The influence of congruence between colours and shapes in logos on brand personality and gendered brand personality

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ABSTRACT

In the field of brand personality, research largely consists of studies that investigated the influence of single design features as shapes, colours, symbols, and typeface in logos on consumers' perception of brand personality. However, to the best of the author's knowledge, limited studies have tested the influence of congruence between colours and shapes in logos on brand personality and gendered brand personality. Therefore, this research aims to examine whether different combinations of colours (red and blue) and different combinations of shapes (round and angular) in logos influence brand personality and gendered brand personality dimensions. This leads to the following research question: 'To what extent do congruence between colours and shapes in logos influence brand personality and gendered brand personality?' To answer this research question, an online questionnaire was set out to measure the relationship between two independent variables (colours and shapes) and two dependent variables (brand personality and gendered brand personality) in a 2 x 2 design. In total 120 Dutch respondents participated in the study. Results from this study show a significant effect on the perceived masculinity of a brand when the colour blue is used in logos. Moreover, another significant effect on the perceived masculinity of a brand was found when angular shapes were used in logos. Finally, this study revealed that congruence between colours and shapes in logos did not influence brand personality or gendered brand personality perceptions. For the reason that no statistical support was found for the relationship between a red coloured logo in combination with an angular shape (i.e. congruence) on brand personality or gendered brand personality. Results indicated, however, that there was a significant interaction effect between colours and shapes used in logos on the perception of a brand that is competent. Post hoc tests show that a red coloured logo combined with a round shape (i.e. incongruence) was significantly perceived more competent. On this basis, it can be concluded that incongruence, as opposed to congruence, between colours and shapes in logos positively influenced the perception of a competent brand.

Keywords: brand personality, gendered brand personality, logos, colours, shapes, congruence

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After graduating from my bachelor Communication at the Windesheim University of Applied Sciences I decided that I would gain more in-depth knowledge in the field of marketing and communication and I started the master Communication Studies at the University of Twente. Particularly, conducting this study has contributed to my knowledge about visual elements in logos on brand personality.

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1 - INTRODUCTION

Nowadays, in an increasingly competitive market with more and more brand logos, it is more important than ever that companies differentiate themselves from competitors. Recent changes in the field of marketing, such as digitalization and globalization make it harder for companies to gain competitive advantage. As a result, marketing strategies made a huge shift from product centred strategies to more value centred strategies that focus on the brands' symbolic meaning (Herbst & Merz, 2011; Keller, Apéria & Georgson, 2008; McCracken, 1986; Scott, 1994). To satisfy the consumers' needs and wants effectively, companies distinguish their brands by creating a unique brand personality. Brand personality - which refers to the set of human characteristics associated with a brand - is represented by the following five core dimensions: sincerity, excitement, competence, sophistication and ruggedness (Aaker, 1997). Personifying a brand by giving it human personality traits plays a crucial role in building a strong brand and to strengthen customer loyalty (Allen, Boerum, Olsen & Dean, 1995). Many companies use brand personality as a core of their marketing strategy to reach a specific target audience and to gain more competitive advantage. For example, Dove is a well-known brand that positioned themselves as sophisticated brand because their campaigns focus on ethics, authenticity, simplicity and purity. Whereas, high-end luxury brands as Gucci and Louis Vuitton are great examples of sophisticated brands. These brands distinguish themselves as elegant and upper class (Rintamäki, Kanto, Kuusela & Spence, 2006). Studies in the field of brand personality show that consumers associate brands with a wide variety of human brand personality traits, including those associated with basic demographics as gender. Following up on Aaker's brand personality dimensions, Grohmann (2009) added two distinct brand personality dimensions consisting of brand masculinity and femininity, to the existing brand personality dimensions of Aaker (1997).

Numerous studies have already focused on the influence of a single specific aesthetic stimulus on consumers' perceptions of brand personality dimensions and/or on gendered brand personality dimensions. Indicating the impact of visual elements such as colours (Labrecque & Milne, 2012; Ridgway & Myers, 2014), shapes (Jiang, Gorn, Galli & Chattopadhyay, 2015; Lieven, Grohmann, Hermann, Landewehr & Van Tilburg, 2015), and typeface (Bottomley & Doyle, 2006; Grohmann, Giese & Parkman, 2013) on (gendered) brand personality. Parallel to this interest, researchers in this field became more and more aware of the impact of congruence in visual elements on consumer responses. That is, several studies show the positive influence of congruence within different marketing elements on product value, purchase intention and brand preference (Bottomley & Doyle, 2006; Erdem & Swait, 2004; Hekkert, 2006; Van Rompay & Pruyn, 2008; Van Rompay & Pruyn, 2011; Winkielman, Schwarz, Reber & Fazendeiro, 2000). However, Pantin-Sohier (2009) highlights the lack of controlled studies into the role of congruence in aesthetic stimuli in logos on brand personality. Since this study has not been set out yet, which means that the gap concerning the influence of congruence between visual elements in logos on brand personality and gendered brand personality still exist. Therefore, the goal of this study is to fill the existing gap in literature by examining whether congruence between colours (red and blue) and shapes (round and angular) in logos influence brand personality and gendered brand personality. To examine whether this relationship exists, an experimental study with the use of a questionnaire will be set out in order to answer the following research question:

'To what extent do congruence between colours and shapes in logos influence brand personality and gendered brand personality?'

This study continues with the theoretical framework in chapter 2, in which relevant literature concerning visual elements used in logos on brand personality and gendered brand personality will be discussed. Thereafter, the methodology of this study will be introduced in chapter 3. This chapter provides a detailed overview of the approaches, research design and instruments used in this study. Following, chapter 4 describes the main results of this study gathered from the online questionnaire. Finally, a discussion of the results is given, together with limitations and implications for future research.

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2 – DESIGN AND BRANDING

This chapter evaluates previous literature that is related to the dependent (brand personality and gendered brand personality) and the independent variables (colours and shapes) that are discussed in the introduction and this will lead to a conceptualization where all the hypothesis of this study are given in a model.

2.1 Brand personality

Traditional marketing strategies focus on the functional and utilitarian features of products and services. However, due to the growing competition, it is difficult for companies to differentiate themselves by focusing solely on the functional and utilitarian benefits of products. As a consequence, the symbolic meaning of products and services increasingly formed the foundation for many marketing strategies (Rintamäki et al., 2006). To position brands successfully, companies associate their brands with human-like brand personality characteristics. Aaker (1997) defines brand personality as "the set of human characteristics associated with a brand". Developing a strong and meaningful brand personality plays a crucial role in the consumers' choices of brands. In fact, consumer seek for brands with a personality that fits their own personality (Sirgy, 1982). A large number of existing studies in the field of brand personality found that brand personality positively affects brand preference, brand choice and brand equity (Keller et al., 2008; Phau & Lau, 2000; Valette-Florence, Guizani & Merunka, 2009). Brand personality involves all brand-related elements, including those associated with the visual features of a brand, that represent how a brand is identified by consumers (Lieven et al., 2014). Various design elements of brands as logo design, type font, symbols, typeface, colours, and shapes in logos play an important role in consumers' perceptions of brand personality dimensions (Johar, Sengupta & Aaker 2005; Underwood & Klein, 2002).

