

# **Web-Store Aesthetics in E- Retailing: A Conceptual Framework and Some Theoretical Implications**

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## **EXECUTIVE SUMMARY**

This study examines the role of aesthetic design in Web-based stores. Designing Web-based stores involves the application of knowledge from diverse fields such as marketing and human-computer interaction. We integrate research findings from different areas to propose that the role of aesthetics can be examined using a conceptual framework that takes into account the contingent nature of the consumer, the product, and the shopping process. We also suggest that two subdimensions of Web aesthetics, termed "classical" and "expressive," may aid in understanding and shaping consumer behavior on the Internet. We develop theoretical arguments and propositions, and present some examples to illustrate our approach as to the different products that can be sold under different Web designs.

Keywords: aesthetics, consumer behavior, e-retailing, human-computer interaction, marketing, Web-store design.

# Web-Store Aesthetics in E-Retailing: A Conceptual Framework and Some Theoretical Implications

## INTRODUCTION

The introduction of e-commerce “is the most wide-ranging and significant area of current development in marketing” (Barwise, Elberse, and Hammond 2002). Thanks to the power of telecommunications and information technologies, consumers can now access information about vendors more easily than ever before. Moreover, new software tools make it easy for consumers to compare and assess the quality, image, and price of products. The result of this might be the shrinking of the already diminishing profits of today’s vendors (Berthon, Holbrook, and Hulbert 2000). The crowded field of competitors in B2C e-commerce indicates that achieving long-term success in Web retailing requires e-vendors to adhere to traditional economic and marketing principles and apply traditional marketing strategies.

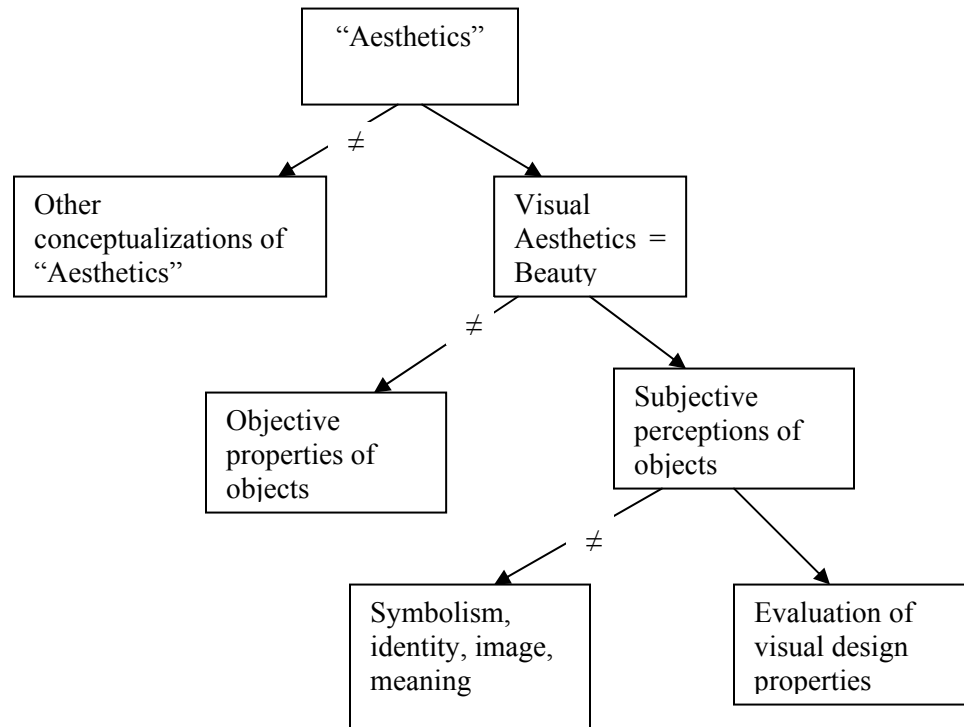
These trends increase the importance of how potential consumers view Web-stores. Previous studies have indicated that design decisions made by the retailer influence consumer perceptions of the retailer and their intentions to shop at those sites (Jarvenpaa and Tractinsky 1999; Zhang and von Dran 2000). Yet, while there is now a growing body of research on consumer behavior in electronic retail settings, little research has been done to date on the specific question of why consumers prefer one Web-based retailer over a competing retailer. In addition, answers to this question depend upon the type of products sought (Tractinsky and Lowengart 2003). Thus, consumers weigh various store attributes differently when shopping for low- or high-risk products (Jarvenpaa et al. 2000; Lowengart and Tractinsky 2001). Consumers also weigh design attributes of Web-stores differently, depending on the type of product or service offered by those sites Zhang et al. (2001).

One such Web-store attribute is the aesthetic design. Over the years, the term “aesthetics” has been defined and used differently in various domains of inquiry (cf. Lavie and Tractinsky 2004; Schmitt and Simonson 1997). While the term covers a broad range of phenomena, in this paper we refer to aesthetics in its narrow (yet common) sense as “an artistically beautiful or pleasing appearance” (The American Heritage Dictionary of the English Language), or as “a pleasing appearance or effect: Beauty” (Merriam-Webster's Collegiate Dictionary). In other words, in this paper the terms “aesthetics” and “beauty” are interchangeable. We further clarify our position by considering the following potential distinctions. Firstly, an important debate in the study of aesthetics relates to the question of whether aesthetics is an attribute of the object or is perceived subjectively by the observer (cf. Porteous 1996). In this manuscript we adopt the subjective approach to the study of beauty. Still, as various studies have demonstrated, there is often a wide agreement among observers regarding what constitutes an aesthetic object (e.g., Tractinsky 1997; Veryzer and Hutchinson 1998). Secondly, aesthetic evaluations of an artifact can be both (a) made in strictly perceptual terms and (b) mediated by cognitive evaluation of the artifact's appearance (e.g., Lindgaard and Whitfield 2004). Here we refer to the design properties that create appearance, such as proportion, color, shape, and size (Bloch et al. 2003), which we distinguish from concepts such as symbolism (Rafaeli and Vilnai-Yavetz 2004; Tractinsky and Zmiri 2006), identity, or image (Schroeder 2006) that relate more to the artifact's meaning or to the elicited associations. The distinction between the meaning of aesthetics in this paper and other potential interpretations is depicted in Figure 1.

The importance of beauty has been recognized since antiquity. For example, Vitruvius, the first systematic theoretician of architecture (first century BC), counted beauty among architecture’s three basic requirements (Kruft 1994). Modern social science has established the importance of aesthetics in everyday life. In a seminal paper, Dion, Berscheid, and Walster (1972) demonstrated that a person’s physical appearance influences other aspects of the social interaction. People are affected by the aesthetics of nature and of the environment (e.g., Nasar 1988; Porteous 1996; Schroeder 2002) as well as the aesthetics of artifacts (Coates 2003; Norman 2004; Postrel 2002). Major headings should be bold, capitalized and centered.

**FIGURE 1**

Meaning of “aesthetics” in this paper. Our definition follows the trail to the right, which is distinguished from potential interpretations on the left-hand side.



