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Building strong brands in Asia: selecting the visual components of image to maximize brand strength

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Abstract

Asian brands have often struggled to develop quality images. The visual aspects of branding have received little attention on how they might be used to strengthen brand perceptions in Asia. Guidelines for designing visual brand stimuli are developed using evaluations of logos in China and Singapore. There is a significant relationship between design and the responses companies seek, including positive affect, perceptions of quality, recognition, consensus in meaning, and feng shui. How designs are perceived, and their effect on consumer responses, were similar between China and Singapore. Companies are encouraged to leverage design to strengthen their brands. In particular, they should select logo designs that are elaborate, natural, and harmonious as these created positive affect and quality perceptions, clear meaning, true recognition, and feng shui. Many of these relationships hold in the United Sates as well, implying that the visual aspects of brand strategies may accomplish companies' goals across international borders.

Keywords: Logos; Brand image; Corporate image; Design; Asia

1. Introduction

Companies in developing countries increasingly recognize the benefits of building strong brands, such as surviving adverse economic conditions, enjoying greater longevity, exerting greater power in distribution channels, expanding sales beyond small domestic markets, becoming more competitive in hiring and retaining staff, and increasing profits (Goad, 1999; Kotler, Ang, Leong, & Tan, 2003; Parrott, 2001; Rabano, 2000; Temporal, 2001). The development of strong brands is especially important in Asia. Asian companies face several challenges in building strong brands including the presence of strong international brands and perceptions by some that Asian brands are inferior (Jacob, 1993; Schmitt & Pan, 1994; Schutte & Ciarlante, 1998).

Visual stimuli are a critical part of any branding strategy. These stimuli include the logo, signage, packaging, product design, advertisements, and web sites. Hutton (1997), Schmitt and Simonson (1997), and others argue that visual stimuli can assist in building

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strong brands by differentiating products, creating loyalty, allowing for premium pricing, cutting through clutter, and protecting against competition. These propositions are supported by recent research showing a high correlation between the design quality of visual stimuli and financial performance of the company (Hertenstein & Platt, 2001; Wallace, 2001). Visual stimuli may be effective because they are learned faster and remembered significantly longer than verbal stimuli (Erdelyi & Kleinbard, 1978). In addition, the visual aspects of image can create quality perceptions critical for building strong brands in the absence of verbal material. However, most research on Asian branding has focused on verbal elements (e.g., English names being used for Asian brands to connote quality, Schmitt & Simonson, 1997) with less attention being paid to the visual aspects of brands (see Tavassoli, 1999, 2001; Tavassoli & Han, 2001, 2002, for exceptions).

The role of visual elements in contributing to brand strength may be even more important in less industrialized countries, when operating across national boundaries, or when operating in countries with visually oriented writing styles. For example, Ekuan, Francey, Raymond van Niekerk, and Butler (2001) report that Indian brand symbols can overcome issues of literacy, phonetics, pronunciation, language and dialect (recent counts have identified 50 languages and over 400 dialects). Han and Schmitt (1997) found that corporate identity plays a bigger role in consumer decision-making in China than in the United States. They suggest that companies prominently display their logos and names to enhance corporate identity when advertising in East Asia. In addition, individuals from countries with logographic writing systems (e.g., China, Japan, and Korea) are more attuned to a brand's visual components than people from countries with phonological language systems like the United States (see Schmitt, Pan, & Tavassoli, 1994; Tavassoli, 1999, 2001; Tavassoli & Han, 2001, 2002). All of these conditions indicate that Asian companies, in particular, should consider visual strategies to build strong brands.

This paper examines the impact of the design of visual brand identifiers in Singapore and China and provides guidelines for selecting design elements for brand strategies in these cultures. In particular, we study brand logos because they are one of the primary elements of a company's visual branding strategy. Logos are the repositories for brand associations, are used in multiple media (e.g., business cards, stationery, buildings, vehicles, and packaging), and their design and selection is costly in terms of both managerial time and money (Hutton, 1997; Lentschner, 2001). In addition, logos are the most common element of the marketing mix to be used in an unaltered form when going abroad (Kapferer, 1992). Finally, research indicates that findings about design are largely generalizable across different stimuli (e.g., symbols, pictures, objects, etc.), so findings regarding logos should generalize to other visually oriented marketing elements (e.g., packages, advertisements; Berlyne, 1974a). This research links logo design to the responses they evoke to advance design theory and provide managerially useful guidelines for the use of design in Asia. To leverage design, companies need guidelines to insure logos are selected that achieve corporate goals. Companies typically give input to designers regarding their goals and then select from a pool of designs presented by the designer. Yet both companies and their designers rely primarily on intuition in such decision making. Managers need guidelines that they can communicate to designers and that will assist them in selecting designs with characteristics (e.g., roundness, complexity, etc.) that will achieve their goals (e.g., create perceptions of quality).

Our ultimate goal is to develop managerial guidelines for designing logos in Asia. We start by identifying what types of responses to design are of particular importance to managers. Next, we examine the aesthetics literature to identify what design characteristics are important for logos and how they might influence consumers' responses to logos. Based on these literature reviews we develop a series of studies to address four fundamental questions.

1. Are there underlying factors that capture multiple design characteristics within Asian countries?
2. Are there underlying factors that capture multiple responses to logo design within Asian countries?
3. Can managers manipulate design characteristics to influence consumer responses to logos?
4. Is there a regional perspective that explains the influence of design on responses to logos or are these relationships country-specific?

We end by discussing the implications of our results for managerial practice and theory development.

2. Goals for visual stimuli

The literature in both the United States and Asia agree that well-designed brand symbols should evoke positive feelings of familiarity and affinity, communicate clear meanings, and be recognizable (Cohen, 1986; Peter, 1989; Robertson, 1989; Temporal, 2000; Vartorella, 1990). We briefly review each of these possible responses to logos and why they are valued by companies in their branding strategies.

