmosphere	.76			(.77)	.81			(.90)
Displeasing atmosphere	.79				.85			
Uncomfortable atmosphere	.69				.79			
Monetary Price Perceptions		.70	.54	4.37		.68	.52	4.73
Expensive gifts	.84			(1.19)	.78			(1.29)
Too much money	.61				.66			
Interpersonal Service Quality Perceptions		.85	.58	4.98		.80	.51	5.31
Treated well	.71			(1.10)	.66			(1.03)
Personal attention	.77				.75			
High-quality service	.78				.81			
Prompt service	.78				.62			
Merchandise Quality Perceptions		.73	.58	4.89		.77	.63	5.21
High-quality gifts	.78			(1.01)	.75			(1.13)
High workmanship	.74				.83			
Merchandise Value Perceptions		.75	.50	3.82		.64	.38	4.13
Fair gift prices	.74			(.94)	.66			(.93)
Good value	.67				.49			
Economical gifts	.71				.67			
Store Patronage Intentions		.88	.71	4.94		.84	.64	5.09
Willing to recommend	.81			(1.22)	.81			(1.15)
Willing to buy	.87				.83			
Shopping likelihood	.84				.76			
Fit Statistics								
χ^2 with 332 d.f.	549.5				627.4			
GFI	.89				.81			
NNFI	.94				.86			
CFI	.95				.89			
Standardized root mean square residual	.05				.07			

Notes: In the questionnaire, the ordering of items was randomized. The psychic cost perceptions items were measured on a six-point scale that indicated how accurately each adjective described the environment ("extremely accurate" to "extremely inaccurate"). All other items were measured on seven-point scales anchored by "strongly agree" and "strongly disagree."

TABLE 3
Construct Correlations (and Standard Errors) for Study 1 and Study 2

	1	2	3	4	5	6	7	8	9	10
1. Design perceptions		.39 (.07)	.28 (.08)	-.31 (.09)	-.63 (.06)	.32 (.09)	.66 (.06)	.58 (.07)	.15 (.10)	.55 (.07)
2. Employee perceptions	.40 (.06)		.14 (.08)	-.05 (.09)	-.18 (.08)	-.10 (.09)	.46 (.07)	.03 (.09)	.21 (.09)	.27 (.08)
3. Music perceptions	.30 (.06)	.22 (.06)		-.13 (.09)	-.41 (.07)	.00 (.10)	.24 (.08)	.18 (.09)	.09 (.10)	.29 (.08)
4. Time/effort cost perceptions	-.43 (.07)	-.15 (.07)	-.16 (.07)		.39 (.08)	.10 (.10)	-.24 (.09)	-.14 (.10)	-.13 (.11)	-.32 (.09)
5. Psychic cost perceptions	-.68 (.05)	-.23 (.06)	-.31 (.06)	.47 (.06)		-.06 (.10)	-.38 (.08)	-.29 (.09)	-.17 (.10)	-.54 (.07)
6. Monetary price perceptions	.22 (.07)	.08 (.07)	-.10 (.07)	.25 (.07)	-.04 (.08)		.25 (.10)	.53 (.09)	-.56 (.09)	-.09 (.10)
7. Interpersonal service quality perceptions	.57 (.05)	.55 (.05)	.28 (.06)	-.20 (.07)	-.40 (.06)	.16 (.07)		.62 (.07)	.31 (.10)	.56 (.07)
8. Merchandise quality perceptions	.63 (.06)	.29 (.07)	.24 (.07)	-.14 (.08)	-.39 (.07)	.50 (.07)	.58 (.06)		.07 (.11)	.63 (.07)
9. Merchandise value perceptions	.18 (.07)	.22 (.07)	.27 (.07)	-.23 (.07)	-.23 (.07)	-.64 (.06)	.33 (.07)	.13 (.08)		.71 (.07)
10. Store patronage intentions	.57 (.05)	.24 (.06)	.30 (.06)	-.49 (.06)	-.54 (.05)	-.02 (.07)	.47 (.05)	.42 (.06)	.47 (.06)	

Notes: Study 1 construct correlations (and standard errors) appear below the diagonal; Study 2 construct correlations (and standard errors) appear above the diagonal.