The design of Web stores should also take aesthetic considerations into account. The Internet has emerged as a potent shopping channel in recent years. Furthermore, Internet shopping outlets are also becoming entertainment and stimulation centers. In this context, we are interested in two main questions regarding the Internet store: (a) Do the aesthetic qualities of a Web-based store matter in terms of consumer behavior in Web shopping? (b) How do aesthetic aspects of Web-based stores interact with different characteristics of products, stores and consumers? Based on integration of findings and theories from various disciplines, we argue for a positive answer to the former question and offer research propositions towards understanding the latter question.

## THEORETICAL BACKGROUND

Designing Web-based stores is a multidisciplinary endeavor that involves diverse areas such as marketing, information technology, and HCI. The intriguing point about such an endeavor is that those fields have traditionally been occupied with different sets of goals and success criteria. Thus, for example, the field of marketing has been involved in studying various strategies of persuasion and of influencing consumers, e.g., by advertising, product design, store layout, and atmospherics (e.g., Bloch 1995; Kotler and Rath 1984; Russell and Pratt 1980; Whitney 1988). Much of the research and practice in marketing focuses on consumer emotions and their role in the shopping process (Meloy 2000; Pham 2004; Schmitt and Simonson 1997). Some marketing techniques even attempt to make information processing or shopping processes even less efficient for various reasons (Hoyer and MacInnis 2001; Levy and Weitz 1998; Russo 1977; Schroeder 2002). In contrast, Information Systems (IS) and HCI research have traditionally been dedicated to the study and to the practice of accurate, fast, and error-free information processing and task execution (e.g., Butler 1996; Card, Moran and Newell 1983).

Thus, the marriage of these contrasting disciplines in a new business model is challenging for both research and practice (Wind and Mahajan 2002). Currently, only a scant amount of research on the merger of these two distinct fields exists (Barwise et al. 2002; Vergo et al. 2003). Attempts to study the design aspects of retail Web sites have stressed aspects of information content and its instrumentality to consumer cognition and decision processes, as well as usability issues, such as ease of navigation and interface consistency (e.g., Bellman, Loshe and Johnson 1999; Lohse, Bellmand and Johnson 2000; Lohse and Spiller 1998; Nielsen 2000; Spiller and Lohse 1998; Spool et al. 1998). By and large, this view conforms to the HCI and IS paradigms, which focus on completing transactions effectively and efficiently. This view, however, overlooks the fact that the shopping activity "is not merely an exercise in acquisition, but a pleasurable avocation" (Gumpert and Drucker 1992, p.189), and that "shopping is ...a way of interacting with others." (Fiske, Hodge, and Turner 1987, p.96). Thus, viewing e-commerce site design as an extension of traditional design of computer-based applications ignores what the fields of marketing, advertising, and consumer behavior have long recognized: the retail environment has a major role in affecting consumers' psychological and social needs, as well as their eventual shopping behavior (Levy and Weitz 1998; Martineau 1958).

Recent research in HCI, however, points towards potential convergence between HCI and Marketing. Tractinsky and Rao (2001) suggested that computer users, particularly those who seek online substitutes to the physical shopping experience, would value aesthetic designs just like consumers of other commodities (e.g., Darden and Babin 1994; Jordan 1998). Affective properties of the shopping environment, including its aesthetic aspects, have been foci of research in the fields of marketing and consumer behavior (Donovan and Rossiter 1982; Gilboa and Rafaeli 2004; Holbrook and Hirschman 1982; Martineau 1958; Russell and Pratt 1980; Schroeder 2002). Other aspects of aesthetics in the marketing literature include the repositioning of products as a result of aesthetic flaws (Kotler and Mantrala 1985), marketing of aesthetic products (Holbrook 1982), and the aesthetic consequences of product prototypicality (Veryzer and Hutchinson 1998) and product complexity (Cox and Cox, 2002).

E-retail aesthetics is conveyed mainly through the web-site's interface, which serves as the "facade" (Hooper 1986) of the e-store. Users experience the aesthetics of this interface immediately (Lindgaard et al. 2006). The interface cues users about the inside and colors the user's perceptions of further interactions with the system. Evidence is now mounting in support of the importance of aesthetics in various aspects of computing (Tractinsky 2006). The new wave of research suggests that aesthetics is correlated with user satisfaction (Lindgaard and Dudek 2003; Tractinsky et al. 2000) and pleasure (Hassenzahl 2003; Lavie and Tractinsky 2004). Vilnai-Yavetz and Rafaeli (2006) have demonstrated that the aesthetics of a "virtual servicescape" was positively related to satisfaction and attitudes towards the service provider. Porat and Tractinsky (2006) adopted Mehrabian and Russell's (1974) environmental psychology model to the e-retail environment, demonstrating that aesthetics affect consumer feelings of pleasure and arousal while shopping online.

The importance of aesthetics in e-retailing is underlined by the limited opportunity for e-retailers to otherwise create a store environment that would positively influence consumer behavior. In the traditional retail environment, retailers can use multisensory design to affect perceptions of the store. Such stores can take advantage of three-dimensional aesthetic design coupled with acoustic and olfactory stimuli to create a desired atmosphere. The e-retail environment, on the other hand, cannot utilize these design elements. Seeking out any possible design aspect that would help generate a favorable store atmosphere, therefore, is an imperative task for Web-based retailers. An intuitive and appropriate means for achieving this task is the use of visual aesthetics. First, aesthetics lie at the core of first impressions of Web-sites (Tractinsky et al 2006). These impressions are most important in the realm of the Web, because of the ease with which the consumer may switch to another store (Vilnai-Yavetz and Rafaeli 2006). Secondly, manipulating web aesthetics is relatively easier, cheaper, and can be done more flexibly in online environments than in physical environments.

In sum, it appears that that the aesthetics of both products and retail environments are important factors in determining consumer behavior. This is especially the case in electronic retail, where the ability of retailers to affect consumers through senses other than the visual is severely limited.

## CONCEPTUAL FRAMEWORK

To date, few empirical studies have examined the role of aesthetics in e-retail. Several studies have done so indirectly. McKnight, Chounhury, and Kacmar (2002) found that perceptions of the site design and quality were strong predictors of trusting beliefs in the retailer and in consumer intentions to buy from the site. The operationalization of perceived site quality included items that measured visual appearance, but those were mixed with other design aspects. A survey of 2,684 Web users found that users used the design appeal of a site as the most prominent cue in evaluating its credibility (Fogg et al. 2002). Again, this study did not distinguish between the different design aspects. Other studies have discussed aesthetic factors more explicitly when examining the effects of Web-store design elements on consumer behavior. Zhang and von Dran (2000) found that certain aesthetic elements of a Web site serve as purchase motivators, while other aesthetic elements serve as hygienic factors (i.e., necessities) in purchase decisions from e-retailers. Web page color and background images were also found to affect consumer choice (Mandel and Johnson 2002). In more systematic explorations of online aesthetics, Porat and Tractinsky (2006) and Vilnai-Yavetz and Rafaeli (2006) found that aesthetics influenced consumers' emotional states and attitudes towards Web stores. Thus, while there are indications that aesthetics can be quite useful in influencing consumer decision processes in the e-retail environment, research findings in this area are still not systematic.

