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# Brand logo design: examining consumer response to naturalness

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## Abstract

**Purpose** – This paper aims to study how logo design characteristics influence consumer response. Based on an in-depth literature review on consumer responses to logo design, the authors included in this research one fundamental dimension of logo design, namely, naturalness and investigated the influence of the different types of natural logo designs on affective response.

**Design/methodology/approach** – In total, 96 logos were selected as design stimuli. The logos were previously classified, according to the naturalness of the logo design, as having an abstract, cultural or organic design. Responses were gathered through a survey in Portugal, including two studies with 220 participants.

**Findings** – Results show that naturalness is an essential logo design element which significantly influences consumer affective responses to the logo, and that natural logos are clearly preferred to abstract logos. Additionally, this research indicates that, within natural logos, organic designs are favored over cultural designs.

**Practical implications** – The findings presented suggest that affect toward unknown organic logos is at the same level as affect toward well-known abstract logos. This is a relevant finding from a managerial point of view, as familiarity, an essential cognitive response toward the brand that has a cost for the firm, can be replaced cost-free with unknown organic logos.

**Originality/value** – This paper is a first exploration of responses to different types of natural logo design. The results should guide managers in selecting or modifying logo designs for achieving a positive affective response.

**Keywords** Logo design, Brand logos, Consumer response

**Paper type** Research paper

**An executive summary for managers and executive readers can be found at the end of this issue.**

## Introduction

The main value attached to logos has traditionally focused on the identification and the differentiation of the brand from its competitors (MacInnis *et al.*, 1999). However, recently, research on logos has highlighted other derived consumer outputs such as consumer affective reactions, emphasizing that logos can generate positive emotions, as well as convey the meaning of the brand (Van der Lans *et al.*, 2009). Lutz and Lutz (1977) were the first to present logos as triggers of affective reactions, prior to the cognitive process. Similar ideas are conveyed by Park *et al.* (2013). They point out that “logos

can be more than simple tools for identification and differentiation” to ensure consumer commitment and improve firm performance (Park *et al.*, 2013, pp. 180). Authors from other disciplines, such as Ramello and Silva (2006), in economics, also indicate the relevance of studying the evolution of trademarks beyond quality and as a symbol with emotional meaning. Baudrillard (1968), in sociology, states that a good is not consumed because of any tangible need associated with that good but because of the semantic content it conveys.

Companies invest significant amounts of time and money promoting, updating and changing their logos (Colman *et al.*, 1995; Henderson and Cote, 1998; Spaeth, 1999), and marketing managers could benefit considerably from understanding the principles of designing, selecting and modifying logos. However, despite the high managerial relevance and important recent research on brand and product design or marketing aesthetics (Grohmann *et al.*, 2013; Henderson *et al.*, 2004; Orth and Malkewitz, 2008; Reinmann *et al.*, 2010; Shapiro and Nielsen, 2013), little systematic research has been undertaken to examine the effect of logo design on affective response toward the brand.

This study aims to address this research gap by examining consumer response to logo design and, in particular, the

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influence of the different types of natural designs (organic and cultural) on consumer affective response. Additionally, we explore whether socio-demographic variables are sources of differences in such reactions.

The paper is structured as follows: there is a review of the relevant brand and logo literature followed by a discussion about specific design theory relating to this study. Next, the research methodologies of the two studies are presented; the findings are discussed; the limitations are noted; and future research avenues are outlined.

## Theoretical background

### Brand logo design

As a brand identity sign, a logo can refer to a variety of graphic or typeface elements, ranging from word-driven, i.e., including word marks or stylized letter marks, through to image-driven, i.e., including pictorial marks (Henderson and Cote, 1998; Wheeler, 2003). In this study, we make use of the term “logo” to refer to the graphic element that a company uses to identify itself or its products.

Some authors study the effect of logo design on brand evaluation and preference, even though this research line is still in its early stages. For example, Henderson and Cote (1998) showed that design characteristics influence cognitive and affective reactions to logos before any promotional activity is implemented. Pittard *et al.* (2007) specifically examined the degree to which preference for a particular design characteristic, i.e. proportion, is universal. More recently, Walsh *et al.* (2010 and 2011) examined the role of brand commitment in relation to consumer response to logo shape redesign (from angular to more rounded shapes). These authors found that brand commitment negatively influences the evaluation of logo redesign. Bloch (1995) and Goldman (2005) suggest that brands with a greater aesthetic appeal not only provide the pleasure of visual gratification but are also more likely to facilitate the formation of emotional bonds between the company in question and its customers.

On the other hand, affective reactions to a logo are critical, as such reactions can be transferred from the identity signs to the product or company with little or no processing (Henderson and Cote, 1998; Schechter, 1993). Furthermore, in low-involvement settings, the affect attached to a logo is one of the few cues that differentiates the product or the company (Hoyer and Brown, 1990; Leong, 1993).

Brand affect is related to the emotions or feelings experienced in relation to the brand (Schiffman and Kanuk, 1991), and there is evidence that it is positively related to brand loyalty (Chaudury and Holbrook, 2001). In addition, there is increasing support that brand evaluations are based not only on objective judgments but also on affective responses to the brand (e.g. feelings and emotions experienced during exposure to brand communications, induced by the aesthetic qualities of the brand’s product or of its the identity signs [Pham *et al.*, 2001; Pham and Avnet, 2004]). Yeung and Wyer (2004) found that when consumers have to make an appraisal of an object before they received detailed information about it, the object’s appearance is likely to stimulate them to form an initial affective response that they might use as a basis for the judgments, independent of the criteria they might otherwise apply.

As aesthetic appeal and design evolve to become an essential component of corporate marketing (Schmitt and Simonson, 1997), we understand that it is important to determine the extent to which design elements such as naturalness versus abstractness create different affective responses.

