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*Published in:*

World review of business research

*Publication date:*

2015

*Document Version*

Publisher's PDF, also known as Version of record

[Link to publication](#)

*Citation for published version (APA):*

Lange, A., & Höger, R. (2015). Do Brands and Faces share the same Perceptual Space? *World review of business research* , 5(2), 163-176.

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# Do Brands and Faces share the same Perceptual Space?

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*Recent findings show that psychological mechanisms of perceiving brands are similar to those of perceiving humans. In this research it was investigated if brand perception – according to the two-dimensional model of Kervyn et al. (2012) – and face perception – according to the two-dimensional model of Oosterhof and Todorov (2008) – share the same perceptual space. Therefore faces and brands have been evaluated on both models and examined via exploratory and confirmatory factor analysis. It was shown that both brands and faces are perceived on a general evaluation dimension and a strength/power dimension and, with that, share the same two-dimensional perceptual space. Implications of these findings for advertising research and brand management are discussed.*

**Field of Research:** Marketing & Advertising

**JEL Codes:** M31, M37

## 1. Introduction

The present economic situation mainly shows mature, globalized markets, where a variety of products from origins all over the world is not only accessible but also affordable. Due to this circumstance it is increasingly difficult for companies to set their products apart from others merely through product attributes. While mere products and services are perceived as indifferent and do not bring about differentiation, brands become a central asset of companies to form a company's unique selling proposition. Branding a product offers the possibility to distinguish it from similar ones through a singular image and specific associations.

The increasing importance of brands for enterprises becomes apparent at monetary measures as well: Already in 2005 about 67 percent of a company's value was constituted by the brand (PwC, GfK, Sattler & Markenverband 2006) in Germany, with an upward trend. Despite the growing significance of brands for economic success, relatively little attention was paid to the formation of brand perception in scientific research so far. A consequence of this neglect is a growing perceived interchangeability of brands (BBDO Consulting 2009). This circumstance is critical considering that the initial purpose of brands was to establish a differentiation between interchangeable products.

A chance to meet this issue and to understand the formation of brand perception and moreover to improve brands is to build up on the insight that brands are perceived similarly as humans (e.g., Kervyn, Fiske & Malone 2012). But despite this knowledge and the fact that brands are often endorsed by brand faces in advertising campaigns, it has never been

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addressed if face perception is similar to brand perception. Hence the aim of this investigation is to provide basic knowledge for further investigations on how to enhance brand images with brand faces (i.e. testimonials) through insights on brand and testimonial perception. Since former research on the role testimonials play for brands was mainly concerned with exterior appearance, this research focusses on personality perception which is more promising for differentiating brand images from others and changing them pointedly. So the question of this study is if brand perception and personality perception inferred from faces share the same perceptual space. Therefore in the following section findings on brand perception and impression formation from faces are reviewed. In the third section the model and method of this investigation are explained, and the findings concerning the research question are presented in the fourth section. In the last section results and implications of our findings are discussed.

## 2. Literature Review

In the last decades, research on brands has shown that brands in many ways are perceived similarly as humans. In an initial study, Aaker (1997) had shown that brands are described with human personality characteristics and get ascribed a personality like humans do. Fournier (1998) found through in-depth-interviews that persons even build up relationships with brands that resemble human relationships. Additionally recent findings suggest that people also ascribe intentions to brands (Kervyn et al. 2012) and that models of social perception – like the *Stereotype Content Model* (Fiske, Cuddy & Glick 2007), which is established for the perception of human individuals, groups and other social objects – also work for the perception of brands.