2.1. Affect

Positive affect is a universal goal for logo designers. Both positive and negative affect can transfer from a logo to the product itself with little or no processing (Schechter, 1993). In addition, many brand choices are made with very little processing of information (low involvement) and will be influenced by brand awareness. In these situations the affect attached to the image may be one of the few cues that differentiate the product (Hoyer & Brown, 1990; Leong, 1993). Interestingly, the visual nature of a branding system may have a bigger impact on affect in Asia than in the United States. Schmitt (1995) found that the Chinese judge a brand name based on its visual appeal, while English speakers judge a brand name based on whether its sound was appealing. Similarly, Tavassoli (2001) found that visual elements of brand systems are more impactful for Asian consumers than for U.S. consumers.

Previous logo research has found affective reactions, such as liking, to be highly correlated with evaluations of quality for visual brand elements. In addition, these affective and quality reactions are significantly influenced by design characteristics for U.S. consumers (Henderson & Cote, 1998). Thus, it is important to determine the extent to which design can create positive affect and high quality perceptions in Asia, particularly because many Asian brands are perceived to have low quality (Brevetti, 1995; Kotler et al., 2003).

2.2. Meaning

Research shows that logos with clear meanings are better liked, transfer more positive affect to the company, and are better recognized than logos with ambiguous meanings (Schechter, 1993). Clear meanings are deemed to exist when people within the same culture assign the same meaning to a stimulus. This is also known as stimulus codability. Codability produces effects that are desirable for building brands. Codable stimuli are perceived, interpreted, and remembered better than stimuli that do not evoke consensual meanings (see Hershenson & Haber, 1965; Rodewald & Bosma, 1972; Smith & Wallace, 1982). Thus, companies often prefer to adopt meaningful symbols because they require less investment to achieve perceptual and memory benefits.

2.3. Recognition

Logos affect memory at two levels. Recognition involves consumers remembering having seen the logo before, while recall involves remembering the name of the company when the logo appears without the company name. As most companies use their company name with their logo (although some companies transition to using just their logo e.g., Nike or Shell—see www.shell.com), recognition is the most universally desirable memory effect for a logo.

Logo recognition offers many benefits. Pictures are perceived more quickly than words (Edell & Staelin, 1983). Thus, even the briefest exposures can result in some message being received. Even pictures that do not interact with the accompanying word (e.g., Tony the Tiger symbol and Frosted Flakes cereal) improve memory for that word (Barrett, 1985; Biron & McKelvie, 1984; McKelvie, Cooper, & Monfette, 1992). Any picture can create an association with a target word, indicating that no picture is void of meaning for a brand name (Scott, 1994). The extent to which non-interactive pictures assist recognition of verbal material is a function of how easily the picture can be encoded (McKelvie et al., 1992). Recognition is even more important for companies whose names do not allow the use of an interactive logo (e.g., Acer, Heinz, Chevrolet) or whose names are not understood because of language differences, as is often the case in Asia.

In addition, it appears that logo recognition and recall may be better in Asian countries with logographic writing systems than in countries with phonological writing systems (Schmitt et al., 1994). Tavassoli (2002) found that Chinese consumers were

more influenced by the visual features of words (e.g., color) than English-speaking consumers. Tavassoli and Han (2002) also found that Mandarin speakers performed better in memory tasks than did English speakers and that visual brand identifiers were remembered better than auditory brand identifiers irrespective of language. Visually oriented branding strategies appear to be more critical for logographic brand names (Tavassoli & Han, 2001, 2002) and changes to such strategies may be more confusing as well.

Interestingly, false recognition is also attractive to some companies (Henderson & Cote, 1998). False recognition occurs when people believe they have seen a logo when, in fact, they have not. Logos that are similar to other logos create a sense of knowing, which results in false recognition. Sometimes, companies new to a market will attempt to create a sense of knowing by using a familiar design, because they believe that such familiarity will increase sales. In addition, trends in design result in some symbols becoming very popular for a time, such as globes and ellipses. Companies jump on the bandwagon to appear cutting edge. In these cases, companies forego a distinctive appearance and rely in part on false recognition to create desired impressions (Vranica, 2001).

2.4. Feng shui

A design outcome often discussed in the Asian literature is feng shui (Schmitt & Simonson, 1997; Temporal, 2001). Feng shui, or geomancy, is the skill and art of design and placement of cities, buildings, and interior spaces used to achieve balance and harmony with nature (Schmitt & Pan, 1994). The positive and negative aspects of the energy of natural forces, termed yin and yang, respectively, need to be perfectly balanced for producing vibrant *qi*, or cosmic health. Lip (1995) discussed feng shui principles in relation to logo design. She argues that good feng shui logos should lead to auspicious outcomes by balancing yin and yang, and selecting appropriate combinations of the five natural elements of wood, fire, earth, gold, and water. The five elements are associated with shapes, spaces, colors, symbols, and measures. No empirical research has linked design and feng shui for logos, or examined how feng shui relates to other responses such as affect, meaning, or recognition.

3. Design characteristics and theory

Having reviewed the responses to logos of interest to companies, namely affect, meaning, true and false recognition, and feng shui, we now turn our attention to the design characteristics that may produce these responses. It is the goal of this research to link design characteristics to responses such that companies can use design to achieve their goals. Unfortunately, there is little Asian-based research to guide hypothesis development. Schmitt and Simonson (1997) suggest that ornamental and realistic designs create positive affect in East Asians. They further use case studies to suggest that the Bank of China's angular building evokes feelings of power but has also been associated with conflict, bad luck, and strife (Schmitt & Simonson, 1997). Similarly, Tzeng, Trung, and Rieber (1990) found that Japanese rated graphics with rounded elements to be good, beautiful, strong and powerful. Thus, angularity/roundness, ornamentalism/simplicity and realism/abstractness will be important variables to study.

