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Green or social? An analysis of environmental and social sustainability advertising and its impact on brand personality, credibility and attitude

Frauke Sander¹ · Ulrich Föhl¹ · Nadine Walter¹ · Vera Demmer¹

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Abstract

The aim of this paper is to examine the impact of sustainability advertising on brand personality, credibility, attitude toward the ad and brand attitude; special attention was given to whether or not environmental and social sustainability advertising have different effects. The results of an online survey revealed that environmental sustainability advertising has a stronger influence than social sustainability advertising. Thus, the findings suggest that a focus on environmental aspects delivers the more impactful advertising content when promoting a brand's sustainability. This result is consistent with the existing studies on the sub-dimensions of sustainability; although only researched in different contexts, earlier findings also showed that environmental sustainability has a higher impact. Furthermore, an explicit integration of environmental aspects into the measurement of brand personalities offers a new and interesting field of future research. The study is based on data collected from 166 respondents. The impact of sustainability advertising is investigated by an experimental manipulation of the advertising condition. To test the hypotheses, structural equation models are applied, as well as one-way analyses of variance.

Keywords Brand personality · Sustainability advertising · Social sustainability advertising · Environmental advertising · Brand attitude · Credibility

Introduction

In recent years, threats to our environment have led to an increased relevance of sustainability, moving this topic into the center of general public awareness. Thus, sustainability has become a relevant purchase criterion for consumers, a driver of survival and growth for enterprises (Claudy et al. 2014; Wang and Wu 2016; Walsh and Dodds 2017; Rahman et al. 2019), and has been extensively researched by a number of business disciplines, including marketing (Cairncross 1991; Hoffman and Bazerman 2007; Belz and Peattie 2013; Kumar and Christodoulou 2014).

The basis for a still ongoing discussion on what sustainability really means is the definition stated in the WCED's Brundtland Report in 1987: A development that 'meets the needs of the present without compromising the ability of

future generations to meet their own needs' (WCED 1987, p. 37). Very often sustainability is said to include economic, environmental and social aspects, this being referred to as the 'triple bottom line.' Acting sustainably therefore means companies pursue their business in a manner that considers its impact on society and the environment, while also being profitable (Elkington 1998; Sheth et al. 2011).

Of these three dimensions, the environmental dimension has attracted the highest level of attention (Obermiller et al. 2008; Kumar et al. 2013; Kumar and Christodoulou 2014; Dangelico and Vocalelli 2017). The large body of marketing literature related to environmental sustainability has been concerned for example with profiling sustainable consumers (Seegebarth et al. 2016; Walsh and Dodds 2017; Balderjahn et al. 2018), analyzing environmentally friendly consumer behavior (Auger et al. 2010; Sudbury-Riley and Kohlbacher 2016) or consumers' willingness to pay for sustainable products (van Doorn and Verhoef 2011; Balderjahn and Peyer 2012). With regard to social sustainability, none of these topics have been discussed.

Therefore, despite the described research efforts, the literature displays a clear research gap regarding the

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multidimensionality of sustainability. One could argue that the economic dimension of sustainability—defined as a firm's ability to respond to short-term financial needs without compromising its ability to meet future needs (Bansal and DesJardine 2014)—does not contribute as directly to customer value as social and environmental aspects of corporate sustainable behavior, which typically have a direct effect on product characteristics. This does not explain though, why such limited attention has been devoted to a detailed analysis of the social dimension of sustainability, let alone to a comparison of environmental and social aspects (Simpson and Radford 2014; Catlin et al. 2017; Hanson et al. 2019). Both aspects seem to be relevant sources of customer value, especially as in the current discussion not only enterprises, but also consumers are charged with a responsibility for the 'social, ethical and environmental impacts of consumption decisions' (Caruana and Crane 2008, p. 1495). Therefore, social sustainability attributes need to be compared to environmental considerations as a source of differentiation and competitive advantage.

