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Guidelines for Selecting or Modifying Logos

The authors develop guidelines to assist managers in selecting or modifying logos to achieve their corporate image goals. An empirical analysis of 195 logos, calibrated on 13 design characteristics, identified logos that meet high-recognition, low-investment, and high-image communication objectives. High-recognition logos (accurate recognition created by high investment) should be very natural, very harmonious, and moderately elaborate. Low-investment logos (false sense of knowing and positive affect) should be less natural and very harmonious. High image logos (professional look and strong positive image) must be moderately elaborate and natural. The authors illustrate the guidelines with real logos.

Logos are important company assets that firms spend enormous amounts of time and money promoting (Rubel 1994). Taco Bell, for example, spends 20 times more on its permanent media (e.g., signs that carry only its name and logo) than it spends on advertising (Shennan 1986). Logos appear on television (to combat zipping and zapping; Snyder 1993), packaging, letterhead, business cards, and signs and in print advertisements, annual reports, and product designs (e.g., Oreo cookies, Eagle brand pretzels). They are considered a critical in-store recognition aid, speeding selection of the preferred product (e.g., Berry 1989; Morrow 1992). Furthermore, the fastest-growing segment of the advertising industry is corporate giveaways (e.g., coffee mugs, calendars, pens, hats, clocks) that carry nothing more than the company logo (Hayes 1995). Finally, sales of clothing displaying a company's logo are sometimes a major source of revenue (Cohen 1989).

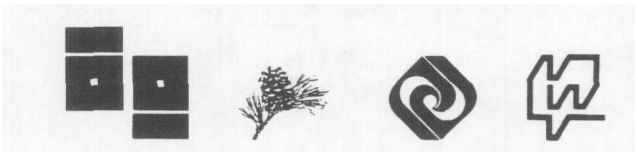
Despite the importance and widespread use of logos, many evoke negative evaluations, are unrecognizable, and hurt the corporate image (Interbrand Schechter study described by Bird 1992).¹ Part of the reason for this poor performance might lie initially in the poor selection of logos. Logos typically are selected from a pool of designs by the marketing manager (Siegel 1989), a committee (Phillips 1978), or the chief executive officer (Spaeth 1995). After the logo is selected, considerable time and money are spent to build recognition, positive affect, and meaning. It is possible

¹Bird (1992) reports on an unpublished study by Interbrand Schechter. We obtained the results of this research by contacting the public relations department at Interbrand Schechter Inc., 437 Madison Avenue, New York, NY 10022, (212) 486-7400.

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that desired responses are not achieved because the selected logos have designs that are difficult to store or access in memory, are not likable, or fail to create any sense of meaning. This assertion is supported by findings that the logos of some companies with small budgets (e.g., Arn & Hammer) are more familiar and positively evaluated than logos of some big spenders (e.g., American Express) (Bird 1992).

Marketing literature contains no systematic research on the effect of design on consumer evaluations of logos. Relevant discussions are limited to various rules of thumb propagated in the trade press that have been neither tested empirically nor integrated to form a comprehensive set of guidelines. Therefore, those who select logos must rely on their own idiosyncratic views in making choices. It would be difficult, for example, to discern which of the following logos would be most memorable, be most liked, or create the greatest sense of familiarity upon initial exposure:



We begin by highlighting some important logo decisions and the need for selection guidelines. We then examine the experimental aesthetics, Gestalt psychology, graphic design, and logo strategy literature to identify the important responses to and visual characteristics of logos. We empirically examine the degree to which visual characteristics influence initial responses to logos. We close by developing and illustrating a set of logo selection guidelines.

Logo Selection

The word *logo* can refer to a variety of graphic and typeface elements; however, we use it here to refer to the graphic design that a company uses, with or without its name, to identify itself or its products (Bennett 1995; Giberson and Hulland 1994). Semiotics views logos as part of the sign system a company uses to communicate itself to internal and external audiences (Zakia and Nadin 1987). Corporate identity literature treats logos as a company's signature on its materials (Snyder 1993).

Logo selection is a commonplace occurrence. Virtually every business, from coffee shops to computer companies, adopts logos (Dubberly 1995), which suggests that there are many new logos created annually (there are between 800,000 to 3 million new businesses a year; 1996 Statistical Abstracts of the U.S.). Logo selections also occur following mergers and acquisitions (more than 3000 in 1994; 1996 Statistical Abstracts of the U.S.), as well as divestitures and movement into global markets (see Siegel 1989; Spaeth 1994; Wathen 1986). New product and brand introductions also precipitate new logos (Siegel 1989), as do some packaging changes, which occur every three to five years on average (Morgenson 1992). Efforts directed at changing corporate image require new logos (e.g., name changes such as Federal Express to FedEx, International Harvester to Navistar, American Can to Primerica) (Horsky and Swyngedouw 1987), as do major managerial or strategy shifts (e.g., United Airlines becoming employee owned, the U.S. Postal Service emphasizing better service) (Spaeth 1994). Finally, most companies periodically update their logos to maintain a fresh, modern look (Morgan 1986; Morgenson 1992; Siegel 1989).

Although the logo selection/modification decision is common across businesses, it might occur only once or twice in the career of the marketing manager (Barnes 1989). As such, there is little opportunity to develop the experience necessary to discern the best logo. This may explain, in part, why many logos produce disappointing results (Bird 1992). However, companies are hesitant to leave the decision up to the design firm because the decision requires understanding the goals and culture of the company (Siegel 1989). Proper selection is critical because logos are one of the main vehicles for communicating image, cutting through clutter to gain attention, and speeding recognition of the product or company.

Selecting good logos also makes sense financially. The logo design and selection process can be quite expensive, with costs that include the initial design (ranging from less than \$10,000 to hundreds of thousands of dollars) (Barnes 1989; Siegel 1989), the managers' time in the selection process, and placing/replacing the logo on everything from business cards and stationery to signage on buildings, vehicles, and packaging (Pimentel 1997). Given the frequency of the logo selection process, the inexperience of most managers making such choices, the effect of a poor choice on image, and the cost of selection and implementation, selection guidelines could be quite useful.

What Makes a Good Logo?

Logos should be recognizable, familiar, elicit a consensually held meaning in the target market, and evoke positive affect (e.g., Cohen 1986; Peter 1989; Robertson 1989; Vartorella 1990). We discuss each of these goals subsequently. In addition, we provide examples and explanations for each of the constructs in Table 1.

Correct and False Recognition

Logos should speed recognition of a company or brand (Peter 1989). The rationale is that pictures are perceived faster than words (Edell and Staelin 1983). This is important

because many company communications are seen for only a brief time (e.g., driving by outdoor advertising, walking by products on shelves, flipping through advertisements in magazines). Logos are important particularly in stores as a means of speeding recognition of products (e.g., Berry 1989; Morrow 1992). Research further shows that remembered pictures (logos) can enhance memory of accompanying verbal material (e.g., the company name) (Barrett 1985). Finally, achieving logo recognition is a means of protecting the symbol from infringement (Cohen 1986).