Study 1: Evaluating the Proposed Model

We tested the hypothesized relationships using maximum-likelihood simultaneous estimation procedures (LISREL-VIII; Jöreskog and Sörbom 1996). Consistent with MacKenzie and Lutz's (1989) recommendations, we represented each latent construct with a single index that we calculated by averaging the item scores on the construct's scale. We established the scale of measurement for each construct by fixing its loading (λ) to be the square root of its reliability, and we incorporated potential measurement error into each scale by setting the error term at one minus the construct reliability. Because there was a variety of measurement scales for the different constructs, we used a correlation matrix as the input.

We first evaluated the proposed model by estimating the standardized path coefficients for the hypothesized links in Figure 1. The column labeled "Proposed Model" in Table 4 presents these coefficients. The χ^2 value for this model was significant ($p < .01$), but the GFIs indicated satisfactory fit. Of the 23 proposed relationships, 14 were statistically significant.

We then constrained the 9 nonsignificant paths to zero and reestimated the structural model. The results are summarized in the "Revised Model" column of Table 4. The 14 remaining paths were statistically significant. Although the χ^2 value for the revised model was somewhat higher, any corresponding decrease in fit compared with the original model was not significant (χ^2 difference = 9.2, 9 degrees of freedom [d.f.], $p > .10$). Moreover, the other fit indices were virtually the same as those for the original model.

The results from Study 1 suggest eliminating three sets of paths: (1) from employee cue perceptions to time/effort cost perceptions, psychic cost perceptions, monetary price

perceptions, and merchandise quality perceptions; (2) from music cue perceptions to time/effort cost perceptions, interpersonal service quality perceptions, and merchandise quality perceptions; and (3) from time/effort and psychic cost perceptions to merchandise value perceptions. Figure 2 shows the revised model after deleting these paths.

Study 2: Replicating the Revised Model

We used Study 2 to examine the robustness of the model in Figure 2. The revised model fit the data from Study 2 well. The "Replication Analysis" column of Table 4 contains the fit statistics. Of the 14 paths that were statistically significant in Study 1, 12 were also significant in Study 2. The paths from music cue perceptions to monetary price perceptions and from time/effort cost perceptions to store patronage intentions were nonsignificant.

We then assessed whether the strength of the relationships observed in the two studies was statistically different by testing the equivalence of the parameter estimates across samples using multigroup analysis (Jöreskog and Sörbom 1996). First, we estimated the revised model by constraining all parameters to equality across the two samples (see the "Multisample Analysis" column in Table 4). This analysis produced an overall χ^2 value of 142.0 (with 80 d.f.). Second, allowing a single parameter estimate to vary freely between the two samples, we estimated a second χ^2 (with 79 d.f.) and evaluated the χ^2 difference (with 1 d.f.). A significant χ^2 difference implies a significant difference in the strength of the corresponding link across the two samples. We conducted 14 such tests. Of the 14 links examined, the strength of only 1 differed significantly between the two samples; namely, the relationship between merchandise value perceptions and store patronage intentions was much stronger in the replica-

TABLE 4
Standardized Coefficients and Fit Statistics for the Proposed Model, the Replication Analysis, and the Multisample Analysis

Hypothesized Paths	Expected Sign	Proposed Model	Revised Model	Replication Analysis	Multisample Analysis
H _{1a} Design perceptions → time/effort cost perceptions	-	-.44**	-.43**	-.35**	-.40**
H _{1b} Design perceptions → psychic cost perceptions	-	-.71**	-.67**	-.56**	-.62**
H _{1c} Design perceptions → monetary price perceptions	+	.22**	.22**	.28**	.24**
H _{1d} Design perceptions → interpersonal service quality perceptions	+	.41**	.45**	.56**	.49**
H _{1e} Design perceptions → merchandise quality perceptions	+	.54**	.61**	.57**	.59**
H _{2a} Employee perceptions → time/effort cost perceptions	-	.07			
H _{2b} Employee perceptions → psychic cost perceptions	-	.10			
H _{2c} Employee perceptions → monetary price perceptions	+	.00			
H _{2d} Employee perceptions → interpersonal service quality perceptions	+	.35**	.34**	.29**	.31**
H _{2e} Employee perceptions → merchandise quality perceptions	+	.11			
H _{3a} Music perceptions → time/effort cost perceptions	-	-.08			
H _{3b} Music perceptions → psychic cost perceptions	-	-.14*	-.10*	-.25**	-.16**
H _{3c} Music perceptions → monetary price perceptions	+	-.21**	-.23**	-.11	-.19**
H _{3d} Music perceptions → interpersonal service quality perceptions	+	.08			
H _{3e} Music perceptions → merchandise quality perceptions	+	.05			
H ₄ Merchandise quality perceptions → merchandise value perceptions	+	.57**	.62**	.70**	.64**
H _{5a} Monetary price perceptions → merchandise value perceptions	-	-.88**	-.92**	-.86**	-.91**
H _{5b} Time/effort cost perceptions → merchandise value perceptions	-	.03			
H _{5c} Psychic cost perceptions → merchandise value perceptions	-	-.06			
H ₆ Interpersonal service quality perceptions → store patronage intentions	+	.21*	.21**	.27**	.23**
H _{7^a} Merchandise value perceptions → store patronage intentions	+	.27**	.27**	.60**	.37**
H _{8a} Time/effort cost perceptions → store patronage intentions	-	-.24**	-.24**	-.05	-.17**
H _{8b} Psychic cost perceptions → store patronage intentions	-	-.30**	-.30**	-.32**	-.31**
Fit Statistics					
d.f.		16	25	25	80
χ^2		47.7	56.9	52.5	142.0
GFI		.97	.97	.94	.93
NNFI		.88	.92	.89	.94
CFI		.96	.96	.94	.95
Standardized root mean square residual		.04	.05	.05	.06