As a first step towards incorporating aesthetic considerations in Web-store design, we briefly examine the mechanisms by which aesthetics may affect the purchase process. We then propose a general conceptual framework.

### Basic Mechanisms

Researchers have hypothesized two basic mechanisms by which aesthetics may affect decision making in general and in particular in the context of e-retail. The first suggested mechanism is a halo effect, which carries over first impressions of products or shopping environments to consumer evaluations of other attributes of these products or environments. This mechanism echoes the "beautiful is good" stereotype in social psychology (Dion et al. 1973; Eagly et al. 1991) and may also serve to explain the "beautiful is usable" phenomenon (Tractinsky et al. 2000), which suggests that the aesthetics of an interactive system affects user perceptions of other aspects of the system. The second explanation suggests that aesthetics may affect perceptions by inducing affective response, which, in turn, influences evaluations of other attributes of the object and attitudes towards the object in general (e.g., Norman 2004; Rafaeli and Vilnai-Yavetz 2004; Vilnai-Yavetz and Rafaeli 2006). The emotional route of aesthetics' influence on attitudes can be divided into two submechanisms. The first is in line with numerous findings about the automaticity of the perception – evaluation link (cf. Bargh and Chartrand 1999). In Fazio, Roskos-Ewoldsen, and Powell's (1994) terms, "affect is preattentively 'extracted' and influences subsequent perception" (p.212). The idea is that, because attractiveness can be judged very quickly (e.g., Lindgaard et al. 2006), it is the first attribute of the object that evokes feelings, which later color other perceptions of the object (Yeung and Wyer 2004). This mechanism can be classified as Type-I or visceral affect (Norman 2004; Pham 2004). The second submechanism of the emotional route is Type-III affect (Pham 2004), which Norman (2004) refers to as "reflective" level of processing. This mechanism is much slower and complex than the previous one as its operations depend on controlled evaluation of the object. Indeed, decoding aesthetic stimuli, interpreting, and identifying them are integral parts of modern day consumption processes (Postrel 2002; Schroeder 2002).

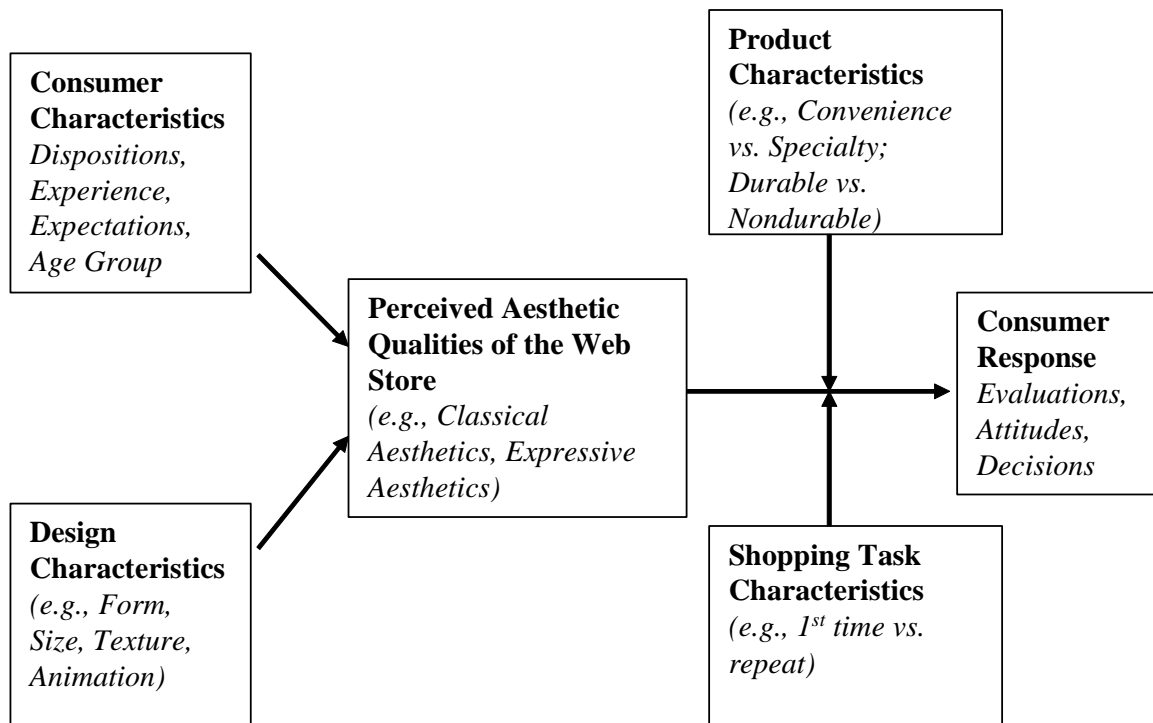
Both submechanisms fit into the "affect as information" framework, where feelings serve as a proxy for value (Schwarz 2004). Aesthetics may elicit moods that stimulate consumers to form an affect-based initial impression that is later used as a basis for judgments (Loken 2006). Thus, first aesthetic impressions may establish a positive (or negative) preference that is hard to overcome, because information received early is weighed more heavily in the decision process (Russo et al. 1998). Consumers may also be motivated by the desire to maintain a positive mood (Meloy 2000) or to increase the hedonic value of the shopping experience (Babin, Darden, and Griffin 1994). Thus, aesthetic design of Web stores may create a positive mood and elicit pleasant feelings during the shopping process (Porat and Tractinsky 2006).

The two basic mechanisms are in line with the postulates of the elaboration likelihood model (ELM; Petty and Cacioppo 1981). Both serve as simplifying mechanisms in thinking about attitude objects to which consumers are exposed. One of the main postulates of the ELM is that under low elaboration conditions, people tend to use simple methods to judge objects. In such cases, people may base their judgment on the first argument processed (e.g., site attractiveness) or on a cursory analysis of the source (Petty and Wegener 1999). Since aesthetics is probably the easiest site attribute to judge, it is likely to be overweighted in low elaboration conditions. Web-store aesthetics can also strengthen attitudes towards the Web store under high elaboration conditions, if aesthetics is perceived as a relevant attribute in the scrutinized domain (e.g., fashion), or if consumers believe that aesthetic design is a sign of professionalism and is therefore indicative of the store's quality and ability to serve its customers. Thus, according to ELM under low involvement (and hence low elaboration) aesthetic designs should normally improve consumer attitudes. Under high involvement (high elaboration), the effect of aesthetics will depend on whether it is judged to be relevant to the products under consideration.

### The Framework

Our framework (Figure 2) takes into account perceptions of the Web store's aesthetics, characteristics of the store's design and of the consumer, the product, and the shopping task.