### *Naturalness and affective response toward the brand*

Previous research into logo strategy has underlined the advantages of using pictorial logos. Schechter (1993) demonstrated that logos suggestive of a recognizable object can add the most value to the brands they represent. Henderson and Cote (1998) also found that logos representative of objects that have familiar and widely recognized meanings are more effective at producing correct recognition and positive affect than more abstract logos. According to these authors, natural forms are defined by the degree to which the form depicts commonly experienced objects. At this point, we introduce a differentiation between cultural and organic characteristics, including inanimate objects (e.g. the Traveler’s umbrella) and living organisms (e.g. Apple’s apple).

According to semiotics, figurativeness and its opposite endpoint, abstractness, reflect the degree to which a sign depicts objects from the natural and sensitive world: a sign is abstract when there are no links to the sensitive world; in the opposite situation, we could say that a sign is figurative (Greimas and Courtés, 1993). Figurative signs represent objects from the real world and have a deep and consensually held cultural meaning (Lencastre, 1997).

Following semiotic classification and also respecting the terminology of previous research into logo strategy (Henderson and Cote, 1998; Pittard *et al.*, 2007), we propose a distinct classification of logo design that more accurately reflects the degree to which logo design depicts commonly experienced objects, from the natural or cultural environment. We will use the term natural when referring to figurative signs and thus distinguish between natural and abstract designs. Then, within natural designs, we will distinguish between cultural and organic designs: organic logo design refers to logos that depict “biological objects”, i.e. objects from the natural world (i.e. flowers, fruits, animals, faces, landscapes, etc.), and cultural logo design refers to logos that depict “manufactured objects” (e.g. house, table and boat) or other cultural symbols (e.g. punctuation marks or the Christian cross), i.e. objects that do not have a direct biological origin (i.e. buildings, furniture, everyday objects, written symbols, etc.). Logos depicting characters, places, animals, fruits or any other objects from the sensitive or real world demand lower learning effort and are more recognizable (Henderson and Cote, 1998; Lencastre, 1997). On the other hand, recognition of abstract and meaningless logos may be poor, and abstract designs are more difficult to interpret (Koen, 1969; Nelson, 1971; Seifert, 1992).

These findings are supported by the acknowledged aesthetic primacy of natural forms in logo design. In fact, Veryzer’s theory of aesthetic response suggests that individuals surrounded by a common, natural environment form similar non-conscious rule systems that inform their design preferences. To the extent that one can count on a common physical environment, one can also count on a broad range of commonly acquired likings (Veryzer, 1999). Natural logos depict biological or other real phenomena that exist in our

environment, and therefore, one should expect natural logos to be the most preferred logos.

Based on previous insights, we expected to find differences in evaluations for consumers confronted with natural compared to abstract logos. We expected greater affect for logo designs that represent objects from the natural or real world versus logo designs that represent abstract objects (Henderson and Cote, 1998; Lencastre, 1997; Landry, 1998). Additionally, Henderson and Cote (1998) and Henderson et al. (2003) acknowledge the importance of natural designs and suggest that naturalness (or figurativeness) evokes a more positive affective response. Thus, we hypothesize that:

*H1.* Affect toward natural logo designs will be greater than affect toward abstract designs.

To our knowledge, no prior study has differentiated between the different types of natural (or figurative) logo designs. Through our research, we intend to contribute to the existing literature by increasing the understanding of the influence of the different categories of natural logo designs on affective response. According to the previous literature on semiotics, organic objects are immediately recognized for their sensitive properties; cultural objects do not have a direct biological origin and thus should be more difficult to memorize and trigger less positive affective responses (Lencastre, 1997).

Theological theorists suggest that humans have an innate, hardwired preference for natural forms that embody organic principles (Mayall, 1986; Papanek, 1984). Hence, designs that resemble organic forms tend to be preferred (Mayall, 1986). Similarly, research on consumer brand impressions on package design concludes that organic designs (including landscapes, plants and other images of nature) convey positive brand impressions (Orth and Malkewitz, 2008). Thus, we hypothesize that:

*H2.* Within natural designs, affect toward organic logo designs will be greater than affect toward cultural designs.

Another aim of this study was to explore the effect of socio-demographic variables on affective response toward logo design. Regarding gender, previous research suggests that females tend to prefer designs linked to biological themes like flowers, butterflies or the sun, while males tend to prefer designs linked to technology and machines and so related to cultural designs (Moss et al., 2007; Rogers, 1995). Research on gender tastes and preferences in product design (Xue and Yen, 2007) also shows that females have a greater interest in organic forms and themes based on femininity, nature and plant life. In contrast, the selections of males tended to be those of more regular and geometric forms. Hence, we hypothesize that:

*H3.1.* Females will display greater affect toward organic designs.

*H3.2.* Males will display greater affect toward cultural designs.

Although few studies analyze how response to a brand or brand identity signs vary with age, several studies show that

older consumers tend to prefer long-established options (Lambert-Pandraud and Laurent, 2010; Lambert-Pandraud et al., 2005). Habits become stronger with age, and thus, older adults may be more likely to prefer long-established options. Additionally, older adults place more emphasis on affective factors, which may lead them to prefer options with which they are more familiar (Cole et al., 2008). Indeed, familiar objects (e.g. a well-known brand or design) tend to be more emotionally meaningful. Hence, the authors suggest that the focus on affective factors might lead older adults to prefer long-known (i.e. familiar) options. Natural logos represent objects from the sensitive or real world, long-established and long-known, and thus, older adults may be more likely to prefer them over more abstract and less familiar designs. Therefore, we hypothesize that:

*H4.* There will be a positive relationship between age and affect toward natural logo designs.

## Method

### Stimulus selection

We used unknown logos in this research, but we also included a smaller set of well-known logos. Unfamiliar stimuli were chosen so that we could access the effects of logo design on consumer responses and thereby eliminate the influences of brand awareness and brand attitude (Henderson and Cote, 1998). Indeed, according to previous research, a brand can be a strong attribute of consumers' holistic impression of the brand identity signs (Orth and Malkewitz, 2008), and well-known brands influence consumer preferences because they promise a particular quality level, reduce risk and engender trust (Keller and Lehmann, 2006). Thus, one should expect well-known logos to be the most preferred logos. However, to understand brand as an additional attribute that influences affect toward logo design, we decided to include a small sample of well-known logos.