The most widely-adopted way to measure brand personality is through the Brand Personality Scale (BPS) of Aaker (1997). The BPS measures the five core brand personality dimensions (sincerity, excitement, competence, sophistication and ruggedness) through 42 brand personality traits. In this study, brand personality is also categorized along the five core dimensions by Aaker (1997): sincerity, excitement, competence, sophistication and ruggedness. First off, the sincerity dimension explains a brand that is truthful, happy and authentic. Following the excitement personality dimension describes a brand that is youthful, adventurous, and spirited, compared to the competence dimension that characterized a brand that is reliable, intelligent, and successful. Sophistication captures a brand that is appealing, charming, and upper class. Finally, the ruggedness dimension describes a brand that is tough and outdoors (Aaker, Benet-Martinez & Garolera, 2001).

2.2 Gendered brand personality

Likewise brand personality dimensions, characteristics of people as gender, race, age and social class commit to the establishment of a brand personality. People also use feminine and masculine gendered personality traits to characterize others. Therefore, Grohmann (2009) added two gendered brand personality dimensions including brand femininity (FBP) and brand masculinity (MBP), which complement the existing brand personality dimensions of Aaker (1997). The construct of gendered brand personality is recently viewed as another way to address human characteristics to brands because the study of Dion, Berscheid and Walster (1972) show that gender and sexual identity are the most salient human characteristics. Having a strong masculine or feminine brand helps to increase consumer preference (Sirgy, 1982), but also improves levels of brand equity and brand trust (Lieven et al., 2014). To illustrate, due to distinct gender-based marketing, brands as Chanel and Dior are perceived as feminine, whereas brands as Harley Davidson and Diesel are considered to be highly masculine.

To measure gendered brand personality, Grohmann (2009) designed a certified scale that includes items as aggressive and adventurous to measure masculinity, and sensitive and sweet to measure femininity. Critics argue that the sophistication and the ruggedness dimensions of Aaker (1997) are associated with the masculinity and the femininity dimensions of Grohmann (2009). While the sophistication dimension of Aaker (1997) includes a scale item 'feminine', and the ruggedness dimension of Aaker (1997) includes a scale item 'masculine'. However, Grohmann (2009) states that these dimensions are separate from each other as MBP/ruggedness and FBP/sophistication show a higher degree of convergence in his study. Grohmann (2009) argues that is essential to add the FBP and MBP scales to Aaker's (1997) core five dimensions of brand personality. Therefore, this study will focus on the five core brand personality dimensions of Aaker (1997) along with the two-added gendered brand personality dimensions of Grohmann (2009).

2.3 Colour

Colours in logos are a crucial visual element for brands to create a unique logo in terms of differentiation. Colours are a powerful feature to evoke a desired image in the mind of the consumer, since colours have an inherent meaning that can stimulate feelings and emotions (Stone, 2003). The inherent meaning of colours in brand logos triggers colour associations, that influence the brand personality perception of consumers. Past studies that investigated this subject have aimed at two (out of the three) primarily colours red and blue (Crowley, 1993; Gorn, Chattopadhyay, Yi & Dahl, 1997; Labrecque & Milne, 2012; Pantin-Sohier, 2009). Therefore, this study will also focus on these two primarily colours (blue and red).

The study of Labrecque and Milne (2012) explored the relationship between colours on brand personality. In their study participants had to rate different logos on Aaker's (1997) 42-item BPS. The results revealed that when consumers saw a blue logo they associated it with the competence brand personality dimension and that when consumers saw a red logo they associated it with the excitement brand personality dimension. Additionally, Ridgway and Myers (2014) explored the perceptions of colours used in fashion brand logos. In an experimental online questionnaire, they presented participants with different coloured logos. The respondents had to rate the brand on the BPS of Aaker

(1997). Surprisingly, the results revealed contrary results to the study of Labrecque & Milne (2012) as the research showed that participants associated the blue and also the red logo with the competence dimension of Aaker's BPS (1997). Furthermore, related studies indicate that blue colours are associated with high quality, stability and trustworthiness (Jacobs, Keown, Worthley & Ghymn, 1991) and have a peaceful and calming effect (Danger, 1968). Opposed to warm colours as red and yellow that have a high level of excitement and are associated with passion and arousal (Danger, 1968). These perceptions of the colour blue are most closely related to the competence dimension, contrary to the colour red that is most closely associated with the excitement dimension of the BPS. Therefore, the following hypothesis are presented:

> H1a: Consumers will associate blue coloured logos with the competence brand personality dimension of the brand personality scale of Aaker (1997).

> H1b: Consumers will associate red coloured logos with the excitement brand personality dimension of the brand personality scale of Aaker (1997).

Studies that investigated the influence of colours on gendered brand personality dimensions argue that there are gender differences regarding the perceptions of colour. In a study of Bonnardel, Beniwal, Dubey, Pande and Bimler (2017) they explored gender differences in colours among Indian and British students. The results revealed that both Indian male students and British male students prefer cool colours as blue, contrary to females who preferred warm colours as red. Furthermore, a research that investigated the perceived masculinity or femininity of different colours used in products showed that cold colours as blue are ranked towards the masculinity dimension and that warm colours as red are ranked towards femininity dimension of the gendered brand personality scale (GBPS) of Grohmann (2009) (Aspara & Van den Bergh, 2014). By reviewing the literature regarding gender differences in colour associations, the following hypothesis will be addressed:

> H2a: Consumers will associate blue coloured logos with the masculine brand gender dimension of the MBP/FBP scale of Grohmann (2009).

> H2b: Consumers will associate red coloured logos with the feminine brand gender dimension of the MBP/FBP scale of Grohmann (2009).

2.4 Shape

There is a wide variety of shapes, but all shapes can be classified into angular or round shapes, or a combination of those two. Angular shapes include sharp corners and straight lines and rounded shapes include curves and round corners (Jiang et al., 2015). It has been proven that shapes are an important element of logos in creating uniqueness and achieving recognisability (Orth & Malkewitz, 2008). Past studies that focused on the effects of shapes on brand personality show that angular shapes are perceived with words as 'conflict', 'harsh', 'strength', and 'energy', whereas rounded shapes are described as 'soft' and 'harmonious' (Arnheim, 1974; Henderson & Cote, 1998; Zhang, Feick & Price, 2006). Angular logos create the perception of hardness and durability, as opposed to rounded logos that create perceptions of comfortableness and nature that evoke more positive feelings (Jiang et al.,

2015; Zhang et al., 2006). Moreover, the connection between different shapes in visual design elements on brand personality has been investigated by a recent study of Bajaj and Bond (2018). Their study revealed that brands were perceived to be more exiting when logos were presented in straight lines and angular shapes. Whereas brands were perceived to be more sophisticated when logos were round and symmetric. Based on past studies, the following hypothesis are proposed:

> H3a: Consumers will associate angular logos with the excitement brand personality dimension of the brand personality scale of Aaker (1997).

