

# In Search of Ecological Norms in Brand Personality Diagnostics

Oleg Gorbaniuk<sup>1</sup>, Michał Wilczewski<sup>2</sup>

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## Abstract

**Purpose:** The aim of this study is to determine a structure of brand personality at an ecological level and to develop norms for positioning a particular brand in relation to other brands by means of brand personality scales.

**Methodology:** We present the results of a study in which 1,642 participants aged 15 to 82 (mean 35.3; 51.9% females) were involved. Each respondent marked three to four brands from different categories of goods and services on a 20-item adjectival list for measuring brand personality. As a result, 6,548 descriptions of 224 brands from 46 categories were collected.

**Findings:** Our analyses show that the structure of the differences among brand personalities on the Polish market can be described in terms of four dimensions: competence, spontaneity, subtlety, and egoism. The established dimensions explain 85% of the variance. A distribution of the results within the scales applied served as a basis for establishing specific norms for each of the four scales.

**Limitations:** The norms established have a country-level character and are inclusively adequate and reliable for companies that purchase products and services on the Polish market.

**Originality:** Our study presents a new, ecological approach to thinking about brands. Namely, it enables a more precise determination of the position of a certain brand in relation to many other competing brands and allows for a more efficient use of the potential for constructing brand personality.

**Keywords:** brand personality, symbolic benefits, ecological level, normalization, quantitative research, goods and services

JEL: M31, C18, D12, E21

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<sup>1</sup> John Paul II Catholic University of Lublin

Correspondence address: Institute of Psychology, John Paul II Catholic University of Lublin, Al. Raclawickie 14, 20-950-Lublin, Poland, e-mail: oleg.gorbaniuk@gmail.com

<sup>2</sup> University of Warsaw, Visiting Scholar, Copenhagen Business School, Denmark

Correspondence address: Smolki St. 30/46, 14-200 Itawa, e-mail: m.wilczewski@uw.edu.pl

## Introduction

A characteristic feature that differentiates studies carried out in marketing practice from academic studies is the dominance of an idiothetic over nomothetic approach. By analogy with a psychological clinic, studying brand image can be compared to investigating an individual patient's personality profile. Psychological diagnosis relates a consumer's personality profile to population norms. Likewise, marketing research often requires finding relative points of reference for the assessment of the image profile of a given brand.

A relative point of reference in the assessment of brand image profile can be the result of a parallel measurement of the images of competing brands. This kind of strategy is frequently used in brand positioning (Moons and De Pelsmacker, 2014), e.g. by means of multidimensional scaling (Gwin and Gwin, 2003). A more universal point of reference, eliminating the necessity for measuring the image of competitive brands, would be developing norms based on distributions of average profiles of images of numerous brands for each brand personality scale. Because the differences between average scores for various brands are represented as an aggregate measure of these brands as perceived by consumers (Level 2), such norms may be termed as ecological (aggregate) as opposed to the norms developed at the individual level (Level 1), which describe individual differences in the ways a particular brand is perceived. The aim of this study is to design a procedure establishing such ecological norms for a population of recognizable brands available on the Polish market.

Several conditions have to be fulfilled when designing universal norms for diagnosing brand image if these norms are meant to have diagnostic value. First, universal dimensions of brand perception have to be verified at the ecological level. Second, these dimensions should have discriminant value, i.e. not only should they differentiate among consumers' perceptions of a given brand, but – above all – they should differentiate among brand images (Austin, Siguaw, and Mattila, 2003; Eisend and Stokburger-Sauer, 2013).

For years, the major obstacles to determining the universal dimensions of brand image have been the lack of satisfactory theoretical concepts and the lack of proposals of a common level of abstraction irrespective of the specificity of product categories. Presumably, the concept of brand personality constitutes one of the possible solutions to this problem (Plummer, 1985), because the personification metaphor transforms symbolic brand meanings and perceived benefits into shared personality traits (Ambroise and Valette-Florence, 2010). On the other hand, particular brand choice suggests the actual or desired personality of the brand user (Denoue and Saykiewicz, 2009) and

helps establish consistency and self-esteem by self-image congruence (Bosnjak and Brand, 2008; Gorbaniuk, Maciejewska, Kisiel, Kolańska and Filipowska, 2014). In this way, brands create value for their owners (Alvarez and Fournier, 2016; Taranko and Chmielewski, 2014).