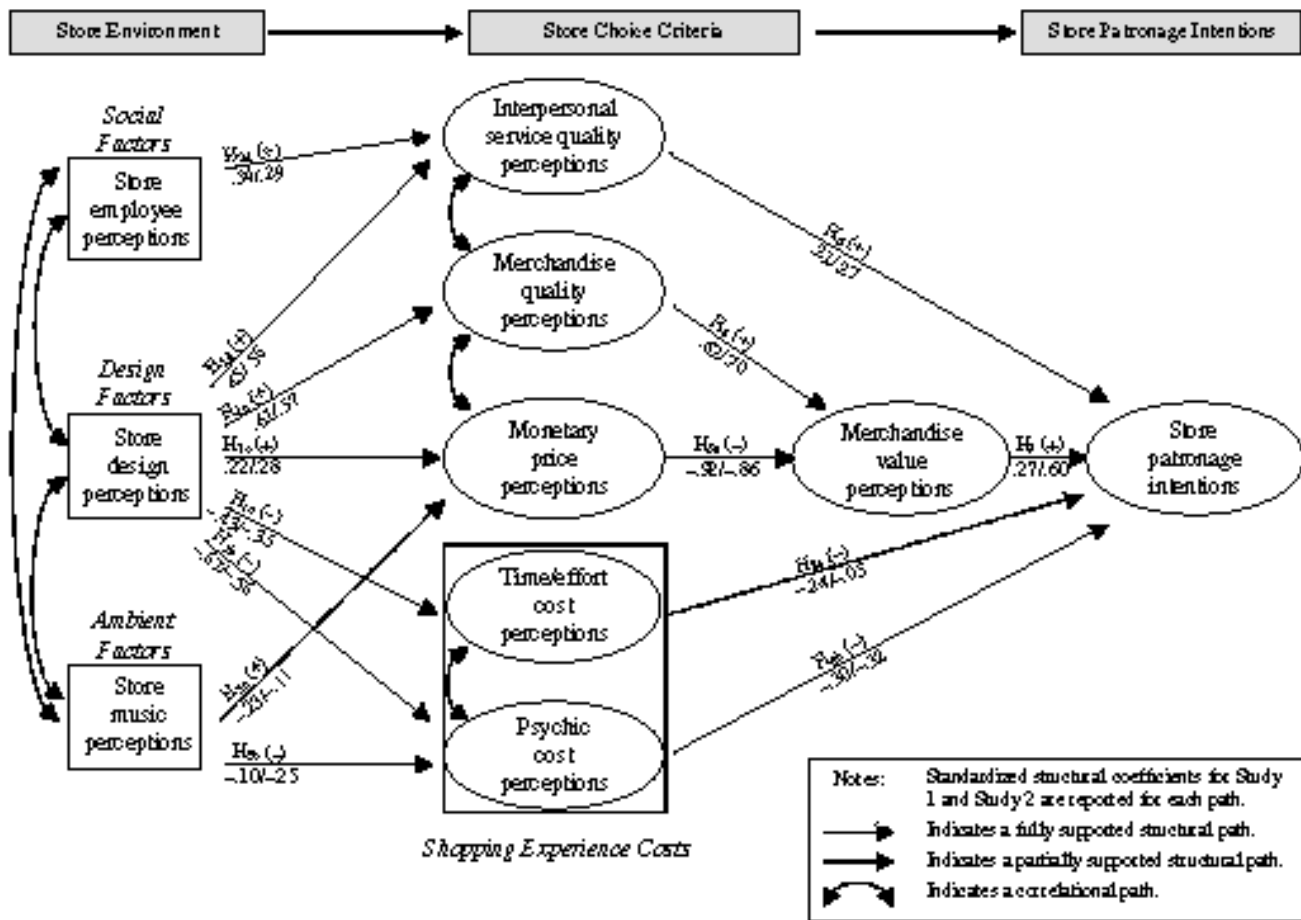
*Coefficient is significant at $p < .05$.