> H3b: Consumers will associate rounded logos with the sophistication brand personality dimension of the brand personality scale of Aaker (1997).

Pantin-Sohier (2009) studied the effects of shapes in product packaging on gendered brand personality and brand beliefs. Her study revealed that there are gender differences concerning the perceptions of rounded and angular shapes. That is, angular shapes are associated with masculinity as masculinity is connected to angularity and strength. This in contrast to round shapes that are linked with femininity as round shapes are associated with elegance and softness (Pantin-Sohier, 2009). This has also been explored in prior studies by Simonson and Schmitt (1997). In their study results revealed that straight shapes are perceived as masculine, as opposed to curvy shapes that are perceived as feminine. Therefore, the following hypothesis will be proposed:

> H4a: Consumers will associate angular logos with the masculine brand gender dimension of the MBP/FBP scale of Grohmann (2009).

> H4b: Consumers will associate rounded logos with the feminine brand gender dimension of the MBP/FBP scale of Grohmann (2009).

2.5 Colour and shape

Congruency can be achieved by creating unity and visual fluency between different elements in logos (Reber et al., 2004). Stimuli that match with each other express congruent meanings, whereas stimuli that do not match with each other are perceived as incongruent (Reber & Schwarz, 1999). Elements that are high in congruence can be effortlessly processed and are generally more positively evaluated as opposed to incongruent elements (Reber & Schwarz, 1999; Van Rompay & Pruyn, 2008). Various studies show that congruence between visual elements have a positive effect on consumers' responses as purchase intention, aesthetic satisfaction, product value and familiarity (Hekkert, 2006; Van Rompay & Pruyn, 2011; Winkielman et al., 2000). Moreover, findings suggest that elements that are high in congruence are evaluated as more aesthetically pleasing, credible and solid as congruent elements have more symmetry and balance (Reber et al., 2004). This in contrast to incongruent elements that are viewed as thrilling and interesting because an incongruent element requires more elaborate cognitive processing (Dahlén, Lange, Sjödin & Törn, 2005; Van Rompay & Pruyn, 2011). McQuarrie and Mick (1999) found, for example, that incongruent visual elements create a sort of puzzle. Solving the puzzle of incongruent elements creates a feeling of playfulness and accomplishment, that can eventually improve the memorability of an advertisement.

Studies focusing on the effects of congruence in aesthetic elements show that there is a strong association between colours and shapes (Chen, Tanaka & Watanabe, 2015; Kandinsky, 1947). In the study of Chen, Tanaka and Watanabe (2015) they tested the association between colours and shapes on implicit attitudes. The implicit attitude test (IAT) showed that the response time was significantly faster for the square-red, circle-blue and triangle-yellow combinations, indicating that there is a congruence effect for those colour-shape combinations. While less time needed to sort elements in the IAT means stronger associations (Manfredo, 2008). Moreover, the relation between colours and shapes is investigated by Kandinsky (1947). This study revealed that participants matched rounded shapes as circles with cool colours as blue, and that participants matched squared shapes as triangles with warm colours as red.

Although the square-red and circle-blue combinations are, in general, perceived as congruent, literate concerning gender stereotyping suggests that different colour-shape combinations are perceived as congruent (Alexander, 2003; Elliot & Niesta, 2008; Simonson & Schmitt, 1997). Particularly, the study of Lieven, Grohmann, Hermann, Landwehr and Van Tilburg (2015) show that there is a strong association between certain design features of a logo and brand masculinity and femininity perceptions. For instance, rounded, curvy, soft shapes with warm colours are linked to femininity. This in contrast to angular, bold, solid shapes with cool colours that are associated with masculinity (Lieven et al., 2015). In addition to congruence, specific gendered colour-shape associations that are consistent with a person's gender can be more easily processed than gendered colour-shape associations that are inconsistent with a person's gender. For example, processing fluency for a female consumer that is exposed to a logo with a feminine shape-colour combination (i.e. round-red) will be higher in contrast to a male consumer that is exposed to a logo with a feminine shape-colour combination and vice versa (Lieven et al., 2015). As discussed, the studies mentioned above yielded contradictory results concerning the effects of congruence between colours and shapes in logos. Therefore, the following research questions will be addressed in this study:

RQ1a: To what extent do congruence between colours and shapes in logos influence brand personality?

RQ1b: To what extent do congruence between colours and shapes in logos influence gendered brand personality?

2.6 Conceptualization

Figure 1 Conceptual model

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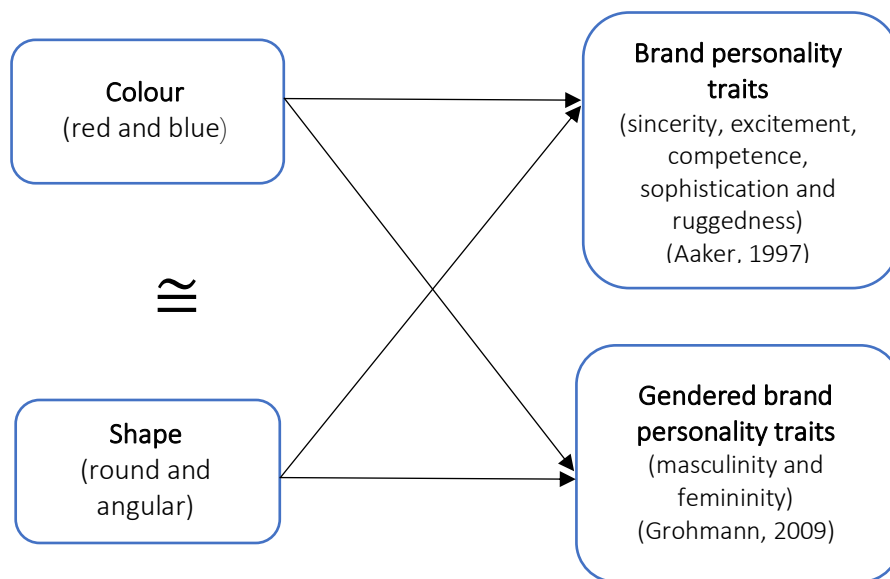
3 - METHOD

The method section provides a detailed overview of the research design and instruments used in this study. In order to answer the main research question, a pre- and a main-study have been set out. The aim of the pre-test was to examine which logos were suitable to use in the main study based on the perceived congruence and incongruence. Thereafter, the aim of the main study was to answer the main research question and to test the hypotheses by the use of an experimental online questionnaire.

