

The role of colour in a successful logo

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ABSTRACT

This research is concerned with the role of aesthetics and its importance in the design and success of corporate logos. The specific interest is in visual aesthetics; that is, how the logo looks without reference to the context in which the logo is applied or the brand or company that it represents. Aspects of visual aesthetics includes colour and form. This study aims to ascertain the feature space in which consumers evaluate the visual appearance of logos and to determine the role and importance of colour in this feature space. In this work, therefore, a psychophysical scaling experiment is described to measure consumers' responses to visual attributes of logos. A total of 50 logos were evaluated by 22 participants in terms of 10 visual attributes (complex, proportional, unique, familiar, memorable, colourful, feminine, bold, friendly and modern). During the experiment each participant was presented with one of the logos and asked to respond to each of the 10 attributes in turn. Responses were collected in the form of a 5-point Likert scale. Colourfulness was shown to have statistically significant positive correlations with the following attributes: friendly ($p < 0.001$), feminine ($p < 0.001$), bold ($p = 0.022$), modern ($p = 0.036$), unique ($p = 0.003$) and memorable ($p = 0.036$). Correlations between other attributes were also found, suggesting that some reduction in dimensionality of the feature space may be possible using factor analysis.

Keywords: *colour, aesthetics, visual communication, art and design, logo design*

INTRODUCTION

Logos are a visual cue that can help companies to communicate their identity and capture consumer attention (Kim and Lim 2019). The importance of understanding how a logo is perceived is by consumers is therefore increasing (Phan 2009). The term interactive aesthetics can be used to describe the more general aesthetics that exists for a real logo in a real-world application (for example, a logo may be visually appealing but that appeal may not be so strong for a logo that represents a brand that is perceived negatively by the public).

Colour is considered to be a powerful visual cue (Riezebos 2003) and can be the most commonly used feature in image retrieval (Henderson and Cote 1998). Colour is sometimes referred to as a silent salesperson (Eiseman 2000), but how important is colour compared with other visual attributes of logos? How important, for example, is colour compared with, say, symmetry (Bettels and Wiedmann 2019). Indeed, what are the visual attributes of logos that are important to consumers and that may contribute to the success of a logo? This study therefore sets out to ascertain the feature space in which consumers evaluate the visual appearance of logos. The starting point for this is a scaling experiment to explore consumer response on a range of attributes.

EXPERIMENTS

A total of 50 images of logos were obtained. The logos were selected from a list of global brands to represent four industries and covered a number of categories including electronics/communication, food and beverage, energy, automotive, entertainment and education. The list of the logos used can be seen in Table 1. An online questionnaire was designed to capture the attitudes of a group of 22 participants (6 males, 16 females; aged 18-44) towards each of the logos. Of the 22 participants there were 8 from China, 4 from Saudi Arabia, 2 from USA, 1 from UK and 7 other. Although the questionnaire was available online, each of the 22 participants completed the questionnaire in the same room and under the same conditions to avoid the additional problems that can result from online studies of this type (for example, wide variations in viewing conditions and variability of viewing devices used). During the experiment each participant was presented with one of the logos and asked to respond to 10 attributes. The ten attributes were complex, proportional, unique, familiar, memorable, colourful, feminine, bold, friendly and modern and the participants were asked to indicate the extent to which the logo was associated with these attributes using a 5-point Likert scale (with the labels extremely, very, moderately, slightly, and not at all). This was repeated for each logo that was presented to each participant in random order. The total number of data points collected was 11000 (50 images \times 22 participants \times 10 attributes). The attributes were chosen to represent the views that participants are likely to have about the logos.

For the analysis the Likert responses were assigned the numbers 1-5 (where 1 was not at all and 5 was extremely). These data were treated as interval data. There is much literature about the merits of treating categorical data from Likert experiments as interval data but no general consensus as to whether it is reasonable to do so (Jamieson 2004, Norman 2010). The raw Likert values were averaged over all participants to produce a mean scale value for each logo and for each attribute. Mean scale values for attributes were compared using the coefficient of determination (r^2).