**Coefficient is significant at $p < .01$.

^aCoefficients are significantly different across data sets ($p < .05$).

FIGURE 2

A Revised Model of the Prepurchase Process of Assessing a Retail Outlet on the Basis of Environmental Perceptions



tion analysis. Thus, the relationships in the revised model appear to be robust across the two studies.⁷

Exploring the Predictive Validity of the Revised Model

Because our study represents one of the first attempts to test empirically a comprehensive retail patronage model, we were interested in examining the predictive validity of the revised model and exploring the relative contribution of the predictor variables in explaining variations in the two key criterion variables: perceived merchandise value and store patronage intentions. To examine these issues, we used the

⁷We also explored the possibility that demographic differences across the two samples might explain the different findings across samples. Sample 2 was significantly older and contained a higher percentage of women. Because previous research has suggested that women perceive environmental cues differently than men, we split the combined samples on the basis of sex and reexamined the structural relationships for both groups. This analysis did not indicate that men and women reacted in a significantly different manner.

multisample analysis mentioned previously. We summarize the results in Table 5.

As Table 5 shows, the model explained a high percentage of the variation in perceived merchandise value (68%), and its most important predictor was monetary price perceptions (-.91). Other significant predictors of value included merchandise quality perceptions, which had a direct, positive effect (.64); design cue perceptions, which had an indirect, positive effect (.16); and music cue perceptions, which had an indirect, positive effect (.17).

The model also explained a high percentage of the variation in store patronage intentions (54%), and all predictor variables had significant direct or indirect effects. As might be expected, merchandise value perceptions had the strongest direct effect (.37), but psychic cost perceptions also had a strong direct effect (-.31), time/effort cost perceptions had a significant direct effect (-.17), and interpersonal service quality had a significant direct effect (.23). Perceptions of store environment (especially design cue perceptions), merchandise quality perceptions, and monetary price perceptions all had significant indirect effects on store patronage intentions.

TABLE 5
Examining Indirect, Direct, and Total Effects of Predictor Variables on Merchandise Value Perceptions and Store Patronage Intentions

Predictor Variables	Merchandise Value Perceptions			Store Patronage Intentions		
	Indirect Effect	Direct Effect	Total Effect	Indirect Effect	Direct Effect	Total Effect
Design perceptions	.16 (2.80)		.16 (2.80)	.43 (10.46)		.43 (10.46)
Employee perceptions				.07 (3.82)		.07 (3.82)
Music perceptions	.17 (3.37)		.17 (3.37)	.11 (4.34)		.11 (4.34)
Monetary price perceptions		-.91 (-11.26)	-.91 (-11.26)	-.34 (-6.77)		-.34 (-6.77)
Merchandise quality perceptions		.64 (8.69)	.64 (8.69)	.24 (5.99)		.24 (5.99)
Interpersonal service quality perceptions					.23 (4.58)	.23 (4.58)
Time/effort cost perceptions					-.17 (-3.21)	-.17 (-3.21)
Psychic cost perceptions					-.31 (-5.68)	-.31 (-5.68)
Merchandise value perceptions					.37 (7.85)	.37 (7.85)
Squared multiple correlation			.68			.54

Notes: Standardized path estimates are reported with t-values in parentheses. All path estimates are significant at $p < .01$.