3.1 Research design

The conducted research is an experimental 2 (red vs blue) x 2 (angular vs round) between-subjects design as this study measures the relationship between two independent variables (colours and shapes) and two dependent variables (brand personality and gendered brand personality). The goal of the study is to understand whether different combinations of colours (red and blue) and different combinations of shapes (round and angular) in logos influence brand personality and gendered brand personality dimensions. To examine whether this relationship exists, an experimental study with the use of a questionnaire was set out. All the conditions of this research are shown in table 1 below.
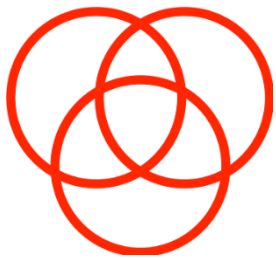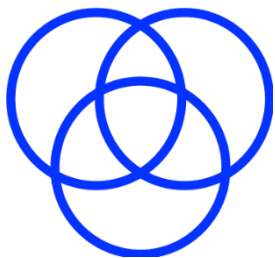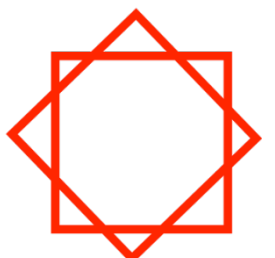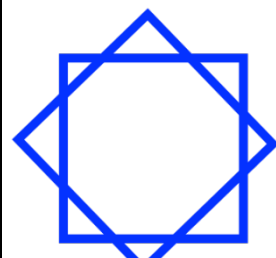
Table 1 Experimental conditions

	Colour	
Shape	Red	Blue
Round	Condition 1	Condition 2
Angular	Condition 3	Condition 4

3.2 Pre-test

A small group of subjects (N=15) participated in a pre-test. In the pre-test students were asked to indicate to what extent a logo was perceived as congruent or as incongruent. In total the students evaluated 16 logos (Appendix A) that differed in colour (red/blue) and shape (angular/round) dimensions. Results from the pre-test show that the red angular logo was considered to be the most congruent logo (M = 5.60, SD = 1.352), followed by the blue round logo that also was considered to be congruent (M = 5.80, SD = 0.862). Thereafter, findings revealed that the blue angular logo was perceived as the most incongruent logo (M = 2.33, SD = 1.113), followed by the red round logo that was also perceived as incongruent (M = 2.60, SD = 1. 352). For this study four logos have been selected, that scored the highest on congruence and incongruence dimensions based on the pre-test, which are included in figure 2.

Figure 2 Stimuli

Red coloured round logo (condition 1)	Blue coloured round logo (condition 2)	Red coloured angular logo (condition 3)	Blue coloured angular logo (condition 4)
(M = 2.60, SD = 1. 352)	(M = 5.80, SD = 0.862)	(M = 5.60, SD = 1.352),	(M = 2.33, SD = 1.113)

3.3 Main study

3.3.1 Stimulus materials

The stimulus materials that are used in this study are one blue logo with an angular shape, one blue logo with a round shape, one red logo with an angular shape and one red logo with a round shape. This study used fictitious logos that are selected based on the pre-test. All logos were adjusted to the same size and colour to ensure the validity of the study. The designed advertisement for this study is included in Appendix B.

3.3.2 Manipulation check

The different logos in the questionnaire were presented in an advertisment for running shoes, which is a common used way to measure visual elements in logos on brand personality and gendered brand personality (Jiang et al., 2015; Lieven et al., 2015). To test whether the study measured the experimental stimuli effectively a manipulation check was used (Appendix C). Participant were presented with three manipulation check questions at the end of the questoinnaire and were asked what the logo colour was, what the logo shape was and if the logo was congruent or incongruent. The manipulation checks were analysed using a chi-sqaure test and all effects were statistically significant at the .05 significance level. From the manipulation check it can be concluded that all the manipulations succeeded, because the following experimental conditions: red coloured logo X^2 (6, N = 120) = 83.33, p < .00, blue coloured logo X^2 (6, N = 120) = 87.90, p < .00, round shaped logo X^2 (6, N = 120) = 43.25, p < .00, and the angular shaped logo X^2 (6, N = 120) = 45.75, p < .00, all showed significant effects. Furthermore, results from the manipulation check showed (table 2) that the red sqaure logo condition was significantly perceived as more congruent X^2 (6, N = 120) = 3.57, p < .059, as opposed to the red round logo condition that was significantly perceived as more incongruent X^2 (6, N = 120) = 3.80, p < .052. Therefore, in this study the red coloured logo with an angular shape is viewed as the congruent condition and the red coloured logo with a round shape is viewed as the incongruent condition.

Table 2 Manipulation check

Experimental condition	Manipulation check	df	Sig.
Blue round	Congruent	6	.912
	Incongruent	6	.243
	Neutral	6	.215
Blue sqaure	Congruent	6	.739
	Incongruent	6	.153
	Neutral	6	.215
Red round	Congruent	6	.096
	Incongruent	6	.052
	Neutral	6	1.000
Red sqaure	Congruent	6	.059
	Incongruent	6	.063
	Neutral	6	1.000

3.3.3 Measures

Participants rated the advertisements for running shoes on brand personality and gendered brand personality. The brand personality is measured using the Aaker's (1997) 42-item BPS that measures the five core dimensions: sincerity, excitement, competence, sophistication and ruggedness. The sincerity dimension measures items as down-to-earth and honest, the excitement dimensions measures items such as daring and trendy, the competence dimension measures reliable and confident, the sophistication dimensions measures charming and upper-class, and at last the ruggedness dimension measures items as outdoorsy and though. The internal reliability of the five dimensions is calculated using Cronbach's alpha. In table 3 the Cronbach's alpha is presented for each construct of the BPS. As all alphas of the five constructs lie between 0.714 and 0.908, it can be concluded that all five dimensions of the BPS are sufficiently reliable.

Next, the gendered brand personality dimensions are measured on the 12-item scale of Grohmann (2009). The masculinity dimension (MBP) measures the following items: daring, sturdy, brave, aggressive, dominant and adventurous and the femininity dimension (FBP) measures: express tender feelings, tender, sensitive, sweet, graceful and fragile. In table 3 the Cronbach's alpha for the gendered brand personality dimensions are presented. As the alphas for the two constructs lie between 0.819 and 0.846, it can be concluded that the MBP and the FBP dimensions of the GBPS are also sufficiently reliable.