Logos were presented in their original colors because, besides design, color is one of the major aspects of a logo's characteristics (Hynes, 2009).

Logos for this study were obtained by asking non-European researchers from Argentina, Brazil, Chile, Canada, the USA and Australia to suggest national logos with a low probability of being recognized in Europe, and which are either abstract or natural. They were given definitions of the word logo and also figurative versus abstract logo design. Additionally, the most important books, Web sites and blogs related to brand logos, logo design and graphic design were sought to identify unknown logos representative of the different categories considered in this research.

These two approaches resulted in the creation of a large logo database (406 logos), including unknown and known, natural and abstract logos. We followed semiotic classification of design, as well as logo strategy terminology, to categorize logos as abstract, organic and cultural. Figure 1 defines the design dimensions under study and gives examples of unknown and well-known logos representative of each category.

For inclusion in this study, we considered logos whereby all of the researchers agreed with the classification of the logo in terms of recognition and design. Except for culturally known logos (the

**Figure 1** Definitions and examples of logos included in each category

Abstract	Cultural	Natural Organic
A logo that has no connection with the real world is artificially constructed and non-representative (i.e. squares, rectangles, triangles, horizontal or vertical stripes, circles and dots, ovals, arcs, swooshes, etc.)	A logo representing manufactured objects (i.e. buildings, furniture, transport vehicles, everyday objects) or other cultural symbols (i.e. written symbols)	A logo representing objects from the natural world (i.e. flowers, fruits, vegetables, animals, faces, bodies, landscapes, etc.)
Known		
		
Unknown		
		

number of logos considered valid corresponds to the needs of our study), logos were randomly selected for each category.

### Research method

In this experiment, we attempt to differentiate abstract from natural logos, and within the natural logos, we try to distinguish cultural from organic logo designs. Therefore, we asked respondents to categorize the sample of previously selected logos as being abstract, cultural or organic.

We did a pretest among 32 University colleagues to define the final format of the questionnaire for this experiment. The pretest was conducted using an online survey. Each respondent evaluated 60 logos, 45 unknown logos (15 from each logo design category) and 15 well-known logos (5 from each logo design category). According to the respondents' feedback, the questionnaire included "too many logos". Thus, we decided to reduce the number of logos included in each version of the questionnaire from 60 to 48.

In total, 96 pre-selected logos were presented to the respondents. Logos were divided into 2 blocks of 48 logos to avoid any fatigue, as previously demonstrated by respondents in the pre-test. Each block was evaluated by at least 100 respondents recruited through a convenience method. The two samples, although composed of different sets of people, had similar characteristics.

We used a within-subjects design, so all participants were presented with several abstract, organic and cultural logo designs. Each participant evaluated 36 unknown logos and 12 well-known logos, as described in Table I:

### Measures

Respondents were first asked if they knew which brand the logo represented (recognition). Then, they were asked to categorize the presented logo as abstract, cultural or organic.

**Table I** Number of logos according to recognition and design for each block considered in Experiment 1

Logos	Abstract	Cultural	Organic	Total
Known	4	4	4	12
Unknown	12	12	12	36
<b>Total</b>	<b>16</b>	<b>16</b>	<b>16</b>	<b>48</b>

To answer this question, participants were given definitions of abstract, cultural and organic logo designs (Figure 1).

Following this, we evaluated affect. To measure a latent variable such as affect, at least two items must be considered. Authors such as Marsh *et al.* (1998) find that with small sample sizes (less than 100), four or more indicators per factor are necessary to ensure proper solutions. We had planned to measure affect using a seven-point semantic differential scale adapted from the literature, which would allow us to access the feelings that the logo inspired (dislike/like; unpleasant/pleasant) (Kim *et al.*, 1998; Milberg *et al.*, 1997; Park *et al.*, 1996). However, according to the results of the pre-test, these two items overlapped. Following this, we evaluated affect by asking respondents if they liked/did not like the logo using a seven-point semantic differential scale. Although we measured affect toward each logo, our purpose was to capture latent affect toward the different categories of logo designs and toward unknown and well-known logos, and not to a specific object. Nonetheless, we have at least four logos representative of each design category (Table I). Thus, we are measuring the latent concept, affect toward at least four different objects representative of the same logo design category. We can say that this is equivalent to using different items, and this will allow us to capture the different facets of the affect toward the different logo design categories analyzed. As we have several indicators (logos) for the same construct (latent affect toward

a specific logo design category), this should increase its internal reliability.

The internal reliability of the different constructs was measured with Cronbach's alpha. Several *t* tests were used to compare the results obtained for the different groups. MANOVAs were also performed to evaluate the influence of the naturalness of logo design on affect. We also measured effect sizes using Cohen's *d* and partial eta squared ( $\eta^2_p$ ). Furthermore, we used Pearson's correlations to measure the correlations between the different dimensions. A *p* value of less than 0.05 was considered significant.

#### Sample and procedure

For this experiment, we used a convenience sample of colleagues, friends, relatives and undergraduate or graduate students from three major Universities in Portugal. A total of 220 respondents participated. The sample which evaluated the first group of logos was composed of 113 respondents, and the one which evaluated the second block of logos included 107 respondents (Table II). Data collection was carried out using an online survey. This method improves the response rate, which has the ability to randomize survey items and protects confidentiality. Each of the two versions of the questionnaire (two blocks of logos) was sent by e-mail to the researchers' contact list. We tried to recruit respondents from different age cohorts, gender, educational backgrounds and regions of Portugal. The two samples were then compared in terms of gender proportions, mean age and educational level to ensure the reproducibility of the affect results.

Significant results were found for gender [Chi-square test,  $\chi^2(1) = 5.17, p = 0.030$ , Pearson's Phi = 0.153]. In the first study, the majority of participants were female, and in the second study, the opposite was true. Gender differences could be relevant to the overall affect score, although in this study, this was not problematic for several reasons: first, the observed differences between studies presented very low effect size (practical significance); second, the aim of this research was to compare affect toward the different logo design categories and not to estimate an overall affect score, and third, the main results were consistent in both studies.