In a subsequent study the scale values of the attributes will be used in a factor analysis to discover a low-dimensional feature-space that captures the attributes that participants evaluate logos using. However, in this paper the relationship between colourfulness and the other attributes of logos will be considered.

RESULTS

Table 1 shows the mean scale values for each of the 50 logos. There are some interesting observations that can be made from Table 1. For example, the attribute with the highest score (pooled over all logos) is familiar (3.59) whereas the attribute with the lowest score is feminine

(2.05). This *might* suggest that familiarity is an attribute that is important to consumers. The three logos with the highest familiarity score were McDonalds (4.91), Apple (4.64) and Pepsi (4.59) and the logos with the lowest familiarity score were Hitachi (1.82), PetroChina (1.73) and London Symphony Orchestra (1.45). Of course, these results may be dependent upon the cultural backgrounds and life experiences of the participants in this study.

	complex	proportional	unique	familiar	memorable	colourful	feminine	bold	friendly	modern
Uni of leeds	1.68	2.68	2.77	3.64	3.50	1.00	1.50	3.23	2.91	3.23
Twitter	1.32	3.23	3.55	3.86	4.23	2.77	2.23	2.59	4.09	3.73
Target	1.32	3.59	2.68	3.09	4.05	2.73	1.91	3.41	2.23	2.59
Walmart	1.68	2.36	2.45	3.23	3.18	3.36	2.09	2.27	3.36	2.77
Shell	2.32	3.64	3.77	4.32	4.18	4.05	2.32	3.77	2.50	2.68
Apple	1.27	3.14	4.45	4.64	4.73	1.27	2.27	2.68	3.41	4.36
Microsoft	1.73	3.36	3.41	4.50	4.23	4.45	1.91	2.91	3.23	3.00
IBM	2.86	3.36	3.41	4.27	3.59	1.86	1.68	2.95	2.05	2.50
McDonald	1.18	3.86	4.14	4.91	4.86	3.09	2.55	3.36	4.32	3.64
Toyota	2.68	3.45	3.41	3.95	3.45	2.09	1.82	2.64	2.27	1.77
Samsung	1.55	2.95	3.18	4.45	3.73	2.36	2.09	3.00	2.59	3.23
Ford	2.00	3.27	2.82	4.41	3.91	2.05	2.09	2.64	2.68	1.91
Honda	2.32	3.14	2.91	4.05	3.32	2.05	1.59	2.73	2.14	1.82
HP	1.95	3.55	3.14	4.05	3.91	2.09	2.09	3.05	2.91	3.09
Tesco	2.95	2.82	3.09	4.23	3.64	3.45	1.86	2.91	3.23	2.77