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Table 3 Cronbach's alpha

Construct	Cronbach's alpha	N of items
Sincerity	0.862	11
Excitement	0.908	11
Competence	0.839	9
Sophistication	0.812	6
Ruggedness	0.714	5
Masculinity	0.819	6
Femininity	0.846	6

3.3.4 Procedure

An online survey (Appendix D) among Dutch respondents was distributed through social media channels. Participants were randomly assigned to one of the four logo conditions. The survey in this study was a self-completion questionnaire and was created using Qualtrics, which is an online survey tool. The link to the survey was distributed via multiple social media platforms. In the questionnaire participants were informed about the anonymity of their answer and that participation for this study was voluntarily. Respondents remained the right to terminate the participation at any time in the study. The questionnaire started with a short description of a fictitious company named Athletic. The respondents were told that the company came up with a new running shoe model and that the company was interested in their opinion. However, it was not told that the survey measured the effect of congruence between colours and shapes in logos on brand personality and gendered brand personality, to ensure the reliability of the study. The questionnaire was divided into two parts, the first part of the questionnaire was aimed to measure the demographic factors as gender, age, and study programme. In the second part of the questionnaire the respondents were asked to rate the ad in terms of brand personality using a 7-point Likert scale, where 1 stands for strongly disagree stands and 7 stands for strongly agree. Afterwards the participants were asked to rate the ad on a brand gendered scale that measured brand masculinity and brand femininity traits on a 7-point Likert scale. At the end of the questionnaire a manipulation check was used to test if the experimental stimuli were effectively manipulated. After the data was collected, the data was analysed by SPSS. This study analysed the data in SPSS via the following analysis methods: descriptive and frequencies analysis, hypothesis testing and regression analysis.

3.3.5 Participants

A total of n = 120 respondents were recruited to participate in this study. Since the meanings associated with colours and shapes differs across cultures, only Dutch students participated in this study. Due to the limited time and budget of this study, the convenience sampling method – which is a non-probability sampling method were respondents are selected by convenience who are close to hand – was applied. Therefore, this study is conducted online and shared via different social media platforms. In total 39 males and 81 females participated in the study. The majority of the respondents was younger than 25 years old (72,5%), followed by 15.8% of the respondents that are in the 26-35 age group. Other characteristics of the sample are included in table 4.

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Table 4 Sample characteristics

Experimental condition	Gender		Age		N
	Male	Female	Mean	Std. Deviation	
Blue	18	42	<25	1.02	30
Red	21	39	<25	.91	30
Round	19	41	<25	.99	30
Angular	20	40	<25	.93	30
Total					120

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4 - RESULTS

This chapter describes the main results gathered from the experimental online questionnaire. The data is analysed using the ANOVA test in SPSS, which indicate significant differences among the dependent variables.

4.1 Brand personality

The 42-item Brand Personality Scale of Aaker (1997) was used to measure brand personality. The BPS of Aaker measured the following five core dimensions: sincerity, excitement, competence, sophistication and ruggedness. An ANOVA analysis has been conducted to measure the significant differences among these dependent variables. For the difference between the effects to be significant, all effects were statistically significant at the 0.05 significance level. In table 6 the significance levels for the five different dimensions of the BPS are presented. Results of ANOVA showed significant main and a significant interaction effects for the two independent variables (colours and shapes) on brand personality. Particularly, significant differences were found between colours used in logos on the perceived sincerity of a brand ($F(1, 116) = 5.062$, $p < .05$). As a result, the brand was significantly more associated with sincerity when the logo was presented in the colour blue ($M = 3.792$, $SD = 0.995$), than when the logo was presented in the colour red ($M = 3.389$, $SD = 0.967$). Additionally, the ANOVA test showed significant main effects for the logo colour on the perceived sophistication of a brand ($F(1, 116) = 3.864$, $p < .05$). That is, blue coloured logos resulted in the perception of a brand that is significantly more sophisticated ($M = 3.267$, $SD = 1.080$), in comparison to red coloured logos. Moreover, a marginally significant main effect for colours used in logos on the perceived excitement of a brand was found. Suggesting a marginally significant difference between the colour blue ($M = 4.249$, $SD = 1.100$) and the colour red ($M = 3.900$, $SD = 1.219$) on the perception of an exciting brand. Furthermore, as mentioned before, a significant interaction effect (figure 3) between colours and shapes in logos on the perception of a competent brand was found ($F(1, 116) = 5.173$, $p < .05$). Post hoc tests showed that a combination of a red coloured logo ($M = 3.732$, $SD = 1.147$) with a round shape ($M = 3.696$, $SD = .942$) positively influenced the perception of a competent brand. Results showed, however, no significant main or interaction effects of the two independent variables (colours and shapes) on the perception of a brand that is rugged. That is, neither colour ($F(1, 116) = .103$, $p = .748$), nor shapes ($F(1, 116) = .126$, $p = .723$), nor the interactions among colours and shapes ($F(1, 116) = .241$, $p = .624$) influenced the perception of a rugged brand.

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Table 5 Significance levels brand personality

Source	Dependent variable	F	Sig.
Colour	Sincerity	5.062	.026*
	Excitement	2.740	.101
	Competence	.479	.490
	Sophistication	3.864	.052*
	Ruggedness	.103	.748
Shape	Sincerity	1.878	.173
	Excitement	.444	.506
	Competence	1.141	.288
	Sophistication	1.445	.232
	Ruggedness	.126	.723
*Colour * Shape*	Sincerity	.073	.787
	Excitement	2.158	.145
	Competence	5.173	.025*
	Sophistication	.034	.854
	Ruggedness	.241	.624

* Significant at <0.05

Figure 3 Interaction effect
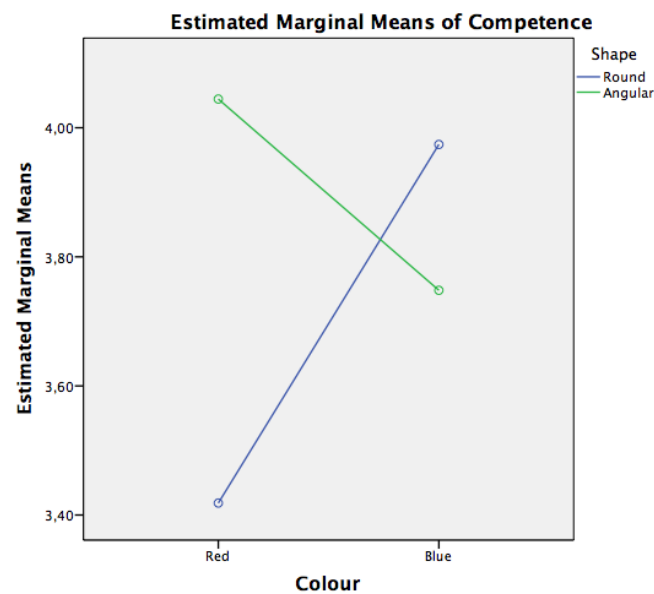
4.2 Gendered brand personality