Extant efforts to operationalize brand personality have enabled researchers to identify brand personality dimensions on the basis of the following kinds of measurement and data: (a) ecological, (b) mixed, and (c) individual, each differing in methodological status and cognitive value. In the case of factor analysis based on ecological data, the subject of study is represented by averaged profiles of a larger number of brands treated as cases in that analysis. Averaging profiles eliminates the variance connected to the specificity of perceiving a given brand by different consumers (Eisend and Stokburger-Sauer, 2013). A study by Aaker (1997) is the best example of such an ecological study. Nevertheless, this approach is threatened by an ecological fallacy (Robinson, 1950; Austin, Sigauw and Mattila, 2003) occurring when such identified ecological dimensions that help differentiate the objects of perception (brands) are consciously used for analyses at the individual level with the assumption that they will differentiate not only among brands but also among perceptions of a given brand held by different consumers.

Apart from the perspectives discussed above, there also exists a cluster of studies where the dimensions of brand perception are identified based on the measurement of the image of a single brand (e.g. Rojas-Méndez, Erenchun-Podlech and Silva-Olave, 2004; Supphellen and Grønhaug, 2003). Studies of this kind have an idiothetic status of a case study, and their results cannot serve as a valuable basis for generalization about and extrapolation to other brands and categories. Using these dimensions for comparing brand images can lead to committing the fallacy of composition.

When dimensions are identified with reference to mixed data (brand with consumer), factor analysis uses the perception scores for different brands and different consumers. There are two sources of image variance here: (a) different consumers perceive the image of the same brand in different ways, and (2) different brands are perceived in different ways by the same consumer. The kind of studies are most common in the literature, e.g. Aaker et al. (2001), Bosnjak, Bochmann and Hufschmidt (2007), Sung and Tinkham (2005), Geuens, Weijters and De Wulf (2009), Gorbaniuk (2011), and so on. They constitute a solid basis for the identification of dimensions that are common for many brands and that allow the differentiation among consumers' perceptions. Their nomothetic value, i.e. the scope of objective generalization, is directly dependent on the representativeness of the sample of brands applied in a study. It is doubtful, however, that the dimensions established as a result of such studies can successfully

be utilized to discriminate among brands. For this reason, they cannot be used directly in diagnosing brand images at the ecological level unless their discriminant value has been measured.

Previous research into the dimensions of personalities ascribed to brands in the process of their personification by Polish consumers has been conducted by Gorbaniuk (2011). In order to establish the dimensions, a psycholexical methodology developed in personality psychology to isolate universal dimensions of human personality perception was adapted (Angleitner, Ostendorf and John, 1990; Gorbaniuk, Budzińska, Owczarek, Bożek and Juros, 2013; Saucier, 2009).

In order to compile a personality lexicon, individual semi-structured interviews with 300 individuals aged 15 to 78 ( $M = 41.6$ ) were conducted, which resulted in collecting interviewees' adjectival associations with 250 brands representing 50 categories (for details, see Gorbaniuk, 2011). When classifying the associations, a special focus was placed on the descriptions of personal properties. Next, these personal descriptors were lexically taxonomized (Angleitner et al., 1990). Based on a frequency analysis of personality brand associations, a list of 111 dispositional adjectives with frequency exceeding 30 was compiled, and those were further used in a quantitative study with the aim of identifying the dimensions of brand personality perception on the basis of selected personality descriptors of brands. At this stage, 986 participants aged 16 to 78 ( $M = 37.6$ ) were involved in the study (see Gorbaniuk, 2011). The respondents were asked to assess how accurately a particular adjective described a certain brand, based on a 5-point scale ranging from 1 (not applicable at all) to 5 (fully applicable). A total of 2,755 descriptions of 224 brands (*inter alia*, Fiat, LM, Zbyszko, TP SA, Żywiec, Visa, etc.) from 46 categories (*inter alia*, cars, beer, washing powders, cigarettes, credit cards, mobile operators, etc.) were collected. A principal components analysis with Varimax rotation established a four-factor structure of the personality descriptions of brands on the basis of mixed data (brand with respondent): competence (*reliable, thorough, ambitious, etc.*), spontaneity (*spontaneous, sociable, cheerful, etc.*), subtlety (*calm, subtle, gentle, etc.*) and egoism (*conceited, egoistic, greedy, etc.*). The results of this part of the study served as a point of departure for establishing a structure of those most significant dimensions according to which brands differ at the ecological level.

