FORMATION OF CONSUMER PRICE EXPECTATION BASED ON PACKAGE DESIGN: ATTRACTIVE AND QUALITY ROUTES

Ulrich R. Orth, Daniela Campana, and Keven Malkewitz

Drawing from dual-process theories, this paper examines how generic design factors influence consumer price expectation with judgments of attractiveness and quality as mediators. In addition, it determines how centrality of visual product aesthetics (CVPA), an individual difference variable that captures a consumer's interest and involvement in aesthetics, affects these processes. Results indicate that the influence of *natural* designs on consumer price expectation is mediated through judgments of quality and attractiveness, *harmonious* designs exert a direct effect on price expectation and an indirect effect through quality judgments, and *elaborate* designs exert both direct and indirect effects via quality and via attractiveness. Compared to low-CVPA consumers, high-CVPA individuals base both quality and attractiveness judgments to a greater extent on design, and base their price expectation more strongly on the package's attractiveness. However, high-CVPA individuals do not infer higher quality from attractive packages than do individuals low in CVPA. Implications focus on assisting managers in pricing decisions and on advancing research on design effects.

Although the design of a package is one of the few point-of-sale tools available to inform and persuade consumers, little is known on how it affects consumer processing. While not minimizing the importance of functional package attributes (i.e., those designed for protecting contents), the focus of this paper is on visual design factors that create a package's appearance (Bloch 1995). Specifically, we examine higher-level generic design factors composed of the basic elements of package design, including colors, shapes, typography, labels, or images (Bloch 1995; Henderson, Giese, and Cote 2004; Orth and Malkewitz 2008). The resulting appearance is often an integral part of projecting a brand's image, sometimes designed to convey images of high quality (e.g., parchment-labeled wine bottles bearing ornate images of chateaus and flourish-rich typography), while at other times designed to signal an affordable price (e.g., inexpensive wine bottles with bold fonts, eye-catching colors, and unique "critter" images).

A central premise of the current research is that consumers form an expectation of an offer's price based on visual cues inherent in the package. This price expectation affects their intentions prior to actual price information becoming available (Jun, MacInnis, and Park 2005; Niedrich, Sharma, and Wedell 2001). Although consumer price expectation and the judgments leading to it have been a focal point of marketing and consumer research (e.g., Briesch et al. 1998; Monroe 1990; Shirai and Meyer 1997), little research has focused on utilizing package design as a means of generating consumer price expectations. This gap is surprising as packaged consumer goods firms spend billions of dollars each year to appeal to buyers by inventing, engineering, and manufacturing package designs for positioning and differentiating their offerings (Dumaine 1991). Given the critical role of price in consumer decision making, the price expectations management aims to evoke should have a substantial impact on package design and subsequent marketplace performance (Niedrich, Sharma, and Wedell 2001). In fact, pricing researchers have repeatedly observed that consumers form an expectation of the brand's price based on visual cues (e.g., Dawar and Parker 1994; Dodds 1995; Jun, MacInnis, and Park 2005; Lee and Lou 1995; Teas

Ulrich R. Orth (Ph.D., Munich University of Technology), Professor and Chair of A&F Marketing, Christian-Albrechts-University Kiel, Germany, uorth@ae.uni-kiel.de.

Daniela Campana (MBA, Innsbruck University), Ph.D. candidate, Department of Marketing, University of Innsbruck, Innsbruck, Austria, danielacampana@yahoo.com.

Keven Malkewitz (Ph.D., Oregon State University), Assistant Professor of Marketing, College of Business, Oregon State University, Corvallis, OR, keven.malkewitz@bus.oregonstate.edu.

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and Agarwal 2000). Yet, although there can be little doubt that visual elements are an integral part of a package, the role of design has been ignored.

Research on consumer processing of visual cues suggests that price expectations can be formed through both central and peripheral routes (Homer 2006) when consumers associate visible features with diagnostic judgments (Janiszewski and Van Osselaer 2000; Shirai and Meyer 1997). Well grounded in theory, including the elaboration-likelihood model (Petty and Cacioppo 1986) and the systematic-heuristic processing model (Eagly and Chaiken 1993), strong evidence supports both routes in the advertising domain. "Peripheral" routes are based on easily processed cues often associated with the attractiveness of visual content (Kirmani and Shiv 1998). The "central" route consists of consumers expending considerable effort to attend to arguments, to elaborate on argument merit, and to generally respond based on their judgment, which usually involves quality. Empirical studies have substantiated both central paths via judgments of quality and peripheral paths via attractiveness, and have highlighted the role of consumer involvement in this process (e.g., Chang 2007; Eagly and Chaiken 1993; Petty and Cacioppo 1986). To date, however, there is limited (if any) research that applies a dual-process perspective to visual stimuli outside advertising, specifically to packages. Perhaps more important, consumer involvement has almost exclusively been examined from the perspective of individual involvement with the product category rather than from the perspective of individual involvement with issues of attractiveness or aesthetics.

Package design may not influence all consumers' price expectation in the same manner. Extending dual-process theories of persuasion from advertising to package design would suggest that packages may be processed differently by individuals, depending on whether processing follows a central (quality) or a peripheral (attractiveness) route. Consumer involvement with aesthetics, particularly individual differences in the centrality of visual product aesthetics (CVPA), should influence this processing (Bloch, Brunel, and Arnold 2003).

This research integrates studies on consumer formation of price expectation with studies on information processing and package design. It (1) identifies generic package design factors composed of basic package design elements, (2) shows how these factors influence consumer price expectation directly and indirectly via judgments of quality and attractiveness, and (3) examines the moderating effect of consumer CVPA.

THEORETICAL FRAMEWORK AND HYPOTHESES

Generic Package Design Factors

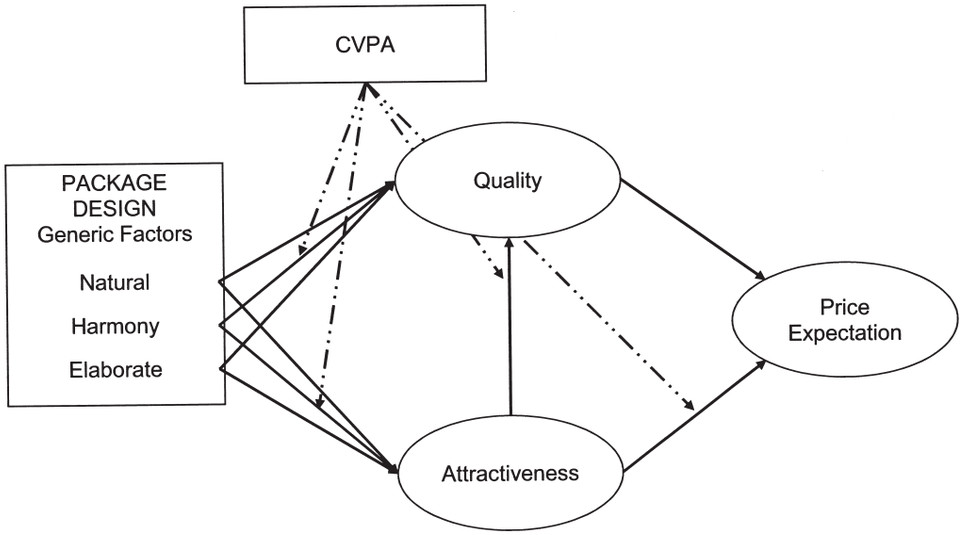
Central to our research is the perspective that package design effects originate not from any single design element, but rather from higher-order generic design factors composed of multiple elements. This perspective is based on theoretical and empirical evidence.