Two gendered brand personality dimensions including brand femininity (FBP) and brand masculinity (MBP) were measured on a twelve-item scale of Grohmann (2009). Likewise the brand personality dimensions, the gendered brand personality traits were also analysed using an ANOVA test to measure significant differences between colours, shapes and/or a combination of colours and shapes on gendered brand personality. Results of the ANOVA analysis show significant main effects for the logo colour on the perception of brand masculinity ($F(1, 116) = 6.024$, $p < .05$). Particularly, the brand was significantly more associated with masculinity when the logo was presented in the colour blue (M = 4.303, SD = 1.081), than when the logo was presented in the colour red (M = 3.808, SD = 1.149). Moreover, findings show a significant main effect for the logo shape on the perceived masculinity of a brand ($F(1, 116) = 4.393$, $p < .05$). Indicating that there is a significant difference between angular shapes (M = 4.267, SD = 1.134) and round shapes used in logos (M = 3.844, SD = 1.122) on the perception of a masculine brand. However, the ANOVA analysis revealed no significant main or interaction effects for colours and shapes used in logos on the perception of brand femininity. Moreover, an ANOVA test for male and female respondents was performed. Results showed no significant effects when male or female respondents were exposed to a logo with a feminine or masculine shape-colour combination.

Table 6 Significance levels gendered brand personality

Source	Dependent variable	F	Sig.
Colour	Masculinity	6.024	.016*
	Femininity	1.676	.198
Shape	Masculinity	4.393	.038*
	Femininity	0.580	.448
*Colour * Shape*	Masculinity	0.220	.640
	Femininity	0.041	.839

* Significant at <0.05

4.3 Hypothesis

First, hypothesis 1a proposed that people would associate a blue coloured logo with personality traits that are in the competence dimension of the BPS. The results derived from this study, presented in paragraph 4.1, show that the effects of the colour blue used in logos work differently than expected. Specifically, the colour blue in logos was significantly associated with sincerity, sophistication and excitement dimensions of the BPS of Aaker (1997), which rejects hypothesis 1a. Similarly, hypothesis 1b that hypothesized that people would associate the colour red in logos with personality traits that are in the excitement dimension of the BPS, was also rejected. Since no significant results were found regarding this hypothesis, no evidence supported this hypothesis.

Regarding hypothesis 2a, which proposed that the colour blue in logos would lead to the perception of a masculine brand, it can be stated that this hypothesis is fully accepted. As this study revealed significant effects for the colour blue used in logos on the perceived masculinity of a brand. This in

contrast to hypothesis 2a, no significant effects were found for the association between the colour red in logos on brand femininity. Therefore, hypothesis 2b is rejected.

Following, hypothesis 3a proposed that angular shapes in logos would led to the perception of a brand that is exciting. Findings from this study could not find any statistical support for this association and for that reason, hypothesis 3a have to be rejected. In addition to that, hypothesis 3b which claimed that round shapes in logos would lead to the perception of a brand that is competent, was also rejected, as no statistical evidence was found in support of this hypothesis.

Thereafter, evidence was found in support of hypothesis 4a. This hypothesis proposed that people would associate an angular shaped logo with personality traits that are in the masculinity brand gender dimension. Findings from this study indeed show a statistically significant effect for angular shapes used in logos on the perceived masculinity of a brand, and thus confirming hypothesis 4a. On the other hand, hypothesis 4b, which claimed that round shaped logos would be associated with the brand femininity, was rejected. Since no significant differences were found between the rounded and angular shaped logos regarding brand femininity.

Lastly, two research questions were proposed which questioned whether congruence between colours and shapes in logos would influence brand personality and/or gendered brand personality. This study revealed that congruence between colours and shapes in logos did not influence brand personality or gendered brand personality, because no support was found for the relationship of a red coloured logo in combination an angular shape (i.e. congruence) on brand personality and/or on gendered brand personality. Results indicated, however, that there was a significant interaction effect between colours and shapes in logos on the perception of a brand that is competent. Post hoc tests show that a red coloured logo combined with a round shape (i.e. incongruence) was significantly perceived as more competent. Thus, incongruence, as opposed to congruence, between colours and shapes in logos positively influenced brand personality.

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5 – DISCUSSION AND CONCLUSION

Logos are the most important representation of a brand, and congruence between aesthetic stimuli in logos have shown to have a positive effect on consumer responses (Van Rompay, Pruyn & Tieke, 2009). Currently, research already focused on the influence of a single aesthetic stimulus on brand personality dimensions and/or on gendered brand personality dimensions (Erdem & Swait, 2004; Grohmann et al., 2013; Labrecque & Milne, 2012; Lieven et al., 2015). However, controlled studies concerning the relationship of congruence between colours and shapes in logos on brand personality and on gendered brand personality are limited. Therefore, the aim of this study was to investigate the influence of congruence between colours and shapes in logos on brand personality. In total eight hypotheses were proposed and tested based on marketing and communication literature as described in the theoretical framework.

5.1 Main findings

In general, this study found strong support for hypothesis 2a. These findings are in line with the study of Aspara and Van den Bergh (2014) and Bonnardel, Beniwal, Dubey, Pande and Bimler (2017), who also found gender differences regarding the perceptions of colours, that is, cool colours as blue are more associated with masculinity. Furthermore, hypothesis 4a was also confirmed, because this study showed a significant effect for angular shapes used in logos on the perceived masculinity of a brand. These findings are also consistent with previous literature of Pantin-Sohier, 2009 and Simonson and Schmitt, 1997 showing that angular shapes are associated with masculinity.

Unlike other research carried out in this area, this study did not find any significant effects for the relationship between blue colours, red colours, round shapes and/or angular shapes on the competence, excitement, sophistication, and femininity (gendered) brand personality dimensions. This in contrast to previous literature in the field of brand personality, such as studies of Bajaj and Bond (2018), Jiang et al. (2018), Labrecque and Milne (2012), and Ridgway and Myers (2014), who confirm the relationship between blue colours, red colours, round shapes and angular shapes on the excitement, sophistication, and femininity (gendered) brand personality dimensions of Aaker's' BPS (1997) and Grohmann's GBPS (2009). In studies of Bajaj and Bond (2018) and Labrecque and Milne (2012) participant were presented with a fictitious logo as a cue to measure brand personality. However, in this study a fictitious logo was presented in an advertisement for running shoes to measure brand personality. This way of measuring the relationship between colours and shapes in logos might have affected brand personality perceptions since participants could have been influenced by cues other than the designed logo (i.e. the advertisement). Moreover, a related point to consider is that studies that did use an advertisement as a cue to measure brand personality, included a controlled condition into their study to determine the impact of design elements used in logos on brand personality (Jiang et al., 2015). It can however be argued that this study could have used an experimental control condition to minimize the effects other than the independent variables (i.e. the advertisement, the product, the type font, or the brand name) on the dependent variables (brand personality and gendered brand personality).