**FIGURE 2**  
**Conceptual Framework of Consumer Attitude Formation toward E-retailer**



Based on this framework, the aesthetic experience of a Web store is a function of the design of the store and of aesthetically-related characteristics of the consumer. The design characteristics of the store are objective properties of the design (e.g., shape, color, size, etc.) and may be used to intentionally affect user perceptions (e.g., Park et al. 2005) or they might be interpreted in ways that were unintended by the designer. The aesthetic dispositions of consumers are major determinants of their perceptions of the design's aesthetics and can be based on individual sensitivities to aesthetics (e.g., Bloch et al. 2003) or on social or cultural factors (e.g., nationality or age group) that affect those sensitivities. Based on their shopping experience in traditional retail environments and on their experience in browsing the Web, consumers also form certain expectations regarding the aesthetics of online stores. When encountering a Web store, the aesthetic predispositions of the consumers, coupled with their

experiences and expectations, affect their perceptions of the store's aesthetics. These perceptions are likely to induce emotions, which, in turn, will affect the consumers' attitudes towards the store and their purchase decisions (Babin and Attaway 2000; Bellizzi and Hite 1992; Donovan and Rossiter 1982; Donovan et al. 1994; Porat and Tractinsky 2006; Sherman et al. 1997; Turley and Milliman 2000). In our framework, the effect of the aesthetic perceptions on the consumer's decision process is moderated by two factors: characteristics of the shopping task and the type of product sought.

*Characteristics of the shopping task.* The shopping task can vary in various dimensions. For example, shopping can be hurried or leisurely (e.g., Wright 1974), spontaneous or deliberate (Baumgartner 2002), routine or non-routine, etc. In this study, we analyze the difference between shopping for a product for the first time (i.e., first try) and shopping repeatedly.

*Product type.* Products can be distinguished along various dimensions (e.g., Kotler 1997). Obviously, different product types will be associated differently with various types of aesthetics or with the need for aesthetics to begin with. In this study, we concentrate on four continua of product characteristics: hedonic vs. utilitarian; experience vs. search goods; durable vs. nondurable goods; and convenience vs. specialty goods.

## IMPLICATIONS FOR AESTHETICS DESIGN OF WEB STORES

An argument can be made that the more aesthetic the Web store, the better. Yet, one has to consider the costs of investing in aesthetics as well as other potential influences aesthetics may have on decision processes. The costs may include not only the direct expenses of design and implementation, but also possible maintenance costs as well as potential delays of data transfer and system responsiveness due to the use of graphics and elaborated design effects (e.g., animations). Thus, e-retailers might have to trade-off the benefit of aesthetics and costs. A better understanding of the differential benefits of an aesthetic online environment on consumer purchasing decisions can help retailers make better Web-store design decisions.

### Consumer Characteristics

Common sense as well as empirical evidence (Bloch et al. 2003) suggest that consumers who are more sensitive to aesthetics weigh the aesthetic aspects of designs more heavily than consumers who are less sensitive to aesthetics. Yet, the relevance of aesthetic design extends to other consumer-related concepts, for example his or her involvement in the shopping process. Involvement is reflected in the amount of effort and elaboration consumers put into this process. The ELM predicts that aesthetics would have a positive effect as a peripheral cue under low involvement conditions. But in high-involvement shopping the effect of aesthetics would depend on its relevance to the shopping context. If aesthetics is perceived as relevant (e.g., shopping for products that stress aesthetic design) or is indicative of the store's professionalism (e.g., attention to detail), it should be consequential to the decision process (Petty and Wegener 1999). Otherwise, aesthetics may not contribute, or may even be negatively associated with attitudes towards the store. Consumers may perceive aesthetics as irrelevant or may even suspect that the heavy investment in site aesthetics is intended to mask some deficiencies or is gratuitous in this context (Tractinsky and Meyer 1999).

High involvement may also entail greater emotional response on the consumer's part. Aesthetics can conceivably influence emotions at various levels, e.g., Type-I and Type III, according to Pham's (2004) typology, or visceral and reflective according to Norman's (2004). Under high involvement, aesthetic design can trigger both types of emotional response. This cumulative emotional effect can conceivably accentuate the cognitive responses described above.

Proposition 1a: Under low involvement, aesthetic Web-store design will contribute to consumer attitudes towards the store.

Proposition 1b: Under high involvement, aesthetic Web-store design will contribute to consumer attitudes towards the store only if the aesthetic dimension is perceived relevant to the shopping context.

**Importance of Aesthetics for Different Shopping Task Characteristics**

We now examine how characteristics of the task make a difference for decisions regarding the aesthetics of Web-based stores. We illustrate our point with an analysis of a situational variable: whether this is a first-time shopping at the Web store or a repeat purchase from that store. When consumers purchase a certain product for the first time, retailers need to invest more in attracting their attention, providing more (or different) information, and in general, creating a more impressive and persuasive environment relative to the one needed for repeat customers.

For first-time consumers, an aesthetic design can create favorable first impressions (Norman 2004; Postrel 2002) that may trigger a positive Type-I affect (Pham 2004) and create a favorable bias in the consumer's decision making process (Loken 2006; Yeung and Wyer 2004). First-time customers are also more sensitive to cues regarding the trustworthiness of the Web store (e.g., Jarvenpaa and Tractinsky 1999). The store's visual design may also serve to increase trustworthiness by serving as an indicator of site credibility (Fogg et al. 2002). The combined effect of these processes is expected to improve attitudes towards the store among first-time shoppers and to increase their purchase likelihood. Repeat purchasers, on the other hand, will be less sensitive to first impressions and to Type-I affect, although they may be drawn to the site for its pleasant atmospherics. They will also be less affected by considerations of trustworthiness implied by the visual design, since their mere act of repeat visit suggests positive past experience.

Proposition 2: The aesthetics of a Web store has a stronger effect on decision processes of first-time consumers than of repeat consumers.

Proposition 2 entails the possibility of redundant designs of at least some parts of Web stores, which will emphasize store aesthetics for some consumer segments or for certain classes of products and may emphasize other design elements (e.g., ease of use, detailed and comparative information, advanced purchasing features) for other users. For example, personalization and customization techniques (e.g., Rust and Kannan 2003) allow repeat shoppers, who can be identified by various means, to either skip certain parts of the Web store or to be directed directly to the products in which they are interested.

Thus far we have analyzed the differential importance of Web-store aesthetics on levels of shopping involvement and on differences between first-time and repeat shoppers (see Figure 3). We now turn to analyzing the importance of aesthetics on consumer behavior based on the moderating role of various product characteristics.

**FIGURE 3**  
**Importance of Aesthetic Web-site Design Given Task and Consumer Characteristics**

<i>Importance of Web-store Aesthetics</i>	<b>TASK AND CONSUMER CHARACTERISTICS</b>	
	<b>1<sup>st</sup> vs. Repeat</b>	<b>Involvement</b>
High ↑ ↓ Low	First-time shopping	Low; High and relevant
	Repeat purchasing	High and irrelevant

**Importance of Aesthetics for Different Product Characteristics**

Consumers use different shopping processes when purchasing different consumer products (Kotler 1997). Our framework also suggests that product characteristics moderate the effects on perceived aesthetic qualities of the



Web store on consumer decision processes. We provide several examples to demonstrate this point, starting with the distinction between hedonic and utilitarian goods. This distinction is based on the idea that consumers can derive both utilitarian and hedonic value from shopping (Babin et al. 1994; Fischer and Sherry 1990; Holbrook and Hirschman 1982). While shopping for certain (i.e., utilitarian) goods, consumers can be characterized as task oriented in their shopping behavior or, in contrast, as looking for enjoyment and sensory stimulation while shopping for other (i.e., hedonic) goods. The usefulness of the distinction in the e-retail context was demonstrated by Childers et al. (2001), who found that both the utilitarian and the hedonic aspects exist in the consumer online shopping experience.