Logo recognition occurs at two levels. First, consumers must remember seeing the logo (correct recognition). Second, logos must remind consumers of the brand or company name (recall). The former depends largely on design. Given equal exposures, a more memorable design will be recognized more easily than a less memorable one. Therefore, facilitating recall of the company logo starts with selecting a design that is recognized easily.

In addition to correct recognition for logos, false recognition also might be important. False recognition occurs when people believe they have seen the logo when they really have not (Atkinson and Juola 1973; Jacoby and Dallas 1981). This can be influenced by the initial design of the stimulus (e.g., the clarity of the figure, its associative network) (Luo 1993; Underwood 1965; Whittlesea et al. 1990). Strategically, false recognition induces a sense of knowing that might affect choice among unknown competitors, as when choosing a service provider from the yellow pages.





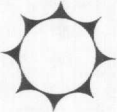







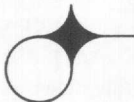
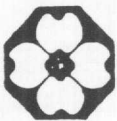
Affect

Positive affective reactions are critical to a logo's success because affect can transfer from the logo to the product or company. Recent research suggests that evaluations of a logo can affect evaluations of a company. For example, Borden's Elsie enhanced the Borden image (as measured without the Elsie symbol) by 15%, whereas the presence of Oldsmobile's old rectangular symbol diminished the company image by 21% (Interbrand Schechter 1994). Although the evaluations measured were not purely affective, this research provides evidence that evaluations of logos can influence evaluations of companies. The extent of affect transfer depends on the nature of the affect (positive or negative), how intense the affective reactions are, and how closely the logo is associated with the product or company, either through repeated pairings or through shared associations or meanings. Positive affect can develop over time with increased exposure (Zajonc 1968) but also can be evoked by the initial design of the logo. Often, such affective transfer can be hard to suppress (Robertson 1989). The most noteworthy examples of affect transfer have been the transfer of negative affect due to the strategy or meaning associated with a symbol. For example, both the Joe Camel logo and Procter & Gamble moon and stars logo have elicited severely negative reactions that have hurt corporate image.

Meaning

Many writers in the logo strategy literature emphasize that a logo should readily evoke the same intended meaning across people (Durgee and Stuart 1987; Kropp, French, and Hillard 1990; Vartorella 1990). Keller (1993) similarly argues that

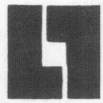
TABLE 1
Definitions, Relevant Literature, and Illustrations of Variables

High	Low	Dependent Variables
		<i>Correct Recognition</i> occurs when consumers remember seeing the logo to which they have been exposed.
		<i>False Recognition</i> occurs when people believe they have seen the logo when they really have not.
		<i>Affect</i> simply refers to the evaluative emotional reaction created by a logo and is comprised of five measures: good, liking, quality, interesting, and distinctive.
		<i>Familiar Meaning</i> refers to stimuli that easily evoke consensually held and therefore familiar meanings within a culture or subculture.
High	Low	Independent Variables
		<i>Natural</i> reflects the degree to which the design depicts commonly experienced objects. It is comprised of representative and organic.
		<i>Representative</i> and its opposite endpoint, abstract, capture the degree of realism in a design. Abstraction in a design occurs when the elements of an object are distilled down to the most typical features. At its limit, total abstraction yields almost no clues as to what is being pictured (Dondis 1973). Logo strategy literature frequently suggests using representative logos (Block 1969; Clark 1988; Durgee and Stuart 1987; Keller 1993; Kropp, French, and Hilliard 1990; Masten 1988; Peter 1989; Siegel 1989; Vartorella 1990; Yeung 1988). In addition, experimental aesthetics research has found that the average viewer has difficulty interpreting and recognizing abstract designs (Koen 1969; Nelson 1971; Seifert 1992). Theoretically, representative logos should increase familiar meaning and correct recognition.
		<i>Organic</i> designs are those that are made up of natural shapes such as irregular curves. Alternatively, geometric designs tend to represent less natural, more synthetic-looking objects. They will be more angular and more abstract. Graphic design literature suggests that organic designs are more meaningful (Dondis 1973).
		<i>Harmony</i> is a congruent pattern or arrangement of parts that combines symmetry and balance and captures good design from a Gestalt perspective.
		<i>Balance</i> is related to symmetry because symmetric designs are normally considered balanced. The reverse is not true, however (i.e., an asymmetric design is not necessarily imbalanced). Balance captures the notion that there is a center of suspension between two weights or portions of the design. Graphics design literature has suggested that imbalance is more upsetting to viewers (Dondis 1973).
		<i>Symmetric</i> designs appear as reflections along one or more axis. That is, the elements on one side of the axis are identical to the elements on the other side. Gestalt psychology long has argued that symmetry is the primary determinant of "pattern goodness," which produces positive affect (Clement 1964; Garner and Clement 1963). In addition, graphic design literature suggests symmetry increases positive affective reactions (Bevlin 1989; Dondis 1973).

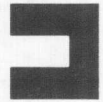
High

Low

Independent Variables



Elaborate is not simply intricacy, but appears to capture the concept of design richness and the ability to use simple lines to capture the essence of something. It is comprised of complexity, activeness, and depth.



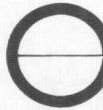
Complexity can arise from many different design features such as irregularity in the arrangement of elements, increases in the number of elements, heterogeneity in the nature of elements, and how ornate the design is (Berlyne 1971; Schmitt, Simonson, and Marcus 1995). Optimal arousal theory suggests that complexity will have a \cap shaped relationship with affect (Berlyne and Lawrence 1964; Day 1967; Dorfman 1965; Eisenman 1966, 1967; Munsinger and Kessen 1964). Alternatively, logo strategy literature recommends simple logos because they are easier to remember (Robertson 1989).



Active designs are those that give the impression of motion or flow. This flow is the basis for the design notion of rhythm (Bevlin 1989). Experimental aesthetics suggests that active designs are more interesting and will be related to other characteristics like symmetry, balance, and complexity (Berlyne 1971).



Depth gives the appearance of perspective or a three-dimensional design (e.g., this design appears to have a raised triangular section that goes off into the distance). Depth is related to both complexity and representativeness, so it might affect recognition (Nemett 1992).



Parallel designs contain multiple lines or elements that appear adjacent to each other. No literature links this characteristic to the response variables.



Repetition of elements occurs when the parts of the design are similar or identical to one another. Conversely, identical elements that are simply part of a larger whole (e.g., needles on a pine tree) would be classified as one element (a pine). No literature directly addresses this characteristic.



Proportion is the relationship between the horizontal and vertical dimensions. One of the best known examples of proportion is the golden section. Gestalt psychology, graphics design literature, and empirical research suggest that certain proportions are more appealing than others (Bevlin 1989; Crowley 1990; Veryzer 1993). Note that



is a good example of the golden section.