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5.2 Limitations and future research

Even though this study has offered some very useful insights in the relationship between colours and shapes in logos on brand personality, this study also has some limitations that are worth mentioning. At first, only Dutch respondents were approached for this study, therefore the findings of this study cannot be generalized to other cultures than Western Europe. For the reason that the referential meaning of colours and shapes is different across cultures. Moreover, respondents who participated in this study were primarily females younger than 25 years old. Findings of this study would be much more representative when the amount of male and female respondents that participated in this study was equally distributed. Furthermore, hypothesizes were proposed based on previously held colour and shape associations in marketing and communication literature. However, at the time this study is conducted respondents' colours and shapes association could have been influenced by colours and shapes used in trends (i.e. interior, fashion) at the time of surveying the respondents.

Furthermore, this study used an online survey to measure the effects of congruence on (gendered) brand personality, a limitation of this quantitative method is that it is unclear why incongruence between colours in shapes in logos led to the perception of a brand that is competent. In future research a qualitative method, i.e. an interview, could clear up the results of this study. A qualitative follow up study could explain why and whether respondents address specific (gendered) brand personality dimensions to aesthetic stimuli in logos. At last, this study only focused on the influence of colours and shapes in logos, for follow-up studies it could be interesting to focus on other design elements of logos, for example type fonts, spacing, symbols, and words to see how those design elements interact on brand personality and gendered brand personality.

5.3 Conclusion

The main research question of this study was: *'To what extent do congruence between colours and shapes in logos influence brand personality and gendered brand personality?'* This study showed that congruence between colours and shapes in logos did not have any effect on brand personality, because no interaction was found between a red coloured logo in combination with an angular shape on brand personality. However, one colour-shape combination did influence brand personality. That is, a red coloured logo in combination with a round shape (i.e. incongruence) did influence the perception of a brand that is competent. In other words, red colours and round shapes in logos positively influenced the impression of a brand that is reliable, intelligent, and successful (Aaker, 1997). This is moderately in contrast with earlier conducted studies, arguing that incongruent elements are viewed as thrilling, playful, and interesting because an incongruent element requires more elaborate cognitive processing (Dahlén, Lange, Sjödin & Törn, 2005; Van Rompay & Pruyn, 2011). It can however be argued that consumers favour brand with moderate levels of incongruence. Consumers' preference for incongruent elements seem to occur because processing incongruent elements create a sort of a puzzle that they want to solve. Solving the puzzle creates a feeling of playfulness and accomplishment (McQuarrie & Mick, 1999; Meyers-Levy, Louie & Curren, 1994).

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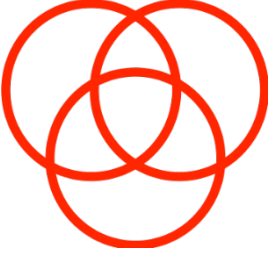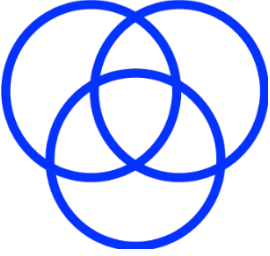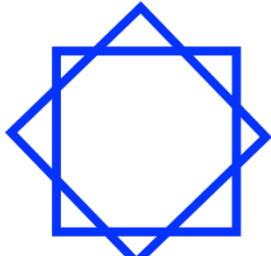
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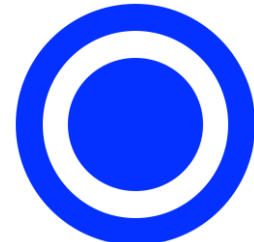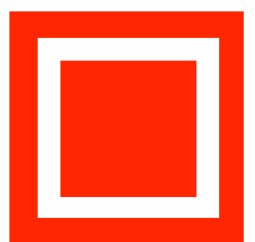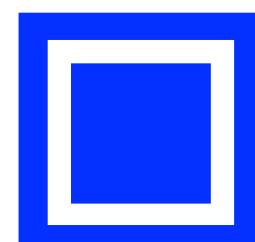
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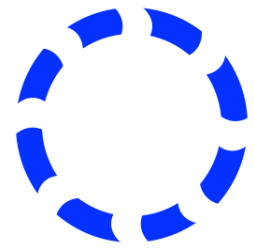
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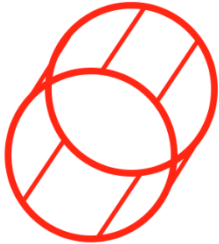
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Red coloured round logo	Blue coloured round logo	Red coloured angular logo	Blue coloured angular logo
(M = 2.60, SD = 1. 352)	(M = 5.80, SD = 0.862)	(M = 5.60, SD = 1.352),	(M = 2.33, SD = 1.113)

Red coloured round logo	Blue coloured round logo	Red coloured angular logo	Blue coloured angular logo
(M = 4.40, SD = 1. 352)	(M = 4.73, SD = 1.280)	(M = 4.60, SD = 0.986),	(M = 4.20, SD = 1.146)

Red coloured round logo	Blue coloured round logo	Red coloured angular logo	Blue coloured angular logo
(M = 4.13, SD = 1. 246)	(M = 4.33, SD = 1.113)	(M = 4.93, SD = 1.335),	(M = 3.73, SD = 1.280)

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Red coloured round logo	Blue coloured round logo	Red coloured angular logo	Blue coloured angular logo
(M = 3.53, SD = 1. 187)	(M = 3.80, SD = 1.207)	(M = 4.60, SD = 1.121),	(M = 4.00, SD = 0.926)

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Red coloured round logo (condition 1)

Blue coloured round logo (condition 2)

Red coloured angular logo (condition 3)

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Blue coloured angular logo (condition 4)

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APPENDIX C – MANIPULATION CHECK

Table 7 Manipulation check colour

Experimental condition	Manipulation check	df	Sig.
Blue	Blue	2	0.000
	Red	2	0.000
	Neutral	2	0.696
Red	Blue	2	0.000
	Red	2	0.000
	Neutral	2	0.696

Table 8 Manipulation check shape

Experimental condition	Manipulation check	df	Sig.
Round	Round	2	0.000
	Angular	2	0.000
	Neutral	2	0.648
Angular	Round	2	0.000
	Angular	2	0.000
	Neutral	2	0.648

APPENDIX D – QUESTIONNAIRE

Beste respondent,

Ter afsluiting van mijn opleiding aan de Universiteit Twente doe ik een onderzoek naar het nieuwe schoenenmerk Athletic™. Het doel van dit onderzoek is om te achterhalen wat de associaties van consumenten zijn bij dit merk. Het invullen van de vragenlijst duurt ongeveer 5 minuten en alle gegevens worden anoniem verwerkt en niet openbaar gemaakt.