PetroChina	2.73	3.45	3.23	1.73	2.50	3.86	2.32	2.82	2.77	2.36
Esxon Mobil	2.23	2.77	2.27	2.05	2.27	1.55	1.41	2.45	1.55	2.50
BP	3.45	3.05	3.55	2.86	3.32	4.00	2.73	2.68	3.36	3.05
VW	3.05	3.59	3.77	4.23	3.91	1.91	2.00	3.36	2.86	2.95
Colgate	1.45	2.64	2.55	4.41	3.86	2.36	2.14	2.95	2.91	2.77
Mazda	2.59	3.55	3.36	4.27	3.64	1.82	2.45	2.77	2.86	2.64
Batman	2.41	3.86	4.09	4.55	4.41	2.91	1.68	3.68	2.27	2.73
Subway	1.45	3.55	3.64	4.50	4.14	3.68	2.50	2.95	3.50	3.09
Motorola	2.36	3.00	3.09	3.68	3.09	2.18	1.64	2.59	2.23	2.41
Roxy	3.68	3.73	3.45	2.32	2.32	1.09	2.18	2.32	1.95	2.50
Lacoste	2.82	2.64	3.77	4.59	4.27	2.59	1.64	3.18	2.09	2.50
Verizon	1.41	2.50	1.82	2.14	2.14	1.45	1.50	2.59	2.14	2.68
National Geographic	1.45	2.23	2.27	1.91	2.09	2.36	2.05	2.73	2.23	2.45
Firefox	3.68	3.05	4.05	4.09	3.86	4.36	2.27	3.32	3.09	2.82
Nissan	2.00	3.32	2.73	4.05	3.27	1.09	1.68	2.36	1.95	2.50
BMW	2.18	3.41	3.86	4.23	4.18	2.68	2.32	2.64	2.64	2.50
Hitachi	1.95	2.41	2.00	1.82	1.91	1.18	1.50	2.36	1.91	2.05
Nestle	3.64	2.82	4.27	4.09	4.14	1.95	3.14	2.50	3.68	2.50
Siemens	1.27	3.14	2.23	3.36	2.95	1.55	1.82	2.64	2.41	2.41
Boeing	2.73	2.45	3.32	2.41	2.32	1.91	1.59	2.82	2.09	2.36
Amazon	1.82	2.95	3.64	4.32	4.32	2.50	2.55	3.05	4.05	3.50
P&G	1.27	2.86	2.36	3.82	3.64	1.77	2.09	3.18	2.55	2.73
Hyundai	2.09	2.91	2.45	3.36	3.18	1.73	1.77	2.50	2.27	2.27
Sony	2.18	2.64	2.73	3.86	3.36	1.09	1.45	2.64	1.95	2.41
3M	1.18	3.55	3.18	3.27	3.73	2.41	1.91	4.05	2.27	2.95
Museum of London	4.05	2.27	4.09	2.23	2.68	4.59	2.86	3.14	4.05	3.95
Pepsi	1.82	3.09	4.09	4.59	4.14	3.82	2.50	3.50	3.41	3.50
Rolex	2.27	3.00	3.55	4.09	3.91	2.23	2.27	3.09	2.36	2.32
Unilever	3.68	3.86	4.27	4.00	3.95	2.68	2.95	3.00	3.91	3.59
Bentley	3.82	3.68	4.14	4.00	3.73	1.09	1.77	3.14	2.36	2.50
Goldman Sachs	1.50	2.45	2.00	2.05	2.41	1.14	1.68	2.86	2.00	2.32
Yamaha	3.73	2.32	3.05	3.00	3.00	2.50	1.73	2.91	2.14	1.73
BBC	1.18	4.14	3.45	4.32	4.50	1.09	1.82	3.91	2.73	3.41
LSD	2.77	2.41	4.00	1.45	2.32	1.86	2.91	2.73	2.59	3.59
Goodwill	3.23	3.05	3.73	2.00	2.95	2.64	1.91	3.18	3.23	3.09