Table II Sample characterization

	Study 1		Study 2	
	N	(%)	N	(%)
<b>Gender</b>				
Female	68	60.2	48	44.9
Male	45	39.8	59	55.1
<b>Age (years)</b>				
[18-29]	32	28.3	35	32.7
[30-39]	45	39.8	20	18.7
[40-49]	27	23.9	34	31.8
[50+]	9	8.0	18	16.8
<b>Qualification</b>				
High school education or less	14	12.4	18	16.8
Undergraduate degree	46	40.7	59	55.2
Master's degree/MBA	33	29.2	23	21.5
PhD	20	17.7	7	6.5

The samples of the two studies were not significantly different in respect of age ( $t_{(197.1)} = -1.86, p = 0.064$ , Cohen's *d* =  $-0.25$ ) and educational level [this variable was grouped into two categories: high school vs undergraduate/graduate students;  $\chi^2(1) < 1, p = 0.445$ , Pearson's Phi = 0.063]. In Study 1, age ranged from 18 to 62 years ( $M = 34.7, SD = 9.6$ ), and in Study 2, age ranged from 18 to 73 years ( $M = 37.6, SD = 12.7$ ). In respect of the respondents' educational level, the majority of the participants have more than 12 years of school education (Study 1: 87.6 per cent; Study 2: 83.2 per cent).

## Results

Based on logo affect scores and the two factors considered (logo recognition and naturalness), 11 dimensions were calculated. Cronbach's alpha for each dimension ranged from 0.592 (for the known abstract logos in Study 2) to 0.942 (for the unknown logo group in Study 1). Most of the observed values are higher than the generally recommended lower limit of 0.70 for Cronbach's alpha (Hair et al., 1998), indicating that all the items in each dimension form a single, strongly cohesive and conceptual construct. Furthermore, we should highlight that in both versions of this experiment, positive and significant correlations were obtained among all the dimensions of the affect scores. This means that high affect scores in one dimension correspond to high affect scores in all the other dimensions.

### Influence of logo naturalness on logo affect scores

One of the major purposes of this experiment is related with evaluating the influence of the naturalness of logo design on affect, and this was accomplished by measuring the affect revealed by the participants *vis-à-vis* the different logo design categories. To analyze this relation, a MANOVA was performed, and the results show that there are significant differences between all three categories of logo designs in both studies (Study 1 –  $F_{(2,111)} = 63.3, p < 0.001, \eta^2_p = 0.53, \pi > 0.99$ ; Study 2 –  $F_{(2,105)} = 44.8, p < 0.001, \eta^2_p = 0.46, \pi > 0.99$ ). Affect toward organic logos was significantly higher than affect toward cultural and abstract logos in both studies (all *p*'s < 0.05; affect descriptive statistics can be consulted in Table III). Hence, results provide support for *H2*. Furthermore, affect toward these two types of natural logo designs was significantly higher than affect toward abstract logos (Study 1 –  $M = 3.18, DP = 0.750$ ; all *p*'s < 0.001; Study 2 –  $M = 3.39, DP = 0.716$ ; all *p*'s < 0.05 – calculated with Bonferroni's adjustment for multiple comparisons). These results are consistent with our expectations and empirically confirm the influence of the naturalness of logo design on consumers' affective response, supporting *H1*.

The analysis of the results from the first and the second version of this experiment demonstrates similar effect ( $\eta^2_p$ ) of logo design in affect scores. Thus, together, these results support *H1*.

To verify the replicability of the first study and to explore possible study sample effects on logo affect scores, several *t* tests were performed. Results show that despite the significant differences between both versions of this experiment (Table III), the results of the first study are confirmed with those of the second one. Indeed, in both studies, affect toward

Table III Affect scores by study

Dimensions	Study 1 M (SD)	Study 2 M (SD)	t (df) = value; p-value
AFFECT_ABS	3.18 (0.75)	3.39 (0.72)	t (218) = -2.08; p = 0.039
AFFECT_NC	3.50 (0.71)	3.78 (0.77)	t (218) = -2.76; p = 0.006
AFFECT_NO	3.79 (0.82)	3.88 (0.79)	t (218) = -0.86; p = 0.391
AFFECT_K_ABS	3.76 (0.85)	4.05 (0.87)	t (218) = -2.47; p = 0.014
AFFECT_K_NC	4.12 (0.81)	4.50 (0.83)	t (218) = -3.38; p = 0.001
AFFECT_K_NO	4.19 (1.00)	4.30 (0.85)	t (218) = -0.86; p = 0.389
AFFECT_U_ABS	2.99 (0.82)	3.18 (0.76)	t (218) = -1.84; p = 0.068
AFFECT_U_NC	3.29 (0.78)	3.52 (0.84)	t (218) = -2.03; p = 0.044
AFFECT_U_NO	3.65 (0.88)	3.74 (0.85)	t (218) = -0.75; p = 0.453
AFFECT_UNKNOWN	4.02 (0.77)	4.28 (0.73)	t (218) = -2.52; p = 0.012

organic logo designs is greater than affect toward cultural designs, and affect toward these two types of natural logo designs is greater than affect toward abstract designs.

When comparing well-known and unknown logos, we concluded that in both studies, affect toward well-known logos (Study 1 –  $M_{\text{AFFECT\_KNOWN}} = 4.02$ ,  $DP_{\text{AFFECT\_KNOWN}} = 0.773$ ; Study 2 –  $M_{\text{AFFECT\_KNOWN}} = 4.28$ ,  $DP_{\text{AFFECT\_KNOWN}} = 0.733$ ) was significantly higher than affect toward unknown logos (Study 1 –  $M_{\text{AFFECT\_UNKNOWN}} = 3.31$ ,  $DP_{\text{AFFECT\_UNKNOWN}} = 0.769$ ,  $t(112) = 10.6$ ,  $p < 0.001$ ; Study 2 –  $M_{\text{AFFECT\_UNKNOWN}} = 3.47$ ,  $DP_{\text{AFFECT\_UNKNOWN}} = 0.731$ ,  $t(106) = 16.3$ ,  $p < 0.001$ ).