On a general level, the concepts of classification, categorization, and type provide initial support for the notion. Consumers often recognize a particular *class, category,* or *type* of objects without the ability to identify all of its details and peculiarities (Berlyne 1971; Loken and Ward 1990; Pepper 1949). Extending these concepts to design suggests that consumers try to understand a stimulus by placing it within an existing category. For example, a consumer may perceive a package as "elaborate" due to a highly structured label, detailed images, and a large quantity of text printed in ornate typography. Generic design factors would thus refer to an association of a set of design elements in certain relationships so that they are recognizable as a whole.

Research on consumer processing of design corroborates this initial contention as consumers perceive specific "constitutive" design elements (e.g., colors, shapes, text, surfaces, etc.) and organize them into more complex categories (Veryzer 1999). Generic design factors represent such a higher-order category, being rooted in more basic and measurable design elements (Geistfeld, Sproles, and Badenhop 1977; Kunst-Wilson and Zajonc 1980; Lewicki, Hill, and Sasaki 1989).

Empirical support for the view that design effects originate primarily from generic factors of design further suggests three specific factors. For example, Henderson and Cote (1998) identified natural, harmony, and elaborate design factors for logos. The *natural* factor combines lower-level characteristics such as representative and organic. It was interpreted as reflecting the degree to which design elements depict objects commonly experienced in nature. For example, an image of a leaf would be judged to be more "natural" than would an image of a car. The *harmony* factor combines symmetry and balance. A logo that uses elements symmetric around multiple axes (i.e., horizontal and vertical axes) would be more "harmonious" than one that does not. The *elaborate* factor is a combination of design element complexity, activity, and depth. It captures the concept of richness and the ability of the design to convey a visual representation's essence.

Figure 1
Hypothesized Relationships Between Study Variables



To overcome concern that the generic factor perspective may be limited to the design of logos, Henderson, Giese, and Cote (2004) extended this line of research to typeface design, thereby confirming the three factors as drivers of impressions. For typeface, *elaborate* included positive loadings for ornate, depth, distinctive, and meaningful, while containing negative loadings for readable and common. *Harmony* included balance, smoothness, symmetry, and uniformity, and *natural* included positive loadings for active, curved, organic, slanted, and a negative loading for typed (in contrast to handwritten). The existence and relevance of these three generic factors was further corroborated across cultures (Henderson et al. 2003) and for more complex design stimuli such as entire packages (Orth and Malkewitz 2008). In sum, the literature suggests that design effects should be studied from the perspective of generic factors such as natural, harmony, and elaborate.

The Quality Route

Extending dual-process theories of persuasion (Chaiken 1980; Petty and Cacioppo 1986) from advertising to packaging suggests two basic routes of how consumers form price expectation: a central route via quality inferences and a peripheral route via judgments of attractiveness. Attractiveness and quality should also be connected directly through the "beautiful-is-good" stereotype (Dion, Berscheid, and Walster 1972; Kamins 1990). Figure 1 gives an overview of the relationships discussed in the following sections.

Consistent with past research and operationalizations (Rao and Monroe 1989; Teas and Agarwal 2000), we define quality as the cognitive evaluation of a product's intrinsic core benefit. As such, perceived quality usually corresponds with the functional benefit consumers seek (Park, Jaworski, and MacInnis 1986; Orth and De Marchi 2007). At times when this functional benefit is difficult to judge, consumers employ extrinsic cues, including visual appearances, to infer quality or price (Dawar and Parker 1994; Dodds 1995; Garber, Hyatt, and Starr 2000; Olson and Jacoby 1972).

Package design is one of the extrinsic cues facilitating consumer evaluative judgments, including quality (e.g., Aaker 1991; Batra and Homer 2004; Batra, Lehmann, and Singh 1993; Bloch 1995; Garber, Hyatt, and Starr 2000; Keller 1993; Orth and Malkewitz 2008; Schmitt, Simonson, and Marcus 1995; Solomon 1983; Underwood 2003; Underwood and Klein 2002; Underwood and Ozanne 1998). This ability is especially pronounced for new brands unfamiliar to consumers (Underwood and Klein 2002). Because no brand or price history can be accessed from memory in these cases (Briesch et al. 1998), any price expectation must be based on present cues, including package design.

We base predictions for how specific design factors contribute to the formation of price expectations via quality judgments on human associative learning, or the modeling of cue conversion into probabilities of response (Kruschke and Johansen 1999; McLaren, Jones, and Wills 1998). Brand features, including design elements, constitute links to diagnostic information (e.g., Janiszewski and Van Osselaer

2000; Van Osselaer and Janiszewski 2001), and such diagnostic information frequently includes perceived quality (Janiszewski and Van Osselaer 2000; Van Osselaer and Alba 2000) or price (Orth and Malkewitz 2008; Shirai and Meyer 1997). Extending associative learning models to package design suggests that consumers decompose design stimuli into compound configural representations—that is, generic factors—and represent these in memory (Kruschke and Johansen 1999). When the consumer then receives information about a cue (i.e., a natural, elaborate or harmonious design), he or she makes predictions about an outcome (i.e., quality, or price) on the basis of the association strength between the representation of cues and the outcome (Van Osselaer, Janiszewski, and Cunha 2004).

Associations between design and consumers' quality judgments have been reported for a variety of stimuli (Bloch 1995; Lee and Lou 1995; Orth and Malkewitz 2008; Rocchi and Stefani 2005). Among others, packages can convey functional value via quality inferences (Smith and Colgate 2007). Functional value, in turn, links quality judgments with price expectations, usually via a positive correlation (Lichtenstein, Bloch, and Black 1988; Sheth, Newman, and Gross 1991; Sweeney and Soutar 2001; Teas and Agarwal 2000; Zeithaml 1988). This chain of evidence implies that consumers will expect higher prices for brands whose package design creates impressions of high quality.

Tracing quality back to package design next raises the question of what relationships exist between quality judgments and specific design factors. In many product categories, "natural" is associated with higher quality and price levels. For example, consumers associate organic products with both higher quality and higher prices (Pearson and Henryks 2008). More important, past research has most clearly associated natural designs with consumer judgments of higher quality (Crilly, Moultrie, and Clarkson 2004). For example, natural images lead consumers to evaluate a brand as higher in quality (Henderson et al. 2003). Bright and artificial colors have the opposite effect generating low-quality judgments (Creusen and Schoormans 2005). Orth and Malkewitz (2008) link specifically the generic natural factor with consumer judgments of higher quality through impressions of competence and sincerity. Integrating this evidence with the positive quality–price relationship established previously (Lichtenstein, Bloch, and Black 1988; Sweeney and Soutar 2001; Teas and Agarwal 2000), we expect that natural designs lead consumers to expect higher prices as they associate *natural* with higher quality, and higher quality with higher price. In other words, quality judgments should function as a mediator between the natural design factor and consumer price expectation:

Hypothesis 1a: Perceived quality mediates the positive effect of natural designs on consumer price expectation.