The very few authors that have made such a comparison so far have examined brand- and marketing-related aspects, such as the perception of environmental versus social sustainability by consumers (Catlin et al. 2017), the relative importance of these dimensions in the context of purchasing decisions (Simpson and Radford 2014), and their relevance for promoting products versus services (Hanson et al. 2019). However, an analysis of the effectiveness of environmental or social sustainability advertising on a brand has not yet been conducted. Although very recently Tarabashkina et al. (2020) were able to show that CSR communication has the potential to influence brands' responsible and active personalities, in the existing research no differentiation was made with regard to environmental and social aspects. This is especially surprising since advertising's key aim is to have a positive impact on the brand, particularly on brand personality (Davis 1993; Olsen et al. 2014).

Brands offer a unique opportunity to differentiate a company's offerings by providing functional, as well as emotional, benefits. They are the basis for the development of customer attitudes and promote strong customer relationships. A key concept in creating these relationships is brand personality, defined as the 'set of human characteristics associated with a brand' (Aaker 1997, p. 347). As customers relate to the personality traits that a brand has, brand personality helps to build an emotional connection between the brand and the consumer and enables them to express and shape their self-image (Fournier 1998; Aaker 1997; Sung and Kim 2010).

Brand personality is created by the 'intentional behaviors' a brand shows, which are observed by consumers. Thus, the influencing factors of the brand personality are numerous: consumers derive characteristics of the brand

personality not only from the branded product and product category, but also from its media appearance, price, distribution channels, employee behavior or the typical user of a brand (Aaker and Fournier 1995). This broad spectrum of possible determinants of brand personality also includes sustainability advertising. Defined as the communication on the sustainability efforts of a company or brand (Leonidou et al. 2013), it could be an appropriate way to add elements of sustainability to brand personality, reflecting its increased relevance to consumers.

To our knowledge, the impact of sustainability advertising on brand personality has not been researched yet. Therefore, the objective of our research is to analyze this impact of sustainability advertising on brand personality based on the following research questions:

1. Does sustainability advertising have a positive impact on brand personality and hence on credibility, attitude toward the ad and brand attitude?
2. Is environmental or social advertising more successful in building brand personality, credibility, attitude toward the ad and brand attitude?

To provide answers to these questions, the impact of sustainability advertising on brand personality, credibility and attitude is analyzed. This is done on a general basis, as well as with a specific focus on environmental versus social sustainability.

Theoretical background and hypotheses development

Sustainability marketing and sustainability advertising

The idea of ecological marketing, as a starting point to today's sustainability marketing, was first brought up in the beginning of the 1970s by Kassarijan and Fisk (Kassarijan 1971; Fisk 1974). However, it only gained more attention in the late 1980s, when consumers started to consider environmental aspects in their buying behavior, and thereby replaced moral motives of environmentally sustainable behavior by market pressure (van Dam and Apeldoorn 1996; Menon and Menon 1997; Polonsky and Rosenberger 2001). During the last 20 years, the concept of ecological marketing developed first into green, then greener, and finally sustainability marketing. The scope broadened throughout this transformation to include more than just the environmental dimension, and finally comprised all three dimensions of sustainability (Peattie 2001; Gordon et al. 2011; Kumar et al. 2013; Dangelico and Vocalelli 2017).



Hence today, sustainability marketing ‘involves building and maintaining sustainable relationships with customers, the social environment and the natural environment’ (Peattie and Belz 2010, p. 9). While most researchers agree on the multidimensionality of sustainability, there is no agreement yet on why and how companies should employ sustainability marketing (McDonagh and Prothero 2014; Purani et al. 2014; Kemper and Ballantine 2019). And although meta-analyses of the existing literature show that considerable research has been conducted on sustainability marketing, Kemper and Ballantine (2019) clearly state that the topic is ‘overwhelmingly understudied’ (Kemper and Ballantine 2019, p. 281).