Klik op >> om de vragenlijst te starten. Alvast bedankt voor je deelname!

- -

Voorafgaand aan het onderzoek wil ik je vragen om de volgende informatie over de gegevensverwerking goed door te nemen voordat je deelneemt aan het onderzoek.

Ik verklaar hierbij op voor mij duidelijke wijze te zijn ingelicht over de aard en methode van het onderzoek, zoals zojuist is beschreven. Ik zal de vragen naar waarheid beantwoorden en stem geheel vrijwillig in met de deelname aan dit onderzoek. Ik behoud daarbij het recht deze instemming weer in te trekken zonder dat ik daarvoor een reden hoef op te geven en besef dat ik op elk moment mag stoppen met het onderzoek.

Indien mijn onderzoeksresultaten gebruikt zullen worden in wetenschappelijke publicaties, dan wel op een andere manier openbaar worden gemaakt, zal dit volledig geanonimiseerd gebeuren. Mijn persoonsgegevens zullen niet door derden worden ingezien zonder mijn uitdrukkelijke toestemming. Voor verdere informatie over het onderzoek, kan er contact op worden genomen met Carien Waaijer, e-mail: c.a.m.waaijer@student.utwente.nl.

- -

Q1 Ik heb de bovenstaande informatie goed doorgelezen en ga akkoord met deelname aan dit onderzoek.

    ⚪ Ja (1)

    ⚪ Nee (2)

Q2 Wat is je geslacht?

    ⚪ Man (1)

    ⚪ Vrouw (2)

Q3 Wat is je leeftijd?

- ○ Jonger dan 25 jaar (1)

- ○ 26 - 35 jaar (2)

- ○ 36 - 45 jaar (3)

- ○ 46 - 55 jaar (4)

- ○ 56 - 65 jaar (5)

- ○ Ouder dan 65 jaar (6)

Q4 Wat is je hoogst voltooide opleiding?

- ○ Lager onderwijs (1)

- ○ Mavo/ Lbo/ Vmbo (2)

- ○ Havo/ Vwo (3)

- ○ MBO (4)

- ○ HBO/ Bachelor (5)

- ○ WO/ Master (6)

- ○ Anders namelijk: (7) _____

Q5.1 De bovenstaande afbeelding is een advertentie van een nieuwe hardloopschoen van Athletic™. Kun je aangeven in hoeverre je de volgende eigenschappen vindt passen bij de advertentie? Hierbij is 1 helemaal mee oneens en 7 helemaal mee eens.

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	1. Helemaal mee oneens (1)	2. Mee oneens (2)	3. Enigszins mee oneens (3)	4. Neutraal (4)	5. Enigszins mee eens (5)	6. Mee eens (6)	7. Helemaal mee eens (7)
Nuchter (1)	○	○	○	○	○	○	○
Familiegericht (2)	○	○	○	○	○	○	○
Burgerlijk (3)	○	○	○	○	○	○	○
Eerlijk (4)	○	○	○	○	○	○	○
Oprecht (5)	○	○	○	○	○	○	○
Niet echt (6)	○	○	○	○	○	○	○
Authentiek (7)	○	○	○	○	○	○	○
Origineel (8)	○	○	○	○	○	○	○
Opgewekt (9)	○	○	○	○	○	○	○
Sentimenteel (10)	○	○	○	○	○	○	○
Vriendschappelijk (11)	○	○	○	○	○	○	○
Gedurfd (12)	○	○	○	○	○	○	○
Niet trendy (13)	○	○	○	○	○	○	○
Opwindend (14)	○	○	○	○	○	○	○
Bezield (15)	○	○	○	○	○	○	○
Cool (16)	○	○	○	○	○	○	○

Jong (17)

Creatief (18)

Uniek (19)

Up-to-date (20)

Onafhankelijk (21)

Hedendaags (22)

Betrouwbaar (23)

Niet ijverig (24)

Degelijk (25)

Intelligent (26)

Technisch (27)

Zakelijk (28)

Succesvol (29)

Leider (30)

Zelfverzekerd (32)

Voor de betere kringen (33)

Glamoureus (34)

Aantrekkelijk (35)

Charmant (36)	○	○	○	○	○	○	○
Vrouwelijk (37)	○	○	○	○	○	○	○
Zacht (38)	○	○	○	○	○	○	○
Niet huiselijk (39)	○	○	○	○	○	○	○
Mannelijk (40)	○	○	○	○	○	○	○
Westers (41)	○	○	○	○	○	○	○
Taai (42)	○	○	○	○	○	○	○
Ruw (43)	○	○	○	○	○	○	○

Q5.2 Geef ook bij de volgende eigenschappen aan of je ze vindt passen bij de advertentie van Athletic™. Hierbij is 1 helemaal mee oneens en 7 helemaal mee eens.

	1. Helemaal mee oneens (1)	2. Mee oneens (2)	3 Enigszins mee oneens (3)	4. Neutraal (4)	5. Enigszins mee eens (5)	6. Mee eens (6)	7. Helemaal mee eens (7)
Avontuurlijk (1)	○	○	○	○	○	○	○
Niet agressief (2)	○	○	○	○	○	○	○
Moedig (3)	○	○	○	○	○	○	○
Gedurfd (4)	○	○	○	○	○	○	○
Dominant (5)	○	○	○	○	○	○	○
Stoer (6)	○	○	○	○	○	○	○
Straalt warme gevoelens uit (7)	○	○	○	○	○	○	○
Breekbaar (8)	○	○	○	○	○	○	○
Sierlijk (9)	○	○	○	○	○	○	○
Niet gevoelig (10)	○	○	○	○	○	○	○
Lieflijk (11)	○	○	○	○	○	○	○
Teder (12)	○	○	○	○	○	○	○

Q6 Welke kleur had het logo van Athletic™ dat je zojuist hebt gezien?

○ Rood (1)

○ Blauw (2)

○ Neutraal (3)

Q7 Welke vorm had het logo van Athletic™ dat je zojuist hebt gezien?

○ Rond (1)

○ Hoekig (2)

○ Neutraal (3)

Q8 Vond je het logo van Athletic™ dat je zojuist hebt gezien congruent of juist incongruent? Hierbij betekent congruentie dat elementen met elkaar verbonden zijn en dat er een gelijkvormigheid is. Incongruentie betekent dat elementen juist niet met elkaar verbonden zijn en dat er geen gelijkvormigheid is.

○ Congruent (1)

○ Incongruent (2)

○ Neutraal (3)

T3 Heel erg bedankt voor je deelname! Heb je zelf nog op- of aanmerkingen? Vul ze hieronder in. Klik vervolgens op >> om de vragenlijst af te ronden.

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