Design harmony has directly and indirectly been associated with consumer quality judgments. For example, harmony is associated with images of elegance, well-coordinated color combinations, and overall balance, all of which facilitate judgments of higher quality (Henderson et al. 2003). Beverage and fragrance packages that are more harmonious are thought to contain more sophisticated products, whereas packages in contrasting colors are perceived to hold value-for-money products generally perceived to be of lower quality (Orth and Malkewitz 2008). The explanation offered by visual fluency researchers posits that consumers must expend greater effort to process contrasting rather than harmonious stimuli, and this greater effort leads to less-favorable evaluative outcomes (Schwarz 2004). Integrating this evidence for a positive influence of the harmony factor on quality judgments with the positive quality–price relationship implies that consumers expect higher prices for more harmonious packages as they judge harmonious packages to be higher in quality, and expect higher prices for higher quality. In other words, quality judgments should function as a mediator between the harmony design factor and consumer price expectation:

Hypothesis 1b: Perceived quality mediates the positive effect of harmonious designs on consumer price expectation.

The relation between elaborate designs, judgments of higher quality, and higher price expectation should also be positive. For example, product imitations and fake designs frequently lack the attention to detail given to the higher-priced originals as creating quality often requires greater effort, better technology, and more attention to detail resulting in more elaborate designs (Crilly, Moultrie, and Clarkson 2004; Wee, Tan, and Cheok 1995). Specific evidence indicates that such a positive link exists specifically for the relation between the elaborate factor and consumer judgments of quality (Rigeaux-Brigmont 1982). More elaborate images also lead consumers to evaluate a brand as higher in quality (Henderson et al. 2003). When presented with more rather than less elaborate packages, consumers perceive those to contain higher-quality offers (Orth and Malkewitz 2008). Integrating evidence for a positive relationship between the elaborate factor and quality with the positive quality–price relationship (Lichtenstein,

Bloch, and Black 1988; Sweeney and Soutar 2001; Teas and Agarwal 2000), we expect that elaborate designs lead consumers to expect higher prices as they associate *elaborate* with higher quality, and higher quality with higher price. In other words, quality judgments should function as a mediator between the elaborate design factor and consumer price expectation:

Hypothesis 1c: Perceived quality mediates the positive effect of elaborate designs on consumer price expectation.

The Attractiveness Route

Significant research attests to package design's ability to generate affect and create value (e.g., Bloch 1995; Hirschman 1986; Holbrook 1986; Orth and Malkewitz 2008; Veryzer and Hutchinson 1998). Especially when consumers are unable to try a product prior to purchase, the visual appearance of a package assumes a key role in their decision making by providing information about the aesthetic value delivered by the product (Creusen and Schoormans 2005).

Analogous to the quality–price link, the positive relationship between attractiveness and price expectation has been confirmed repeatedly (Sheth, Newman, and Gross 1991; Zeithaml 1988). Aesthetic evaluations derived from offerings are highly valued by consumers, and exert a strong influence on their decision making (Sheth, Newman, and Gross 1991; Sweeney and Soutar 2001). Even, per se, attractive packages can represent a source of value to consumers. When product alternatives are perceived as similar in quality and price, consumers prefer the more aesthetically appealing alternative (Creusen and Schoormans 2005; Kotler and Rath 1984). This would imply that consumers expect higher prices for more attractive package designs.

We base predictions for how the natural, harmony, and elaborate design factors contribute to the formation of price expectations via judgments of attractiveness on the ease, speed, and accuracy with which new information can be processed. These factors can serve as a basis of judgment and are rooted in generic design factors and related characteristics (Schwarz 2004).

Natural designs combine characteristics such as prototypical and representative (Henderson, Giese, and Cote 2004; Orth and Malkewitz 2008). Prototypicality reflects the degree to which a design overlaps with others commonly encountered in the category; it is usually defined as the central representation of a category or as possessing the average or modal value of the attributes of that category (Barsalou 1985). More prototypical stimuli are easier to process, thereby increasing judgments of attractiveness (Reber, Schwarz, and Winkielman 2004). Similarly, representative stimuli lead to higher liking, as they are judged higher in attractiveness (Veryzer and Hutchinson 1998). Empirical evidence supports such a positive relation between the natural design factor and attractiveness. For example, aesthetics judgments are more positive for designs showing a combination of novelty (i.e., elements previously not found in the category) and prototypicality (Hekkert, Snelders, and van Wieringen 2003). Henderson and Cote (1998) also report a direct positive relationship between natural designs and liking. Integrating evidence for a positive relationship between the natural factor and attractiveness with the positive attractiveness–price relationship discussed previously, we expect that natural designs lead consumers to expect higher prices as they evaluate them as more attractive, and in turn expect higher prices. In other words, judgments of attractiveness should function as a mediator between the natural design factor and consumer price expectation:

Hypothesis 2a: Attractiveness mediates the positive effect of natural designs on consumer price expectation.

Harmony, the second generic design factor, combines characteristics such as symmetry and balance (Henderson, Giese, and Cote 2004; Orth and Malkewitz 2008). Fluency research indicates that harmonious rather than contrasting stimuli are easier to evaluate, thereby generating higher ratings of attractiveness (Reber, Schwarz, and Winkielman 2004). Research on proportions and shapes converges on the finding that more symmetric, simple, and well-proportioned designs (i.e., designs higher in harmony) lead to more positive affect in terms of judgments of attractiveness (Raghubir and Greenleaf 2006). Empirical studies also report that consumers find harmonious designs more attractive than disharmonious designs (Bornstein and D'Agostino 1992; Henderson, Giese, and Cote 2004; Klinger and Greenwald 1994; Van den Bergh and Vrana 1998; Veryzer and Hutchinson 1998; Whittlesea 1993). Integrating this evidence for a positive relationship between harmony and attractiveness with the positive attractiveness–price link, we expect that harmonious designs lead consumers to expect higher prices as they find them more attractive, and in turn expect higher prices. Judgments of attractiveness should thus function as a mediator between the harmony factor and consumer price expectation:

Hypothesis 2b: Attractiveness mediates the positive effect of harmonious designs on consumer price expectation.

Elaborate designs combine elements such as complexity, activity, richness, and depth (Henderson and Cote 1998; Orth and Malkewitz 2008). These characteristics force

consumers to expend greater effort and more time to infer meaning (Reber, Schwarz, and Winkielman 2004). Although this would imply lower attractiveness, more complex designs also have the ability to generate higher arousal and engagement with viewers, which in turn increases affect and liking (Berlyne 1971). Although theoretical support for the direction of the relationship between elaborateness and attractiveness is ambiguous, empirical findings point toward a positive association. Extant studies converge on the finding that more elaborate designs are liked more than less elaborate designs (Henderson, Giese, and Cote 2004; Hirschman 1986). This perspective is reinforced as a single rather than multiple exposures to moderately versus little elaborate designs leads consumers to find unfamiliar brands more attractive (Cox and Cox 2002). Integrating this evidence for a positive relationship between the elaborate factor and attractiveness with the positive attractiveness–price relationship, we expect that elaborate designs lead consumers to expect higher prices as they find them more attractive. Judgments of attractiveness should thus function as a mediator between the elaborate factor and consumer price expectation:

Hypothesis 2c: Attractiveness mediates the positive effect of elaborate designs on consumer price expectation.