Round designs are made of primarily curved lines and circular elements. No known theory links this characteristic to the response variables.

marketing stimuli should communicate one clear message that is difficult to misinterpret. Semiotics literature suggests that the meaning of a stimulus can be assessed by examining the core or consensual meaning it evokes (Perussia 1988). In psychology, such notions of consensus in meaning have been referred to as *stimulus codability* (Butterfield and Butterfield 1977; Lachman, Shaffer, and Hennrikus 1974). Highly codable stimuli are those that easily evoke consensually held meanings within a culture or subculture. Previous research shows that highly codable stimuli have many desirable characteristics (Hershenson and Haber 1965; Lachman 1973; Rodewald and Bosma 1972; Schulz and Lovelace 1964; Schutte and Hildebrand 1966; Smith and Egeth 1966; Smith and Wallace 1982). For example, codable stimuli are perceived, interpreted, and retained better

than stimuli that are low in codability. If a logo has a clear meaning, it can be linked more easily to the company or product (Block 1969; Clark 1988; Durgee and Stuart 1987; Kropp, French, and Hillard 1990). We point out, however, that a clear meaning neither entirely specifies nor unduly constrains the nature or content of the meaning communicated, which enables companies to choose a design that communicates the most desirable message (Schmitt, Simonson, and Marcus 1995).

Subjective Familiarity

Some logos will create a sense of familiarity even when they have never been seen before. The perception or feeling of familiarity, whether or not it is based on previous exposure,

is called *subjective familiarity*. Subjective familiarity could result from a logo evoking a familiar meaning or from the design being similar to well-known symbols. Either way, subjective familiarity can benefit a logo because it can increase affect (Zajonc 1968), create more consensually held meanings (i.e., a more cohesive image) (Matlin 1971), and even enhance choice of a brand if brand experience is limited. Furthermore, familiar-looking stimuli tend to be perceived and processed faster (Jacoby and Dallas 1981), which is particularly important for logos.

Empirical Research for Developing Guidelines

Research in experimental aesthetics (e.g., Berlyne 1971, 1974), Gestalt psychology (e.g., Clement 1964), graphic design (e.g., Dondis 1973), and logo strategy (e.g., Peter 1989) suggests many design characteristics that should influence affective responses to logos. Unfortunately, few studies have examined how design characteristics influence recognition, meaning, or perceived familiarity. Furthermore, findings on affect in the experimental aesthetics and Gestalt psychology literature sometimes conflict. Logo strategy and graphic design literature also are not particularly helpful in making theoretical predictions, as recommendations are based on the expertise of professionals rather than on empirical research. Some of the logo strategy research is unpublished and has not been subjected to the rigors of statistical tests or peer review. As such, the literature does not provide unambiguous predictions of what sorts of logo designs should be selected to evoke the desired responses.

Although we cannot propose hypotheses about the effects of design on responses to logos, we can draw one generalization from the literature. Cultures tend to be homogeneous in their responses to design, a finding that is critical to logo strategy. Experimental aesthetics has found that subjects' aesthetic ratings are very consistent with one another (Berlyne 1971), which suggests that beauty is partially in the eye of the culture (or the target market), not just the individual beholder. Gestalt psychology also suggests that "good" design is determined by culturally held beliefs. Designs thought to possess "good form" typically are liked more than other designs (Garner and Clement 1963). In line with these findings, graphic design literature identifies selected principles of good design. Finally, logo strategy literature argues that firms can (and must) design logos that will evoke positive response. This leaves us with the question, What characteristics of design will create the desired responses to logos?

Method

This study applies methods commonly used in experimental aesthetics, in which most empirical studies on design have appeared. Namely, we choose unfamiliar stimuli, follow traditional procedures for obtaining their ratings, and factor analyze the ratings to identify the underlying dimensions (Berlyne 1971). This study is made more complex by the examination of multiple dependent variables (e.g., recognition, affect, meaning consensus) and multiple independent variables (e.g., design characteristics such as com-

plexity and depth). The analysis is conducted in three phases. First, we identify underlying response dimensions (dependent variables) using factor analysis. Second, we use factor analysis to identify underlying design dimensions (independent variables). Third, the design dimensions are regressed against the response dimensions. Because of space limitations, only a brief description of the method is included here. (A more complete description of the method can be obtained from the first author.)

Selection of Design Characteristics

Two approaches were used to select a set of design characteristics for study. Logo strategy literature lists a few characteristics as critical for logo design (e.g., simplicity, cohesiveness). This list was expanded by having two graphic designers examine a large set of design characteristics described by Dondis (1973). Combining recommendations from logo strategy literature and the graphic designers, we identified 13 characteristics that appear most relevant to logos: active, balance, cohesive, complex, depth, durable, organic, parallel, proportion, repetition of elements, representative, round, and symmetric. On the basis of the empirical analysis described subsequently, several of these characteristics were dropped from the analysis. The remaining characteristics were analyzed to identify higher-level design dimensions. Table 1 defines the relevant design characteristics and dimensions, provides theoretical justification for including the variable, and gives examples of logos scoring high and low on each variable.

Stimulus Selection

Three judges familiar with logos chose 195 real logos from foreign or small businesses that subjects were unlikely to have seen before to represent a wide range of design characteristics. Novel logos were chosen so that we could assess the effects of initial design on responses and thereby minimize the effects of usage variables. The majority (183) came from a book of foreign logos (Kuwayama 1973), whereas 12 others came from yellow pages advertisements.

Obtaining Ratings of Stimuli

Subjects. Because of the number of stimuli and variables, experimental aesthetics commonly uses multiple samples of subjects to generate ratings. We used various independent groups to obtain ratings, including multiple sets of university students (from southwest, mid-east, and northwest universities), two professional graphic designers, three design classes, and the authors. Each group evaluated different aspects of the logo design and response to logos. One set of students from various universities (Student Set 1) assessed affect, meaning consensus, familiarity, and complexity (each variable was assessed by an average of 56 students—range of 47 to 70—with each student evaluating 30 randomly selected logos), whereas another set of students (Student Set 2) evaluated recognition. The graphic designers rated the active, complex, cohesive, depth, organic, representative, round, symmetric, and durable elements. Because of the lack of agreement between the designers, the three graphic design classes evaluated the durable element. Last, the authors rated balance, parallel lines, proportion, and

number of repeated elements. Although all the groups evaluated the exact same logos, none evaluated the same attributes except for complexity (students and designers) and durability (designers and design classes).

Affect (evaluated by Student Set 1). Five affective ratings were chosen from those listed in the experimental aesthetics and logo strategy literature (like/dislike, good/bad, high/low quality, distinctive/not distinctive, and interesting/uninteresting). Students were given a booklet with each page containing a logo followed by seven-point semantic differential scales. The positive/negative endpoints alternated between the left and right side.