Ideally, theory would guide the formation of hypotheses regarding the relationship between design and response. Indeed, several theories have been developed over the last century in the area of aesthetics. These theories focus primarily on the influence of design on affect. There is less theoretical development on the influence of design on meaning, recognition or feng shui. We briefly review the theories, how they might extend to other responses of interest to companies, and the extent to which they might generalize across cultures.

3.1. Non-conscious, automatic aesthetic responses

The most general theory of aesthetic response has been presented by Veryzer (1999). It suggests that responses to design are a function of non-consciously acquired internal processing algorithms. This hypothesis is based on extensive research suggesting that people non-consciously form rule systems based on exposure to a series of objects. While people cannot articulate the rule systems, these rules govern their responses to stimuli. Veryzer reviews research suggesting that the basis for these rules may be either biological or experiential. Many of the rules appear to be present early in life but may change over time or be

influenced by culture (Bornstein, Ferdinandesen, & Gross, 1981; Bower, 1971; Segall, 1976; Valenza, Simion, Cassia, & Umilta, 1996). To the extent that preferences stem more from innate processes or universal experiences (e.g., observation of the human body that may lead to a preference for symmetry and balance), one would expect preferences to be similar across cultures. The mechanisms postulated as governing preferences fall into three basic categories—perception, motivation, and cognition.

3.2. Perception theories

Gestalt psychology (Koffka, 1935; Kohler, 1929) suggests that variables governing perception also govern ratings of stimulus pleasingness. The variables studied are those that organize perception such as unity, symmetry, and simplicity. Research provides some support for preferences for simplistic, symmetric, unified designs that exhibit some sense of good proportion (Garner & Clement, 1963). More recently, perceptual fluency theory has been used to explain why familiar objects are liked more (i.e., the mere exposure effect, Bornstein & D'Agostino, 1992; Klinger & Greenwald, 1994). Exposure is thought to increase the ease with which stimuli will be perceived and which in turn produces liking.

While not directly related to recognition, it is possible to suggest that stimuli that are easier to perceive will be easier to recognize, because they are processed more quickly. This would suggest that variables such as symmetry and balance might improve recognition. Still, some research shows that perceptual fluency can occur without recognition and that its impact on affect is greater in the absence of recognition (Bornstein & D'Agostino, 1992). In addition, subjective familiarity, which occurs when an unfamiliar stimulus feels familiar, could be an outcome of an ease of perception. Thus, to the extent that symmetry and balance create a feeling of familiarity in the absence of true familiarity, these design variables could result in false recognition.

3.3. Motivation theories

Berlyne's (1971) theory of optimal arousal views design characteristics (specifically, novelty and complexity) in terms of their impact on arousal and one's motivation to explore a stimulus. Interest in a stimulus is thought to increase with arousal produced by novelty and complexity. Preferences are hypothesized to initially increase with arousal and then decrease as arousal becomes too high, thus forming an ∩-shape, or Wundt, curve. Related variables, such as abstractness, are thought to increase stimulus complexity.

Some research in this area has shown that the amount of time someone studies a stimulus is a positive function of its complexity and novelty (Berlyne, 1974b). Thus, it is possible that recognition will also increase with these design characteristics. It is unclear, based on this theory, how design might influence meaning or feng shui.

3.4. Cognitive theories

More recently, researchers have begun to focus on the cognitive processes evoked by design characteristics. In particular, certain designs will be viewed as more prototypical because they are more common in people's experience. Prototypical stimuli are often liked more than atypical stimuli (e.g., Martindale, 1988; Martindale & Moore, 1988; Whitfield, 1983; Whitfield & Slater, 1979). Martindale (1988) further suggests that prototypical stimuli will be more meaningful. This implies that prototypicality is also related to conceptual fluency (as opposed to perceptual fluency), which is the extent to which the concepts communicated by a stimulus (i.e., its meaning) are easily processed (Janiszewski & Meyvis, 2001; Shapiro, 1999). Thus, to the extent that designs are prototypical, they should be more meaningful and liked. Still, it is unclear which design features create a sense of prototypicality.

It is unclear how prototypicality and conceptual fluency will impact recognition. Judgments of prototypicality and conceptual fluency increase with stimulus familiarity. It is possible that this familiarity could create false recognition—that is, people might think they have seen a logo because it looks like other logos and feels familiar.

3.5. Overview of theories

Table 1 summarizes the relationships between design and responses, as seen in the literature. Aesthetic theories point to important design character-

Table 1
Theoretical relationships between design and response

Theory	Response	Relationship
Perceptual		
Gestalt Psychology	Affect	Simple, symmetric, unified designs with good proportion are perceived easier and therefore liked more
Perceptual Fluency	Affect	Easier to perceive objects are liked more. Research on perceptual fluency shows a positive relationship between familiarity and affect
	Recognition	Stimuli that are easier to perceive may be easier to recognize. Ease of processing might also create false recognition.
Motivational		
Optimal Arousal	Affect	Liking increases with novelty and arousal, then decreases as arousal becomes too high. Thus, familiarity creates an ∩ shape effect on affect.
	Recognition	Complexity and novelty increases attention and therefore may increase recognition.
Cognitive		
Prototypicality and Conceptual Fluency	Affect	Meaning mediates the effect of design on affect. Prototypicality is thought to create familiarity, which creates positive affect. The relationship is thought to be mediated by meaning.
	Meaning	Familiarity/prototypicality are thought to create meaning.
	Recognition	Prototypicality and meaning may enhance or decrease correct recognition.

istics that should be studied, such as complexity, abstractness, and symmetry. Unfortunately, the associated research streams have produced findings that conflict with each other, making it difficult to formulate hypotheses (see, for example, Berlyne, 1971, 1974b; Boselie, 1991; Eysenck, 1988; Martindale, Moore, & Borkum, 1990; Messinger, 1998). Veryzer (1999) and Dixon (1988) suggest that the field is in a pre-theory state and needs more empirical study to advance the theory upon which hypotheses can be based. Empirical research to date has largely been experimental in nature, used few stimuli, and studied few stimulus characteristics. We suggest that studies employing a large sample of stimuli and a wide range of design characteristics will provide important findings for future theory building.