### Influence of gender, age and educational level on logo affect scores

#### Gender

To explore possible gender effect on logo affect scores, several *t* tests were performed. The results show that there are no significant differences between male and female respondents in any of the dimensions, except in Study 1 for the known organic logos (Table IV). Female respondents denote significantly higher affect scores (Cohen's *d* = -0.389) to known organic logos than male respondents. Thus, the results obtained in Study 1 provide evidence for *H3.1*, confirming

that females tend to prefer logo designs linked to nature. However, these findings were not confirmed in the second version of this experiment. Hence, the hypothesis cannot be supported.

#### Age

In Study 1, age was positively correlated with all the measured affect dimensions. Significant correlations were observed between age and affect toward all the logo design categories ( $r_{\text{AGE.AFFECT\_ABS}} = 0.19$ ,  $p = 0.04$ ,  $r_{\text{AGE.AFFECT\_NC}} = 0.2$ ,  $p = 0.04$ ,  $r_{\text{AGE.AFFECT\_NO}} = 0.23$ ,  $p = 0.02$ ). These significant results were observed in particular for the unknown logos ( $r_{\text{AGE.AFFECT\_U\_ABS}} = 0.21$ ,  $p = 0.03$ ,  $r_{\text{AGE.AFFECT\_U\_NO}} = 0.24$ ,  $p = 0.01$ ,  $r_{\text{AGE.AFFECT\_UNKNOWN}} = 0.22$ ,  $p = 0.02$ ). Additionally, significant results were also obtained for known cultural logos ( $r_{\text{AGE.AFFECT\_K\_NC}} = 0.24$ ,  $p = 0.01$ ). Hence, these findings indicate there might be a positive relationship between age and affect toward logos, which is particularly evident for cultural designs. However, these results were not confirmed in Study 2. In the latter study, only one significant and negative correlation was found between age and affect toward known organic logos ( $r_{\text{AGE.AFFECT\_K\_NO}} = -0.27$ ,  $p = 0.005$ ).

Table IV Affect scores by gender

Dimensions	Study 1			Study 2		
	Male M (SD)	Female M (SD)	t (df) = value; p-value	Male M (SD)	Female M (SD)	t (df) = value; p-value
AFFECT_ABS	3.18 (0.67)	3.18 (0.83)	t (111) = 0.06; p = 0.95	3.37 (0.72)	3.40 (0.72)	t (105) = -0.19; p = 0.85
AFFECT_NC	3.56 (0.67)	3.42 (0.78)	t (111) = 1.01; p = 0.32	3.77 (0.76)	3.79 (0.79)	t (105) = -0.15; p = 0.88
AFFECT_NO	3.82 (0.82)	3.73 (0.821)	t (111) = 0.59; p = 0.56	3.8 (0.73)	3.94 (0.83)	t (105) = -0.89; p = 0.38
AFFECT_K_ABS	3.65 (0.83)	3.93 (0.86)	t (111) = -1.72; p = 0.09	3.91 (0.90)	4.16 (0.84)	t (105) = -1.46; p = 0.15
AFFECT_K_NC	4.06 (0.74)	4.21 (0.92)	t (79.8) = -0.87; p = 0.38	4.42 (0.83)	4.56 (0.84)	t (105) = -0.88; p = 0.38
AFFECT_K_NO	4.03 (1.00)	4.42 (0.98)	t (111) = -2.05; p = 0.04	4.17 (0.82)	4.4 (0.87)	t (105) = -1.43; p = 0.16
AFFECT_U_ABS	3.03 (0.74)	2.92 (0.93)	t (111) = 0.66; p = 0.51	3.21 (0.76)	3.16 (0.77)	t (105) = 0.28; p = 0.78
AFFECT_U_NC	3.39 (0.73)	3.16 (0.84)	t (111) = 1.56; p = 0.12	3.53 (0.82)	3.51 (0.86)	t (105) = 0.13; p = 0.90
AFFECT_U_NO	3.75 (0.85)	3.50 (0.91)	t (111) = 1.51; p = 0.14	3.68 (0.81)	3.79 (0.89)	t (105) = -0.62; p = 0.54
AFFECT_UNKNOWN	3.39 (0.72)	3.19 (0.84)	t (111) = 1.34; p = 0.19	3.46 (0.72)	3.48 (0.75)	t (105) = -0.09; p = 0.93
AFFECT_KNOWN	3.92 (0.74)	4.19 (0.81)	t (111) = -1.83; p = 0.07	4.16 (0.70)	4.37 (0.76)	t (105) = -1.47; p = 0.15

**Notes:** AFFECT\_ABS = affect toward all (unknown and known) abstract logos; AFFECT\_NC = affect toward all cultural logos; AFFECT\_NO = affect toward all organic logos; AFFECT\_K\_ABS = affect toward the known abstract logos; AFFECT\_K\_NC = affect toward the known cultural logos; AFFECT\_U\_ABS = affect toward the unknown abstract logos; AFFECT\_U\_NC = affect toward the unknown cultural logos; AFFECT\_U\_NO = affect toward the unknown organic logos; AFFECT\_UNKNOWN = affect toward all unknown logos (abstract, cultural and organic); AFFECT\_KNOWN = affect toward all known logos

Hence, *H4* was only supported in one of the versions of the studies, so we cannot accept the hypothesis.

#### Educational level

We performed several Student's *t* tests to compare the two groups by educational level (high school vs undergraduate/graduate students) in all the affect dimensions considered, and no significant results were found. Thus, educational level showed no significant effect on affect toward the different logo design categories.

## Discussion

The main results of this study confirm the advantages of using natural logos (Henderson and Cote, 1998; Schechter, 1993). Our findings suggest that naturalness is an essential element of logo design, which influences affective response to the logo. Indeed, in both studies of this experiment, naturalness explains a high percentage of affect toward the logos. Moreover, the practical importance of naturalness is similar in the two studies.