Despite research has unanimously demonstrated that brands in many domains are perceived similarly to humans and that many mechanisms of social psychology can be applied to brands, there is no consensus of how brand personality can be conceived. As one of the first researchers on brand personality conceptualization, Jennifer Aaker (1997) found a five factor structure of brand personality which she regarded as widely parallel to the five factor model that was established for human personality (Costa & McCrae 1992). She brought forward that her found brand personality factors *Excitement*, *Sincerity* and *Competence* appear parallel to *Extraversion*, *Agreeableness* and *Conscientiousness* of the human personality model. For the brand personality factors *Ruggedness* and *Sophistication* Aaker found no correspondence to the human personality model. A weakening of her argumentation for an analogous five factor model of brand personality refers to the fact that this model proved to be not as stable as proposed, when researchers found different dimensions in different countries (Aaker, Benet-Martínez & Garolera 2001). Also it was shown that the factor structure of brand personality is vulnerable to different product categories (Caprara, Barbarenelli & Guido 2001). In several studies researchers found different factor structures of brand personality (ranging from two to 12) varying with product categories and environments (e.g., Heere 2010; Heine 2009; Ambroise et al. 2005; see Geuens, Weijters & De Wulf 2009 for a review). Considering these findings, it is arguable that the concept of human personality cannot be transferred to brand personality as easily. A reason behind this divergence may lie in the definition of human personality as stable modes of thinking, feeling and behaving (McCrae & Costa 1997). This definition assumes an introspective access to intrapsychic characteristics and demands introspection of the person investigated, while brand personality is a concept of personality perceived through someone else rather than oneself (Sweeney & Brandon, 2006). Fournier (1998, p.368) therefore

## Lange & Höger

defines brand personality as “a set of trait inferences constructed by the consumer based on repeated observation of behaviors enacted by the brand [...]”

Based on this understanding it seems to be more fruitful to use a model of person perception rather than self-experienced personality for the conceivment of brands. As mentioned before, there already has been effort to transfer models of person perception to brand perception. Kervyn et al. (2012) have shown that the well-established Stereotype Content Model (Fiske et al. 2007) can be applied to brand perception. The Stereotype Content Model proposes that persons, groups, cultures and any other social objects are evaluated on two widely independent dimensions: the perceived intentions of the other (either good/warm/positive or bad/cold/negative) and the ability to carry out these intentions (either able/competent or inable/incompetent). Kervyn et al. (2012) have shown that also brands are evaluated on these dimensions and that these evaluations even elicit corresponding emotions. Using this model, which they called *Brands as Intentional Agents Framework*, Kervyn and colleagues were able to display brands differentiatedly.

Yet for successful brand management it is not only important to understand how brands differentiate in the way they are perceived. It is also essential to comprehend how these perceptions arise in order to be able to influence brand personalities intentionally and systematically. As Maehle points out, “there is still a lack of research on how brand personalities are formed and how they can be enhanced” (Maehle 2007, p.4). Different determinants have been considered as influencing factors for brand personality perception, assuming that perceived characteristics of those determinants are mentally transferred onto the brand personalities (Hagendorf & Prümke 2002). Several investigations have shown the influence of a variety of determinants on the perception of brand personality, e.g. user stereotypes (e.g., Hayes 1999), contact with employees (e.g., Lieven 2009) or print advertising campaigns (e.g., Stevenson 2001).

A large focus in this field of research refers to the influence of testimonials on brand perception (Kilian 2011). Testimonials are real or fictive characters that represent a brand (Kilian 2009, p.86), which implies that both celebrities as well as unknown persons can serve as testimonials for a brand. Yet most attention is paid to celebrities as testimonials, based on the fact that in advertising practice this is the most popular form of testimonial advertising (Gutjahr 2011). A lot of practitioners use celebrities to enhance a brand personality, because it is expected that celebrities attract attention and that their supposed positive image is transferred on the brand in the perception of the consumers. But this image transfer also inherits critical aspects, as Gutjahr (2011) argues. For brand managers it is barely controllable which of the image characteristics of a celebrity is attributed to a brand, considering that every recipient may have other information and another image perception of the celebrity. Another critical issue is the lack of perceived credibility of celebrities as brand users, as a study of Imas International (2008, quoted from Kilian 2010) pointed out: Only six percent of the customers believed that the celebrity testimonial uses the brand privately.

Despite the amount of research considering celebrities as influencing factor of brand perception, only little attention has been paid to unknown testimonials, although these offer notable advantages over celebrities. The transfer of perceived characteristics of unknown testimonials is far more controllable than the transfer from celebrities. The brand management can directly influence which information is given to customers, knowing that there is no various prior knowledge about the testimonial. Due to the absence of prior

## Lange & Höger

knowledge and opinion, the perception of unknown testimonials is easier to modify and more manageable.