Discussion and Implications

Important linkages among store environment cues, store choice criteria, and store patronage intentions have been investigated on a piecemeal basis, if at all, in previous conceptual and empirical studies (see Table 1). As such, our conceptual model (Figure 1) contributes to the extant literature by offering an integrative synthesis of insights from previous studies, as well as from the theories invoked in positing the relationships in the model. In addition, to our knowledge, our research is the first attempt to examine empirically a comprehensive store patronage model. Our research is also the first to examine empirically the effects of shopping experience costs (i.e., time/effort and psychic costs) on merchandise value and patronage intentions. Although time/effort and psychic costs have been proposed as determinants of perceived value (e.g., Zeithaml 1988), they have not been operationalized, nor have their effects been assessed empirically in a retailing context.

By simultaneously varying three sets of store environment cues in videotaped scenarios and assessing their individual impacts on respondents' store choice criteria, our research provides some insight into the differential effects of the cues, something that heretofore has not been investigated. However, because the findings from our study do not support some of the hypothesized links, our inferences about the relative effects of store environment cues are necessarily preliminary. Nevertheless, the lack of support for some of the links, along with some surprising findings (e.g., the finding that the effects of shopping experience costs on patron-

age intentions are not mediated through perceived merchandise value perceptions), raises intriguing issues that pertain to the cognitive/behavioral processes that may underlie the empirical results and the boundary conditions for the observed effects. We identify and discuss these issues in the following sections.

Limitations

As is usually the case with studies conducted in simulated environments, our research has some shortcomings. Videotaped scenarios, though more experiential and realistic than written scenarios (the type of stimuli used in many studies), are not capable of representing the full range of environmental attributes, especially in the ambient dimension. Because of this technological limitation, the stimuli in our study captured a wider range of attributes in the design dimension than in the social or ambient dimensions. Therefore, a potential explanation for the strong design effects observed in our study is that the nature of the shopping experience simulated by the videotaped scenarios might have caused respondents to pay less attention to the employees and music than they would have during an actual shopping trip. However, our manipulation checks (summarized in n. 4) reveal that all three manipulations produced significant differences and that the differences produced by the employee and music manipulations are more pronounced. Therefore, the relatively strong design cue effects seem unlikely to have been triggered by an experimental artifact. Nevertheless, additional research using videotaped scenar-

ios should incorporate more facets of the social dimension (e.g., presence of other customers, crowding, waiting lines) and ambient dimension (e.g., music tempo, noise levels) to produce stimuli that are more balanced across the three store environment dimensions. In case respondents deliberately look for cues because they know they are reacting to a simulated environment, a balanced scenario will offer similar opportunities for the various cues to be noticed.

Different store scenarios incorporating greater cue variety also will help address other issues, such as whether the number and types of customers in a store influence the respondents' (i.e., potential customers') perceptions. In addition, will the absence of social (employee) cue effects on time/effort and psychic cost perceptions (revealed in Table 4) hold when customer crowding is varied along with number of salespeople? In other words, will having many easily recognizable salespeople in a store have a more pronounced effect on shopping experience costs when the store is crowded than when it is not, as was the case in our research?

Another limitation of our research is that two of the ten constructs in our model (monetary price and merchandise quality) were measured with two-item scales. Although both scales have acceptable construct reliabilities in Studies 1 and 2 (Table 2), their reliabilities are generally lower than for the other constructs.

Theoretical and Research Implications

As the results in Table 4 and Figure 2 show, design cues have a stronger and more pervasive influence on customer perceptions of the various store choice criteria than do store employee and music cues. As we argued in the preceding section, this influence is unlikely to have been due solely to the content of the videotaped scenarios. Bettman (1979) suggests that in external search for information, consumers may allocate different amounts of processing capacity (i.e., attention) to various stimuli. Given that design cues are visual whereas ambient cues tend to affect the subconscious (Baker 1987), it is possible that subjects in our study paid more conscious attention to design cues than to music cues. Moreover, prior research on memory has found that because pictures have a superior ability to evoke mental imagery, they are more easily remembered than verbal information (e.g., Lutz and Lutz 1978; Paivio 1969). Although this stream of research focuses on pictures versus verbal stimuli (e.g., written words), it suggests that design cues in a store environment may evoke more vivid mental images than do music cues. The dominance of design cues over employee cues may have occurred because subjects experienced the latter only during the initial minute of the videotaped scenario as they entered the store and started browsing. Nevertheless, given that store environments typically contain more design cues than employee cues, consumers in such environments might experience these cues in a manner similar to the way our study subjects experienced them.