Looking more specifically at the marketing mix to be used as part of ‘green’ or sustainability marketing, a first effort has been made by Polonski and Rosenberger in 2001 to explain specifics for all four marketing-mix elements (Polonski and Rosenberger 2001). More recently, Dangelico and Pontrandolfo (2010) provided an overview on research conducted regarding the marketing-mix elements, including promotion and advertising. Overall, sustainability advertising can be described as applying advertising messages promoting sustainable goods or services and/or informing stakeholders about the firm’s social, environmental or economic sustainability efforts (Minton et al. 2012; Leonidou et al. 2013). The focus of interest in this research area was centered on the content of ‘green’ messages, the impact of eco-labeling, greenwashing and consumer responses to green advertising as well as the effects on brand attitude (Banerjee et al. 1995; Thorson et al. 1995; Rex and Baumann 2007; Purohit 2012; Reilly and Hynan 2014; Schmuck et al. 2018a).

Environmental and social sustainability advertising

Even though, as just stated, researchers agree on a multi-faceted understanding of sustainability marketing, a large share of empirical studies focuses one-sidedly on the environmental dimension, sometimes even without making this restriction explicitly clear (Simpson and Radford 2012). In other research, sustainability is even treated as a unidimensional construct and the effects on the level of its components are not analyzed. Thus, the need for a more distinct exploration of the sub-dimensions of sustainability is stressed by various researchers (Chabowski et al. 2011; Balderjahn et al. 2013; Simpson and Radford 2014; Catlin et al. 2017). As this also applies to sustainability advertising analyzed here, distinct definitions of the two kinds of sustainability advertising should form the basis for our research:

Environmental sustainability addresses a firm’s impact on natural resources, asking for a behavior that does not compromise the health of the ecosystem (Hart 1995; Morelli 2011). Leonidou et al (2013) therefore define environmental or ‘green promotion’ as all communication ‘designed to

inform stakeholders about the firm’s efforts, commitment and achievements toward environmental preservation’ (Leonidou et al. 2013, p. 154). Banerjee et al (1995) define ‘green advertising’ as any advertising that addresses the relationship between a product and the biophysical environment, promotes a ‘green’ lifestyle and/or presents a corporate image of environmental responsibility (For a distinction of ‘environmental’ vs. ‘ecological’ sustainability, refer to Morelli (2011)).

Social sustainability focuses on a firm’s impact on society, demanding that a firm conducts fair business practices with its workforce, human capital and the community, thereby meeting the needs for human well-being (Elkington 1998; Rogers et al. 2012). Analogous to the environmental dimension of sustainability, one could therefore assume that there is also ‘social advertising’ that promotes socially sustainable behavior of a firm. However, while research on ‘green’ or environmental advertising is plentiful, there is no concordant discussion for social sustainability. The lack of a definition is compounded by the fact that several similar terms are used in different contexts, such as social media and social marketing, so that a fundamental delimitation of the terms is required.

Research that focuses on the promotion of a firm’s socially sustainable behavior exists in the context of corporate social responsibility (CSR) (Obermiller et al. 2009; Chabowski et al. 2011; Tarabashkina et al. 2020; for a detailed discussion on similarities and differences of CSR and sustainability, refer to van Marrewijk (2003)). Here, CSR advertising is defined as ‘promot[ing] CSR actions to stakeholders, including the wider society’ (Farache and Perks 2010, p. 235). However, there is ‘only embryonic marketing research on CSR communications’ (Maignan and Ferrell 2004, p. 17) and ‘the term CSR advertisement is not widely used’ (Farache and Perks 2010, p. 235). To differentiate the term from other current uses, we therefore propose to apply ‘*social sustainability advertising*’ to our context, which we define—based on foundations of ‘green’ and CSR advertising—as advertising designed to inform stakeholders about a firm’s efforts, commitment and achievements toward contributing to a better society.

Chabowski et al. (2011) clearly point to the need to distinguish between socially and environmentally focused elements of sustainability for several reasons: it enables companies to develop distinct competitive resources and capabilities, examine the impact of each on competitive advantage, and install adequate performance measures. In the marketing context, however, only a limited body of research explicitly makes that distinction and comparison: Frank and Brock (2019) analyze consumption motives for products with social and environmental features. Catlin et al (2017) investigate the differences in consumers’ perception of the social and environmental dimension of sustainability.