To promote hedonic shopping, Web stores need to improve sensory stimulation, create the feeling of fantasy and arousal as well as enjoyment and pleasure (e.g., Babin et al. 1994). As such, hedonic products can benefit (i.e., achieve positive purchasing intentions) by being associated with vibrant environments that enhance the enjoyment of the shopping process. As discussed above, visual design is one of the most important factors that can influence these feelings in the virtual world. Thus, aesthetic design can be instrumental in creating such environments (Arnold and Reynolds 2003; Lavie and Tractinsky 2004; Zhang and von Dran 2000). In contrast, the focus in the shopping process of utilitarian product rests on task completion and efficiency, reflecting work mentality (Holbrook and Hirschman 1982; Babin et al. 1994), as consumers are focused on the shopping task with relatively low need for further stimulation or enjoyment. Aesthetic design will not be as conducive to the shopping experience in this case (cf. Norman 2004), and with limited overall effect.

Proposition 3: The aesthetics of a Web store are more important for hedonic products than for utilitarian products.

Distinguishing between search and experience quality products (Nelson 1974) was found to be relevant for online purchasing decisions. For instance, computers (experience) and books (search, as online shoppers can verify the quality of the book by reading sample pages or other shoppers' reviews) were used to represent these two types of products (Lowengart and Tractinsky 2001). The online shopping arena poses an additional challenge to e-retailers of experienced goods. Consider a case of a nice wool sweater that is sold in a physical store. Shoppers can use their hands to feel the various qualities of the material and, therefore, search the quality of the product before they buy it. A similar sweater sold online will become a pseudo-search quality product, because of the consumers' inability to thoroughly search all of its attributes. Still, e-retailers can reduce some of the product uncertainties (e.g., assortment, design, and texture) through visual design. Since the uncertainty over the product's qualities increases as it becomes harder to assess them, the importance of peripheral cues in the consumer decision processes should increase (all else being equal). The design aesthetics of the store can serve as such a cue. Aesthetic design can improve consumer impressions of the store and its credibility, and then carry over from the store design to its products. We postulate, therefore, that a Web-store's aesthetics should increase as the store's product mix leans towards the experience-quality type. If the product mix is geared more towards search goods, strong central-route cues and arguments may exist that override the effects of aesthetic design.

Proposition 4: The aesthetics of a Web store are more important for experience quality products than for search quality products.

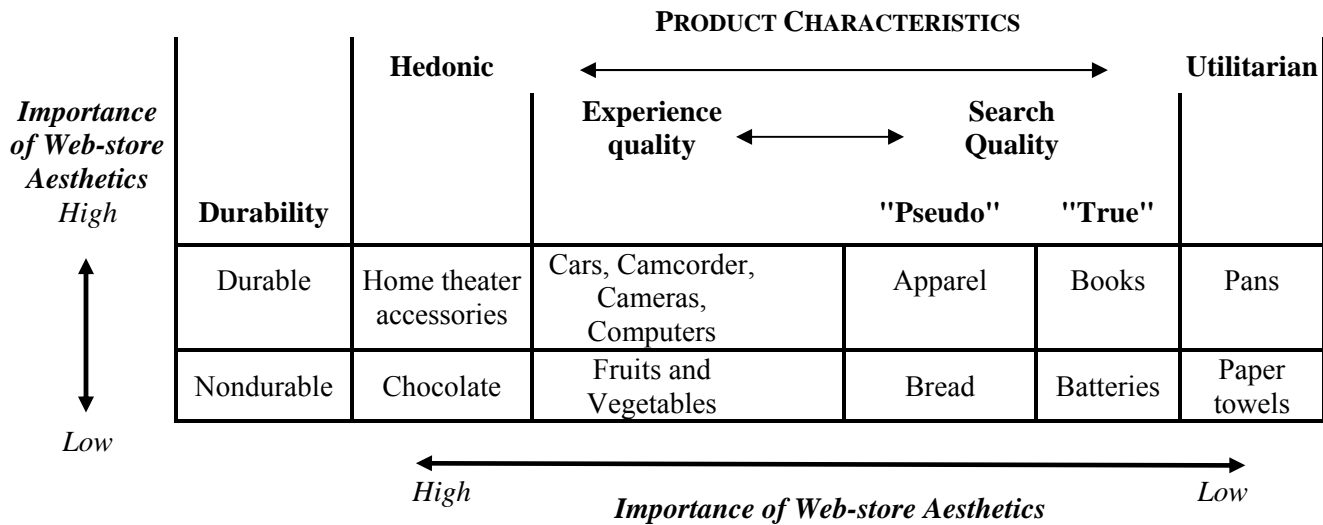
The product's durability is another attribute that moderates the effect of Web-store aesthetics on consumer behavior. Because performance and longevity are central attributes of durable products, issues of credibility, reliability, and quality in general are more important for this type of products than for nondurable ones. Because these attributes are difficult to assess in advance, aesthetics as well as other surrogate attributes are used to evaluate the quality of durable goods (e.g., Brucks, Zeithaml, and Naylor 2000; Chang, Burns, and Noel 1996). In Creusen and Schoormans' (2005) words, "aesthetic value often will be important to consumers for durable products, as these products are often used for many years and are visible in consumer's homes or to other people" (p. 75). As suggested above, aesthetic design may serve as a cue or even as an argument that the store is operated by competent professionals. Thus, because of the greater sensitivity to aesthetic cues in durable goods shopping,

we expect that consumers shopping for durable goods will be more affected by this cue In the context of online shopping than consumers buying nondurable goods.

Proposition 5: Aesthetic design is more important for Web stores selling durable products than for Web stores selling nondurable products.

The analyses of the importance of aesthetics given different product characteristics are integrated in Figure 4. The importance of aesthetic design increases for durable (vs. nondurable) products, for hedonic (vs. utilitarian) products, and for experience (vs. search) goods. The longer interval on the hedonic-utilitarian continuum illustrates that the variance in the role of aesthetic design for this characteristic is larger than on the experience-search continuum. The figure's cells include examples of products in various combinations of product characteristics categories.

**FIGURE 4**  
**Importance of Aesthetic Web-site Design Given Product Characteristics**



Finally, a distinction between specialty, shopping, and convenience products can be drawn based on the amount of effort consumers will place on comparing products for better fit to their needs or their price. For example, consumers are less likely to engage in elaborated decision processes when shopping for convenience products (e.g. a box of tissues). At the other end of the continuum, consumers are likely to elaborate more regarding the purchase of specialty goods (e.g., a high-end home theater system). In between these two types of products lies a range of shopping goods.