The Attractiveness–Quality Link

For advertising visual cues, researchers have repeatedly established that attractiveness relates positively to quality judgments (Kamins 1990; Parekh and Kanekar 1994). This positive attractiveness–quality relationship, also known as the "beautiful-is-good" stereotype, extends well beyond advertising. For example, social psychology researchers found that teachers judge physically attractive students higher in academic brightness and leadership qualities (Kenealy, Frude, and Shaw 1991). In a study on the impact of food packages on choices, a large majority of consumers indicated that they would purchase a product that was packaged more attractively because they judged its quality to be higher (Peters-Texeira and Badrie 2005). For services, Koernig and Page (2002) established a positive link between a service provider's physical attractiveness and perceived service quality. Given that packages are more closely related to products—in fact, they are much more part of the augmented product than endorsers, spokespeople, or service providers—we expect that the positive attractiveness–quality relationship extends to package design:

Hypothesis 3: The greater the attractiveness of a package, the higher is the perceived quality.

The Moderating Role of Consumer CVPA

We propose that consumers who are more aesthetically involved process package design differently than those who are less. This prediction rests on insights gained from involvement research and on findings that aesthetic responses to design are highly personal (Van den Berg-Weitzel and Van de Laar 2001). CVPA is defined as the overall level of significance that visual aesthetics hold for a particular consumer in his or her relationships with products (Bloch, Brunel, and Arnold 2003). As a continuous individual difference variable, CVPA ranges from near zero to very high levels where visual aesthetics dominate a consumer's acquisition and usage of goods. High-CVPA consumers have above-average concern for visual aesthetics independent of product category or setting. Readers should note that CVPA captures the general importance of visual product aesthetics rather than preferences for a particular design style. In its totality, CVPA should influence how attractive individuals find a package design, their quality judgment, and ultimately the price they expect for the offer.

One facet of CVPA reflects the individual ability to recognize, categorize, and evaluate product designs (Bloch 1995; Csikszentmihalyi and Robinson 1990). High-CVPA individuals are more aware of the range and intensity of the enjoyable experiences available to them through the sense of vision. Given their superior ability of aesthetic appraisal (Bloch, Brunel, and Arnold 2003), they should arrive at different evaluations of attractiveness than low-CVPA individuals. To the extent that CVPA reflects individual differences in the ability to recognize and appraise design, we expect that it enhances the influence of design factors on judgments of attractiveness:

Hypothesis 4a: CVPA enhances the influence of package design factors on attractiveness.

Some consumers favor visual over verbal processing, and highly visual individuals give greater weight to design factors in making product evaluations than do less visual processors (Childers, Houston, and Heckler 1985; Holbrook 1986). Given that low-CVPA individuals have a lesser ability of aesthetic appraisal (Bloch, Brunel, and Arnold 2003), they may not consider design at all, may not recognize them, or may simply deem them unimportant. Low-CVPA individuals may further have some interest in product appearance but they may not utilize design factors to obtain quality judgments. Consumers with high levels of CVPA, in contrast, would not only use visual appearance in comparing products but would also base quality judgments on design factors. To the extent that CVPA reflects

an individual's ability to recognize and appraise design, we expect that it will enhance the influence of design factor on quality judgments:

Hypothesis 4b: CVPA enhances the influence of package design factors on quality.

Beautiful objects have the capacity to generate significant responses among consumers (Bloch 1995; Csikszentmihalyi and Robinson 1990; Veryzer 1999). Highly visual individuals give greater weight to aesthetic elements in making product evaluations than do less visual processors (Bloch, Brunel, and Arnold 2003). CVPA thereby captures the extent to which product aesthetics are used as evaluation criteria. The literature suggests that initial reactions to design primarily include judgments of attractiveness with cognitions following through the associative processes outlined previously (Csikszentmihalyi and Robinson 1990; Durgee 1988). Consumers with high CVPA thus base their quality judgments more strongly on packages with attractive designs. They openly admit to the influence of design attractiveness on forming evaluations including quality and actively include visual attractiveness in comparing products (Bloch 1995). To the extent that CVPA reflects individual differences in response levels to aesthetic designs, we expect that it will enhance the influence of attractiveness on quality judgments:

Hypothesis 4c: CVPA enhances the influence of attractiveness on quality.

Last, CVPA captures the perceived value of visual product aesthetics as a means of enhancing quality of life. High-CVPA consumers believe that encounters with aesthetically attractive objects increase the quality of their daily lives or allow them to satisfy higher-level needs (Yalch and Brunel 1996). They recognize and value the rewards they receive from the aesthetic properties of products. They also define themselves in part by the value that design adds to their life, and they may see themselves as hedonists who get substantial benefit from owning beautiful objects (Csikszentmihalyi and Robinson 1990). High-CVPA consumers regard the possession of beautiful objects as a way to increase the quality of their lives and are willing to spend additional money to obtain them (Bloch, Brunel, and Arnold 2003). To them, the ability of aesthetic appeal to increase the symbolic value of a brand is substantial (Creusen and Schoormans 2005; Keller 1993; Kotler and Rath 1984; Orth and De Marchi 2007; Sweeney and Soutar 2001). To the extent that CVPA captures individual differences in the value obtained from aesthetic design, we expect that it enhances the influence of attractiveness on price expectation:

Hypothesis 4d: CVPA enhances the influence of attractiveness on price expectation.

METHOD

Product Category

Our primary interest lies with testing for the existence of both quality and attractiveness routes in consumer formation of price expectation based on package design. Although a specific route may be more or less prominent depending on the product category selected, we needed an example category that would allow us to test for the general existence of both routes. This research focus dictates six major concerns in selecting an appropriate category. First, a great number of alternatives should exist with substantial differences in quality, package designs, and prices so that price and quality inferences are encouraged (Zeithaml 1988). Second, in order to evaluate the role of quality and attractiveness in consumer formation of price expectation, both variables should be important drivers of purchase decisions. Third, packages in the category should hold the potential to convey aesthetic value (via attractiveness) to consumers. Fourth, generic design factors such as elaborate, harmonious, and natural need to be present in packages. Fifth, the category selected should provide brand names unfamiliar to the sample population to avoid confusion with different levels of consumer knowledge and brand familiarity (Baker, Hunt, and Scribner 2002; Underwood and Klein 2002). Finally, there needs to be extensive variance in package designs, permitting a representative selection of actual designs for use as stimuli. In consideration of these criteria, we researched wine packages.