Meaning consensus (evaluated by Student Set 1). Consensus or codability has been measured by asking large numbers of subjects to provide the first meaning or association that comes to mind (Ellis, Parente, and Shumate 1974; Lantz and Steffire 1964). The frequency distribution of the associative responses can be summarized numerically in several ways (for a review, see Henderson and Lafontaine 1996). We used three common measures: dominance (i.e., the probability of the most common associative response), entropy (Stigler 1968), and the Hirschman-Herfindahl index (Herfindahl 1950; Hirschman 1964), all of which weight and then sum across the probabilities of each response.² Each logo appeared on a separate page followed by "Please write the first thing this logo reminds you of."

Recognition (evaluated by Student Set 2). Students were shown one of five subsets of 39 logos selected from the pool of 195 logos in a slide show, with each logo appearing for two seconds. Next, subjects completed a filler task of math problems and a survey that took approximately ten minutes. Subjects were then given a booklet containing the 39 target logos and 39 randomly selected distracters. Each logo appeared on a separate page with the question, "Did this logo appear in the slide show? Yes, No." Subjects returned one week later to complete another booklet, with the same scales, containing the 39 target logos and 39 new distracters. This process provided two measures of recognition, one immediately after exposure and the second one week after exposure.

Subjective familiarity (evaluated by Student Set 1). Subjective familiarity (i.e., how familiar was the logo perceived to be, even though it was not likely to have been seen before) was measured using a seven-point semantic differential scale.

²For example, if in response to a logo 50% of the people surveyed said it reminded them of a sun, 30% said wheel, and 20% said star, dominance (i.e., the most common response) would equal .5. Entropy = $-\sum p_i \ln(p_i)$. Thus, in this example, entropy would equal 1.03. Hirschman-Herfindahl index equals the sum of all the response probabilities squared. Thus, Hirschman-Herfindahl would equal $.25 + .09 + .04 = .38$. Transformation (see Stigler 1968) is necessary for entropy to be directly, rather than inversely, related to the Hirschman-Herfindahl index (for a discussion, see Henderson and Lafontaine 1996.) On the basis of Henderson and Lafontaine's (1996) study, we recommend using Hirschman-Herfindahl as the best indicator of codability.

Active, complex, cohesive, depth, organic, representative, round, symmetric, and durable (evaluated by graphic designers, Student Set 1 also evaluated complex, the graphic design classes also evaluated durable). Active, complex, cohesive, depth, organic, representative, round, symmetric, and durable were all rated on five-point semantic differential scales. The designers concluded that there was too little variation in cohesive to rate it reliably, as logos are purposely designed to appear as a unit, so it was excluded from the analysis. The designers' ratings failed to agree for active, complex, and durable. The designers worked together to produce a better definition of active, and one designer then rerated it. One of the designer ratings of complex agreed with the student (Set 1) ratings, so only these two ratings were used in the analysis. The designers were unable to agree on a definition of durable/trendy. We developed a definition and gave it to three design classes to rate the logos. The design class ratings of durable also did not agree. Thus, we were forced to eliminate durable from further analysis.

Balance, parallel lines, proportion, and number of repeated elements (evaluated by the authors). Prior to rating, we constructed definitions of balance, parallel lines, proportion, and number of repeated elements (i.e., what constitutes an "element" in a logo). For parallel lines and repeated elements, we simply counted the appropriate number (e.g., two parallel lines, five identical elements). A logo's width was divided by its height to assess proportion. Last, balance was rated on a five-point scale. Although the ratings generally agreed, there were several specific cases for which repetition and balance were different. The definitions for these characteristics were refined and the logos rerated.

Identifying Underlying Dimensions

The next step in traditional experimental aesthetics research is to reduce the multitude of stimuli ratings to their underlying dimensions. We conducted two exploratory factor analyses—one for the dependent measures (e.g., liking, familiarity) and one for the independent measures (e.g., design characteristics such as complexity and depth).

Influence of Design Dimensions on Responses

The final step in the analysis was to estimate the influence of the design dimensions (independent variables) on the response dimensions (dependent variables). Factor scores were calculated for each factor identified by the prior procedures. The design factors then were regressed against the response factors. A separate regression was conducted for each response factor. Experimental aesthetics has found that visual characteristics often have a nonlinear relationship with responses to a design (Berlyne 1971). Therefore, we used the SPSS curve estimation procedure to test for nonlinear relationships. When needed, an appropriately transformed variable was included in the regression equation.

Although this study was not designed to determine causality among the various responses to the logos, we can speculate about possible relationships. The logos were selected because they were novel to the subjects. As such, affective reactions and meaning consensus had to be due to

the design of the logo rather than any prior experience with it. Therefore, recognition could not influence affect or meaning consensus. Although it is possible that false recognition could influence both affect and meaning, temporally that does not make sense. The subjects who completed the affect and meaning tasks did not participate in the recognition task. However, it is possible that affect and meaning influenced recognition. We test for such a relationship using hierarchical regression. The design dimensions were used first to explain both correct and false recognition. Then, affect and meaning were added to the models. The difference in adjusted R^2 was used to assess the additional variance explained by affect and meaning.

Results

Identifying Underlying Dimensions

Response dimensions—dependent variables. The factor analysis (Table 2) generated four easily interpreted factors that explain 88.1% of the original variance. The first factor was *affect* and comprised the five measures: good, liking, quality, interesting, and distinctive.

The second factor was *familiar meaning*, which included the three codability measures and familiarity. The third and fourth factors captured recognition, namely *correct recognition* and *false recognition*, respectively. These factors, their definitions, and logos illustrating each of them appear in Table 1.

Design dimensions—-independent variables. Seven factors were extracted that explain 78.9% of the variance in the original 22 design items. The rotated factor pattern was easy to interpret (items were assigned to a factor if the loading was greater than .5; see Table 3). We define the first factor as *natural*, which combines representative and organic. This factor reflects the degree to which the design depicts commonly experienced objects. The second factor is *harmony*, which combines symmetric and balance. We refer to the third factor as *elaborate*, which combines complex, active, and depth. Elaborate is not simply intricacy. It appears to

capture the concept of design richness and the ability to use lines to capture the essence of something. The remaining four factors each represent a single design characteristic, namely *parallel*, *round*, *proportion*, and *repetition*. A summary of these factors and their definitions, as well as logos illustrating them, appear in Table 1.

Effect of Design Dimensions on Responses

Correct recognition regression. The seven design factors explain 20.5% (adjusted R^2) of the variance in correct recognition (Table 4). Natural, harmony, and repetition had significant ($p < .05$) positive effects. The effect of harmony was nonlinear with a slight \cap shaped relationship (low harmony and high harmony designs were less recognizable than moderately high harmony designs). Adding meaning and affect to the equation explained an additional 7.2% of the variance (total explained variance was 27.7%). The effect of both factors was significant ($p < .05$), positive, and linear.