## Research Questions

In order to design ecological norms for diagnosing brand personality, the following research questions need to be addressed:

Q1: Are the dimensions of the differentiation of brand personality profiles made at the ecological level the same as the structure of consumers' brand personality perceptions based on mixed data?

Answering that question will allow us to establish crucial dimensions of personality on account of which brands differ from each other at the ecological level, which will further serve as a basis for establishing norms for the population of recognizable brands.

Q2: Do the dimensions of the differentiation of brand personality profiles made at the ecological level explain the aggregate affect towards a brand (the mean of consumers' attitudes toward a certain brand)?

Answering that question will allow us to determine which dimensions of brand personality (and the extent to which they can be utilized) can predict and account for a consumer's attitude towards brands at the ecological level. This, in turn, will enable us to determine the importance of a knowledge of dimensions describing the differences among brands with regard to their personality for marketing practice.

## Method

A total of 1,642 participants aged 15 to 82 (mean 35.3; 51.9% females) were involved in the study. The interviewer individually explained the purpose of the survey in a respondent's home, checked, using previously-prepared lists of brands, how familiar each respondent was with three to four product categories and selected one recognizable brand from each category to be further described by the respondent. Finally, the interviewer left the questionnaire and arranged the date when it could be collected.

Each respondent described three to four brands from different categories (e.g. banks, cars, magazines, supermarkets, electronic devices, toys, etc.). As a result, 6,548 descriptions of 224 brands from 46 categories were collected. Each brand was described by 20 to 43 respondents ( $M = 29.3$ ) using a 20-item adjective list shown in Table 1. Each of the four dimensions was represented by five adjectives (Gorbaniuk, 2011): competence—*solid, thorough, ambitious, hard-working, responsible* (Cronbach's  $\alpha$  for mixed data equals .84); spontaneity—*sociable, fun-loving, spontaneous, cheerful, laid back* ( $\alpha = .83$ ); subtlety—*subtle, gentle, sensitive, placid, modest* ( $\alpha = .82$ ); egoism—*egoistic, conceited, aloof, greedy, stingy* ( $\alpha = .77$ ). Participants were asked to assess the applicability of each adjective to a particular brand on a 5-point scale ranging from 1 (not applicable at all) to 5 (fully applicable).

Besides measuring brand personality, we also measured affect towards each of the 224 brands by means of a 3-item scale (Keller, 1993). The measurement of affect had a good internal reliability ( $\alpha = .87$ ).

The data used in our analyses are taken from a series of research performed in order to build a typology of brands and their links to symbolic and functional benefits, brand capital, attitudes and preferences toward brands, and links to a consumer's self-image. The procedure was identical in each case – a brand's personality was measured followed by all the other variables.

## Results

### Dimensions of brand personality differentiation at the ecological level

The principal component analysis (with Varimax rotation) of the 224 averaged brand profiles confirmed a four clear-cut factor structure at the ecological level (eigenvalues: 7.24, 5.38, 3.22, 1.10, 0.61, 0.33, 0.27, 0.24, 0.22, 0.20, etc.), which is similar to a factor structure obtained on the basis of mixed data (Gorbaniuk, 2011). The four factors explained 84.7% of the total variance of brand image profiles.

**Table 1.** Principal Component Analysis of the Aggregated Data

English	Factor loadings				<i>M</i>	<i>SD</i>	Polish
	Egoism	Spontaneity	Competence	Subtlety			
egoistic	<b>.91</b>	.00	-.07	-.20	2.57	.38	egoistyczna
aloof	<b>.88</b>	.00	.21	-.11	2.91	.42	wyniośta
conceited	<b>.88</b>	.07	.13	-.17	2.85	.38	zarozumiąta
greedy	<b>.86</b>	-.10	-.10	-.29	2.59	.39	chciwa
stingy	<b>.78</b>	-.22	-.15	-.24	2.40	.33	skąpa
modest	<b>-.66</b>	-.25	.04	.48	2.73	.40	skromna
fun-loving	.12	<b>.91</b>	-.15	-.16	3.26	.58	rozrywkowa
sociable	.03	<b>.91</b>	-.13	.07	3.63	.38	towarzyska
laid back	-.01	<b>.91</b>	-.19	-.09	3.21	.51	wyluzowana