Cross-cultural studies will contribute further to theory development by providing insights into the extent to which preferences are similar across cultures. Such findings will help researchers discern the extent to which preference formation is due to innate processes and universal experiences versus culture-specific experiences.

4. Research questions

We propose four research questions to address the issues necessary to provide guidance to managers in Asia for using visual design to strengthen brands, as well as to furnish insights that should advance theory.

Question 1: Are there underlying factors that capture multiple design characteristics within Asian countries?

The theories reviewed reveal several design characteristics that should be studied. In addition, a review of the graphic design literature (e.g., Dondis, 1973) shows an even larger pool of characteristics that differentiate design. The question is whether these are independent design features or whether some of them capture underlying dimensions of design. From a U.S. perspective, Henderson and Cote (1998) found that the design of logos consisted of three major dimensions—elaborateness, naturalness, and harmony. Such factor analytic studies have not been conducted to identify design dimensions used in other countries.

In addition, understanding the underlying dimensions of design should be useful to companies attempting to leverage design. Managers are not designers and need simplified guidelines if they are to manage the visual elements of their marketing stimuli. Hence, it is critical to translate basic design characteristics into more understandable design dimensions and to do so in ways that are relevant to Asian perceptions.

Another concern is whether perceptions of design are consistent across Asian designers. Without agreement amongst designers, companies will be unable to effectively dictate the characteristics of design, and hence select appropriate logos. Design education in Asia has lagged behind western countries and may

result in less shared knowledge amongst designers (personal communication with graphics design faculty working in Asia).

Question 2: Are there underlying factors that capture multiple responses to logo design within Asian countries?

The literature review on logos revealed that companies have multiple goals for their logos—namely, creating affect, meaning, recognition (true or false) and feng shui. Past research in the United States suggests that these are separate dimensions of responses to logos (Henderson & Cote, 1998). Yet, there is no empirical evidence from Asia to indicate whether these are in fact separate dimensions. If response dimensions are separate, corporations may need to make tradeoffs in the responses they seek to create through design. Finally, no research to date has assessed the relationship between feng shui and these other types of responses (e.g., is it part of affect?).

Question 3: Can managers manipulate design characteristics to influence consumer responses to logos?

Managers can only influence consumer responses through logo design if there is a clear, interpretable relationship between design dimensions and consumer responses (e.g., select a logo that creates quality perceptions). Theories of aesthetics focus on the relationship between design and liking (affect). In this study, we expand upon these theories to assess the effects of design on perceptions of quality, meaning, recognition (true and false), and feng shui.

Question 4: Is there a regional perspective that explains the influence of design on responses to logos or are these relationships country-specific?

The question of the effect of design on response is particularly interesting in a cross-cultural context. By crossing cultural boundaries, insights will be gained into whether responses to design are universal or more culturally bound. These insights should further our understanding of the mechanisms underlying response. Given the diversity among Asian countries, we gather data in Singapore and China and compare results. In addition, we compare the strength of the relationship between design and response at both country and regional levels. This provides insight into whether corporations must manage design within each country or across a region. Last, we compare the results to U.S. findings (Henderson & Cote, 1998).

5. Method

We used Henderson and Cote's (1998) methodology and stimuli. The stimuli were a cross-section of actual logos. Unfamiliar logos were selected to minimize the effects of past exposure. In addition, accompanying verbal content was not included in order to prevent confounding of symbolic versus verbal processing. Several waves of data collection were conducted in both China and Singapore to obtain information on design characteristics and multiple responses to design.

5.1. Design characteristics

Design characteristics were identified from the design theories and graphic design literature described earlier. Three professional graphic designers in each country evaluated seven design characteristics (active, balance, depth, organic, representative, round, and symmetric) as well as feng shui. The designers were given a short description of each characteristic before rating the logos. Three additional design characteristics—repetition of elements, dimensional proportion and number of parallel lines—were objectively measured, and were obtained from Henderson and Cote (1998).

5.2. Responses to design

5.2.1. Affect and meaning

University students rated the logos on six affective scales (like/dislike, good/bad, high/low quality, distinct/not distinct, lucky/unlucky, and interesting/uninteresting), a scale capturing perceived familiarity (familiar/unfamiliar), and a scale capturing complexity (complex/simple). The lucky/unlucky scale was added to those scales used by Henderson and Cote (1998) in response to suggestions by Asian designers and faculty. Students have been found to have very similar responses to non-students in past research on design (Berlyne, 1974b). To minimize fatigue, each student evaluated 30 assigned logos (each logo was evaluated by 40 students). This represented a significant data collection effort (8 scales × 195 logos × 40 subjects × 2 countries = 124,800 ratings). Each logo appeared on a separate page with the rating scales. In the second half of the booklet, subjects listed the first

meaning or association that came to mind when they looked at the logo. This represented approximately 15,600 associations (1 association × 195 logos × 40 subjects × 2 countries). A Chinese or Singaporean assistant grouped similar associations, which were used to calculate the Hirschman–Herfindahl index (Henderson & Lafontaine, 1996; Herfindahl, 1950; Hirschman, 1964) for each logo. A high Hirschman–Herfindahl index (homogeneous associations) indicates a logo evokes clear meaning within a culture.

5.2.2. Recognition

A different set of student subjects (approximately 30 per group) were each shown a subset of 39 logos in a slide show, with each logo appearing for 2 s. Subjects then participated in a distracter task for about 10 min. Finally, subjects were shown a booklet with 78 logos (39 shown in the slide presentation and 39 that were not) and asked to indicate whether they had seen the logo in the slide show. This resulted in approximately 23,400 ratings of recognition (195 logos × 30 subjects × 2 countries × 2 recognition ratings—target and distracter). Singapore subjects returned a week later to complete another booklet, with the same scales, containing the 39 target and 39 new distracters. This process provided an immediate and a delayed measure of recognition. Due to administrative difficulties, this process could not be replicated in China.