False recognition regression. We were able to explain 18.5% of the variance in false recognition using the seven design dimensions (Table 5). Natural, harmony, proportion, and parallel all explain a significant ($p < .05$) amount of variance. Natural reduced false recognition, whereas harmony had a positive influence. Both parallel and proportion had a \cap shaped effect (moderately high levels of parallel and proportion created more false recognition than low and high levels). Adding meaning and affect explained little additional variance (3.4%), with only affect being significant.

Affect regression. The seven design factors explained 58.6% of the variance in affect (see Table 6). Elaborate, natural, and harmony all had significant, generally positive influences. Consistent with previous research in optimal arousal theory (Berlyne 1971), elaborate had a nonlinear, \cap shaped effect. (Moderately high levels of elaborate were liked more than high or low levels.) Natural also had a positive but diminishing effect (\sphericalcap shaped).

Familiar meaning regression. The seven design dimensions explain 21.4% of the variance in familiar meaning

TABLE 2
Exploratory Factor Analysis of Items Measuring Reactions to Logos
(Rotated Factor Matrix)

Variable	Affect	Familiar Meaning	Correct Recognition	False Recognition	Communality
Good	.948	.153	.158	.079	.954
Interest	.963	-.013	.078	-.043	.936
Like	.936	.159	.144	.131	.939
Quality	.966	-.011	.090	.026	.942
Distinct	.924	.093	.167	-.113	.903
Codability Entropy	.061	.943	.040	-.057	.898
Codability Hirschman-Herfindel	.065	.978	.087	-.083	.976
Codability Dominance	.049	.937	.106	-.092	.900
Familiar	.461	.532	.351	.121	.633
Recognition Time 1	.142	.119	.925	.019	.891
Recognition Time 2	.223	.112	.905	.027	.882
False Recognition Time 1	.046	-.163	-.022	.865	.777
False Recognition Time 2	-.003	.011	.072	.905	.824
Eigenvalue	5.564	2.890	1.656	1.343	

TABLE 3
Exploratory Factor Analysis of Items Measuring Visual Characteristics
(Rotated Factor Matrix)

Variable	Natural	Harmony	Elaborate	Parallel	Round	Proportion	Repetition	Communality
Organic 1	.656	-.125	.196	.137	.366	.075	-.113	.655
Organic 2	.717	-.077	.208	.094	.329	.041	-.104	.694
Represent 1	.886	.002	.117	.031	-.009	-.018	-.045	.802
Represent 2	.872	-.016	-.044	-.048	.059	.053	-.056	.774
Balance 1	.060	.856	-.127	-.003	-.044	.112	.139	.787
Balance 2	.085	.836	-.043	.050	-.023	.038	.003	.712
Symmetric 1	-.193	.823	.013	.060	.074	-.059	.133	.746
Symmetric 2	-.165	.833	.014	.052	.038	-.059	.112	.741
Active 1	.143	-.083	.756	-.173	-.066	.078	.154	.664
Active 2	.038	.046	.730	-.046	.343	-.053	.063	.663
Complex 1	.477	-.233	.568	.093	.081	-.119	.069	.639
Complex 2	.316	.027	.694	.158	-.031	-.162	.195	.672
Depth 1	-.110	-.030	.667	.335	-.203	.086	-.123	.634
Depth 2	.032	-.039	.670	.460	.009	.079	-.101	.679
Parallel 1	.075	.083	.124	.936	-.052	-.047	.124	.925
Parallel 2	.075	.081	.085	.938	-.036	-.016	.099	.911
Round 1	.173	.030	-.020	-.040	.942	.001	-.088	.928
Round 2	.202	.026	.022	-.076	.936	-.001	-.062	.927
Proportion 1	.038	.011	-.018	.006	.004	.984	.010	.971
Proportion 2	.035	.021	.006	-.042	.001	.983	-.004	.969
Repetition 1	-.102	.155	.074	.074	-.074	-.033	.936	.927
Repetition 2	-.118	.205	.110	.122	-.087	.043	.917	.933
Eigenvalue	4.555	3.572	2.753	2.034	1.692	1.465	1.282	

(Table 7). Natural explains most of this variance (21%; linear, positive relationship). Proportion also has a small but significant, \cap shape effect. (Moderately high levels of proportion were more meaningful than high or low levels.)

The results of this study indicate that design characteristics affect reactions to logos long before any money is spent on promotion, which suggests that marketing managers can benefit from understanding principles of selecting or modifying logos. Design dimensions influenced all four responses to logos. Consistent with previous research, some of the relationships were linear whereas others were nonlinear (primarily with a diminishing influence at high values). For a summary of the results, see Table 8.

Nonlinear Relationships

Throughout the results, we discuss some relationships that were \hookleftarrow or slightly \cap shaped. These relationships suggest that the response variable (e.g., recognition, affect, familiar meaning) is at its highest when the design dimension (e.g., elaborate, natural) is at a moderately high level. In all cases, the downturn in the relationship was only slight. From a practical standpoint, ignoring the nonlinear relationship and selecting logos high on all design dimensions will lower overall response only slightly. However, managers should consider several versions of a selected logo that vary particular design dimensions (e.g., for elaborateness the designs would vary in the amount of detail). They then should have the logos rated to find the best combination of features to maximize the desired response. Pimentel (1997) presents a good example of varying a single design using the Mr. Peanut symbol.

General Findings

Creating Positive Affect

The relatively high percentage of explained variance suggests that marketing managers can have the greatest influence on affective responses to their logo at the selection stage. In addition, marketing managers need not be concerned with trying to achieve liking and interest for logos separately. Previous research (Berlyne 1971) has found these to be separate dimensions for some stimuli (usually more complex stimuli) and a single dimension for others (often more simple stimuli). Our results show that these two forms of affective response are highly correlated for logos, perhaps because logos are fairly simple and it is difficult to disentangle the two reactions to them.

The best way to ensure more affectively pleasing logos is to select moderately elaborate designs (degree of elaborateness is a relative concept, and logos tend to be fairly simple in design). Elaborateness is a function of complexity, activity, and depth. Current trends lean toward selecting very simple logos (e.g., Infiniti) or simplifying existing logos (e.g., Prudential simplified its logo of the rock by removing lines that show detail) (Bird 1992). These simpler logos would fall in the low end of the range of logos we studied. We recommend against these practices. Slightly more elaborate logos should evoke more positive affective evaluations and will maintain viewer interest and liking over repeated exposures (Berlyne 1971; Bornstein 1989; Cox and Cox 1988; Zajonc 1968). Elaborate designs will be necessary as most companies try to maximize exposure to their logos.

Naturalness (representative and organic) also improves affect, though the logo should not be excessively natural, as

a photograph would be. Natural logos probably are more satisfying to look at because they are more meaningful. Harmony (symmetry and balance) also improves affect, as has been predicted by Gestalt psychology.