They conclude that the social dimension is perceived as linked to ‘affective, short-term, and local factors,’ whereas the environmental dimension is considered ‘more cognitive, long-term, and global’ (Catlin et al. 2017, p. 262). Hosta and Zabkar (2020) focus on determining whether consumers act differently when behaving environmentally or socially responsibly, and whether these kinds of behaviors have different antecedents. Simpson and Radford (2014) provide an assessment of the relative importance of sustainability dimensions in consumption choices using a choice-based conjoint set of experiments. Their results indicate that the environmental dimension of sustainability is the most relevant for consumers, followed by economic and social attributes. Other research supports that prominent role of environmental sustainability in consumers’ minds: ‘It is clear that for most respondents there is an alignment between the term sustainability and the environment [...]. The one-dimensional operationalization of sustainability as green, which is evident in literature and popular press, is indeed translating to consumer understanding’ (Simpson and Radford 2012, p. 281). Consumers seem to be better informed about environmental issues and consider environmentally responsible products more connected to regular purchases than socially responsible products, which are in turn more relevant for special occasions (Hosta and Zabkar 2020).

Brand personality

The definition of the term brand personality is based on the fact that consumers tend to attribute human characteristics to brands and perceive them as having personality traits. Brand personality is a means of differentiation and attracting customers beyond functional product attributes (Levy 1959; Plummer 2000; Azoulay and Kapferer 2003; Radler 2018). Aaker defines brand personality as the ‘set of human characteristics associated with a brand.’ Fournier (1998) adds that it is this ‘personification qualification’ that is a key prerequisite to building consumer–brand relationships.

The conceptualization of brand personality is largely based on Aaker’s groundbreaking article on the *Brand Personality Dimensions* (Aaker 1997): Based on the ‘Big Five’ dimensions of human personality, she identified ‘sincerity,’ ‘excitement,’ ‘competence,’ ‘sophistication’ and ‘ruggedness’ to be the five dimensions of brand personality. Since the publishing of Aaker’s paper, researchers have continuously aimed at testing and refining the operationalization of brand personality: such as Geuens et al’s (2009) development of a new scale that reflects the Big Five human personality traits only, Arora and Stoner’s (2009) combination of quantitative and qualitative approaches to measuring brand personality, or Eisend and Stokburger-Sauer’s (2013b) investigation of intercorrelations and reliabilities of Aaker’s brand personality dimensions. Later research in other

countries showed that Aaker’s brand personality scale cannot be applied globally, but must, at least partly, be adapted to country- or culture-specific conditions. For example, while the dimensions ‘sincerity,’ ‘excitement,’ and ‘sophistication’ are transferable to a certain extent, ‘competence’ and ‘ruggedness’ seemed not to be relevant to Spanish or Japanese consumers, but were replaced by other facets of brand personality (Aaker et al. 2001). A similar need for local adaptations was found in other cultural backgrounds (Sung and Tinkham 2005; Milas and Mlačić 2007; Halonen 2013).

In Germany in particular, Hieronimus (2004), Bosnjak et al (2007) and Mäder (2005) have dealt with the measurement of brand personalities. Hieronimus (2004) was the first to compile a brand personality inventory for Germany and based his research on the results of Aaker. He used the five original dimensions tested in the USA and supplemented them with two further dimensions that had proven to be relevant in studies in Spain and Japan. As a result, he developed a two-dimensional model with ‘trust & security’ as the rational component of brand personality, and ‘temperament & passion’ as the emotional component. Mäder (2005) did not adopt Aaker’s dimensions, but rather her approach. Based on extensive adjective lists and an assessment of a number of stimulus brands by more than 4,500 test persons, he determined a brand personality inventory with the five dimensions ‘attractiveness,’ ‘reliability,’ ‘spirit,’ ‘stability’ and ‘naturalness.’ Of these dimensions, ‘attractiveness’ shows a clear link to Aaker’s dimension ‘sophistication’ and is based on aspects such as aesthetics, extravagance and eroticism. ‘Reliability’—related to Aaker’s ‘competence’—contains facets of competence and integrity. The third dimension, ‘temperament,’ is most closely related to Aaker’s ‘excitement’ and includes aspects of dynamics and creativity. The residual two dimensions do not show strong links to Aaker’s personality dimensions: ‘stability’ is especially evident for brands that have proven themselves and survived over time with confidence and without major adjustments. The dimension ‘naturalness’ stands for a close contact and care toward nature. Different to Aaker’s dimension ‘ruggedness,’ that also contains some references to nature, the focus here is on harmony with nature.