In addition to the respondents' cognitive processes in interpreting the store scenarios, contextual factors (e.g., type of store, product category) may offer alternative explanations for the findings. We explore these possibilities and

offer directions for further research as we discuss the key results pertaining to each of the endogenous constructs.

Shopping experience costs. As hypothesized, design cue perceptions have a significant, negative effect on time/effort and psychic cost perceptions in both studies. Moreover, this effect is consistently stronger for the psychic cost component than for the time/effort cost component (e.g., the structural coefficients for the two components in the multisample analysis, as shown in the last column of Table 4, are $-.62$ and $-.40$, respectively). Thus, although design aspects influence perceived shopping speed and efficiency, they have an even stronger impact on the perceived stress involved in shopping, which is an important finding worthy of further research.

Employee cue perceptions have no impact on either time/effort or psychic costs. Our rationale for hypothesizing these effects (H_{2a} and H_{2b}) was based solely on limited conceptual work (see Table 1). Therefore, our research is an inaugural attempt to examine these hypotheses empirically. However, because the lack of support for them was consistent across two studies and because the manipulation checks showed that the employee cue manipulations produced the intended effects (n. 4), purchasing context is a plausible explanation for this finding. In other words, consumers may possess various schemas for different types of retail stores and/or product categories that moderate the strength of the hypothesized links. Questions such as the following can help structure research that attempts to examine the generalizability of this finding and boundary conditions for it: Is the apparent lack of impact of employee cues on shopping experience costs limited to stores that are typically self-service, as the store was in our study? Is the impact likely to vary across different categories of retail establishments (e.g., restaurants, supermarkets, jewelry stores, discount outlets) and different types of merchandise (e.g., food, groceries, luxury products, durable goods)?

Music cue perceptions have a consistent but modest negative effect on perceived psychic costs. This finding coincides with that of the only previous empirical study pertaining to this hypothesized effect (Stratton 1992). Music cues did not have a significant impact on perceived time/effort costs, contrary to what we posited on the basis of past studies (which, as Table 1 shows, all have been conceptual). Our conceptual rationale for suggesting relationships between music cue perceptions and the two types of shopping experience costs was basically the same; namely, favorable music perceptions would alleviate both types of costs. This rationale requires rethinking in light of the differential effects revealed by the simultaneous empirical examination of music's impact on time/effort and psychic costs. Many prior marketing studies have found that music has an affective influence on consumers (e.g., Bruner 1990), but few have examined the cognitive effects of music. In our study, psychic costs were more affective in nature than were time/effort costs. Several time-perception studies have found cognitive effects of music in terms of time duration estimation (e.g., Kellaris and Mantel 1994). However, in these studies, respondents were asked to estimate actual time duration after being exposed to pieces of music rather than to infer in-

store time/effort costs on the basis of music cues. Therefore, why music cues might have a differential impact on the two types of costs (and, in a broader sense, why music cues might have different influences on affective and cognitive responses) and whether the nature of that impact might vary across different purchasing contexts remain important issues for further research.

Monetary price. Findings from both studies offer support for the hypothesized positive effect of store design perceptions on perceived monetary price (i.e., a high image store design leads to correspondingly high expected prices). However, our results show no significant effect of employee cues in either study. The effect of music cues is significant in Study 1 but not in Study 2. As discussed in footnote 6, this difference is unlikely to have been caused by demographic differences between the two study samples. Moreover, the effect in Study 1 is negative, contrary to the hypothesized direction. Because both studies used the same study context, the presence of the unexpected negative effect in Study 1 but not Study 2 suggests that the effect observed in Study 1 may be spurious; that is, similar to the effect of employee cues, in reality the effect of music on monetary price perceptions may be negligible rather than negative.

In developing our hypotheses, we invoked adaptation-level theory (Helson 1964) to argue that customers would use the overall store environment as a frame of reference to make predictions about prices; in other words, more favorable (i.e., higher image) perceptions of all three types of environmental cues (design, employees, and music) would lead customers to expect higher monetary prices. No empirical studies pertaining to any of these posited links were available. Our study fills this empirical void and suggests a need for more theoretical work to understand the differential effects of the various cues. The findings suggest that the predicted positive relationship holds only for visual, design-related cues. Why it might not apply to other types of cues and whether and how product or store contexts might influence it require additional research.