Because the degree of elaboration decreases along the continuum from the specialty to the convenience goods, we expect the influence of aesthetic design to vary accordingly. For convenience goods, aesthetics may be used as a peripheral cue to influence purchase decisions positively. However, this effect may diminish due to the fact that for this type of goods, aesthetic considerations may be less relevant. For specialty goods, the effects of aesthetics may resemble those of the high-involvement condition, as postulated by the ELM, with the additional qualification that, in general, aesthetics appear to be *relevant* to specialty goods. Thus, if consumers are engaged in highly elaborated decision processes when shopping for specialty goods, Web-store aesthetics will likely serve as an argument, which strengthens the persuasive message of the store.

Thus, the effect of aesthetics on this classification will be the most pronounced in the case of specialty goods and least pronounced in convenience goods.

Proposition 6: The aesthetics of a Web store is important, in decreasing order, for specialty, shopping and convenience products.

To summarize the general implications for Web design and aesthetics, our argument is that the aesthetic design of Web stores influence consumer decision processes and hence their attitudes towards the stores. More specifically, we proposed that these effects are contingent upon characteristics of the consumer, the product, and the shopping context. Although the various contingencies entail different effects of aesthetic design, by and large, they point towards the importance of aesthetics as an independent variable in consumer behavior. While the propositions outlined in this section demonstrate this argument, they by no means exhaust the range of contingencies under which Web-store aesthetics influence consumer decision making.

Next, we refine the notion of aesthetics and examine how designers of Web stores can take advantage of this view by considering several contingencies.

### **DIMENSIONS OF WEB-SITE AESTHETIC**

Early studies viewed users' perceptions of online aesthetics in terms of a holistic evaluation (e.g., Shenkman and Jonsson 2000; Tractinsky 1997; van der Heijden 2003). Later, Lavie and Tractinsky (2004) showed that online users perceive two high-level, aesthetic subdimensions. The first subdimension, which they termed "classical" aesthetics, is associated with clean and orderly design and with user perceptions of the Web site's usability (i.e., ease, of use). The second aesthetic subdimension, termed "expressive," represents designs perceived by users to be original and creative. This dimension contributes to the uniqueness of the site's appearance. The emergence of the two subdimensions in that study and the nature of these dimensions resemble research findings on people's evaluation of aesthetic environments in other contexts. For example, in empirical studies of environmental aesthetics and landscape design, two similar perceptual factors have emerged (e.g., Arnheim 1966; Kaplan 1988; Nasar 1999). To a large extent, the two aesthetics subdimensions are associated with Mehrabian and Russell's (1974) two main dimensions of affective quality of environments: the pleasance dimension and the arousal dimension (see also Donovan et al. 1994; Mano and Oliver 1993; Russell and Pratt 1980). The pleasant/unpleasant dimension seems to correspond more to high/low levels of classical aesthetics, respectively, while the arousal dimension corresponds more to levels of expressive aesthetics (Lavie and Tractinsky 2004; Porat and Tractinsky 2006). It is worth noting that while the two subdimensions are distinct, they are not necessarily orthogonal (Lavie and Tractinsky 2004; Porat and Tractinsky 2006). Conceptually, the correlation between the two subdimensions reflects a fundamental relation to aesthetic design and perceptions. Empirically, they reflect an ecological phenomenon in which capable designers are good at creating balanced designs high on both subdimensions, whereas incompetent Web design tends to fail on both.

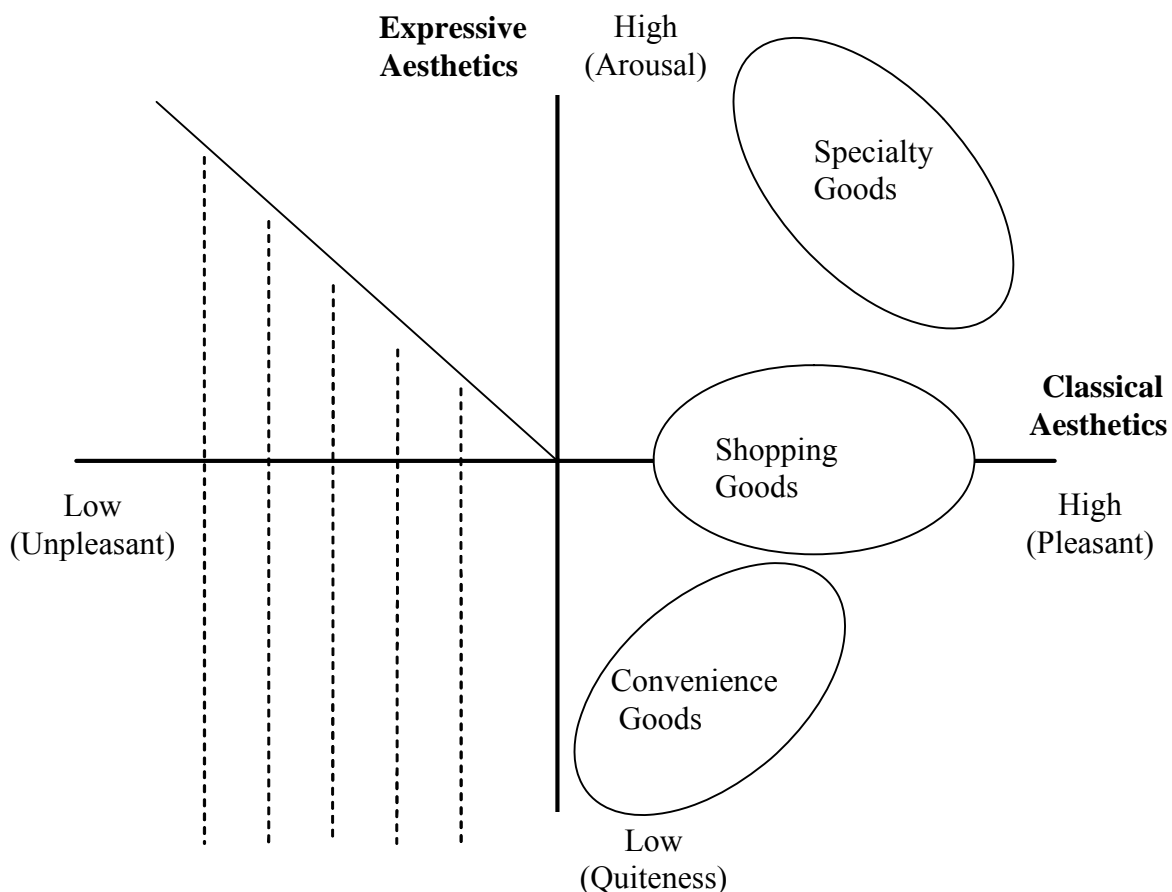
We provide three analyses to illustrate the potential implications of considering these aesthetic subdimensions in designing Web stores for different product categories, industries (with the apparel industry as an example), and consumer characteristics.