These five dimensions are the result of an aggregated analysis based on the mean values of the assessment of each brand characteristic across all respondents. Alternatively, Mäder (2005) later carried out an analysis based on individual data, which led to an alternative brand personality inventory. Bosnjak et al (2007) made a third attempt to develop a suitable brand personality inventory for the German-speaking countries. They used disaggregated data and included both positive and negative brand-related adjectives in their investigation.

In this study, Mäder’s first aggregated approach to measuring brand personality is used, as this system



explicitly includes the dimension of ‘naturalness,’ which appears particularly relevant in the context of the sustainability advertising examined here. Mäder’s brand personality scale has also been widely discussed in the German-language literature and has been the basis for further analyses of brand personality-related research (Wentzel et al. 2008; Lorenz 2009; Kilian 2011). Furthermore, the primary focus of this study is on the ‘naturalness’ dimension of brand personality. Based on environment protection being a core dimension of sustainability and environmental sustainability advertising, it seems only logical that this dimension of brand personality should be impacted most.

Despite all the different approaches in measuring brand personality, there is consensus that the brand personality is an essential success factor in branding (Freling et al. 2011; Eisend and Stokburger-Sauer 2013a): brand personality helps to create emotional customer benefits and achieve a clear differentiation from competition (Freling and Forbes 2005). For consumers, brand personality offers an opportunity to express their self, strengthen specific elements or even expand the self toward an ideal self-perception (Aaker 1997; Fournier 1998). Due to the increased relevance of sustainability for many consumers, the question now arises as to how sustainability aspects can be integrated into the brand personality in order to increase its appeal to consumers.

Just as a person’s personality is expressed through their behavior, the brand personality is created by every direct and indirect contact with the brand. Both person-oriented impressions (e.g., resulting from employee behavior or typical users) and performance-oriented determinants, such as product design, price level or communication activities, play a role in determining the brand personality (Fournier 1998; Wysong 2000; Sung and Kim 2010). It can therefore be assumed that sustainability advertising also generates trait inferences that shape the consumer’s perception of a brand personality.

Hence, we propose the following hypothesis:

H1a Environmental and social sustainability advertising lead to a positive impact on brand personality.

Due to the prominent role of environmental sustainability in consumers’ minds described earlier, we also propose:

H1b Environmental sustainability advertising has a stronger effect on brand personality (i.e., brand personality created by environmental sustainability advertising is perceived to be more ‘natural’ than brand personality created by social sustainability advertising).

Ad credibility

Ad credibility is defined as ‘the extent to which the consumer perceives claims made about the brand in the ad to be truthful and believable’ (MacKenzie and Lutz 1989). Hence, the consumer analyzes the visual and/or verbal content of the ad and comes to an evaluative judgment (Hussain et al. 2020). The assessment of an ad’s credibility then determines the attitude the customer has about the ad (Ganz and Grimes 2018). Hence, ad credibility is one of the various antecedents of attitude toward the ad (Muehling and McCann 1993; Rajaobelina et al. 2019). Lutz et al (1983) were among the first that have identified the ‘first-order determinants’ of attitude toward the ad. These were ad credibility, ad perceptions, attitude toward the advertiser, attitude toward advertising and mood. Among these five, ad credibility has been the most widely studied.

Ad credibility consists of three underlying determinants: the perceived claim discrepancy of the ad, the credibility of the advertiser and the credibility of advertising in general. Ad discrepancy means that claims made in the advertising are inconsistent with the viewer’s prior perception of the brand (Lutz 1985).