But the influence of unknown persons or faces on brand perception lacks research and scientific basis although there are plenty research findings considering trait inferences from unknown persons. As the remarks of Borkenau and Liebler (1993) and Zebrowitz (2011) point out, trait inferences from static representations of persons provide reliability, because such a setting of minimal information at zero acquaintance leads to *overgeneralization*. Overgeneralization in this context means a mechanism of inferring personality traits through overgeneralizing from physical characteristics. Zebrowitz argues that this is an evolutionary mechanism and therefore highly reliable for physical face features. It has been shown that also changeable attributes like clothes, accessories, hair or background have an influence on impression formation (Borkenau & Liebler 1992; Naumann et al. 2009), but research effort failed to find a systematization due to the high variability of these changeable attributes and impressions being dependent on cultural background and social norms (Henss 1998). Therefore it seems more promising to focus on physical features of the face itself at face perception, because these are perceived and interpreted fast and reliably. Willis and Todorov (2006) found highly reliable trait inferences within a time span of 100ms of face presentation. Zebrowitz (2011) explains these fast and stable inferences as a result of the evolutionarily crucial mechanism of judging the other as friend or foe and estimating his strength, which leads to fast decisions whether to approach or avoid the other.

To examine which traits are inferred by faces, several researchers investigated the impressions of personality traits of the five factor model (Henss 1998; Kramer, King & Ward 2011). But for reasons mentioned earlier, this approach appeared to be not beneficial, since singular correlations between certain traits and isolated face features were neither stable nor replicable (e.g., Borkenau & Liebler 1992, 1993; Grammer & Atzwanger 1994; Henss 1998). Henss (1998) argues that the five factor model may not be appropriate to use for impression formation investigation, because some traits are better inferable from physical appearance (e.g., extraversion) than others (e.g., emotional stability). Oosterhof and Todorov (2008) therefore shifted from the five factor model to a more graspable approach drawing on above-mentioned models of social perception rather than self-perception. They found that faces are immediately and spontaneously evaluated on two nearly independent dimensions: perceived trustworthiness (i.e. good or bad intentions of the other towards oneself) and dominance (i.e. the other's power to affect oneself regarding those positive or negative intentions), which have shown to be replicable and valid (Oosterhof & Todorov 2009; Todorov, Said & Verosky 2011).

These findings on impression formation and trait inferences from faces provide a basis for further investigations of the influence of unknown faces (in terms of testimonials) on brand personality perception. To investigate this influence there has to be taken a closer look at how brands and faces are perceived and which are the similarities and differences between both perception mechanisms. Concerning brand perception, the Brands as Intentional Agents Framework with the dimensions 'intentions' and 'ability' yields a differentiated representation of brand perception, while the face perception framework by Oosterhof and Todorov (2008) with the dimensions 'trustworthiness' and 'dominance' displays trait inferences from faces.

Trying to understand how brand personality perception is formed and considering that in some respects brands are perceived similarly as humans, a study was conducted to

## Lange & Höger

investigate whether brands and faces share the same perceptual space. With reference to the models of face perception and brand perception discussed, common underlying dimensions of perception of both constructs seem feasible, because both models contain a general evaluation dimension (trustworthiness or intentions, respectively) and a strength/power dimension (dominance or competence, respectively) which suggests high congruence of both models. If both brands and faces are perceived on the same two dimensions, that finding could be easily applicable to brand management at strategic planning of brand identity and planning of advertising campaigns when choosing advertising faces (Walker & Vetter 2009). Therefore in the following investigation we aimed to examine if both models have the same underlying perceptual dimensions.

### 3. The Methodology and Model

In order to test our model, we have conducted an online study to gather evaluations of brands and faces on both models, where participants from Germany took part in over a period of three weeks in June 2013. 101 persons took part in the study from which 23 percent were male. 86 percent of the sample consisted of students and the average age was 23.84 years (SD=4.87).