Previous research related to logo strategy has underlined the advantages of using pictorial or natural logos, but no study has differentiated between the different types of natural logo designs. This research delves further into the study of aesthetics through the classification of a significant sample of international logos according to the naturalness of the logo design and evaluating affect toward such categories. The distinction between organic and cultural logo designs leads to important findings, complementing research in semiotics (Greimas and Courtés, 1993), in logo strategy (Henderson and Cote, 1998) and also the theory of aesthetic response (Veryzer, 1993 and 1999). The results show that organic logo designs are always better evaluated in terms of affect, followed by cultural designs. Abstract logos always induce lower levels of affective response by the respondents. Hence, these results empirically demonstrate the importance of organic designs, providing evidence that the designs that represent objects from the natural world are the ones that elicit the most pleasing affect.

Additionally, affect toward unknown organic logos and toward well-known abstract logos is almost similar. Hence, by choosing an organic logo design, a new brand will begin with a level of affect identical to the one of an established brand with an abstract logo. This is a significant finding from a managerial perspective, as brand awareness, an essential source of brand equity (Keller, 1993) which has a significant cost for the firm, can be replaced cost-free with the type of logo design chosen.

On the other hand, our findings indicate that affect toward the different categories of logos is positively related, and thus, when a person likes one category of logo design better, he or she will also tend to like the other categories more (and vice versa). These results suggest that some of the respondents have a higher level of affective response toward logos, and they will tend to give logos a higher affect score, regardless of logo design or recognition.

Furthermore, the strongest positive correlation was between the affect toward the two categories of natural logos (organic and cultural). In fact, by squaring the average correlation value, we conclude that 64 per cent (determination coefficient:  $R^2 = 0.64$ ) of the evaluation of the cultural logos is explained by the evaluation of natural logos (and vice versa).

Even though the study of the relation between age and affective responses to logo design was not the main issue of this study, it is interesting to note that the first version of the experiment provides some findings that are consistent with previous research, which showed that older consumers tend to prefer well-known options (Lambert-Pandraud and Laurent, 2010; Lambert-Pandraud *et al.*, 2005). Results suggest that there might be a positive correlation between age and affect toward several categories of logos, and that as age increases, people tend to demonstrate greater affect toward the various logo designs. The highest correlation was observed between age and cultural logos. This is an interesting result because cultural objects are learned throughout our lives.

In line with the previous literature on gender differences in design preferences, which highlights that the preferred design themes for females are people, plants, animals and other natural elements (Iijima *et al.*, 2001; Rogers, 1995; Xue and Yen, 2007), Study 1 reveals that females display significantly higher affect scores toward known organic logos than males. An awareness of these design preferences is important in relation to the selection of logos targeted at males and/or females. However, we will need to further explore the effect of gender on logo design preferences, as these findings were only confirmed in the first version of this experiment.

To summarize, despite the effect of the explored socio-demographic variables on affect toward logo design, the main result of this research is that natural logos are clearly preferred to abstract logos, and within natural logos, organic designs are favored over cultural designs. Thus, for maximum positive affect, it is suggested that managers choose logos with natural designs.

#### Limitations and further research avenues

There are some limitations of the research that should be noted. First, we should mention that the sample is a convenience sample, with consequences at sizes and proportions level. Second, we measured affect toward the logos through one dimension only (like/do not like), and to measure a latent variable such as affect, we need to consider at least two items. However, in this research, we are measuring affect toward three different categories of logo designs and toward unknown and known logos; thus, we are measuring affect toward a minimum of four different objects.

Further research should allow us to explore in detail the main effects of gender, age and educational level, as well as the possible interaction effects between these variables.

The findings regarding consumer logo preferences will be analyzed more thoroughly in two replication studies that will investigate reactions to the naturalness of logo design across different cultures. Jun and Lee (2007) highlight the relevance of visual elements to generate corporate identity but the scarce, cross-cultural marketing research in existence. Few empirical studies address this issue. In this paper, we present the results for Portugal, but we are currently replicating the study in Spain and in The Netherlands. These countries show heterogeneity for the Hofstede (1980) cultural dimensions. Extreme values were found in relation to Portugal and The Netherlands, while the values for Spain usually lie between the values of the two. For example, for the Uncertainty Avoidance Index (UAI), The Netherlands has a value of 53, Spain of 86



and Portugal of 104. Intermediate values may be relevant to explore non-linear patterns (i.e. Broekhuizen *et al.*, 2011).

We hypothesize that cultures characterized by high levels of UAI (Hofstede, 1980) display a preference for known/recognized shapes (natural ones). As organic representations are the most familiar ones, we expect to link this to cultures with higher levels of UAI.

This experiment will also be complemented by two additional experiments, which will allow us to further examine the psychological, behavioral and neurological properties of logo design.

In a second experiment, we will attempt to differentiate consumer affective responses toward logo design. In this experiment, we will evaluate the influence of naturalness on affective processing and on logo choice. In a third experiment, we will complement the psychological and behavioral results from our previous experiments, with an empirical analysis of neurological response toward brand logo design. This should provide confirmatory evidence of the psychological phenomena identified in our previous experiments and help to generate a more fundamental conceptualization and understanding of the underlying processes (Reinmann *et al.*, 2010; Shiv *et al.*, 2005).