We believe that brand personality also has a positive impact on ad credibility. A substantial literature stream has explored the impact of a favorable brand personality: it offers an opportunity for differentiation (Aaker 1996), increases consumers’ trust and loyalty (Fournier 1998; Kim et al. 2001), and positively influences purchase intention (Freling et al. 2011; Eisend and Stokburger-Sauer 2013a). In addition, Freling and Forbes (2005) show that brand personality has a positive impact on number, uniqueness and proportion of congruent and strong brand associations—a phenomenon they call the ‘brand personality effect.’ We assume that this sharpened set of brand associations resulting from a strong brand personality will in turn decrease the perceived claim discrepancy of the ad. Having researched the ‘brand personality effect’ for all dimensions of brand personality individually, Freling and Forbes (2005) could show that this effect occurred regardless of which dimension was manipulated. Therefore, we assume that a positive impact of sustainable advertising on the ‘naturalness’ of a brand will have an impact on brand associations in the sense that perceived claim discrepancy is reduced and, hence, credibility of the ad increased. In addition, we assume that brand personality has a positive effect in the context of ‘greenwashing’: due to the large number of ‘green’ advertising messages, consumers are quite skeptical about their credibility (Schmuck et al. 2018b). Research has shown, however, that consumers are likely to use brand personality as an alternative source of information, if they cannot form their own opinion about certain product characteristics due to lack of experience, lack of time or insufficient information (Freling and Forbes



2005). Therefore, a clear perception of brand personality will support its surrogate function and help increase ad credibility.

Therefore, we propose the following:

H2a Brand personality—here specifically a stronger profile with regard to the naturalness of a brand—has a positive impact on ad credibility.

As with hypothesis 1, we also assume that—based on the stronger effect on brand personality—the effect of environmental sustainability advertising will be stronger:

H2b Environmental sustainability advertising is perceived to be more credible than social sustainability advertising.

Attitude toward the ad

Attitudes toward the ad are defined as ‘a predisposition to respond in a favorable or unfavorable manner to a particular advertising stimulus during a particular exposure occasion’ (Lutz 1985). In contrast to the attitude toward advertising in general—which represents attitudes toward the category (advertising) as a whole—attitude toward the ad focuses on a particular advertising stimulus, that is the exposure to a specific print or TV ad (Jin and Lutz 2013).

An attitude toward an ad is formed by the consumer evaluating the visual and/or verbal substance of the claim and its content. Based on this evaluation, evaluative judgments are formed, such as ad perception, attitude toward the advertiser and ad credibility (Lutz et al. 1983; Muehling and McCann 1993; Usman 2019). Ad credibility is seen as one of the most important precedents of attitude toward the ad (Muehling and McCann 1993; Eid et al. 2020), which is also true for green advertisement (Fernando et al. 2016).

The impact on attitude toward the ad has been studied in various studies. Jain and Posavac (2004) show, for comparative advertising, that the more believable the claim is, the more positive is the attitude toward the ad. Cotte et al. (2005) have revealed that if viewers perceive ad content by the advertiser to be manipulative, they judge it as inappropriate and unfair and are likely to resist the message. In contrast, if consumers find an ad credible and perceive no manipulative intent, the emotional responses will be more congruent with the intent of the advertiser. This has also been proven in the context of green advertising. Newell et al. (1998) show that misleading environmental claims, that the consumer recognizes as being false, untruthful or omitting information, leads to negative feelings. Hence, these have adverse effects on the consumers’ attitudes toward the ad. Davis (1993) found that the more specific an ad—that is the more detailed, relevant, understandable and supported information on the advertised product’s environmental attributes

and promised environmental benefits it contains—the more positive the attitude is toward the advertiser and the overall product. Hence, we propose the following hypotheses:

H3a Ad credibility has a positive impact on attitude toward the ad.

Again, we assume a stronger impact for the environmental sustainability advertising due to its stronger effect on brand personality and ad credibility:

H3b Environmental sustainability advertising builds a more positive attitude toward the ad than social sustainability advertising.

Brand attitude

Brand attitudes are considered to be part of brand equity (Aaker 1991; Keller 1993) and are defined as an ‘individual’s internal evaluation of the brand’ (Mitchell and Olson 1981).