spontaneous	-.08	<b>.90</b>	-.07	-.05	3.21	.38	spontaniczna
cheerful	-.19	<b>.90</b>	-.11	.14	3.50	.44	wesoła
solid	-.01	.03	<b>.93</b>	.17	3.94	.43	solidna
ambitious	.14	-.08	<b>.92</b>	.10	3.82	.40	ambitna
thorough	-.03	-.17	<b>.91</b>	.19	3.82	.39	dokładna
hard-working	-.02	-.24	<b>.87</b>	.00	3.82	.38	pracowita
responsible	-.11	-.30	<b>.86</b>	.22	3.76	.39	odpowiedzialna
subtle	-.26	.07	.23	<b>.88</b>	3.12	.45	subtelna
sensitive	-.44	.09	.17	<b>.79</b>	3.11	.40	wrażliwa
gentle	-.48	-.13	.20	<b>.78</b>	3.28	.43	łagodna
placid	-.30	-.51	.28	<b>.58</b>	3.26	.41	spokojna
Eigenvalue	4.82	4.71	4.41	2.99			
Expl. variance	.24	.24	.22	.15			
<i>M</i>	3.10	3.36	3.81	2.66			
<i>SD</i>	.36	.42	.36	.34			
Cronbach's $\alpha$	.93	.95	.96	.91			

Source: own elaboration.

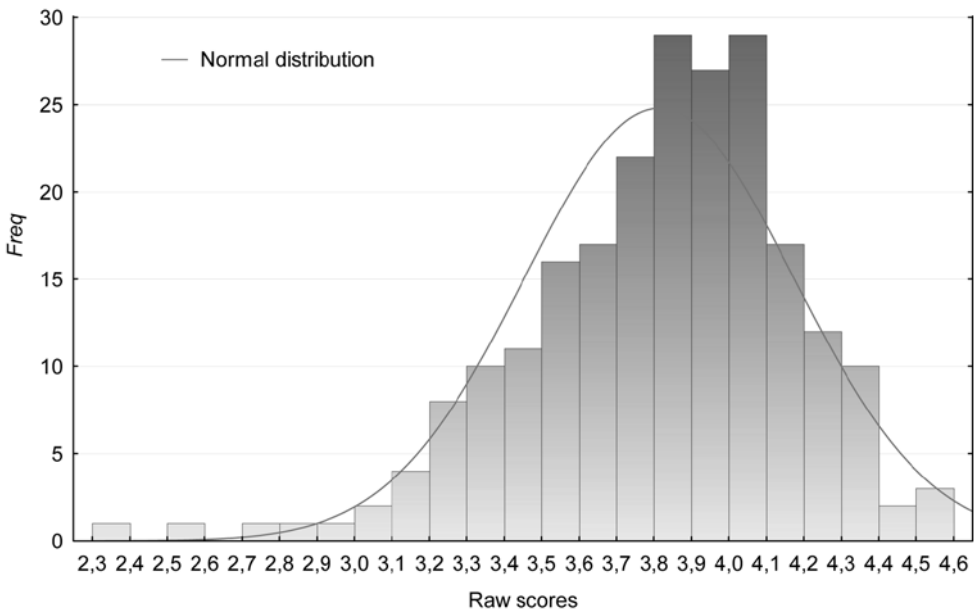
Five adjectives, *egoistic*, *conceited*, *aloof*, *greedy*, and *stingy* correlated highest with the first factor termed as egoism. That factor accounted for 24% of the variance among brands with regard to personality traits attributed to them. The second factor, spontaneity, accounted for 24% of the variance and was related to *sociable*, *fun-loving*, *spontaneous*, *cheerful*, and *laid back*. The third factor, subtlety, accounted for 22% of the variance and was related to *subtle*, *gentle*, *sensitive*, *placid*, and *modest*. The fourth factor, competence, accounted for 15% of the variance and correlated with *solid*, *thorough*, *ambitious*, *hard-working*, and *responsible*.