Stimuli

Our research objectives demanded that we employ stimuli with clearly established design properties—that is, stimuli scoring either very low or very high on the design factors natural, harmony, and elaborate. In the wine packages category, Orth and Malkewitz (2008) went through a lengthy and elaborate process involving more than 120 professional designers who rated a large number of real stimuli on exactly these dimensions. We were able to obtain high-resolution digital images of these thoroughly tested and meticulously defined stimuli for our research, including their scores on each design factor of interest. Using these stimuli has definite advantages over developing new stimuli in terms of parsimoniousness, realism, straightforward extension of previous research, and hence comparability of findings.

Given our interest in assessing effects attributable to natural, harmony, and elaborate design factors, we selected stimuli from the original pool of 160 according to their scores on those factors. Specifically, we selected 10 stimuli with the highest score on the natural factor, 10 stimuli with the lowest score on this factor, another 10 scoring highest on harmony, 10 scoring lowest on this factor, 10 scoring highest on the elaborate factor, and another 10 scoring lowest. This procedure resulted in a total of 60 stimuli for our study. Table 1 shows the systematic process employed for selecting stimuli. It holds the original characterization of design factors and underlying design elements by professionals (Orth and Malkewitz 2008), and displays descriptive statistics and example images of the stimuli employed in this research.

Consumer Responses

Randomly selected members (21 years or older) of a consumer panel representative of the U.S. Pacific Northwest were invited by the panel administrator to participate in an online survey in exchange for receiving one of 120 gift certificates. The invitation provided a link to the survey Web site and informed members that the survey site would be closed after the available gift certificates were expended. Upon the initial visit to the site, participants were requested to provide an e-mail address to which a unique transaction identifier and login information were sent. In combination, these allowed participants to access the survey and participate in this study. On average, the respondents were 43.2 years old, 59 percent were female, and only a small fraction were students. The initial screen following successful login presented a brief introduction outlining that a not-for-profit research project examined consumer evaluation of wine bottles. Participants were then shown a sequence of 10 randomly assigned digital images of the stimuli and were asked to respond to a set of questions that assessed their familiarity with each brand, judgments of quality, attractiveness, and price. The final screen assessed personal information before a gift certificate was issued for successful participation.

Respondents' perceptions of quality were assessed through three items (seven-point scale ranging from 1 = low quality, bad craftsmanship, not reliable to 7 = high quality, good craftsmanship, reliable; Teas and Agarwal 2000). Factor loadings exceeded 0.76, and the three items were subsequently averaged to form a single index ($\alpha = 0.91$, explained variance = 0.84).

The attractiveness scale consisted of three items measured on a seven-point semantic differential (Hirschman 1986): attractive/not attractive, beautiful/not beautiful, and desirable/not desirable; the items were also averaged to form a composite measure ($\alpha = 0.89$, explained variance = 0.76).

To assess consumer price expectation, we employed Jun, MacInnis, and Park's (2005) metric, asking participants an open-ended question to indicate their expected prices for the stimulus displayed. Given the concrete singular meaning of satisfaction in this context, the use of a single-item measure appears appropriate (Bergkvist and Rossiter 2007). Purchase intention was also measured through one item (Baker and Churchill 1977).

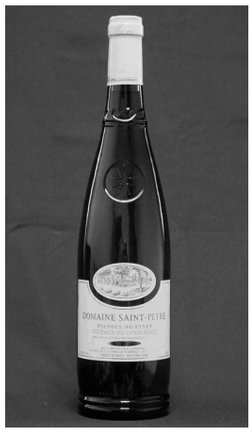
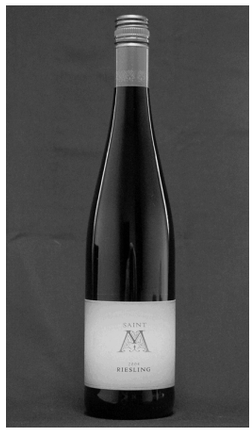
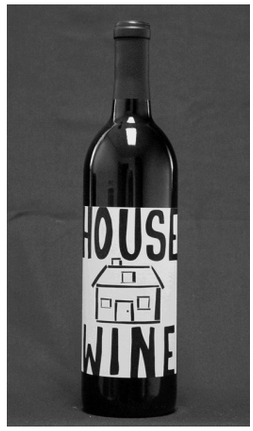
To assess individual aesthetics consciousness, consumers were asked to rate their CVPA on Bloch, Brunel, and Arnold's (2003) 11-item scale. This measure exhibited satisfactory scale properties with correlations of at least 0.71 between corresponding factor items. Sample items for the individual difference include "I see things in a product's design that other people tend to pass over," "If a product's design really 'speaks' to me, I feel that I must buy it," and "Owning products that have superior designs makes me feel good about myself." Again, the items were averaged to form a single measure of CVPA ($\alpha = 0.87$, explained variance = 0.77).

Consumer familiarity with the brands was assessed through a seven-point semantic differential ranging from 1 = not at all familiar to 7 = very much familiar (Machleit, Allen, and Madden 1993). Descriptive findings indicate that consumers were not familiar with the brands as intended (mean [M] = 1.49; standard deviation [SD] = 0.59). Correlations were not significant between brand familiarity and quality ($\beta = 0.06$, $p = 0.429$), attractiveness ($\beta = 0.01$; $p = 0.90$), and price expectation ($\beta = 0.08$; $p = 0.314$), indicating that respondents were not affected by the brand names.

ANALYSIS AND RESULTS

The database for subsequent analyses held two groups of variables. The first group consisted of individual consumer responses to a specific stimulus (i.e., their judgments of attractiveness, quality, and estimated price) and data on individual differences (i.e., CVPA). Data for this set of variables were obtained through the consumer survey. The second group of variables held aggregate designer evaluations of the stimulus evaluated by the consumer on relevant design factors (i.e., a stimulus' score on natural, harmony, and elaborate). Data for those variables were obtained from the original researchers who collected it from design

Table 1
Design Factors and Example Stimuli

	Natural	Harmony	Elaborate
Mean (Orth and Malkewitz 2008)	3.04	4.11	3.99
Standard Deviation (Orth and Malkewitz 2008)	1.43	0.72	0.91
Design Elements (item-to-factor correlation) (Orth and Malkewitz 2008)	Natural color scheme (0.89) Organic typography (0.86) Natural bottle color (0.78) Images of nature (0.76) Images of landscapes (0.67) Images of plants (0.65) Images of wine (0.54)	Low image contrast (0.85) Uniform typography (0.78) Harmonious colors (0.67) Low image resolution (0.65) Low brand name contrast (0.62)	High label structure (0.81) Many image details (0.80) Ornate typography (0.70) Many label details (0.70) Large quantity of text (0.68) Many labels (0.66) High label elaboration (0.66) Angular label shape (0.65)
Range of the stimuli selected for this study			
High (10 per factor)	5.52–6.25	5.27–5.70	5.14–6.10
Low (10 per factor)	1.08–1.44	2.30–2.97	1.50–2.70
Example stimuli			
High (mean)	5.62	5.44	5.65
			
Low (mean)	1.18	2.58	2.01
			

professionals and generated means (Orth and Malkewitz 2008). Subsequent analyses were then conducted at the consumer level relating consumer evaluations of a stimulus to the design characteristics of this stimulus.