Merchandise quality. Design cue perceptions are the only significant antecedents of merchandise quality perceptions, and their impact is consistently strong across studies. We did not find that employee and music perceptions affected merchandise quality perceptions, though two previous empirical studies find such links (Akhter, Andrews, and Durvasula 1994; Gardner and Siomkos 1985). A key methodological difference between those studies and the current research is that their stimuli included only two descriptive scenarios—high image and low image—in which employee and music cues were provided through written descriptions. In contrast, our research used eight videotaped scenarios in which all three types of cues were manipulated. Therefore, a plausible explanation for the differences in the results is that the respondents in the preceding two studies may have paid more explicit attention to the written descriptions of the employees and music, thereby accentuating their impact. Moreover, the written descriptions in some cases used wording that was extreme and/or leading (e.g., “sloppily dressed, nasty, and uncooperative” salespeople versus “sophisticated, friendly, and cooperative”

salespeople). In our videotaped scenarios, the employee and music cues were part of a more realistic overall store environment. A contribution of our research, and one of its strengths compared with previous studies, is the examination of consumers’ reactions to multiple store environment cues presented simultaneously in as realistic a simulated environment as was allowed by the videotaping technology we used. As such, the differential effects our results reveal augment the extant literature and call for additional research to understand the differences better.

Interpersonal service quality. Our research focused on just the interpersonal component of service quality. As hypothesized, employee and design cues significantly affect interpersonal service quality perceptions, but music cues have no significant impact on them. Whereas one previous study shows a positive link between perceptions of music and overall store service (Chebat 1997), our findings suggest that perceptions of the interpersonal component of customer service are independent of music perceptions. A plausible explanation for these findings, previously discussed, is that when customers process auditory and visual cues to predict the level of personal service they are likely to receive, the visual cues projected by a store’s design and employees dominate. An area for further inquiry is the identification of circumstances or contexts in which auditory cues may convey information to customers about interpersonal service quality.

Merchandise value. Our empirical findings regarding the determinants of perceived merchandise value are consistent with the general notion that customers infer value by trading off what they give up relative to what they are likely to get (e.g., Zeithaml 1988). However, our results offer additional and somewhat surprising insights about merchandise value perception formation in a retailing context. Specifically, of the four hypothesized drivers of perceived merchandise value—time/effort costs, psychic costs, merchandise quality, and monetary price—only the last two are significant. The finding that neither time/effort nor psychic costs influences perceived merchandise value runs counter to the commonly held belief that both monetary and nonmonetary price are integral to the “give” component of perceived value. Contrary to what the extant literature (e.g., Zeithaml 1988) suggests, when customers assess merchandise value before purchase in a retailing context, they apparently do not integrate monetary price and time/effort and psychic costs in inferring what they must give up. Rather, their value assessments seem to rest solely on the trade-off between monetary price and merchandise quality.

Because this inference challenges conventional knowledge about the cognitive processes that customers use in perceiving value, researching its robustness should be a high priority. Woodruff (1997) offers theoretical arguments to propose that value is a dynamic construct whose content and evaluative criteria change as customers gain experience. Consistent with this dynamic notion of value and based on our findings, one useful avenue for further research is to examine empirically value perceptions at different stages of the purchase process. By the very nature of the scenarios and measures we used, all perceptual data collected in this

research pertained to potential customers' prepurchase evaluations. Will similar findings emerge in postpurchase contexts? That is, will customers' actual purchase or use experience make psychic and time/effort costs more salient when customers take stock of the overall value they received? If so, are they more likely to integrate monetary and nonmonetary prices in postpurchase contexts? Will psychic and time/effort costs still have a direct impact on patronage intentions, or will their impact be mediated by perceived value? A related question worth investigating is how much more consumers are willing to pay to avoid the time/effort and psychic costs associated with longer waits due to insufficient staff and/or poorly designed stores. Answers to these questions will enrich our understanding of perceived value formation.

Our results also suggest that perceived monetary price, relative to merchandise quality, has a substantially stronger influence on perceived merchandise value, even though the videotaped scenarios contained no price information. Is this finding unique to gifts purchased in a card-and-gift store (i.e., small-ticket items bought from relatively small stores to be given to someone else), or does it extend to other merchandise and store types (e.g., a luxury item for personal use purchased from a large specialty store)? Evidence suggesting that perceived monetary price's dominant role transcends merchandise and store types would call into question the conventional wisdom and popular belief that superior merchandise quality can offset any erosion in perceived value caused by high prices. More research is needed to develop a clearer understanding of store environment's influence on potential customers' monetary price perceptions and the role of these perceptions on perceived value formation.