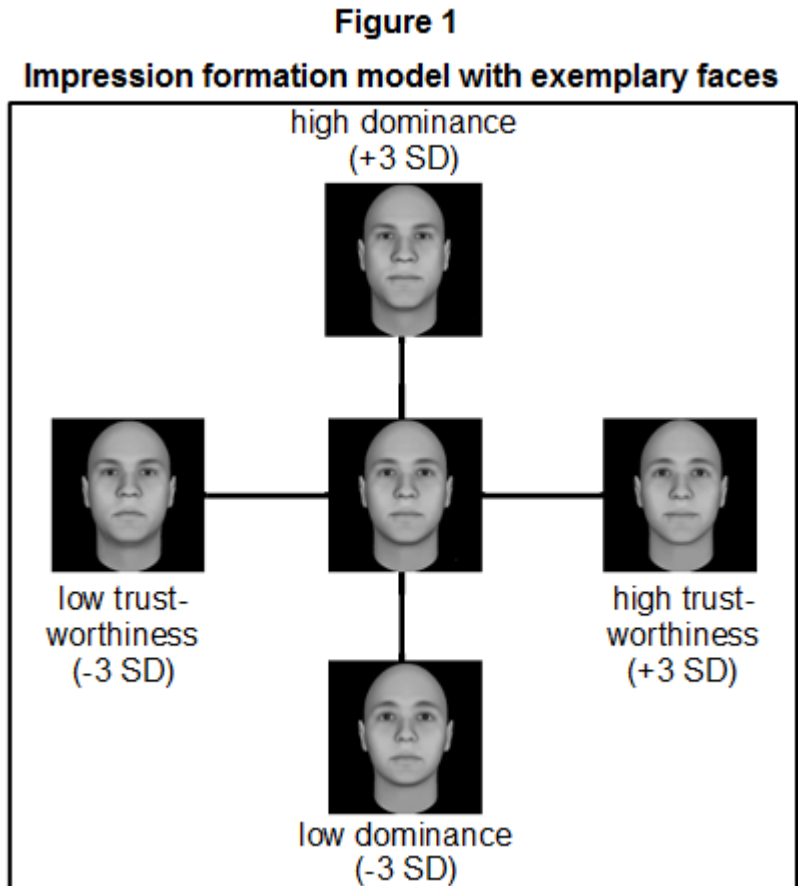
The stimuli used in the study consisted of 18 faces and 16 brands that should be evaluated on several items of both models. The 16 brands used were chosen to be as equivalent as possible to the original brands that were used in the US study of Kervyn et al. (2012). Both brand sets are listed in table 1.

**Table 1**

<b>Brands used by Kervyn et al. (2012) and in this study</b>	
Kervyn et al. (2012,US study)	present investigation (German study)
Coca Cola	
Hershey's	Milka
Johnson & Johnson	Nivea
Campbell's	Maggi
AIG	1&1
Goldman Sachs	Deutsche Bahn
BP	
Marlboro	
Mercedes Benz	
Rolls Royce	Apple
Rolex	
Porsche	
Public transport	metronom
Veteran's hospital	Arbeiter-Samariter-Bund
USPS	taz
Amtrak	NABU

## Lange & Höger

The 18 faces used were a sample of the faces used in the original study of Oosterhof and Todorov (2008), for which the ratings on both dimensions were available. Figure 1 illustrates exemplarily faces generated by Oosterhof and Todorov (2008) representing both dimensions. Both face stimuli and the original brand stimuli proved to be heterogeneous on the perceptual dimensions in the original studies.