Variation in Consumer Responses

Consistent with study objectives, descriptive statistics indicated that the selected designs in fact generated substantial variance in perceived quality (M = 4.47, SD = 0.83, R = 4.36), attractiveness (M = 4.41, SD = 0.79, R = 4.98), and price expectation (M = 17.15, SD = 5.17, R = 29.47).

Throughout the subsequent analyses, we examine linear relationships between study variables. From a theoretical standpoint, several hypothesized relationships should be nonlinear—that is, $\frown$ or slightly $\cap$ shaped. However, previous design research has shown that ignoring nonlinear relationships slightly lowers the predictive ability but does not lead to fundamentally different insights regarding the nature or direction of relationships between study variables (Henderson and Cote 1998). Readers should thus note that we sacrificed predictive power for the ability to perform commonly acknowledged mediation and moderation analyses. We also tested for interactions among the design dimensions, but none were significant.

Testing for Mediation

Our analytical approach to test for mediation consisted of two parts. The first part consisted of estimating a series of regression analyses following the steps and criteria outlined by Baron and Kenny (1986). First, we regressed the mediator on the independent variable (IV); second, we regressed the dependent variable (DV) on the IV; and third, we regressed the DV on both the IV and on the mediator. Separate coefficients for each equation were estimated and tested. These three regression equations provide the tests of the linkages of the meditational model. Generally speaking, mediation can be said to occur when (1) the IV significantly affects the mediator, (2) the IV significantly affects the DV in the absence of the mediator, (3) the mediator has a significant unique affect on the DV, and (4) the effect of the IV on the DV shrinks upon the addition of the mediator in the model (MacKinnon, Warsi, and Dwyer 1995). In regard to the last condition, scholars agree that a continuum exists from only partial mediation to full mediation when the effect shrinks to zero (Preacher and Hayes 2004). A mediator thus is a variable that accounts for all or part of the relation between a predictor and an outcome.

These criteria can be used to informally judge whether or not mediation is occurring, and additional statistical methods are available by which mediation may be formally assessed (MacKinnon, Warsi, and Dwyer 1995). To test whether a mediator (quality, attractiveness) carries the influence of an IV (design factors) to a DV (price estimate), we conducted Sobel tests (Preacher and Hayes 2004; Sobel 1982). We specifically employed the Aroian test equation with the formula

$$z\text{-value} = a * b \Big/ \sqrt{\left(b^2 * s_a^2 + a^2 * s_b^2 + s_a^2 * s_b^2\right)},$$

where a is the raw (unstandardized) regression coefficient for the association between the IV and the mediator, s_a is the standard error of a, b is the raw (unstandardized) regression coefficient for the association between the mediator and the DV, and s_b is the standard error of b. The resulting critical ratios indicate whether the indirect effect of the IV on the DV via the mediator is significantly different from zero.

The Mediating Effect of Quality Judgments

Hypothesis 1 proposes that quality judgments mediate the effects of design factors on price expectation. Table 2 holds the results for both the linkages of the meditational model according to Baron and Kenny (1986) and the Aroian test for mediation. When design factors were regressed on price expectation, beta coefficients were significant for harmony and elaborate but marginal for natural (equation 1). Price expectation was higher for elaborate and for harmonious designs. All three design factors were significant predictors of consumer quality judgments, with consumers attributing higher quality to natural, harmonious, and elaborate designs (equation 2). When both quality and design factors were included in the regression model, quality remained a significant predictor, whereas the influence of the design factors decreased. These findings provide initial evidence that quality accounts for all or part of the relation between design factors and price expectation (MacKinnon, Warsi, and Dwyer 1995). Consistent with MacKinnon et al. (2002), the results (z-values and p-values) of the Aroian test corroborate this initial conclusion; they indicate that perceived quality partially mediates the effects of natural, elaborate, and harmony design factors. Hypotheses 1a–c were supported.

The Mediating Effect of Attractiveness

Hypothesis 2 proposes that the attractiveness of a package mediates the effects from design factors on price expectation. Table 3 holds the results for the linkages of the

Table 2
Testing the Mediating Effect of Quality

	β (standardized)	*t*	*p*	*F*	$R^2_{adj.}$
1. Price expectation = *f*{Package Design}					
Natural	0.12	1.97	0.051		
Harmony	0.38	5.38	0.001		
Elaborate	0.41	5.69	0.001	17.46	0.25
2. Perceived quality = *f*{Package Design}					
Natural	0.18	2.46	0.007		
Harmony	0.26	3.38	0.001		
Elaborate	0.35	4.57	0.001	13.09	0.19
3. Price expectation = *f*{Quality, Package Design}					
Quality	0.57	8.91	0.001		
Natural	0.01	0.17	0.864		
Harmony	0.25	4.08	0.001		
Elaborate	0.21	3.35	0.001	39.86	0.51
	z	***p***		**Mediated**	
4. Results of mediation test (Aroian)					
Natural	3.07	0.002		Yes	
Harmony	2.33	0.020		Yes	
Elaborate	4.10	0.001		Yes	

meditational model (Baron and Kenny 1986) and the Aroian mediation test. When design factors were regressed on price expectation, beta coefficients were significant for harmony and elaborate, but not for natural (equation 1). However, only natural and elaborate factors, but not harmony, were significant predictors of attractiveness (equation 2). Consumers found natural and elaborate designs more attractive than designs low on those factors. When both attractiveness and design factors were included in the regression model, attractiveness remained a significant predictor, whereas the influence of design factors shrank for natural and elaborate designs, but not for harmony (equation 3). These findings suggest that the attractiveness of a design functions as a mediator in the price expectation formation only for natural and elaborate design factors, and not for the harmony factor. The results of the Aroian test support this conclusion (MacKinnon et al. 2002); they indicate that attractiveness mediates the effects of the natural and elaborate factors but not of the harmony factor. Hypotheses 2a and 2c were supported; Hypothesis 2b was not supported.

The Relationship Between Attractiveness and Quality

Hypothesis 3 proposes that the attractiveness of a package exerts a positive influence on perceived product quality. When attractiveness was regressed on quality judgments, the beta coefficient was significant ($\beta = 0.75$, $t = 13.84$, $p = 0.001$, $R^2_{adj.} = 0.56$). This finding supports Hypothesis 3 and the claim that consumers associate higher quality with more attractive packages.

The Moderating Role of CVPA

Hypothesis 4 proposes that CVPA will moderate relationships between design factors, quality, attractiveness, and price expectation. To test this hypothesis, a series of moderated regression analyses were conducted for each of the four hypothesized relationships (Baron and Kenny 1986; Irwin and McClelland 2003). In the first step of each regression analysis, the predictor variables were entered. In the second step, step 1 predictor variables and CVPA were entered as independent variables. In the last step of the analyses, all step 2 predictor variables were entered plus the moderator variables (i.e., the hypothesized interaction variables with CVPA).