Store patronage intentions. All four hypothesized antecedents of store patronage intentions—interpersonal service quality, merchandise value, time/effort costs, and psychic costs—significantly influence patronage intentions, as was shown by the multisample analysis results; perceived merchandise value and psychic costs are particularly strong determinants of patronage intentions. However, there are a couple of notable differences between the two studies. In the replication study, the impact of time/effort costs is considerably weaker, and the impact of merchandise value is considerably stronger. As explained in footnote 6, demographic differences between the two samples probably cannot explain these results. Differences in relevant respondent attributes that are not measured in our research might account for the between-sample differences in the strengths of the effects of time/effort costs and merchandise value. This possibility calls for research aimed at identifying such attributes and examining whether customer segments defined by those attributes react differently to the same store environment cues.

Finally, the insights from this research are based on perceptual and intention measures provided by respondents after they finished viewing the videotaped scenarios. Further research could supplement these measures with more qualitative methodologies, such as having respondents generate verbal protocols as they experience the store scenarios. Additional insights from such interpretive research might

provide a richer understanding of the process by which store environment cues influence customers. For example, which cues do customers notice first? Which cues are noticed most often? What interpretations do customers attach to specific cues, and do those interpretations vary across customers?

Managerial Implications

As implied by our discussion in the preceding sections, our research both offers new and significant insights and emphasizes the need for continuing research to examine the generalizability of our findings and enhance our understanding of the impact of store environment cues on store choice criteria and patronage intentions. Therefore, any recommendations for retailing practice based on our findings should be viewed more as food for thought than as a definitive prescription. With that caveat in mind, managers can benefit by considering the following practical implications that stem from our research.

The significant and consistent influence of design cues on shopping experience costs, especially psychic costs (see the first two rows of Table 4), underscores the need for retailers to give careful consideration to store design features (e.g., store layout, arrangement of merchandise). These features have great potential to influence would-be shoppers' psychic costs and therefore their shopping experience and store patronage behavior. As Table 5 shows, among the various direct and indirect determinants of patronage intentions, design cues have the strongest influence, with a total effect of .43. Creating a superior in-store shopping experience is critical and could provide an effective competitive weapon for bricks-and-mortar retailers that face growing competition from Internet-based e-tailers offering similar merchandise at the same (or lower) prices.

Although our research focuses on bricks-and-mortar stores, the nature and strength of the findings suggest that we can extend some of their implications to e-stores as well. Specifically, according to our findings pertaining to design factors and because design is the dominant (if not only) environmental component of e-shoppers' experience, it seems reasonable to speculate that the design of e-stores (e.g., appearance and layout of home pages) may affect e-shoppers' perceived psychic costs significantly and thus their propensity to shop at those stores.

Store design features also influence monetary price perceptions. However, this effect is relatively small (structural coefficient of .24 in the multisample analysis) compared with the negative effect that design cue perceptions have on time/effort (−.40) and psychic (−.62) costs or with the positive effect that design cue perceptions have on interpersonal service quality (.49) and merchandise quality (.59) perceptions. This finding implies that retailers offering a high-image design may be perceived as offering high quality and value, even though monetary prices are perceived as high.

Of the two key drivers of merchandise value—monetary price and merchandise quality—the former is consistently the dominant driver, having a structural coefficient of −.91 compared with a coefficient of .64 for merchandise quality. Moreover, as Table 5 shows, perceived monetary price has the strongest total effect on perceived merchandise value among all direct and indirect antecedents. Thus, although merchandise quality inferences triggered by store environ-

ment cues strongly influence perceived value, perceptions of monetary price stemming from those cues have an even stronger impact. This differential effect suggests that retailers attempting to attract customers by presenting a high-class image through their store environment cues should consider using explicit communication strategies to counteract the disproportionately high decrease in perceived merchandise value that might result from customers' inference of high monetary prices.

Finally, although customers' perceptions of time/effort and psychic costs apparently do not influence how they

assess merchandise value, these shopping experience costs directly and strongly influence store patronage intentions. This result has an important implication for retailers: When store environment cues trigger high shopping experience costs, potential customers may avoid the store altogether without weighing those costs against the potential benefits (i.e., high merchandise quality and/or low monetary prices). As such, incorporating store design features that signal a low-stress shopping environment should be a top priority for retailers striving to attract new customers.

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