The items used were selected out of the items of the original studies by Kervyn et al. (2012) and Oosterhof and Todorov (2008) and translated into German. From the Brands as Intentional Agents Framework the four original crucial statements were translated and used as items, to which participants should indicate their degree of agreement. Also the marking adjectives of the face perception model by Oosterhof and Todorov (2008) were presented to evaluate the stimuli. All items were presented with a five point Likert scale ranging from 1 (not at all) to 5 (fully). All original items and translations as well as their notations used in this text are depicted in table 2. Among other inquiries every participant evaluated three random faces and two random brands (after securing the brand awareness) on the items previously mentioned. As illustrated before, we expected a shared two-dimensional structure of brand and face evaluation and therefore a two factor solution. The items of the trustworthiness dimension and the items of the warmth/intentions dimension were expected to be loading on the same factor which was conceptualized to represent general evaluation. Further we expected the items of dominance and competence both loading on the second, orthogonal factor that was expected to represent general strength/power. However, because Kervyn et al. (2012) found a slightly positive correlation between both of their dimensions and Oosterhof and Todorov (2008) found a slightly negative correlation between both of their dimensions, we formulated an alternate model with three factors: one factor comprising

## Lange & Höger

general evaluation subsuming trustworthiness and warmth/intentions, one factor comprising dominance and one factor comprising competence. With this model we expected to find a general evaluation dimension like in the first model, as well as a dominance dimension correlating negatively with the evaluation dimension and a competence dimension correlating positively with the evaluation dimension. Both of these dimensions are expected to make up a positive and a negative facet of a general strength/power dimension that is orthogonal to the first dimension. Both investigated models are depicted in figure 2.