Which Type of Recognition?

Our results show that designs that achieve correct recognition differ from those that create false recognition. The question remains as to which of these is most important for

TABLE 4
Regression Model for Correct Recognition

Design Dimensions Only					
$R^2 = .238$	Adjusted $R^2 = .205$	Standard Error = .126	$F = 7.242$	Significant $F = .000$	
Variable	Regression Coefficient	Standard Error	Standardized Coefficient	T	Significant T
Elaborate	-.005	.007	-.044	-.624	.533
Natural	.041	.007	.424	5.898	.000
Harmony	.102	.036	1.198	2.852	.005
Harmony*Harmony	-.010	.004	-1.166	-2.783	.006
Parallel	.010	.007	.106	1.524	.129
Proportion	.005	.023	.013	.196	.844
Repetition	.019	.008	.181	2.553	.012
Round	.001	.005	.013	.193	.847
(Constant)	.435	.097	4.499	.000	

Design Dimensions, Familiar Meaning, and Affect					
$R^2 = .314$	Adjusted $R^2 = .277$	Standard Error = .120	$F = 8.421$	Significant $F = .000$	
Variable	Regression Coefficient	Standard Error	Standardized Coefficient	T	Significant T
Elaborate	-.016	.009	-.159	-1.744	.083
Natural	.026	.007	.270	3.514	.001
Harmony	.097	.034	1.137	2.834	.005
Harmony*Harmony	-.010	.004	-1.147	-2.870	.005
Parallel	.011	.007	.109	1.651	.100
Proportion	.002	.022	.007	.112	.911
Repetition	.018	.007	.172	2.540	.012
Round	-.001	.005	-.010	-.148	.882
Familiar Meaning	.129	.049	.202	2.622	.010
Affect	.042	.019	.219	2.219	.028
(Constant)	.284	.100	2.845	.005	

TABLE 5
Regression Model for False Recognition

$R^2 = .227$	Adjusted $R^2 = .185$	Standard Error = .103	$F = 5.417$	Significant $F = .000$	
Variable	Regression Coefficient	Standard Error	Standardized Coefficient	T	Significant T
Elaborate	.004	.006	.047	.661	.509
Natural	-.023	.006	-.290	-3.904	.000
Harmony	.011	.005	.156	2.198	.029
Parallel	.035	.016	.438	2.228	.027
Parallel*Parallel	-.004	.002	-.387	-1.997	.047
Proportion	.368	.179	1.268	2.057	.041
Proportion*Proportion	-.253	.125	-2.687	-2.019	.045
Proportion*Prop*Prop	.048	.026	1.414	1.811	.072
Repeat	-.002	.006	-.022	-.308	.759
Round	-.006	.005	-.096	-1.326	.186
(Constant)	-.029	.089	-.328	.743	

the company. We argue that this is a question of resources. If a company has a small budget, it may want a logo that will create a sense of recognition in the absence of heavy exposure (i.e., false recognition). For example, logos are considered the best form of yellow pages advertising (Dolliver

1990). When consumers turn to the yellow pages to choose among unknown suppliers with no other information available, they may choose the firm with a logo that creates a sense of recognition (i.e., highest in false recognition). Alternatively, a company with adequate resources will want

TABLE 6
Regression Model for Affect

Variable	Regression Coefficient	Standard Error	Standardized Coefficient	T	Significant T
Elaborate	1.154	.158	2.124	7.300	.000
Elaborate*Elaborate	-.079	.015	-1.567	-5.358	.000
Log(Natural)	.366	.074	.261	4.928	.000
Harmony	.067	.022	.150	3.028	.003
Parallel	.034	.026	.066	1.320	.188
Proportion	-.048	.088	-.025	-.540	.590
Repeat	.035	.029	.062	1.218	.225
Round	.030	.021	.073	1.436	.153
(Constant)	.241	.446	.541	.590	

TABLE 7
Regression Model for Familiar Meaning

Variable	Regression Coefficient	Standard Error	Standardized Coefficient	T	Significant T
Elaborate	-.013	.011	-.082	-1.189	.236
Natural	.074	.011	.482	6.728	.000
Harmony	-.001	.009	-.010	-.145	.885
Parallel	-.002	.011	-.016	-.235	.815
Proportion	.316	.136	.562	2.328	.021
Proportion*Proportion	-.092	.044	-.508	-2.099	.037
Repeat	.001	.012	.005	.068	.946
Round	.004	.009	.030	.429	.669
(Constant)	.314	.111	2.822	.005	

TABLE 8
Summary of Results

Response	Explained Variance	Significant Design Characteristics	Type of Relationship
Correct Recognition	27.7%	Natural Harmony Repetition Meaning Affect	linear, positive slight \cap shape linear, positive linear, positive linear, positive
False Recognition	18.5%	Natural Harmony Parallel Proportion	linear, negative linear, positive \cap shape \cap shape
Affect	58.6%	Elaborate Natural Harmony	\cap shape \cap shape linear, positive
Meaning	21.4%	Natural Proportion	linear, positive \cap shape

to ensure that its logo is correctly recognized and not confused with other marks, so that it benefits more from the extensive exposure for which it spends so much money.


Correct recognition is improved by naturalness in logos. The finding that logos should be more natural fits with research that shows that more representational logos are recognized better (Bird 1992). The finding that repeated elements improve recognition might result from the memory reinforcement and organizing nature of repetition. Moderate levels of harmony (the logo is not perfectly balanced or symmetrical) also improve recognition. These departures from perfect symmetry and balance (which are so common in design) appear to be more memorable.

False recognition seems driven by characteristics that make logos less distinctive and more easily confused. These characteristics include a lack of naturalness (less memorable than more natural symbols), high harmony (very common in design and less distinctive), and multiple parallel lines (which make symbols more difficult to distinguish). In addition, false recognition is increased when the logo's proportion is closer to a height of approximately 75%–80% of the width. This proportion is similar to the golden section of 68% height:width that is so common in nature and architecture, which again makes the logo less distinctive.

Note that it is theoretically possible to achieve both correct and false recognition because they were not highly correlated ($r = .05$) and loaded on different factors. To achieve both would require selecting logos that exhibit moderate levels of naturalness and harmony.

Clear, Familiar Meaning

Logo strategy literature recommends that logos evoke a clear, consensually held meaning. We find that meaning, as indicated by codability (consensus in associations), and subjective familiarity go hand in hand, loading onto a single dimension, which we call *familiar meaning*. After all, a logo with an unfamiliar meaning will not evoke common associations across people. Familiar meaning can be maximized (without reducing distinctiveness) by selecting a unique, but easily interpreted, design of a familiar object. Familiar meaning is increased by naturalness, as this captures how representative and organic the logo is, and by having a proportion close to that of the golden section, as this is the most familiar proportion in design and nature.