Hypothesis 4a suggested that the relationship between design factors and attractiveness would be moderated by CVPA. Specifically, we proposed that generic factors would exert a stronger effect on attractiveness with individuals high rather than low on CVPA. As Table 4 suggests, a significant interaction effect of package design × CVPA was found

Table 3
Testing the Mediating Effect of Attractiveness

	β	*t*	*p*	*F*	$R^2_{adj.}$
1. Price expectation = *f*{Package Design}					
Natural	0.12	1.97	0.051		
Harmony	0.38	5.38	0.001		
Elaborate	0.41	5.69	0.001	17.46	0.25
2. Attractiveness = *f*{Package Design}					
Natural	0.26	3.42	0.001		
Harmony	0.01	0.10	0.922		
Elaborate	0.24	3.03	0.003	10.19	0.15
3. Price expectation = *f*{Attractiveness, Package Design}					
Attractiveness	0.23	3.21	0.002		
Natural	0.07	0.97	0.334		
Harmony	0.39	5.57	0.001		
Elaborate	0.37	5.15	0.001	16.49	0.29
	z	***p***		**Mediated**	
4. Results of Mediation Tests (Aroian)					
Natural	3.27	0.001		Yes	
Harmony	1.21	0.228		No	
Elaborate	2.61	0.009		Yes	

for the natural and elaborate factors, but not for harmony. Explained variance increased from 0.15 to 0.23. Further, the regression results for the two significant design factor interactions were in the predicted direction, suggesting that CVPA enhances rather than mutes effects from natural and elaborate designs on attractiveness. Hypothesis 4a was supported only for natural and elaborate designs.

Hypothesis 4b suggested that individuals high in CVPA base quality judgments to a greater extent on design factors, compared with consumers low in CVPA. Table 5 indicates that the interaction between package design and CVPA is significant for all three design factors. Explained variance increased from 0.19 to 0.25. In addition, the significant interaction effects suggest that higher CVPA is associated with higher-quality judgments for natural, harmonious, and elaborate designs, compared with lower CVPA. Hypothesis 4b, regarding the moderating role of CVPA in the package design × quality relationship, was supported.

Hypothesis 4c suggested that CVPA enhances the influence of attractiveness on quality. Specifically, high-CVPA consumers should infer higher quality from more attractive packages. Table 6 indicates that the interaction between attractiveness and CVPA is not significant, and the explained variance decreased slightly from 0.56 to 0.55. Further, the beta coefficient was not in the predicted direction, suggesting that higher CVPA is associated with lower-quality judgments for attractive designs, compared with lower CVPA. Hypothesis 4c was not supported.

Hypothesis 4d suggested that consumers with high visual aesthetics centrality expect higher prices for attractive designs, compared to low-CVPA consumers. Table 7 indicates that the interaction of attractiveness × CVPA is significant with explained variance increasing from 0.07 to 0.15. As predicted, the interaction effect suggested that higher CVPA is associated with expectations of higher prices for attractive designs, compared with lower CVPA. Hypothesis 4d regarding the interaction of design attractiveness × CVPA, was supported.

DISCUSSION AND ADVANCEMENT OF THEORY

By extending concepts originally conceived and validated in an advertising context, we showed that—with one exception—consumer judgments of quality and attractiveness mediate in part the influence from package design factors on price expectation. CVPA, an individual difference variable, moderated the influence of design factors on attractiveness and quality judgments and the attractiveness–price expectation relationship but not the influence of attractiveness on quality.

The established effects are important for several reasons. Our findings suggest that package design has the ability to

Table 4
The Moderating Role of CVPA in Package Design's Influence on Attractiveness

	β	*t*	*p*	*F*	$R^2_{adj.}$
1. Attractiveness = *f*{Package Design}					
Natural	0.26	3.42	0.001		
Harmony	0.01	0.10	0.922		
Elaborate	0.24	3.03	0.003	10.19	0.15
2. Attractiveness = *f*{Package Design, CVPA}					
Natural	0.27	3.54	0.001		
Harmony	0.01	0.13	0.918		
Elaborate	0.24	3.00	0.003		
CVPA	0.10	1.32	0.187	8.12	0.16
3. Attractiveness = *f*{Package Design, CVPA, Package Design x CVPA}					
Natural	0.27	3.47	0.001		
Harmony	0.01	0.13	0.919		
Elaborate	0.25	3.02	0.002		
CVPA	0.04	0.51	0.611		
Natural x CVPA	0.25	3.21	0.002		
Harmony x CVPA	0.06	0.71	0.479		
Elaborate x CVPA	0.18	2.28	0.024	9.53	0.23

Table 5
The Moderating Role of CVPA in Package Design's Influence on Quality

	β	*t*	*p*	*F*	$R^2_{adj.}$
1. Quality = *f*{Package Design}					
Natural	0.18	2.46	0.007		
Harmony	0.26	3.38	0.001		
Elaborate	0.35	4.57	0.001	13.09	0.19
2. Quality = *f*{Package Design, CVPA}					
Natural	0.19	2.52	0.013		
Harmony	0.24	3.27	0.001		
Elaborate	0.34	4.54	0.001		
CVPA	0.05	0.73	0.464	9.92	0.19
3. Quality = *f*{Package Design, CVPA, Package Design x CVPA}					
Natural	0.20	2.56	0.012		
Harmony	0.25	3.28	0.001		
Elaborate	0.35	4.62	0.001		
CVPA	0.03	0.38	0.707		
Natural x CVPA	0.20	2.77	0.026		
Harmony x CVPA	0.26	3.34	0.001		
Elaborate x CVPA	0.36	4.75	0.001	13.57	0.25

influence consumer price expectation via consumer judgments of quality and attractiveness. This extends research on how consumers form price expectations (Jun, MacInnis, and Park 2005; Shirai and Meyer 1997), and underscores the role of visual cues in this process (Dawar and Parker 1994; Teas and Agarwal 2000). Especially, the finding that the influence of design on price expectations is mediated in part through quality judgments and in part through a package's attractiveness adds a new perspective to pricing research, which has largely focused on consumer conjectures about quality (Bell and Bucklin 1999; Briesch et al. 1998; Homer 2006).

Our findings extend design studies by relating generic factors to consumer judgments of quality and attractiveness, and subsequently to price expectation. Although extant research has identified generic design factors (Henderson

Table 6
The Moderating Role of CVPA in Attractiveness's Influence on Quality

	β	*t*	*p*	*F*	$R^2_{adj.}$
1. Quality = *f*{Attractiveness}					
Attractiveness	0.75	13.84	0.001	191.42	0.56
2. Quality = *f*{Attractiveness, CVPA}					
Attractiveness	0.75	13.76	0.001		
CVPA	–0.01	–0.11	0.911	95.09	0.55
3. Quality = f{Attractiveness, CVPA, Attractiveness x CVPA}					
Attractiveness	0.75	13.47	0.001		
CVPA	0.01	0.03	0.974		
Attractiveness x CVPA	–0.07	–0.05	0.961	62.97	0.55

Table 7
The Moderating Effect of CVPA on the Attractiveness–Price Expectation Link

	β	*t*	*p*	*F*	$R^2_{adj.}$
1. Price expectation = f{Attractiveness}					
Attractiveness	0.28	3.57	0.001	12.49	0.07
2. Price expectation = f{Attractiveness, CVPA}					
Attractiveness	0.28	3.50	0.002		
CVPA	0.05	0.60	0.550	6.48	0.07
3. Price expectation = f{Attractiveness, CVPA, Attractiveness x CVPA}					
Attractiveness	0.29	3.63	0.003		
CVPA	0.41	0.77	0.442		
Attractiveness x CVPA	0.21	2.67	0.001	14.30	0.15

and Cote 1998; Henderson, Giese, and Cote 2004) and has established links to meaning and affect (Henderson et al. 2003), the associated research stream has not examined specific paths. We offer a new and integrative explanation for consumer response to package design that draws from dual-process theories of persuasion established in advertising research (Chaiken 1980; Petty and Cacioppo 1986). Our research presents initial evidence for the general existence of both routes: a central or cognitive route via quality inferences and a peripheral or affective route via attractiveness.