**Table 2**

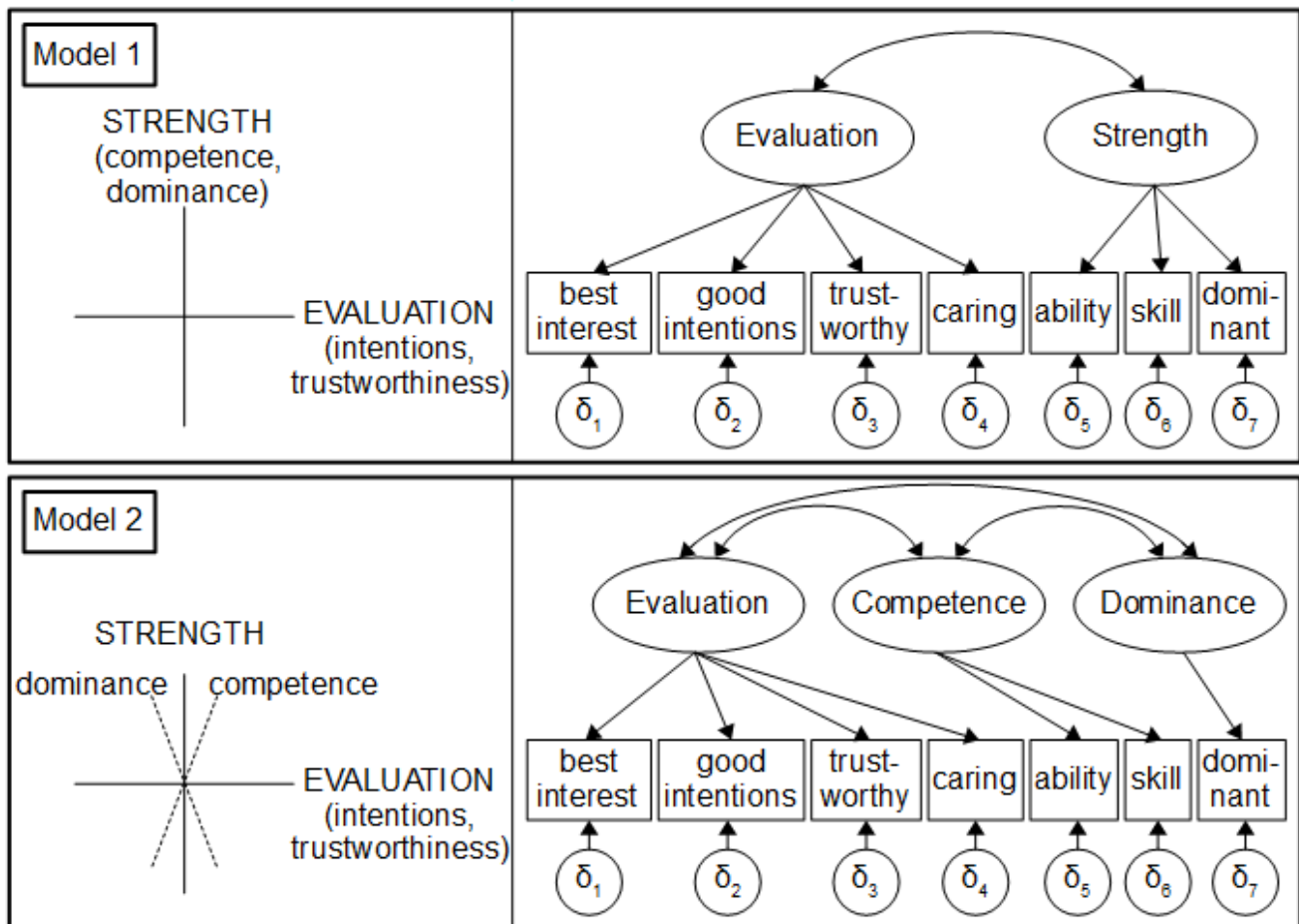
**Items used in this study**

German translation	Original items	Model	Dimension	Notation
Handelt immer im Sinne des öffentlichen Interesses.	Consistently acts with the public's best interest in mind.*		warmth/intentions	best interest
Hat gute Absichten gegenüber gewöhnlichen Menschen.	Has good intentions toward ordinary people.*	Brands as Intentional Agents Framework	warmth/intentions	good intentions
Hat die Fähigkeit, die eigenen Ziele umzusetzen.	Has the ability to implement its intentions.*		competence	ability
Erreicht die eigenen Ziele geschickt und effizient.	Is skilled and effective at achieving its goals.*		competence	skill
vertrauenswürdig	trustworthy**	Face Perception Model	trustworthiness	trustworthy
fürsorglich	caring**		trustworthiness	caring
dominant	dominant**		dominance	dominant

Note. \*Kervyn et al. (2012), \*\*Oosterhof & Todorov (2008)



Figure 2  
Model specification of model 1 and 2



#### 4. Findings and Discussion

The data gathered by our study contained 560 cases of stimulus evaluations, consisting of 384 face evaluations and 176 brand evaluations. In a first step we used exploratory factor analysis to preliminarily test the adequacy of a two factor model assumption. As expected the Kaiser criterion of eigenvalues (Kaiser & Dickman 1959) suggested a two factor solution (eigenvalues of first two factors were 3.21 and 1.97, see figure 3). Exploratory factor analysis using principal axis factoring and oblique promax rotation delivered a two factor solution accounting for 65 percent of variance. As table 3 shows, the factor loading pattern showed a simple structure with all items of trustworthiness and warmth/intentions loading on one factor and all items of dominance and competence loading on the other factor without cross-loadings, as figure 4 illustrates as well. Due to oblique rotation both factors correlated slightly ( $r=.18$ ).

## Lange & Höger

**Table 3**

**Item loadings of exploratory factor analysis of all items**

Item	Factor 1	Factor 2
best interest	0.88	0.03
good intentions	0.86	-0.03
caring	0.73	0.01
trustworthy	0.67	0.22
ability	0.07	0.91
skill	0.10	0.83
dominant	-0.33	0.55