## References

- Baudrillard, J. (1968), *Le Système des Objets*, Gallimard, Paris.
- Bloch, P.H. (1995), "Seeking the ideal form: product design and consumer response", *Journal of Marketing*, Vol. 59 No. 3, pp. 16-29.
- Broekhuizen, L.J., Delre, S.A. and Torres, A. (2011), "Simulating the cinema market: how cross-cultural differences in social influence explain box office distributions", *Journal of Product Innovation Management*, Vol. 28 No. 2, pp. 204-217.
- Chaudury, A. and Holbrook, M.B. (2001), "The Chain of effects from brand trust and brand affect to brand performance: the role of brand loyalty", *Journal of Marketing*, Vol. 65 No. 2, pp. 81-93.
- Cole, C., Laurent, G., Drolet, A., Ebert, J., Gutchness, A., Lambert-Prandraud, R., Mullet, E., Norton, M.I. and Peters, E. (2008), "Decision making and brand choice by older consumers", *Marketing Letters*, Vol. 19 Nos 3/4, pp. 355-365.
- Colman, A.W., Wober, J.M. and Norris, C.E. (1995), "Sight bites: a study of viewers' impressions of corporate logos in communications industry", *Journal of Market Research Society*, Vol. 37 No. 4, pp. 405-415.
- Goldman, A.H. (2005), "The aesthetic", in Gaut, B. and Lopes, D.M. (Eds), *The Routledge Companion to Aesthetics*, Routledge Publication, New York, NY, pp. 255-266.
- Greimas, A.J. and Courtés, J. (1993), *Sémiotique – Dictionnaire Raisonné de la Théorie de Langage*, Hachette Supérieur, Paris.
- Grohmann, B., Giese, J.L. and Parkman, I.D. (2013), "Using type font characteristics to communicate brand personality of new brands", *Journal of Brand Management*, Vol. 20 No. 5, pp. 389-403.
- Hair, J.F. Jr, Anderson, R.E., Tatham, R.L. and Black, W.C. (1998), *Multivariate Data Analysis*, 5th ed., Prentice Hall, Upper Saddle River, NJ.
- Henderson, P.W. and Cote, J.A. (1998), "Guidelines for selecting and modifying logos", *Journal of Marketing*, Vol. 62 No. 2, pp. 14-30.
- Henderson, P.W., Cote, J.A., Leong, S.M. and Schmidt, B. (2003), "Building strong brands in Asia: selecting the visual components of image to maximize brand strength", *International Journal of Marketing Research*, Vol. 20 No. 4, pp. 297-313.
- Henderson, P.W., Giese, J.L. and Cote, J.A. (2004), "Impression management using typeface design", *Journal of Marketing*, Vol. 68 No. 4, pp. 60-72.
- Hofstede, G. (1980), *Culture's Consequences: International Differences in Work-related Values*, Sage, Beverly Hills, CA.
- Hoyer, W.D. and Brown, S.P. (1990), "Effects of brand awareness on choice for a common, repeat-purchase product", *Journal of Consumer Research*, Vol. 17 No. 2, pp. 141-149.
- Hynes, N. (2009), "Colour and meaning in corporate logos: an empirical study", *Journal of Brand Management*, Vol. 16 No. 8, pp. 545-555.
- Iijima, M., Arisaka, O., Minamoto, F. and Arais, Y. (2001), "Sex differences in children's free drawings: a study on girls with congenital adrenal hyperplasia", *Hormones and Behavior*, Vol. 40 No. 2, pp. 99-104.
- Jun, J.W. and Lee, H.-S. (2007), "Cultural differences in brand design and tagline appeals", *International Marketing Review*, Vol. 24 No. 4, pp. 474-491.
- Keller, K.-L. (1993), "Conceptualizing, measuring and managing customer-based brand equity", *Journal of Marketing*, Vol. 57 No. 1, pp. 1-22.
- Keller, K.-L. and Lehmann, D.R. (2006), "Brands and branding: research findings and future priorities", *Marketing Science*, Vol. 25 No. 6, pp. 740-759.
- Kim, J., Lim, J.-S. and Bhargava, M. (1998), "The role of affect in attitude formation: a classical conditioning approach", *Journal of the Academy of Marketing Science*, Vol. 26 No. 2, pp. 143-152.
- Koen, F. (1969), "Verbal and non-verbal mediators in recognition memory for complex visual stimuli", Report, Office of Education, Washington, DC.
- Lambert-Pandraud, R. and Laurent, G. (2010), "Why do older consumers buy older brands? The role of attachment and declining innovativeness", *Journal of Marketing*, Vol. 74 No. 5, pp. 104-121.
- Lambert-Pandraud, R., Laurent, G. and Lapersonne, E. (2005), "Repeat purchasing of new automobiles by older consumers: empirical evidence and interpretations", *Journal of Marketing*, Vol. 69 No. 2, pp. 97-113.
- Landry, J.T. (1998), "Making logos matter", *Harvard Business Review*, Vol. 76 No. 2, pp. 16-20.
- Lencastre, P. (1997), "L'identification de la marque, un outil de stratégie de marketing: le nom de la marque, le logotype et la mémorisation", Doctoral dissertation, Université Catholique de Louvain, Louvain-la-Neuve.
- Leong, S.M. (1993), "Consumer decision making for a common, repeat-purchase product: a dual replication", *Journal of Consumer Psychology*, Vol. 2 No. 2, pp. 62-74.
- Lutz, K.A. and Lutz, R.J. (1977), "Effects of interactive imagery on learning: application to advertising", *Journal of Applied Psychology*, Vol. 62 No. 4, pp. 493-498.