6. Analyses

The analytical approach used was derived from experimental aesthetics (Berlyne, 1974a). Analyses were conducted at the stimulus level, which requires averaging across individual ratings of a stimulus. Analyses were then conducted across the set of stimuli. Thus, the sample size for each country was 195 because there were 195 logos. This approach is particularly appropriate for marketing because it recognizes that logos are designed and managed to influence groups of people rather than individuals.

For the Chinese data, true and false recognition were only available for one time period. The initial factor analysis and correlation analysis of the design characteristics indicated one or more of the Chinese designers disagreed about active, depth, representative, and organic. The cause of this disagreement was unclear, but may be due to a lack of formal training or more subtle cultural diversity. Henderson and Cote (1998) handled the lack of agreement (e.g., active) by having the designers discuss the definitions and re-evaluate the characteristic. Unfortunately, we did not have follow up access to the Chinese designers. Rather than eliminating valid but idiosyncratic information, we summed the three designer ratings and used this single indicator for each characteristic in the factor analysis. For consistency, summated measures were also used for the Singaporean designer evaluations.

The data from both countries were combined into a single analysis (preliminary analysis indicated the factor structures were similar). For the regression analysis, dummy variable interaction effects were created to test for possible differences between the countries.

6.1. Design and response dimensions (Q1 and Q2)

Factor analysis was used to determine the relationships among the eight design characteristics (complex, active, balance, depth, organic, representative, round, and symmetric) and the relationships among the 14 responses (like, good, high quality, distinct, lucky, interesting, familiar, complex, codability, feng shui, true recognition over two time periods, and false recognition over two time periods).

6.2. Effects of design on consumer response (Q3)

A hierarchical regression analysis was conducted separately for each response factor using the design factors as independent variables. For the recognition analysis, affect, meaning, and feng shui were included as additional independent variables, because positive affect and clear meanings can increase attention and thereby improve recognition (per Henderson & Cote, 1998). Meaning was also used to explain affect (as suggested by Martindale, 1988 and Martindale & Moore, 1988) and feng shui. Since non-linear relationships are common in aesthetics research (e.g., Berlyne, 1971), we included a squared and cubed term for each variable. The linear relationships for each design dimension were entered in the model first. The non-linear terms were added in the second block of variables using the stepwise procedure.

6.3. Regional versus country specific comparisons (Q4)

A dummy variable was created for the Chinese data. Dummy variable interaction terms were created for each of the independent variables (there were no significant non-linear interaction terms). The dummy variable interaction terms were added to the model in the third block using a stepwise procedure. If there were a difference between the Chinese and Singaporean results, then the dummy variable interaction would be significant. The difference between the main effect and the dummy variable interaction indicates the difference between the effects for the Singaporean and Chinese data.

7. Results and discussion

We discuss the results by first addressing each of the major research questions raised. In the process, we examined the similarity between the present results and those for U.S. consumers from the research of Henderson and Cote (1998).

Question 1: Are there underlying factors that capture multiple design characteristics within Asian countries?

Factor analysis indicated that the design characteristics are captured by three underlying design dimensions—elaborate, harmony, and natural (see Table 2). The factor structures explained a significant amount of the original variance (73.3%). Harmony was composed of balance and symmetry, both of which loaded highly. Natural was composed of organic, round, and representative. Round and organic both loaded highly for China. Representative played a more modest role in defining natural as it also loaded on elaborate. The elaborate factor included depth, complex, active, and representative. Complexity, depth and active all loaded highly on elaborate. Representative had a modest loading.

Table 2
Design characteristics factor structure

	Elaborate	Harmony	Natural
Complex	**0.757**	−0.004	0.097
Active	**0.799**	0.037	0.237
Depth	**0.859**	0.098	0.013
Organic	0.318	−0.093	**0.823**
Representative	**0.441**	−0.138	**0.499**
Round	−0.068	0.107	**0.874**
Symmetry	−0.017	**0.952**	−0.070
Balance	0.096	**0.942**	0.038

The three factors account for 73.3% of the original variance.

The design factors—elaborate, natural, and harmony—were essentially the same to those found by Henderson and Cote (1998) in the United States. However, there were some minor differences between the two studies. The harmony factor was the same in both studies. However, the elaborate factor was composed of active, complex, and depth for the U.S. study, while our results also contained a partial effect for representative. In the U.S. study, natural was composed of organic and representative. In our study, natural also included round, and only partially included representative. The enhanced role for round is consistent with findings that show Asians like rounder shapes (Schmitt & Simonson, 1997; Tzeng et al., 1990).

Question 2: Are there underlying factors that capture the multitude of responses to logo design within Asian countries?

Factor analysis revealed four response factors (Affect, Meaning, True Recognition, and False Recognition), which explained a significant amount of original variance (79.6%). Affect was composed of liking, interesting, quality, distinctive, good, luck and familiarity. Meaning was composed of familiarity and codability. True recognition was composed of $true_{week1}$ and $true_{week2}$, while false recognition was comprised of $false_{week1}$ and $false_{week2}$. (Note that the China data only had $true_{week1}$ and $false_{week1}$ data). Feng shui exhibited marginal loadings across the factors, suggesting that it was a separate independent variable. As feng shui is of cultural relevance, we treated it as a single variable in the rest of the analyses.

The responses of interest to managers are related to each other in clear, interpretable ways. Overall, the affect, meaning, and recognition (true and false) factors were consistent with the findings in the study of U.S. consumers (Henderson & Cote, 1998). Feng shui appears to be a separate construct, as it did not load highly on any of the factors (Table 3).