All the four factors explained 74% of the aggregate affect toward brand ( $F(4,220) = 161.09$ ,  $p < .001$ ,  $R^2 = .74$ ). The highest regression weight was established for competence ( $\beta = .67$ ,  $p < .001$ ). The standardized beta coefficients for the other factors were spontaneity ( $\beta = .41$ ,  $p < .001$ ), subtlety ( $\beta = .32$ ,  $p < .001$ ), and egoism ( $\beta = -.17$ ,  $p < .001$ ).

## Ecological norms for aggregate measures

Two hundred and twenty-four averaged profiles of brands were the basis for working out norms for each of the four brand personality scales at the ecological level: competence, spontaneity, subtlety, and egoism. As a normalization scale, sten scores were applied (mean of 5.5 and standard deviation of 2.0). The score distributions were not perfectly normally distributed (see Figures 1–4), and hence sten scores were calculated by a nonlinear transformation (Bernstein, Garbin and Teng, 2012). Table 2 converts raw scores to sten scores for aggregated data (ecological level).

**Figure 1.** Distribution of Competence Scale

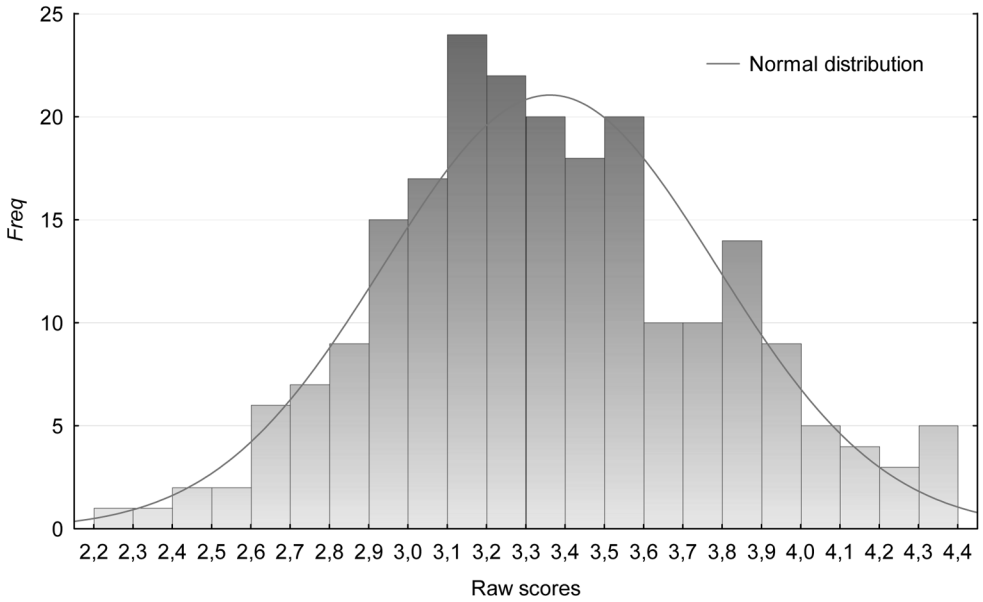


Source: own elaboration.

The raw scores for each respondent are calculated as a mean of five items comprising each of the four scales of brand personality. Next, in order to determine a position of a given brand in relation to all the other brands on the basis of personality traits attributed to them, we have to average a personality profile for a given brand in the target group of consumers and convert the obtained raw scores into sten scores using Table 2. A sten score indicates a brand position with respect to the population of brands. This allows for the diagnosis of a brand as compared to other recognizable brands on the Polish market.