**Figure 3**

**Screeplot of exploratory factor analysis**

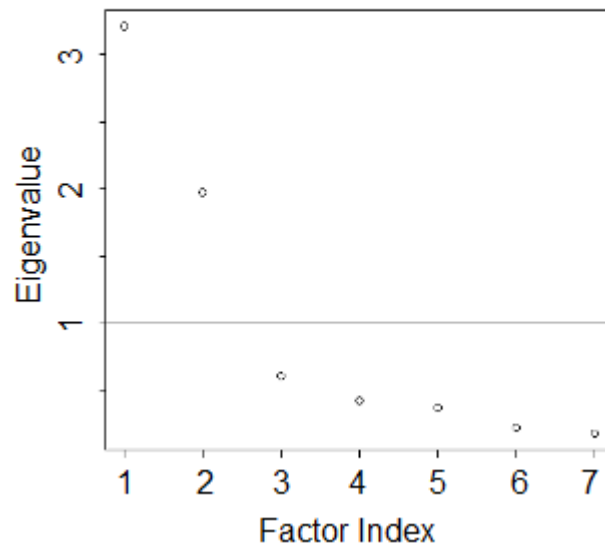
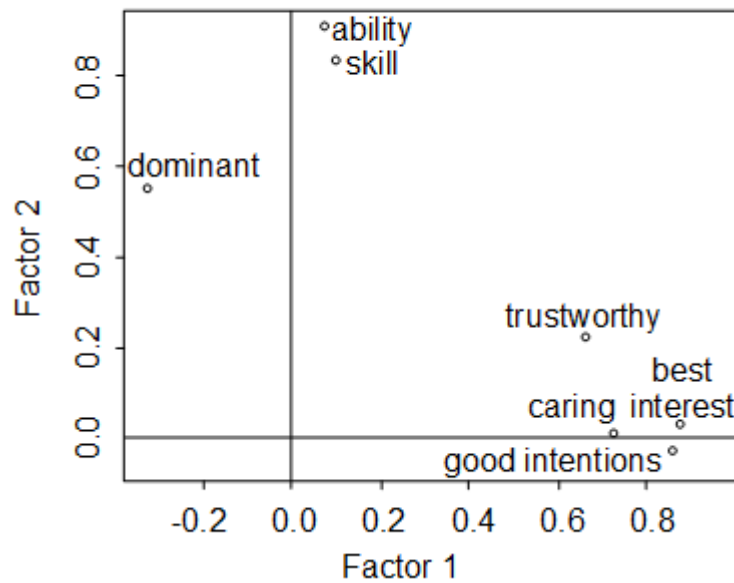


Figure 4

Plot of factor solution of exploratory factor analysis



Further we performed confirmatory factor analysis using the *sem* package in *R* to examine how well the proposed models fit the data. For both models the items were permitted to load only on the component they were expected to indicate. As with exploratory factor analysis, the components of both models were allowed to correlate, but the item errors were not. We estimated our first model using maximum likelihood parameter estimation. Confirmatory factor analysis indicated an inadequate model fit of the first model. Apart from the model differing significantly from the data ( $\chi^2=189.64$ ,  $df=13$ ,  $p<.001^{***}$ ), also the fit indices did not reach sufficient values for model acceptance according to the benchmarks mentioned in literature. While Browne and Cudeck (1992) argue for a RMSEA not greater than 0.1 as necessary for model acceptance, this model reached a RMSEA value of 0.16. Hu and Bentler (1999) indicate a SRMR value less than 0.08 and CFI greater than 0.95 as benchmarks, which both cannot be met by the model (SRMR=0.11, CFI=0.91). However, Weiber and Mühlhaus (2010) indicate a value greater than 0.9 as benchmark for GFI and NFI, which the model exceeds slightly (GFI=0.92, NFI=0.91). The parameter estimates of the model suggest a misspecification of 'dominant' at least (see table 4), which may be due to the positive factor correlations ( $r=.28$ ).

Table 4

Standardized parameter estimates of first model		
Item	Factor Loadings	R-square
trustworthy	0.70	0.49
caring	0.72	0.51
dominant	0.44	0.20
good intentions	0.86	0.74
public interest	0.89	0.80
ability	0.97	0.94
skill	0.83	0.68

## Lange & Höger

As discussed above, the dominance dimension of the impression formation model showed a slightly negative correlation with the general evaluation dimension. Therefore the first model could not be accepted, but the results yielded support for the assumptions of the second model with competence and dominance as separate factors.

In contrast to the first model, the examination of the second model using confirmatory factor analysis revealed an acceptable fit of the model. Although the model showed a significant difference from the data according to the chi square value ( $\chi^2=96.48$ ,  $df=12$ ,  $p<.001^{***}$ ), this deviation is imputable to the sample size (Bentler & Bonnet 1980, p.591). Therefore in this case the chi square test for model fit is considered as little meaningful (Browne & Mels 1992, p.78). According to above-mentioned bench marks all fit indices reached sufficient values indicating that the model fits the data well (RMSEA=0.09, SRMR=0.06, GFI=0.95, CFI=0.96, NFI=0.95). Parameter estimates of the indicators (table 5) confirm that the components were well-defined, since all item loadings exceeded 0.6 (Hair et al. 1998).