Question 3 & 4—Can managers manipulate design characteristics to influence consumer responses to logos? Is there a regional perspective

Table 3
Response variables factor structure

	Affect	True recognition	False recognition	Meaning
Distinct	**0.892**	0.116	−0.106	0.023
Good	**0.949**	0.097	0.106	0.060
Interest	**0.938**	0.128	−0.114	−0.043
Like	**0.943**	0.114	0.126	0.044
Quality	**0.961**	0.092	0.005	−0.074
Lucky	**0.854**	0.115	0.114	0.173
Familiar	**0.550**	0.137	0.305	**0.511**
Codability	−0.083	0.049	−0.177	**0.866**
True1	0.129	**0.939**	0.034	0.016
True2	0.158	**0.923**	0.103	0.109
False1	0.027	−0.001	**0.803**	−0.158
False2	0.003	0.099	**0.883**	0.026
Feng Shui	0.377	0.292	−0.092	0.304

The four factors accounted for 79.6% of the original variance.

that explains the influence of design on responses to logos or are these relationships country-specific?

We found that design characteristics significantly impact the responses to corporate identity visual systems that managers value. In addition, there was substantial consistency across the two countries with respect to which design factors were important. When a design factor's influence differed by country, the difference represented between 1.6% and 2.5% of the variance.

7.1. Affect

The design factors (including objectively measured characteristic of parallel, repetition, and proportion) explained a large percentage of variance in affect (adj. $R^2 = 0.598$—see Table 4). Elaborate had a ⌒ relation-

Table 4
Ability of design characteristics to explain responses

Dependent variable	Adj. R^2		Variables			
	Asian	U.S.	Asian	Beta	ΔR^2	U.S. relationships
Affect	0.598	0.586	Elaborate	$0.942 - 0.454*\text{Elab}^2$ ⌒	0.371	Elaborate ∩
			Meaning	0.399	0.198	Natural ⌒
			Natural	$0.677 - 0.654*\text{Nat}^2$ ∩	0.020	Harmony +
			China unique effect—Meaning[a]	0.111	0.007	
Meaning	0.099	0.214	Natural	0.210	0.039	Natural +
			Harmony	0.158	0.030	Proportion ∩
			Repetition	$0.225 - 0.215*\text{Rep}^2$ ∩	0.005	
			China unique effect—Elaborate	0.169	0.025	
Feng Shui	0.386	NA	Natural	0.359	0.176	NA
			Harmony	0.296	0.129	
			Elaborate	0.262	0.047	
			Meaning	0.154	0.016	
			China unique effect—Natural	−0.153	0.018	
True recognition	0.144	0.277	Meaning	0.132	0.052	Natural ∩
			Natural	$-0.518 + 0.617*\text{Nat}^2$ U	0.034	Harmony +
			Feng Shui	0.124	0.016	Repetition +
			Proportion	0.141	0.017	Meaning +
			Repetition	−0.119	0.002	Affect +
			China unique effect—Repetition	0.171	0.023	
False recognition	0.121	0.219	Natural	−0.248	0.061	Natural −
			Harmony	$0.491 - 0.389*\text{Harm}^3$ ⌒	0.029	Harmony +
			Meaning	$0.704 - 0.661*\text{Mean}^2$ ⌒	0.020	Proportion ∩
						Parallel ∩
						Affect +

Models are significant at $p < 0.001$. Coefficients are significant at $p < 0.05$.

[a] A "China unique effect" means the China*variable interaction was significant ($p < 0.05$). This indicates that the slope for the China data was different than the slope for the Singapore data. For example, meaning has a $b = 0.399$ for affect. The "China unique effect" for meaning was $b = 0.111$. Therefore, the relationship between meaning and affect was $b = 0.399$ for the Singapore data and $b = 0.500$ for the China data.

Table 5
Summary of design guidelines

	Goals					Design characteristics			
	Affect (Quality)	Correct recognition	False recognition	Meaning	Feng Shui	Natural	Harmony	Elaborate	Repetition
High investment logos	Highly desirable	Highly desirable	Undesirable	Desirable	Highly desirable	High to moderate	High	Very high	Moderate
Low investment logos	Highly desirable	Not applicable	Highly desirable	Useful but not necessary	Desirable	Low	Moderate	High	
High image logos	Highly desirable	Irrelevant	Irrelevant	Useful but not necessary	Highly desirable	Moderate	High	Very high	

ship to affect (Δ adj. $R^2 = 0.371$), while meaning had a positive relationship (Δ adj. $R^2 = 0.198$).[1] Natural also contributed to explained variance but the effect was much smaller (Δ adj. $R^2 = 0.020$) and was ∩-shaped. Meaning had a statistically significant difference ($p < 0.05$) between the Chinese and Singaporean data, but the effect was not practically significant (Δ adj. $R^2 = 0.007$).

Affect, which includes perceptions of quality, is well explained with the primary contributors being elaborateness and meaning. Secondary contributors, such as naturalness and the different reaction to meaning by the Chinese were significant but added only 2.0% to 0.7% of additional explained variance. The results for affect are similar to those found for U.S. consumers in that elaborateness is the primary explanatory variable, with naturalness and harmony contributing less (see Table 5 for comparisons with Henderson and Cote, 1998 results). The main difference is that the relationship between elaborate and affect is linear in Asia while there is an ∩ shape function for U.S. consumers. This finding supports the suggestion that Asian cultures prefer elaborate, realistic (natural) designs (Schmitt & Simonson, 1997) and is consistent with the complexity seen in some Asian artistic styles.

7.2. Meaning

A small amount of the variance in meaning was explained by the design factors (adj. $R^2 = 0.099$—see Table 4). Natural and harmony were the largest contributors, both exhibiting positive, linear relationships of similar magnitude (Δ adj. $R^2 = 0.039$ and 0.030, respectively). Repetition had a statistically significant ∩-shaped relationship, but the effect was not practically significant (Δ adj. $R^2 = 0.005$). The Chinese and Singaporeans differed on elaborateness. Elaborate had a modest effect for the Chinese (Δ adj. $R^2 = 0.025$), but was not significant for the Singaporeans.