#### **Consumer Goods: Specialty vs. Convenience Products**

According to Lavie and Tractinsky (2004), the expressive aesthetics of Web sites convey a sense of creativity and uniqueness. This type of aesthetics is likely to serve an important role when shopping for specialty goods, an activity during which consumers engage in a relatively intense process of information gathering. In terms of the ELM, expressive design is relevant to specialty goods because of their uniqueness and because of the emphasis on the shopping experience often associated with this type of goods. Thus, the aesthetic information conveyed by this dimension is likely to be processed centrally by consumers. Conversely, the emphasis in shopping for convenience goods is on the efficiency of the shopping process. Expressive, original designs may interfere with this goal. Hence, selling convenience goods over the Internet should be characterized by low levels of expressive aesthetics.

The dimension of classical aesthetics represents order, clarity, and clean design (Lavie and Tractinsky 2004). These characteristics are appreciated in most shopping environments, perhaps somewhat more so in upscale shopping, where attention to detail is likely to be higher. These differences are represented in Figure 5, which states that expressive aesthetics are a required features of specialty stores, but may be detrimental in convenience stores. Positive levels of classical aesthetics are recommended in all store types, but this recommendation is stressed even further in specialty Web stores. Here, classical aesthetics is likely to serve as an indication for competent design. In convenience stores, classical aesthetics function mainly as facilitators of efficient interactions and to a lesser extent as indicators for quality relative to specialty stores. Finally, Web stores may carry a mix of different products from the various categories mentioned above. Such stores may benefit from the design of separate shopping areas for the different products. In doing so they will have a better fit with consumer expectations and with the intended messages conveyed by each area.

**FIGURE 5**  
**Importance of Aesthetic Type to Web-site Design Given Product Categories**



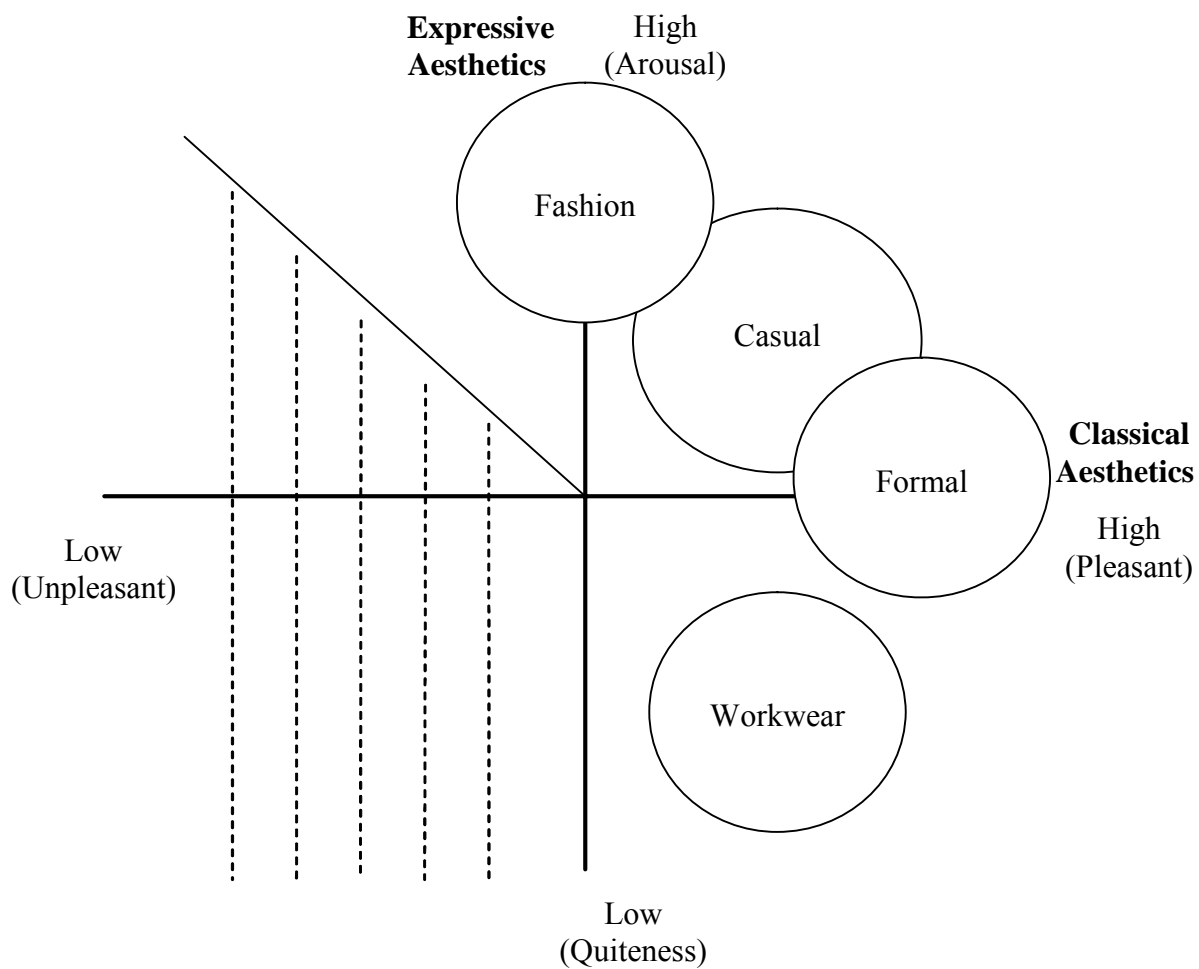
### **Intra-Industry Segments**

In this analysis we illustrate a case of a single industry with multiple consumer segments and multiple products aimed at filling various consumer needs. We use the specific case of the apparel industry, yet similar analyses can be done for other industries as well.

The apparel industry is characterized by multiple dimensions of consumer and product characteristics. At the one extreme are fashionable items, characterized by rapid change of assortment and product design, and short product life cycle (Sproles 1981; Wasson 1968). At the other end of the spectrum is workwear, which evolves relatively

slowly both in terms of consumer tastes and product design. Figure 6 presents the importance of the two aesthetic subdimensions as a function of the different types of apparel. For example, expressive aesthetics can facilitate the marketing of fashion items as it can contribute in conveying the special image and identity desired by consumers of this type of apparel (cf, Schroeder 2002). To a certain extent, fashion stores may even choose to combine expressivity and counter-classical designs in their Web sites to deliver a message of being on the cutting-edge of the design industry. In terms of the ELM, the degree of expressive aesthetics serves as a relevant argument in assessing the Web store's message. Conversely, formal wear such as business suits will benefit the most from a Web site that primarily stresses classical aesthetics. Such a design reflects tradition, stability, and solidity, which are valued by institutions and consumers of this type of apparel (see, for example, Schroeder's discussion on e-banking). Overly expressive aesthetics in a Web site that sells formal wear will be perceived as irrelevant, which may lead to negative attitudes towards the store.