Our findings further indicate that one of the benefits of selecting logos with familiar meanings is that they improve correct recognition. Furthermore, such logos enable the marketing manager to evaluate a priori the extent to which the logo and product share the same meaning. Assessing the meanings evoked by a logo and choosing a design that evokes consensus enables marketers to avoid selecting logos with unintended meanings. For example, according to Clive Chajet, chief executive officer of Lippincott and Margulies, when his firm designed the Infiniti logo () , it was designed as the infinity symbol (∞) with Mount Fuji in the center, but reminds many people of a pizza with a piece missing.

Despite these recommendations, we recognize that there are circumstances when it will be appropriate to select a logo whose meaning is more ambiguous, particularly when a company has diverse holdings that do not share a common theme or when companies do not want to link themselves to one product too closely, allowing for mergers or divestitures in the future. Such logos will acquire company-related meanings through paired usage with the company name. They will require heavier usage and therefore greater investment to achieve the recognition and affect achieved by logos that possess a familiar meaning upon initial design.

Achieving All Four Responses

Previous research by Interbrand Schechter (1994) found that few of the 98 U.S. logos it studied simultaneously achieved a positive image and elicited recall of the company name. Although this appears true of most logos, we find that it is possible to select a logo that, at least upon initial design, evokes positive affect, recognition (both correct and false), and familiar meaning.

Selection Guidelines

Defining what constitutes a "good" logo depends on the situation and the objectives for that logo. Traditionally, good logos are recognizable (correct), meaningful, and affectively positive. Alternatively, a company with a small advertising budget might prefer a logo that evokes a sense of recognition, such as occurs with false recognition. Finally, some companies do not care about recognition but simply want a logo that gives a professional look and creates a positive image. Therefore, the following are three different strategic objectives for logos: (1) High-recognition logos are those selected to create high correct recognition, low false recognition, and high positive affect; (2) Low-investment logos are those selected to create false recognition and positive affect; and (3) High-image logos are those selected to create strong positive affect without thought to recognition. We illustrate logos that achieve these goals subsequently and summarize the guidelines in Table 9.

High-Recognition Logos

(High correct recognition, low false recognition, and high affect)

Guidelines (high in natural and harmony, moderately high elaborateness, repeated elements combined with extensive exposure to create company recall): Examination of the logos in our data set indicates that there are few logos whose design simultaneously exhibits all the qualities listed in the guidelines (though logos with all three characteristics are quite feasible). Instead, we find that logos achieve the high-recognition objectives (correct recognition and affect) in one of two ways. They are either "above average," meaning they are good on all three design characteristics (i.e., above average natural, above average harmony, and close to optimal elaborate), or "extremely natural," with perhaps only fair harmony and overly high elaborate. We provide two examples of logos that achieve the high-recognition designation by being "above average:"

TABLE 9
Summary of Design Guidelines

	Goals				Design Guidelines					
	Correct Recognition	False Recognition	Affect	Familiar Meaning	Natural	Harmony	Elaborate	Parallel	Proportion	Repetition
High-Recognition Logos	Highly Desirable	Undesirable	Desirable	Desirable	High	Moderately High	Moderately High			Include Some
Low-Investment Logos	Not Applicable	Highly Desirable	Highly Desirable	Useful but not Necessary	Moderate	High	Moderately High	Moderately High	Close to Golden Section	
High-Image Logos	Irrelevant	Irrelevant	Highly Desirable	Useful but not Necessary	Moderately High	High	High			
Poorly Designed Logos	Fails to Achieve	Fails to Achieve	Fails to Achieve	Fails to Achieve	Very Low	Low	Overly Low or Overly High			



Both logos are good examples of a high-recognition strategy. They accomplish all desired goals by being high on correct recognition, affect, and familiar meaning and low on false recognition. Their designs also closely follow all the suggested guidelines by being high on natural, high in harmony (the first logo is slightly lower than desired on harmony), and close to optimal on elaborate and exhibiting repeated elements.

Alternatively, the following logos reach the goals of a high-recognition strategy by emphasizing a single element in the recommended guidelines. Both logos are high on correct recognition, affect, and familiar meaning and low on false recognition by being very high on natural. However, contrary to the guidelines, they are overly elaborate and have lower harmony:



Low-Investment Logos

(False recognition and positive affect)

Guidelines (below average on natural, high harmony, moderately high elaborateness, parallel lines, and good proportion): Low-investment logos focus on achieving false recognition and positive affect by following these guidelines. They also can achieve correct recognition and familiar meaning, but these would not be the primary goals of the marketing manager. The following three logos are all good examples of a low-investment strategy. They all rate high on affect and false recognition. All three logos are also very high on harmony and exhibit some parallel lines. Finally, they are low on natural (though the first logo is average on natural):



High Image Logos

(High positive affect)

Guidelines (moderately high elaborateness and naturalness, high harmony): High image logos create very positive affect. The most important characteristic for creating high positive affect is moderately high elaborateness. Almost all the logos shown previously achieve high affect, with the only exception being the pinecone, which is too high on elaborateness. In addition, logos should be high on natural and harmony.

How to Avoid Selecting Poorly Designed Logos

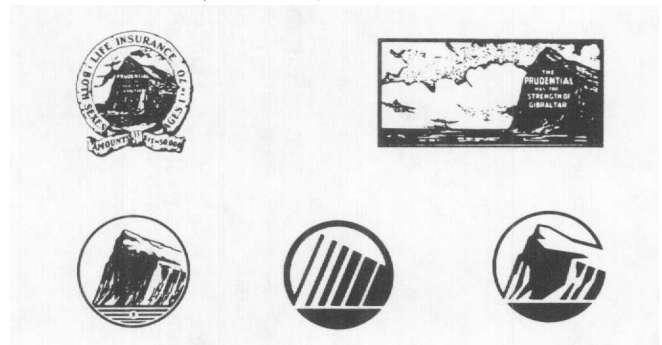
Guidelines (avoid too low naturalness and harmony and too low or too high elaborateness): Finally, our results indicate that it is possible to select a logo that achieves none of

the response goals described—being low in true and false recognition, affective evaluation, and familiar meaning—as evidenced by some of the company logos in our sample. Although these logos eventually might achieve company goals, they will do so only with extensive usage and expense. Such logos likely will be low in natural, harmony, and elaborate. The following three logos are examples of poorly designed logos. All exhibit low scores on correct recognition, affect, and meaning. The first two logos also score low on false recognition, and the last logo scores average. These poor responses appear to result from low scores on natural, harmony, and elaborate:



Applying the Guidelines to Different Types of Logos

The guidelines we present are quite flexible, in that they allow a lot of latitude in the selection of the actual meaning of the logo and the type of logo. A given symbol (e.g., a rock) can vary greatly in its design. Following are five versions of the rock used by Prudential over the years. These examples illustrate how managers can use a logo with certain meanings (e.g., rock solid) but select or modify the design so that it conforms to the guidelines we recommend. Prudential changed from the fourth to the fifth design because of the poor response to the more abstract design, a change that would fit with our recommendation that logos be more natural (Bird 1992):