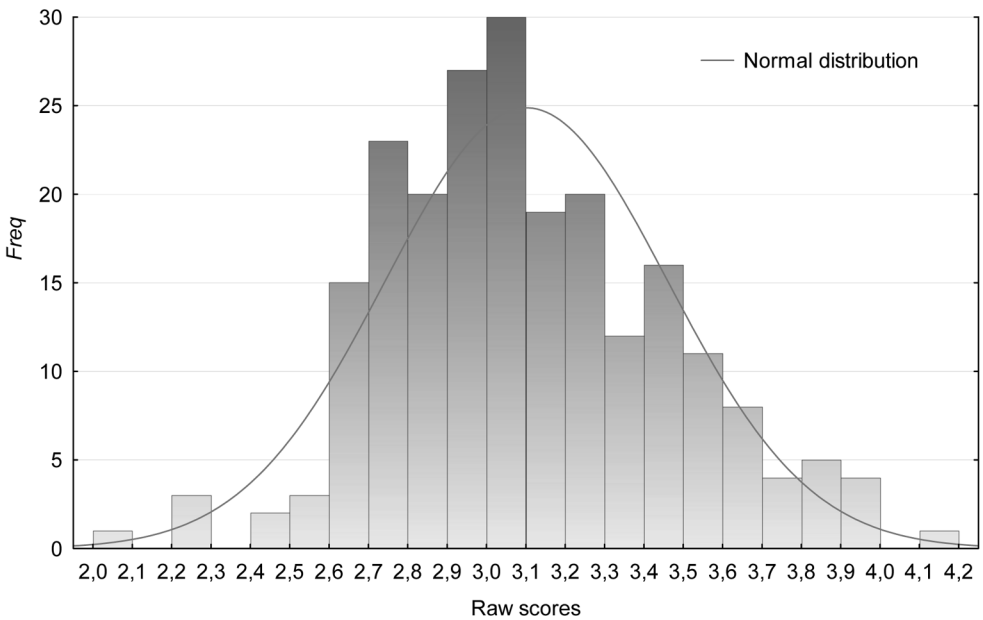


**Figure 2.** Distribution of Spontaneity Scale



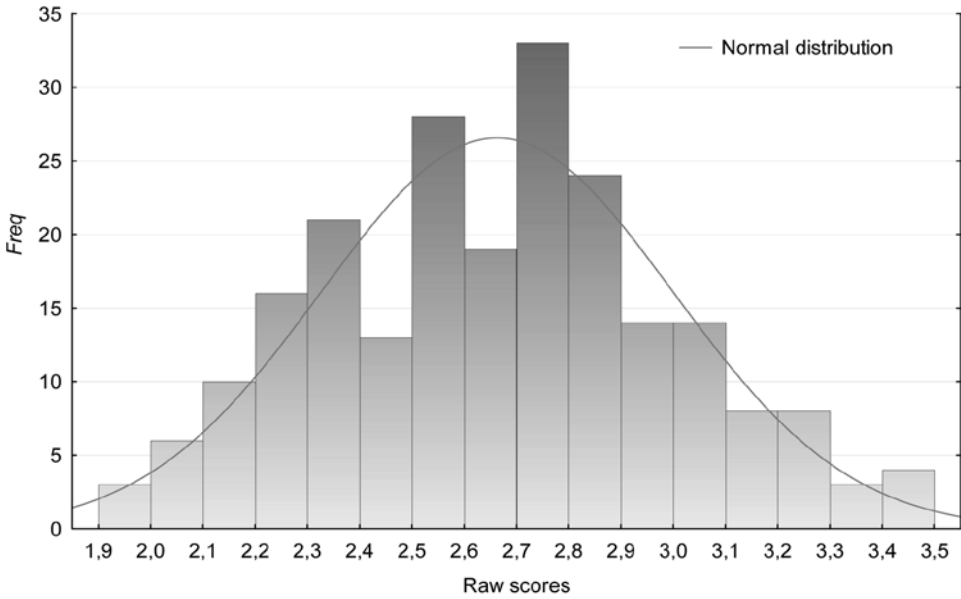
Source: own elaboration.

**Figure 3.** Distribution of Subtlety Scale



Source: own elaboration.

**Figure 4.** Distribution of Egoism Scale



Source: own elaboration.

**Table 2.** Converting the Raw Scores Into Sten Scores at the Ecological Level

Sten scores	Evaluation	Raw scores			
		Competence	Spontaneity	Subtlety	Egoism
1	very low	1.00–3.04	2.00–2.56	2.00–2.47	1.00–2.03
2	low	3.05–3.24	2.57–2.72	2.48–2.55	2.04–2.15
3	low	3.25–3.46	2.73–2.94	2.56–2.73	2.16–2.30
4	average	3.47–3.68	2.95–3.13	2.74–2.91	2.31–2.49
5	average	3.69–3.85	3.14–3.34	2.92–3.03	2.50–2.66
6	average	3.86–3.99	3.35–3.54	3.04–3.21	2.67–2.81
7	average	4.00–4.13	3.55–3.81	3.22–3.47	2.82–3.00
8	high	4.14–4.29	3.81–4.05	3.48–3.67	3.01–3.20
9	high	4.30–4.37	4.06–4.26	3.68–3.87	3.21–3.34
10	very high	4.38–5.00	4.27–5.00	3.88–5.00	3.35–5.00

Source: own elaboration.