- MacInnis, D.J., Shapiro, S. and Mani, G. (1999), "Enhancing brand awareness through brand symbols", *Advances in Consumer Research*, Vol. 26 No. 1, pp. 601-608.
- Marsh, H.W., Hau, K.T., Balla, J.R. and Grayson, D. (1998), "Is more ever too much? The number of indicators per factor in confirmatory factor analysis", *Multivariate Behavioral Research*, Vol. 33 No. 2, pp. 181-220.
- Mayall, W.H. (1986), *Machines and Perception in Industrial Design*, Studio Vista, London.
- Milberg, S.J., Park, C.W. and McCarthy, M.S. (1997), "Managing negative feedback effects associated with brand extensions: the impact of alternative branding strategies", *Journal of Consumer Psychology*, Vol. 6 No. 2, pp. 119-140.
- Moss, G., Hamilton, C. and Neave, N. (2007), "Evolutionary factors in design preferences", *Journal of Brand Management*, Vol. 14 No. 4, pp. 313-323.
- Nelson, K.E. (1971), "Memory development in children: evidence from non-verbal tasks", *Psychonomic Science*, Vol. 25 No. 6, pp. 346-348.
- Orth, U.R. and Malkewitz, K. (2008), "Holistic package design and consumer brand impressions", *Journal of Marketing*, Vol. 72 No. 3, pp. 135-144.
- Papanek, V. (1984), *Design for the Real World*, Van Nostrand, New York, NY.
- Park, C.W., Eisingerich, A.B., Pol, G. and Park, J.W. (2013), "The role of brand logos in firm performance", *Journal of Business Research*, Vol. 66 No. 2, pp. 180-187.
- Park, C.W., Jun, S.Y. and Schocker, A.D. (1996), "Composite branding alliances: an investigation of extension and feedback effects", *Journal of Marketing Research*, Vol. 33 No. 4, pp. 453-466.
- Pham, M.T. and Avnet, T. (2004), "Ideals and oughts and the reliance on affect versus substance in persuasion", *Journal of Consumer Research*, Vol. 30 No. 4, pp. 503-518.
- Pham, M.T., Cohen, J.B., Pracejus, J.W. and Hughes, G.D. (2001), "Affect monitoring and the primacy of feelings in judgement", *Journal of Consumer Research*, Vol. 28 No. 2, pp. 167-188.
- Pittard, N., Ewing, M. and Jevons, C. (2007), "Aesthetic theory and logo design: examining consumer response to proportions across cultures", *International Marketing Review*, Vol. 24 No. 4, pp. 457-473.
- Ramello, G.B. and Silva, F. (2006), "Appropriating signs and meaning: the elusive economics of trademark", *Industrial and Corporate Change*, Vol. 15 No. 6, pp. 937-963.
- Reinmann, M., Zaichkowsky, J., Neuhaus, C., Bender, T. and Weber, B. (2010), "Aesthetic package design: a behavioural, neural and psychological investigation", *Journal of Consumer Psychology*, Vol. 20 No. 4, pp. 431-441.
- Rogers, P.L. (1995), "Girls like colors, boys like action? Imagery preferences and gender", *Montessori Life*, Vol. 7 No. 3, pp. 37-40.
- Schechter, A.H. (1993), "Measuring the value of corporate and brand logos", *Design Management Journal*, Vol. 4 No. 1, pp. 33-39.
- Schiffman, S.S. and Kanuk, L.L. (1991), *Consumer Behavior*, Prentice Hall, Engelwood Cliffs, NJ.
- Schmitt, B.H. and Simonson, A. (1997), *Marketing Aesthetics*, The Free Press, New York, NY.
- Seifert, L.S. (1992), "Pictures as means of conveying information", *Journal of General Psychology*, Vol. 119 No. 3, pp. 279-287.
- Shapiro, S.A. and Nielsen, J.H. (2013), "What the blind eye sees: incidental change detection as a source of perceptual fluency", *Journal of Consumer Research*, Vol. 39 No. 6, pp. 1202-1218.
- Shiv, B., Bechara, A., Levin, I., Alba, J., Bettman, J., Dube, L., Isen, A., Mellers, B., Smidts, A. and Grant, S.J. (2005), "Decision neuroscience", *Marketing Letters*, Vol. 16 Nos 3/4, pp. 375-386.
- Spaeth, T. (1999), "Powerbrands", *Across the Board*, Vol. 36 No. 2, pp. 23-29.
- Van der Lans, R., Cote, J.A., Cole, C.A., Leong, S.M., Schmidts, A., Henderson, P.W., Bluemelhuber, Ch., Bottomley, P.A., Doyle, J.R., Fedorikhin, A., Moorthy, J., Ramaseshan, B. and Schmitt, B.H. (2009), "Cross-national logo evaluation analysis: an individual-level approach", *Marketing Science*, Vol. 28 No. 5, pp. 968-985.
- Veryzer, R.W. (1993), "Aesthetic response and the influence of design principles on product preferences", *Advances in Consumer Research*, Vol. 20 No. 1, pp. 224-228.
- Veryzer, R.W. (1999), "A nonconscious processing explanation of consumer response to product design", *Journal of Psychology & Marketing*, Vol. 6 No. 6, pp. 497-522.
- Walsh, M.F., Winterich, K.P. and Mittal, V. (2010), "Do logo redesigns help or hurt your brand? The role of brand commitment", *Journal of Product & Brand Management*, Vol. 19 No. 2, pp. 76-84.
- Walsh, M.F., Winterich, K.P. and Mittal, V. (2011), "How re-designing angular logos to be more rounded shapes brand attitude: consumer brand commitment and self-construal", *Journal of Product & Brand Management*, Vol. 28 No. 6, pp. 438-447.
- Wheeler, A. (2003), *Designing Brand Identity: A Complete Guide to Creating, Building and Maintaining Strong Brands*, Wiley, Hoboken, NJ.
- Xue, L. and Yen, C.C. (2007), "Towards female preferences in design – a pilot study", *International Journal of Design*, Vol. 1 No. 3, pp. 11-27.
- Yeung, C.W.M. and Wyer, R.S. (2004), "Affect, appraisal and consumer judgement", *Journal of Consumer Research*, Vol. 31 No. 2, pp. 412-424.

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2. ZhuZhijuan, Zhijuan Zhu, CaoHuai, Huai Cao, LiBin, Bin Li. 2017. Research on logo design and evaluation of youth education brands based on visual representation. *Journal of Product & Brand Management* 26:7, 722-733. [[Abstract](#)] [[Full Text](#)] [[PDF](#)]
3. Sabrina Bresciani, Paolo Del Ponte. 2017. New brand logo design: customers' preference for brand name and icon. *Journal of Brand Management* 24:5, 375-390. [[Crossref](#)]
4. Xiaobing Xu, Rong Chen, Maggie Wenjing Liu. 2017. The effects of uppercase and lowercase wordmarks on brand perceptions. *Marketing Letters* 28:3, 449-460. [[Crossref](#)]