**FIGURE 6**  
**Importance of Aesthetic Type to Web-site Design for an Industry**

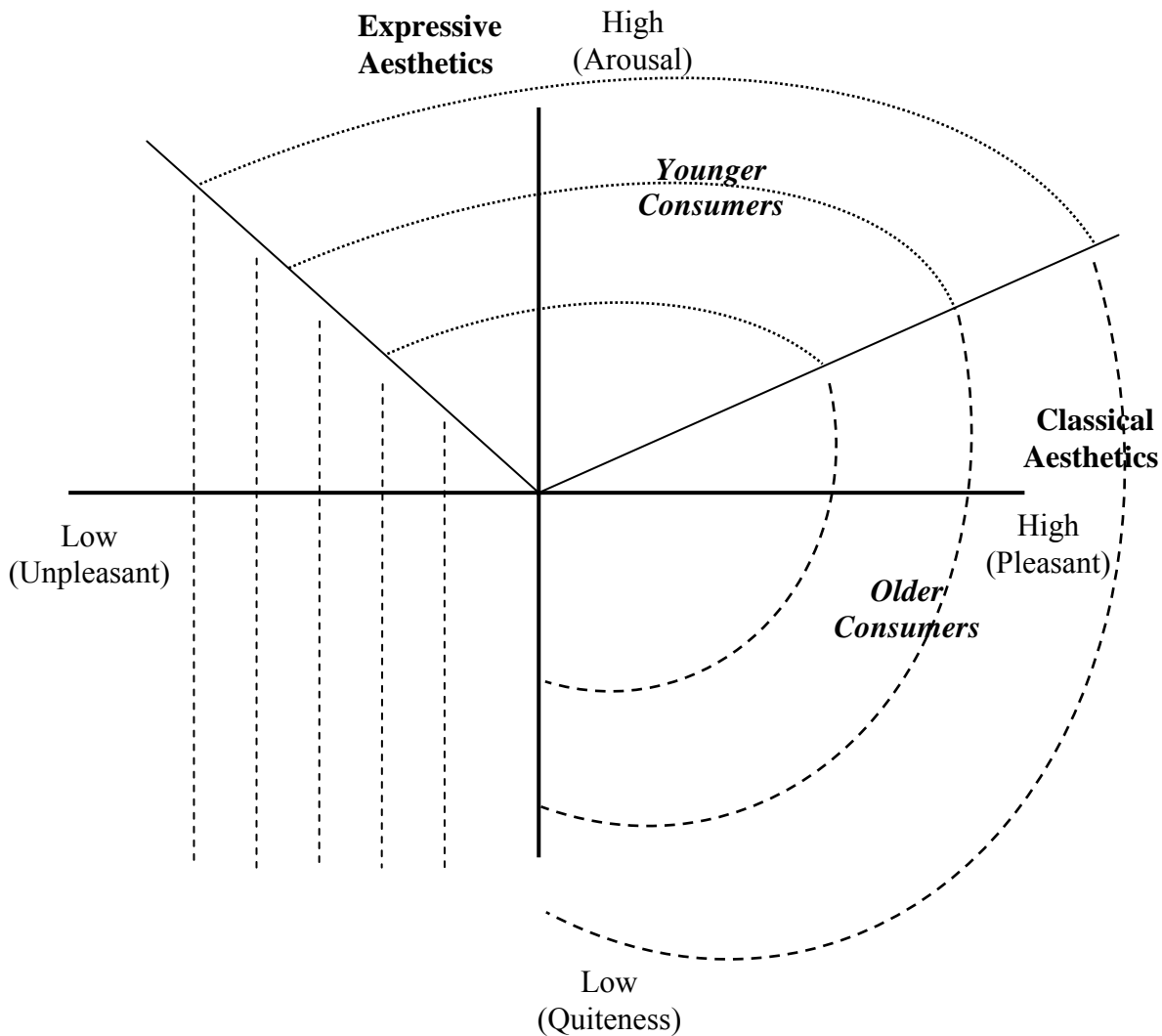


### Consumer Heterogeneity

We conclude the demonstration of the aesthetic grid's usefulness for the design of Web-based stores by considering variations in consumer characteristics. We illustrate this context by analyzing the differences between younger and older consumers.

We tentatively suggest that younger consumers, being exposed to more contemporary cultural and societal activities, and being generally more open to new forms of expression (Levy and Weitz 1998; Postrel 2002), are more likely to appreciate (or tolerate) expressive aesthetics. Acknowledging this trend, Web store designers would benefit if they stress this type of aesthetics into the design of Web stores that target younger consumers. Older consumers, on the other hand, will probably be less enthusiastic about such expressiveness. At the same time, they are likely to appreciate higher levels of classical aesthetics, for its more traditional and clear design. The ramification of taking this (admittedly crude) classification of consumers according to age group into account is demonstrated in Figure 7. The analysis suggests that design for younger consumers should stress expressive qualities, whereas design for older consumers should stress classical aesthetics.

**FIGURE 7**  
**Importance of Aesthetic Type to Web-site Design Given Consumer Characteristics**



**SUMMARY AND CONCLUSION**

The purpose of this paper is to unearth the relevance of the aesthetic dimension of Web-site design to the domain of online retailing. We have integrated theory and research findings from diverse fields to identify and to explain the driving forces behind the potential effects of Web-store aesthetics on consumer attitudes. The conceptual

analyses highlighted the differences in the overall importance of aesthetics given variations in consumer, product, and shopping task characteristics. We also discussed two subdimensions of Web-site aesthetics – classical and expressive – and suggested that Web-store designers should take them both into account given various contingencies.

Aesthetics does come with a cost, which may not be universally justified. Thus, to aid e-retailers negotiate the benefits and costs of designing aesthetic sites, we suggest that e-retailers adopt a focused approach to this aspect of the Web store. Depending on the type of merchandise they sell and the type of customers they target, some, but not all, stores require heavy investment in aesthetic design. Similarly, some stores will have to invest in the more innovative aspect of aesthetic design (i.e., expressive aesthetics), while other stores' investment should be geared towards more conservative aesthetics (i.e., classical). Realizing when and how to emphasize aesthetic design should result in luring new customers and in higher retention rates of repeat customers, in improving consumer attitudes and increasing potential purchases, as well as in reducing churn rate. The framework suggests that e-retailers should tailor their Web-store design according to combinations of consumer and product characteristics. This can be done, for example, by customizing shopping sites that would offer similar products for different consumer groups (i.e., younger and older consumers). Such customization would help e-retailers better fit their Web sites to the various contingencies of the shopping context. This potential proliferation of Web stores for the same retailer might seem as a case of spreading resources instead of consolidation. This approach, however, entails better segmentation schemes that not only increase the matching between consumer shopping needs and e-retailer offerings, but also serves as a means for better pricing schemes for different consumer groups.

Clearly, this paper does not exhaust the treatment of aesthetics in e-retail. Future research can foster knowledge about additional contingencies in the online shopping environment that can be affected by the aesthetics of Web stores, and additional analyses can shed more light on this phenomenon. For example, does Web-site aesthetics affect consumers differently along the decision-making process? What are the potential contingencies that have differential effects on the relationships between aesthetics and various stages in the decision-making process?

This study serves as a modest step towards a better understanding of the role of aesthetics in e-retailing and the implications of aesthetic design on consumer behavior. Hopefully, this can serve e-retailers in their quest to better target their potential customers and to better address their needs.

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