**Table 5**

<b>Standardized parameter estimates of second model</b>		
Item	Factor Loadings	R-square
trustworthy	0.69	0.48
caring	0.71	0.50
dominant	0.72	0.52
good intentions	0.86	0.75
public interest	0.89	0.80
ability	0.93	0.87
skill	0.86	0.73

To further investigate the model, we tested if dominance and competence make up two facets of a general strength dimension that is independent from the evaluation dimension, as the correlations of the factor scores suggest (table 6). Therefore principal component analysis was used analyzing the factor scores of the confirmatory factor analysis of the second model. We used principal components analysis this time because no residuals were expected through analysis of factor scores. Although it was not expected, factor correlations were allowed using promax rotation. According to the Kaiser criterion, eigenvalue examination suggested a two component solution (eigenvalues of the first two components were 1.73 and 1.23). Principal component analysis delivered two uncorrelated components ( $r=-.01$ ) accounting for 99 percent of the variance of the three factors. As expected, both competence and dominance had high loadings on one component while evaluation loaded on the other component, as can be seen in table 7.

**Table 6**

<b>Correlations of factor scores of second model</b>		
	Dominance	Competence
Evaluation	-0.343***	0.326***
Dominance		0.721***

Note. \*\*\* $p<.001$

Table 7

Item loadings of principal component analysis of factor scores		
Item	Component 1	Component 2
Competence	0.93	0.35
Dominance	0.92	-0.35
Evaluation	0.01	1.00

These findings confirm our assumption that both brands and faces are perceived on the same two independent dimensions of general evaluation and general strength/power. Although our first model, proposing two components, did not indicate acceptable model fit, the investigations of the second model supported our assumptions. Confirmatory factor analysis yielded support for a three factor solution with high correlations between the two proposed strength-facets, which showed up to make up two facets of the same one component that is independent of the general evaluation component. These findings imply that there is a common model for brand and face perception, which can be transformed into a two-dimensional one. A possible reason why this structure could not be found through direct two-dimensional model formulation may be that neither of the proposed strength items precisely displayed strength. Our findings suggest that judgments of strength incorporate a positive or negative connotation appearing as dominance perception (strong & slightly negative) and competence perception (strong & slightly positive). This reasoning goes in line with Zebrowitz (2011) who argues that in social perception valence evaluation has a primacy over strength inference and therefore the latter has always an evaluative connotation. With that, both brands and faces can be described within a two-dimensional model, containing the dimensions of evaluation and strength, but gathering perceptual information is based on three dimensions which can be transformed into the two-dimensional model without loss of information.

## 5. Conclusions and Implications

Our research has shown that the mechanisms of brand perception and face perception seem to be similar. It could be found that both brands and faces are mainly perceived on the two dimensions of general evaluation and strength/power and with that share the same perceptual space. Though limitations of this study are displayed in the limited set of faces and brands investigated that were chosen to be close to the original studies of the models. Therefore future research needs to investigate this model using real and not computer-generated faces and further brands.

The results of this study enhance the findings of previous research that in many ways brands are perceived similarly as humans. This yields a fruitful basis for further investigations on how brand perception is formed and can be influenced. Since celebrity testimonials have already been considered comprehensively in research, our results lay the foundation for investigations on how unknown brand faces have an influence on brand personality perception in advertising. It seems feasible that variations of faces along the two-dimensional space may influence brand perceptions in the same direction which further research may reveal. Since brands become a more important resource of businesses when at the same time it gets more difficult to differentiate products through brands, this study's findings set a starting point for managing and improving brand images purposefully and in a controlled and targeted manner. In advertising campaigns the choice of a brand face that represents a

personality that is coherent with the intended brand personality may make up the difference between a strong and a weak brand, and even may have an impact on economic success of brand management.

### Acknowledgments

The authors want to thank Nikolaas N. Oosterhof from Dartmouth College and Alexander Todorov from Princeton University for providing materials used in this investigation.

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