## Discussion

The results of this study show that the structure of differentiation of brand personality profiles at the ecological level is the same as the structure of consumers' perception of brand personality based on mixed data, and that the dimensions individualized allow us to account for the aggregate affect towards the brand. The lack of major differences among the structures is indicative of the lack of ecological (Robinson, 1951) or composition (Caballero, 1992) fallacies when switching between the ecological level (when brands are compared) and individual level (with the aim to anticipate a consumer's reaction). Accordingly, we can predict a consumer's reaction to a particular brand as well as position a brand against competing brands on the basis of the same dimensions. In light of Aaker's (1997) model, commonly referred to in the literature, such a shift between the two levels entails committing an ecological fallacy (Austin et al., 2003).

The similarity of the factor structures individualized on the basis of mixed and aggregated data allowed for establishing norms that make it possible to identify a position of one brand in relation to other brands on the market. Previous research shows that measuring a brand's image with no reference to other competing brands results in the researcher—when analyzing the results of brands in certain scales—usually treating the middle and extremes of the scale as points of reference, which in the case of a 5-point scale is min = 1.0, mean = 3.0, max = 5.0. The results of our study provide evidence that these points of reference are unreliable. For instance, the assessment of the egoism of the brands balance between 1.9 and 3.5, which suggests that a given brand scoring 3.0 is perceived to be more egoistic than 84.4% of brands on the market—this is a very undesirable result for that brand. Nevertheless, applying the norms established here allows for a more precise positioning of brands on the market.

An apparent limitation of the norms established here is that they are fully and inclusively adequate and reliable for individuals who purchase products and services on the Polish market. This limitation applies to all the other norms established in other countries because ecological norms are country- and culture-specific. Only when a distribution (mean, standard deviation) is the same or similar in some countries can such norms be more widely applicable. Nevertheless, that requires identifying a distribution of brand personality scales on the basis of research conducted on large samples of brands and respondents – analogously to what has been done in Poland.

Another direction for future research is establishing norms for determining a position of a brand in relation to other brands within the same category, particularly based on specific dimensions for those categories (e.g. Kumar and Venkatesakumar, 2015; Sung,

Choi, Ahn, and Song, 2015; Tong and Su, 2014). That primarily applies to categories comprising numerous recognizable brands (e.g. cars, beverages, cigarettes, beer, etc.). However, it needs to be emphasized that the ecological norms were established for the general population, whereas norms for particular target groups can be slightly different.

## Conclusions

We managed to establish ecological norms for diagnosing a brand personality by addressing a question about a similarity level between the dimensions of the differentiation of brand personality profiles made at the ecological level and the structure of consumers' brand personality perceptions based on mixed data (Q1) and by addressing a question about whether or not those dimensions made at the ecological level can be utilized to anticipate the aggregate affect toward a brand (Q2). In both cases, the answers were positive, which enabled us to build norms for the assessment of a given brand's position in relation to other brands on the Polish market of goods and services offered to an individual consumer.

The norms established in this study are specific to Poland and their value is limited in diagnosing brand personalities in other countries and cultures. Performing research in other countries based on the proposed procedure will allow the establishment of analogous norms for diagnosing brand personality.

The main implication of this study is a methodological one. The results show that the current paradigm of thinking about brands, in which a mean scale in a Likert scale or an image of a competing brand are treated as a point of reference for the assessment of a score ascribed to a given brand, could be developed into an approach in which brand images are assessed with use of ecological norms (ecological diagnostics). Such an approach allows for a more precise determination of a certain brand's position in relation to many other competing brands – even without the necessity of measuring the images of numerous brands as with brand positioning. Consequently, the potential of the construct of brand personality can be used more efficiently as it crosses barriers among categories of brands and provides universal dimensions of comparisons among brands within as well as across specific categories.

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