The finding of a significant influence of attractiveness on quality suggests a possible extension of the "beautiful-is-good" stereotype. Previous studies have generated a wealth of evidence that attractive visual stimuli (i.e., endorsers, spokespeople, service providers) lead to more favorable consumer judgments of a brand's characteristics via a peripheral route (Kirmani and Shiv 1998). The findings of this study suggest that similar effects may exist outside the advertising realm—namely, in package design.

Finally, the finding that CVPA moderates several of the relationships originating in design factors opens a novel perspective on the role of involvement in consumer processing of visual cues. Evidence for a significant role of product category involvement is substantial (Chang 2007), and our findings can be interpreted to mean that involvement research may benefit from broadening the focus to involvement with aesthetics (i.e., CVPA). As CVPA appears to moderate effects from design factors on quality and attractiveness, and from attractiveness on price expectation, we extrapolate research on the role of CVPA in consumer processing of visual cues (Bloch, Brunel, and Arnold 2003; Childers, Houston, and Heckler 1985; Veryzer 1999). Our study corroborates findings that aesthetically appealing packages can, per se, represent a source of value to aesthetically conscious consumers (Bloch 1995; Sheth, Newman, and Gross 1991) and may even lead them to accept higher prices (Bloch 1995; Creusen and Schoormans 2005; Kotler and Rath 1984).

MANAGERIAL IMPLICATIONS

Managers may find our research beneficial for better synchronizing consumer price expectation with actual prices

in their quest for minimizing expectation-disconfirmation effects. Anecdotal evidence from U.S. wine retailers suggests that the success of the reasonably priced Yellow Tail wines draws in part from the low-harmony design evident in their "critter" label, its jarring cartoon-like image-ground contrast, and its bold typeface. In our research, harmony, the opposite of contrasting (Orth and Malkewitz 2008), has a positive effect on price expectation. In line with those findings, the Yellow Tail package thus has the distinct advantage of clearly communicating its lower price to buyers not familiar with the brand.

Our findings should also enable managers to better achieve desired impressions (quality) by more efficiently employing generic design factors. The insights into the relations between design and consumer judgments provided here should allow them to more successfully position packages. For example, managers could improve quality perceptions by designing packages that are more elaborate than visual competitors in the segment of interest. We also suggest that this research facilitates discussion between managers and designers with a terminology that allows them to better understand each other as they use package design as a means of communication.

The introduction of the dual-process model produced significant changes in the advertising industry by forcing managers to consider varying levels of involvement when communicating with target markets. Our research represents a first step toward establishing that similar processes may be involved when consumers respond to packages. If future studies were to confirm the dual-process model for packages, the implications would suggest that managers need to account for the level of their target market's CVPA when making package design decisions. Carefully tailoring packages to individuals, CVPA should then lead to greater success.

FUTURE RESEARCH

Several questions remain open for future inquiries. First, research is needed to explain why some of the associations are relatively small in magnitude. Correlations between design factors and quality judgments did not exceed 0.35, and were even smaller for the relations with attractiveness. These coefficients are slightly smaller than effect sizes reported for generic factors, which in the past ranged up to 0.44 (Henderson, Giese, and Cote 2004). The explanation we offer lies with the nature of our data and the analytical approach employed. Design factor scores represent professional ratings averaged across designers, whereas judgment scores were obtained individually for each stimulus from consumers. As outlined previously, this approach has major advantages as both professionals and consumers submit ratings only in their respective areas of expertise and relevance. However, not having ratings from one subject on both sides of the equation may likely have reduced the magnitude of associations.

One additional reason some of the associations involving the natural design factor were relatively small in magnitude may lie with the category itself, or more specifically with wine being a natural product per se. As consumers may have diverging interpretations of what constitutes high quality in wine (i.e., its functional benefit), examining less natural or more artificial categories should enhance effects as natural designs become the exception rather than the rule, especially for the natural–quality link (Crilly, Moultrie, and Clarkson 2004).

Along similar lines, the positive attractiveness–quality link found in our research could be attributed to the hedonic nature of wine (Kamins 1990; Till and Busler 2000). Other product categories may exist where attractive packages are not associated with quality, or where package attractiveness has a negative effect on quality judgments (Parekh and Kanekar 1994). We believe the central thrust of our research, to test for the *general* existence of quality and attractiveness routes in consumer processing of packages, has been addressed appropriately through the study presented here. Our findings that both routes are used to at least some extent in the wine category represent the desired evidence for the existence of both routes. The *relative* prominence of both routes in this and other categories is another issue to be investigated in future studies.

Further research is needed to provide an explanation for the unexpected finding that CVPA does not moderate the influence of attractiveness on quality. Consumers high on CVPA appear to not associate aesthetic appeal with quality, but they expect higher prices nevertheless. The "beautiful-is-good" stereotype may thus be limited to consumers low on CVPA; a contention that needs further support. Related to this are possible links between aesthetics and involvement. As involvement with aesthetics may correlate with involvement with hedonic product categories or activities involving aesthetic judgment (McManus and Furnham 2006), future studies should focus more specifically on the CVPA–involvement link.

Another finding pending resolution was that attractiveness did not mediate the effects of the harmony factor. One possible reason could lie with contrasting designs being lower in visual fluency; they thus require greater mental processing effort, which translates into an increased value and price estimate via consumer metacognitive experiences

(Orth and Malkewitz 2008; Schwarz 2004). Researchers may find it beneficial to examine additional variables of the judgment process, for example, by accounting for the ease and speed of judgments.

In addition, research could be extended by focusing on the relation between design-evoked price expectation, actual prices, and consumer choice by factoring in individual reference prices. Past research found that consumers form reference prices (Bell and Bucklin 1999) and use them as benchmarks in buying decisions (Jun, MacInnis, and Park 2005; Niedrich, Sharma, and Wedell 2001). However, little is known on how positive and negative deviations between stimulus-evoked price expectation and actual price influence decision making as a function of a reference price. Such an extension could further address managerial interest in signaling lower quality and lower price through design. Although research often focuses on high quality, managers may want to signal lower, but acceptable, quality in exchange for a lower price. In sum, although we are confident that this research improves upon our understanding of how consumers respond to package design, the limitations inherent to it open an array of interesting avenues for future research.

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