Although brand attitudes have been debated for over 20 years in branding and consumer behavior literature, there is still no common agreement on the following two issues (Argyriou and Melewar 2011): First, whether or not attitude is a stable association stored and then evoked from memory, or if it is a temporary evaluation of a product at the moment of judgment (Feldman and Lynch 1988; Fazio 1990; Spears and Singh 2004). Secondly, whether or not it is a strictly cognitive process based on analytical evaluation, or if it is an affective one based on emotions (Fishbein and Middlestadt 1995; Schwarz 1997).

Various studies suggest that attitude toward the ad positively impacts brand attitude (Edell and Burke 1984; MacKenzie and Lutz 1989; van Grinsven and Das 2016; Gahlot Sarkar et al. 2019). If consumers have a positive perception about an ad, it impacts how the advertised brand is seen. Muehling and McCann (1993) found, as early as in the 1990s, at least 37 studies that support the fact that individuals’ attitude toward the ad has a direct impact on brand attitude. Only the variety of conditions varies, such as the level of involvement (Muehling et al. 1991), the type of industry (Kim et al. 2002) or the geographic region (Wahid and Ahmed (2011) for Yemen).

The link between attitude toward the ad and brand attitude has also been proven in green advertising. Davis (1993) shows that the attitude toward the ad, and hence brand attitude, is enhanced if environmental advertising uses stronger rather than weaker claims. Olsen et al (2014) show that if claims are used during product launches of green new products that communicate the environmental value of the product, this can positively change the brand attitude. Matthes et al (2014) found that ads that combine functional and



emotional appeals have a positive impact on brand attitudes by shaping ad attitudes.

Hence, we propose the following hypotheses:

H4a Attitude toward the ad has a positive impact on brand attitude.

In addition—as outlined for the earlier hypotheses and based on the stronger effect on brand personality, ad credibility and attitude toward the ad—we assume a stronger impact of environmental sustainability advertising:

H4b Environmental sustainability advertising builds a more positive brand attitude than social sustainability advertising.

Methodology

Data collection and sample

An online questionnaire survey was conducted in order to test our research hypotheses. The questionnaire was pre-tested by a small group consisting of students and scientific staff in order to check for clarity of the questions. After minor adjustments based on the pre-test, the data collection took place between March 28 and April 11, 2019. The survey was distributed via different social media channels, a German platform for online surveys (surveycircle.com), and the student access panel of Pforzheim University. The resulting convenience sample was self-selective and non-representative. Knowledge of the brands included in the survey was precondition for participation. A total of 451 participants started the survey, 268 (59.4%) finished it. A total of 102 questionnaires had to be excluded because participants did not know at least one of the three brands included. The resulting 166 valid questionnaires were included in the analysis. 30.1% ($n=50$) of the respondents were men and 69.9% ($n=116$) were women. Mean age was 26.4 years ($SD=9.7$), and 73.5% of the sample were between 18 and 25 years. The majority of respondents were students ($n=124$; 74.7%), $n=34$ (20.4%) were employed, and a small number of the respondents had a different professional status ($n=8$; 4.80%).

Research design and stimuli

The impact of sustainability advertising was investigated within a single-factor design with an experimental manipulation of the advertising condition. A neutral advertising condition served as the control condition and avoided advertising messages related to sustainability by emphasizing general positive aspects of a certain product. Two additional experimental conditions focused on

environmental and social sustainability advertising messages. The environmental condition addressed ecological aspects related to the advertised product, the social condition focused on social aspects, such as the avoidance of child labor or discrimination in the workplace. All stimuli used pictures and short text descriptions to illustrate the different advertising messages.

In order to assess the advertising impact on brand attitude, three brands from common product categories (mineral water, sports shoes and yogurt) were selected. For each brand, advertising stimuli for all three advertising conditions were created, resulting in a total of 9 advertising stimuli (3 brands \times 3 advertising conditions, see "Appendix A" section). In a within-subjects design, each participant was confronted with three advertising stimuli, representing the three advertising conditions (neutral, environmental, social) in randomized order. So, each participant was presented one of three environmentally oriented stimuli ("Appendix A" section, stimulus 1, 4 or 7), one socially oriented stimulus (stimulus 2, 5 or 8) and one neutral stimulus (stimulus 3, 6 or 9). Within each participant, each condition was associated with a different brand (e. g., neutral condition/Teinacher, environmental condition/Reebok, social condition/Ehrmann). The association between advertising conditions and brands was randomized between the subjects.