Meaning was relatively poorly explained, yet, as will be discussed, meaning is still important because it contributes to true and false recognition. Naturalness makes sense as a primary predictor of meaning—logos that are representative, rather than abstract, and organic, rather than geometric, are more likely to be universally experienced and understood within a culture and hence evoke consensus in associations. Similarly, harmonious designs (symmetric and balanced) will be more like things people experience that are meaningful—including both natural and man-made objects—as these characteristics facilitate usability of objects. Naturalness was also the main contributor to meaning in U.S. research. The influence of harmony in Asia and not in the United States is consistent with the value placed on balance in Asia.

7.3. Feng shui

A large amount of the variance in feng shui was explained by the design factors (adj. $R^2 = 0.314$—see Table 4). All of the relationships were linear. Natural was the largest contributor (Δ adj. $R^2 = 0.176$). However, natural had less of an effect for the Chinese than the Singaporean data (Δ adj. $R^2 = 0.018$). Harmony also positively related to ratings of feng shui (Δ adj. $R^2 = 0.129$). Elaborate and meaning also increased the

[1] The shape of the relationship for non-linear terms is not always evident from the coefficients. To determine the shape of relationship we plotted the function (coefficients*each scale value for all possible values). This process is what led to the description of relationships as being ∪-shaped, ∩-shaped, ⌒-shaped, ⌝-shaped or ⌞-shaped.

perception of feng shui, but to a lesser extent (Δ adj. $R^2 = 0.047$ and Δ adj. $R^2 = 0.016$, respectively).

Collectively, the variables explaining feng shui confirm the Asian preference for organic and nature-based features (given that feng shui involves optimal combination of the five elements of water, wood, wind, earth, and fire), as well as curved elements as opposed to angular features, which suggest bad luck. Elaborateness was also important in creating perceptions of feng shui, but was clearly secondary to natural and harmony.

7.4. True recognition

The design factors explained a lower amount of variance in true recognition (adj. $R^2 = 0.144$—see Table 4). Meaning was an important variable (Δ adj. $R^2 = 0.052$) and had a positive relationship with true recognition. Natural was also important and had a U-shaped relationship (Δ adj. $R^2 = 0.034$). Feng shui and proportion had similar-sized positive relationships (Δ adj. $R^2 = 0.016$ and Δ adj. $R^2 = 0.017$, respectively). Repetition of elements had a positive relationship for the Chinese data (Δ adj. $R^2 = 0.023$). However, the relationship for the Singaporean data was statistically, but not practically, significant (Δ adj. $R^2 = 0.002$).

7.5. False recognition

Design factors explained a modest amount of variance in false recognition (adj. $R^2 = 0.121$—see Table 4). Natural was an important variable (Δ adj. $R^2 = 0.061$) and had a positive relationship with false recognition. Harmony and meaning had similar sized non-linear relationships (Δ adj. $R^2 = 0.029$ and Δ adj. $R^2 = 0.020$, respectively). Harmony had a ⌒-shaped relationship while meaning had a ⌒-shaped relationship. There was no difference between the Singaporeans and Chinese.

True and false recognition had similar structures for Asia and the United States. However, the design dimensions explaining recognition were less consistent across the analyses. Still, some general conclusions can be drawn. Meaning and naturalness are both significant contributors to true recognition and negative contributors to false recognition for Asia and the United States. The more meaningful and natural designs are, the more memorable they become. The less natural and less meaningful, the more likely they are to be confused with other designs and receive higher false recognition scores. Other contributors to recognition, such as feng shui and repetition of elements explained very little variance (< 2.0%).

Overall, Singapore and China had comparable results. In addition, there were significant similarities between the Asian and U.S. data. This is particularly encouraging from a managerial perspective since it indicates a common set of guidelines might be used internationally. In what follows, the findings are used to provide guidelines to companies in using logos to achieve their communication goals. The discussion of the managerial implications centers on the effect of *response dimensions* because these represent the goals companies wish to achieve for their logos. We conclude with a discussion of the theoretical implications arising from our results. This discussion focuses on the effects of *design dimensions*, because the emphasis in theory has been on the stimulus characteristics that drive response.

8. Managerial implications

Many Asian companies are starting to use English in their brand names in an attempt to improve quality perceptions and create an international image (Webb, 2001). While the use of English also overcomes the diversity in languages and dialects in Asia, we suggest that more emphasis be placed on using visual stimuli to improve quality perceptions, create an image that can be used internationally, and overcome language differences. Our research suggests that visual stimuli will be effective tools for achieving the goals of Asian companies. Moreover, given that many Asians are still not proficient in the English language, communication via logos and other visual stimuli should play an even more important role in the marketing manager's brand arsenal.

8.1. Companies can provide input on design using three design dimensions

There are a myriad of design characteristics, and few managers have design experience. Thus, it is particularly useful that design can be described by three design dimensions which seem to be consistent

across countries within Asia. The ability to describe design characteristics using understandable dimensions is an important finding as it allows managers to more easily communicate with designers using a shared vocabulary.

8.2. Designers have flexibility in creating appropriate designs

Designers can use the results presented here to achieve the managers' objectives through several different means, allowing them significant latitude for creativity. For example, by reviewing the results in Table 2, we see that an elaborate logo could be elaborate because it is active, complex, or has depth. It does not need to have all three to be viewed as elaborate.

8.3. Companies can create quality impressions and other desirable responses

We found that the responses of interest to managers within Asian countries are distinct responses. This means that a manager can choose which responses are most important and use design to achieve those responses. The decision will depend on both available resources and application. Given the challenges facing Asian brands, we recommend, above all else, that companies focus on creating impressions of quality. We found that quality perceptions loaded highly on the affect factor. Further analyses using quality alone as a dependent variable yielded almost identical results to analyses using the affect factor. Our research shows that (1) designs vary greatly in the impressions of quality that they create, and (2) companies can use design to achieve impressions of quality, which should, based on other research, translate into gains in brand strength.