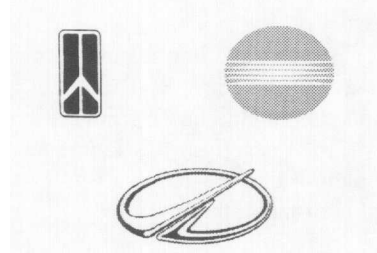
Such flexibility in the guidelines is important because managers often must consider modifying an existing logo rather than creating a new one. Furthermore, many companies believe that a particular type of logo is most appropriate for their product or product category. For example, most car companies use pictorials or abstracts, whereas packaged goods companies use characters more often (see subsequent examples). In what follows, we present logos from the Interbrand Schechter study, which were found to be good and bad in image contribution and recall. We discuss these examples by *logo type* (a term used by design firms to classify logos, for example, pictorial, character, abstract, letter mark, word mark). This discussion should assist managers in applying our guidelines to their company's desired or

existing logo. Our recommendations are purely illustrative and do not represent an empirical analysis of these logos.

Abstract Logos



Similar to our findings, Interbrand Schechter found that logos low in natural (highly abstract) generally are poorly recognized and not always well liked. Our guidelines explain these results and suggest recognition, affect, and familiar meaning all can be improved by making abstract logos more meaningful, natural, elaborate, and harmonious in their design. For example, the Nike and Coca-Cola symbols have been made more meaningful by being named (swoosh and wave). The Nike symbol is linked to the company, as it communicates speed or motion, whereas the Coca-Cola symbol has been used in slogans such as "Catch the Wave." These linkages improve recognition and recall. Both logos are more natural in design (use non-geometric shapes), have appropriate elaborateness (achieved by an active design), and achieve harmony (without being too symmetric).



In contrast, neither the Oldsmobile nor Minolta logo is linked closely to the company. Both rated poorly on image contribution, probably due to the low naturalness. Interestingly, Oldsmobile selected a new logo that fits our guidelines. It is much more elaborate (active) and natural than the previous version. Our recommendation, therefore, is to improve abstract logos by linking them to the company whenever possible, using more natural (less geometric) shapes, adding elaborateness (through complexity, depth, or activeness), repeating elements, and avoiding overly high harmony.

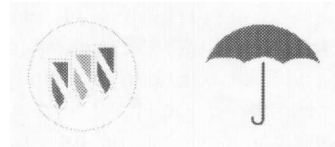
Logos Using Characters



In general, Interbrand Schechter found that logos using characters tend to be well recognized but can hurt image. Part of the problem might be that they are too elaborate and too natural. A well-rated character logo is the KFC logo. It represents the Colonel's face in simple lines and adds a more contemporary look by incorporating parallel, angular lines. Similarly, the Arm & Hammer logo is not overly detailed and reduces naturalness by including the geometric

circle. In contrast, the Jolly Green Giant and Land O' Lakes logos are perhaps too detailed, without enough clean, crisp lines to simplify. These did not contribute positively to image. Our recommendation, therefore, is to improve character logos by using simple lines to reduce elaborateness and adding more geometric or abstract detail to reduce slightly how natural the logo is.

Pictorial Logos



Pictorial logos were the only ones in the Interbrand Schechter study that, on average, were well recognized and contributed positively to image. Still, significant differences did exist. For example, the Buick logo fits our guidelines fairly well and scored highly in the Interbrand Schechter study. It is more elaborate than many logos, has repeated elements, is harmonious (has some sense of balance but not perfect symmetry), and more natural (not purely geometric). In contrast, the Travelers logo did not contribute positively to image, perhaps because it is too simple. These principles also can be seen in the Prudential rock logo, which was not well received when it was highly simplified and abstract. It was better received when it was made more elaborate and natural. Our recommendation, therefore, is to ensure that pictorials are sufficiently elaborate and natural. Repeat elements and introduce interesting harmony (balance and symmetry) in the elements when possible.

Logo Selection/Modification Process

Given the empirically derived guidelines and subsequent recommendations, how should the marketing manager proceed in selecting or modifying a logo? The process always should begin with research on the company image or the direction the company is moving (Phillips 1978). The next step is to identify the goals of the logo in light of the budgetary constraints—correct recognition/high investment, false recognition/low budget, high image/high or low budget. Other constraints should be identified—the existence of or desire for a particular type of logo (e.g., character, abstract) or a particular symbol (e.g., rock, umbrella). Another constraint is whether the company wants a stand-alone symbol or one that always has the name with it. The next step is for the manager to provide the designers with the goals and constraints. After receiving the designs back, managers should make the final selection on the basis of the recommended guidelines. To maximize impact, managers also may want to do additional testing.

Further Research

The findings of this study are limited because we used symbols without company names, which means we cannot be sure how the effects of design will transfer to evaluations of




the company or brand. We know from the research by Interbrand Schechter that there is a transfer of evaluations from logos to the accompanying brand and/or company name. We do not know to what extent this is due to design, as opposed to usage. Further research should explore the interaction of design and company name when both are presented together.

In addition, we examined only logo recognition (Have you seen this logo before?) as opposed to recall (What company does this logo belong to?). Although recognition of the logo is the first step to recall of the accompanying brand or company name, additional research should establish the relationship between the nature of the logo selected and its effect on company name recall. The Interbrand Schechter study suggests that representational logos improve recall, but there was significant variance in the representational category that might be explained by a closer look at the logos' design. Ultimately, companies want their name recalled so the logo can serve as shorthand for the company. Further research should focus on providing managers with guidelines to achieve high recall.

The magnitude of this study precluded us from examining color. Preliminary evidence suggests that color can be an effective mnemonic device (Interbrand Schechter 1994). In addition, color greatly affects the perception of design. Thus, another avenue for additional research should be the exploration of the choice of color during the selection phase and colors' effects on responses in the usage phase. Color could be used to enhance recognition and recall, leveraging the findings presented here.

Our focus was on graphics rather than letters or words. Given the prevalence of words in logos, it is imperative to study whether the selection guidelines presented here apply to the use of words and choice of the typeface used in wordmarks. The typeface used in wordmarks varies greatly (see the following examples) and possesses its own design characteristics. Different typefaces communicate different messages (Spaeth 1995). Typefaces could be easily defined in terms of their design and studied in an effort to develop guidelines for their selection or modification.

TABLE 1
Definitions, Relevant Literature, and Illustrations of Variables

Dependent Variables	
High	Low
	
	
	
	
	
	
	
	
	
	
	
	
	
	
	
	
	
	
	
	
	
	
	
	
	
	
	
	
	
	
	
	
	
	
	
	
	
	
	

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