Table 1: The mean scale values for each of the logos for each attribute.

The relationship between colourfulness and the other attributes can be considered by looking at the correlation between colourfulness and each of these attributes and quantifying this with the coefficient of determination.

Colourfulness was not very strongly with any of the attributes. However, there was reasonable correlation with friendly ($r^2 = 0.28$) and feminine ($r^2 = 0.22$) as illustrated in Figure 1. A statistical analysis revealed, however, that there were statistically significant ($p < 0.05$) correlations between

colourfulness and friendly ($p < 0.001$), feminine ($p < 0.001$), bold ($p = 0.022$), modern ($p = 0.036$), unique ($p = 0.003$) and memorable ($p = 0.036$). Table 2 shows the correlations between each of the attributes (those that are statistically significant are underlined).

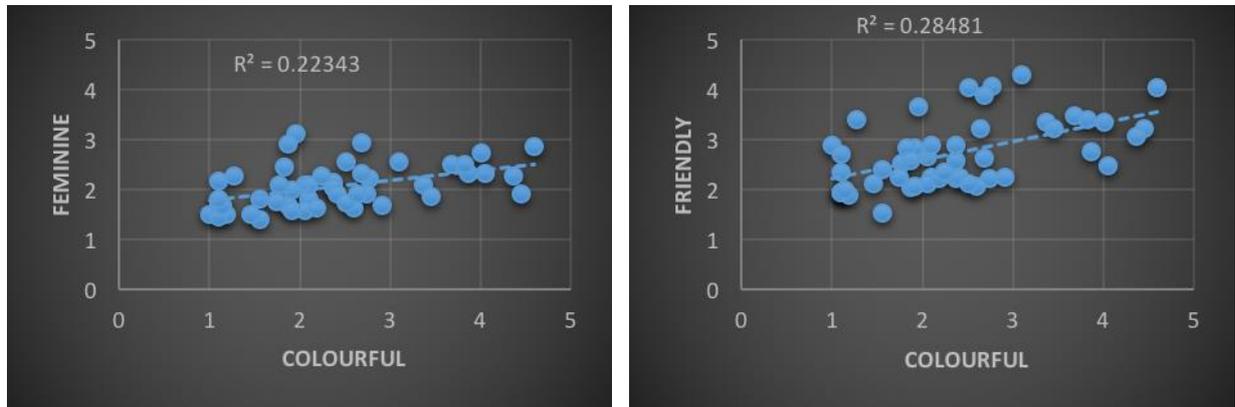


Figure 1: Relationship between colourfulness and feminine (left) and friendly (right) attributes. Each point in the figures represents one of the logos.

		complex	proportional	unique	familiar	memorable	colourful	feminine	bold	friendly	modern
Correlation	complex	1.000	-.034	.465	-.173	-.192	.199	.258	-.102	.040	-.152
	proportional	-.034	1.000	.441	.502	.585	.057	.148	.424	.152	.153
	unique	.465	.441	1.000	.417	.576	.388	.609	.374	.549	.513
	familiar	-.173	.502	.417	1.000	.900	.132	.112	.328	.322	.177
	memorable	-.192	.585	.576	.900	1.000	.257	.294	.502	.502	.393
	colourful	.199	.057	.388	.132	.257	1.000	.473	.286	.534	.257
	feminine	.258	.148	.609	.112	.294	.473	1.000	.068	.731	.523
	bold	-.102	.424	.374	.328	.502	.286	.068	1.000	.155	.321
	friendly	.040	.152	.549	.322	.502	.534	.731	.155	1.000	.720
	modern	-.152	.153	.513	.177	.393	.257	.523	.321	.720	1.000
Sig. (1-tailed)	complex		.408	.000	.115	.091	.083	.035	.239	.391	.146
	proportional	.408		.001	.000	.000	.347	.153	.001	.145	.144
	unique	.000	.001		.001	.000	.003	.000	.004	.000	.000
	familiar	.115	.000	.001		.000	.180	.220	.010	.011	.109
	memorable	.091	.000	.000	.000		.036	.019	.000	.000	.002
	colourful	.083	.347	<u>.003</u>	.180	.036		<u>.000</u>	.022	<u>.000</u>	.036
	feminine	.035	.153	.000	.220	.019	.000		.320	.000	.000
	bold	.239	.001	.004	.010	.000	.022	.320		.142	.012
	friendly	.391	.145	.000	.011	.000	.000	.000	.142		.000
	modern	.146	.144	.000	.109	.002	.036	.000	.012	.000	

a. Determinant = .001

Table 2: The correlations between each of the attributes. The upper part shows the correlation coefficients (r) and the lower part shows the p values from the statistical test.

Statistically significant correlations exist between other attributes. Most notably, familiar was positively correlated with memorable ($r = 0.9$, $p < 0.001$) and friendly was positively associated modern ($r = 0.73$, $p < 0.001$). The various associations that are evident suggest that factor analysis could be used to reduce the dimensionality of the feature space.

DISCUSSION

Colourfulness was shown to have statistically significant positive correlations with friendly, feminine bold, modern, unique and memorable. In other words, the more colourful the logo, the more it is perceived as being friendly, feminine bold, modern, unique and memorable. Correlations between other attributes were also found, suggesting that some reduction in dimensionality of the feature space may be possible using factor analysis. The production of a low-dimensional feature space for the evaluation of logos and determining the relationship of this feature space with existing framework for understanding corporate logos (Marsden 2019) will be the next step in this research.

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