In addition to quality, companies will want to achieve other response goals. A company with a large budget and facing strong competition will generally want a distinctive, high quality, recognizable, positive feng shui logo. In contrast, smaller companies with less substantial advertising resources may want to create false recognition for their logo to create a sense of knowing or confusion with dominant brands. However, we encourage managers to pursue true recognition over false recognition whenever possible, because true recognition allows for protection of symbols against infringement, and creates stronger images which will be more easily transported across national borders. Finally, in some cases, as with professional services, a firm will simply desire a high-quality image (see Henderson & Cote, 1998 for further discussion).

Our results provide some specific guidelines to aid managers in selecting or directing the design of effective logos. First, managers must determine what type of response is most important for the visual elements of the brand. Then appropriate designs can be created to achieve the desired response. It is fairly straightforward to determine how to create a logo high in any of the response dimensions. However, it is less straightforward to determine how to create a logo that achieves multiple corporate goals (see Table 5 for a summary). We now provide guidance on achieving the three classes of corporate goals described earlier. It is important to note that these guidelines will allow managers to drive the conception of the design itself, rather than simply assess the effect of logos already in their portfolio. In addition, the guidelines provide insights into how current logos may be modified to be more effective.

8.3.1. High investment logos

High investment logos should be high in affect (e.g., convey quality), true recognition, feng shui, and be meaningful. To achieve these goals, in Asia, the logo should be **elaborate** to create affect and quality perceptions. Adding to that **naturalness** and **harmony** will achieve both feng shui and meaningfulness. The addition of **naturalness** will also increase affect up to a point. **Naturalness** and **elaborateness** are slightly more important in China than Singapore.

8.3.2. Low investment logos

A low investment logo will be high in false recognition, positive affect and quality perceptions, and feng shui. The key to false recognition is to **minimize naturalness**. This is achieved using a geometric, angular, abstract design. Add to this **harmony** which creates a sense of knowing through the commonness of balance and symmetry. Finally, add **elaborateness** to increase affect, and the outcome should be a well liked, quality logo that looks like other logos thereby appearing to fit in with known

brands. However, there will be a tradeoff in creating feng shui when pursuing false recognition as reducing **naturalness** lowers perceptions of feng shui.

8.3.3. High image logos

High image logos emphasize affect and quality over all other responses. The key component is **elaborateness**. However, elements of feng shui should also be important in Asia. To increase feng shui, add **harmony** to organize the elaborateness. Finally, **moderate naturalness** will add to feng shui without decreasing affect.

8.4. Companies can build multi-country brands

We found sufficient similarities between China and Singapore to suggest that managers can use a single visual strategy to achieve strong positive responses across countries. Further, an examination of responses in the United States suggests that these brand symbols could be transferable to the United States.

8.4.1. Theoretical implications

The design factors found in this research were largely consistent with those described in design theory. As Gestalt Theory suggests, symmetry and balance are important descriptors of design. However, these characteristics loaded onto a single dimension—harmony. This may be because the stimuli were fairly simplistic—even unidimensional. More multidimensional stimuli, such as products, advertisements, and packaging, may produce separate dimensions for gestalt variables. Interestingly, despite the importance of harmony in Asian design, it did not significantly impact affect as is predicted by both Gestalt psychology and perceptual fluency theory. It did impact meaning, feng shui, and false recognition.

Optimal Arousal Theory suggests that complexity is central to producing affect. While the importance of elaborateness was supported, the effects were largely linear rather than ∩-shaped as predicted by this theory. Perhaps a wider range of elaborateness is needed to see the ∩-shaped function in cultures that value ornamentalism (Schmitt & Simonson, 1997). Note that the preference for highly elaborate logos contradicts predictions from Gestalt psychology.

Prototypicality and conceptual fluency theories suggest that meaning is a predictor of affect. This was supported in the analyses. In addition, as predicted by these theories, meaning and familiarity were highly correlated, loading on the same factor. Meaning was positively related to recognition, suggesting that prototypicality and conceptual fluency may also relate positively to recognition. Unfortunately, the link between meaning and design characteristics was weak and these theories give little insight into the design characteristics that should drive meaning.

While the results support the importance of variables found in existing theories, they also highlight limitations of these theories. In particular, none of the current aesthetic theories are fully supported by the present results, beyond simply identifying design variables that are important contributors to affect. Moreover, no aesthetics or design theory considers more than one of the dimensions of design and none addresses the importance of natural designs. These theories also do not consider different types of responses. As our results show, the influence of design varies by the response. This implies a more complex relationship between design and response than previously reported. Thus, no existing theory appears adequate to explain the specific relationships between design dimensions and response for elements of corporate identity. Most notably, no existing theory posits the importance of the naturalness dimension.

In conclusion, an instructive avenue for future theory development is the continuation of cross-cultural research. We found that the effects of elaborateness, naturalness, and harmony were largely consistent in Asia and the United States. This suggests that responses to design may be fairly universal. Still, our study did not include enough countries to make such a determination. Because of the limited number of countries assessed, it is unclear whether differences in the importance of variables will prevail in other countries.

Future research should focus on several other interesting issues within a cross-cultural context. For example, our stimulus set comprised black-and-white symbols without company names or color. Research is needed to examine how the effects of design may transfer to or interact with evaluations of companies and brands, and may be moderated by color. Finally, we recommend that future research investigate the effect of design on consumer recall of logos and their

associated brand names in addition to the recognition measures analyzed here.

Future research should also include brand personality as part of the measurement of meaning. Brand personality consists of five dimensions: sincerity, excitement, competence, sophistication, and ruggedness, which can be measured by multi-item scales (Aaker, 1997). Importantly, there are cross-cultural differences that research and measurement need to take into account (Aaker, Benet-Martinez, & Garolera, 2001). For example, in Japan and Spain, "ruggedness" was replaced by "peacefulness" and a "passion" dimension emerged in Spain instead of "competence." This personality research should be extended to logo personality in an effort to improve our understanding of the determinants of logo meaning.

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