Main criteria for the selection of brands were familiarity of the anticipated target group with the product categories, and a medium level of brand awareness. Brands with very high brand awareness were avoided because extensive brand knowledge or very stable brand attitudes might have weakened the experimental manipulation: the more stable the attitude toward a brand is, the less likely an experimental manipulation might be able to affect this attitude, which would reduce the internal validity of the research design. We excluded test persons who did not know at least one of the brands. Brands and stimuli were discussed and optimized in several iterations within the research group to make sure that differences between the three advertising conditions are primarily based on sustainability-oriented content, without other confounding aspects like text length, picture quality, etc. In addition, manipulation check items were used to verify the effect of the experimental conditions.

Measures

Table 1 shows all measurement items for the main constructs and their sources. We used the 'naturalness' dimension of Mäder's (2005) aggregated German brand personality scale. Mäder systematically developed this instrument using several exploratory and confirmatory factor analyses to reduce his initial item pool and to optimize reliability, convergent and discriminant validity of the scale and its dimensions.



Table 1 Items and convergent validity

Construct	Item	Environmental			Social		
		Loading	CA	AVE	Loading	CA	AVE
BP naturalness (Mäder 2005)	<i>To what extent do the following characteristics apply to this brand? (1 = strongly disagree, 5 = strongly agree)</i>		.823 ^a	.701		.833 ^a	.714
	Natural	.843*			.864*		
	Close to nature	.831*			.826*		
Ad credibility (Chang 2011)	<i>I find the ad of brand xy to be ... (1 = strongly disagree, 5 = strongly agree)</i>		.900	.614		.897	.608
	Believable	.862*			.888*		
	Trustworthy	.861*			.850*		
	Credible	.802*			.799*		
	Reasonable	.699*			.626*		
	Convincing	.854*			.900*		
	Unbiased	.580*			.544*		
	Attitude toward ad (Holbrook and Batra 1987)	<i>How do you rate the ad, regarding the following aspects? (1 to 5, bipolar items)</i>		.898	.693		.885
	I like/dislike the ad	.841*			.829*		
	I react favorably/ unfavorably to the ad	.891*			.858*		
	I feel positive/negative toward the ad	.816*			.788*		
	The ad is good/bad	.779*			.769*		
Brand attitude (Spears and Singh 2004)	<i>How do you rate brand xy regarding the following aspects? (1 to 5, bipolar items)</i>		.880	.600		.921	.698
	Good/bad	.793*			.796*		
	Favorable/unfavorable	.741*			.848*		
	Likeable/unlikeable	.769*			.873*		
	Appealing/unappealing	.778*			.816*		
	Pleasant/unpleasant	.791*			.843*		

Loadings standardized factor loadings; CA Cronbach's alpha, AVE average variance extraction

* < .01

^aFor the 2-item scale, Spearman–Brown coefficient was calculated instead of Cronbach's Alpha (item *fresh* was excluded from naturalness scale)

For ad credibility, we used the pretested 6-item scale of Chang (2011), which is a slight adaptation of the original scale of MacKenzie and Lutz (1989).

Attitude toward the ad was measured with the pretested scale of Holbrook and Batra (1987), for which the authors found good reliability scores. This is in line with other scales which use similar items (MacKenzie and Lutz 1989; Mitchell and Olson 1981; Kim et al. 2002). For brand attitude, we have chosen a multi-item scale according to academic practice, which is the scale used by Spears and Singh (2004). It has been recently validated by a study of Veirman et al. (2017), which found high internal consistency and is similar to other scales, such as the ones used by Mitchell and Olson (1981), Holbrook and Batra (1987) or MacKenzie and Lutz (1989).

As a manipulation check, we included items measuring different aspects of ad perception (*To what extent does the ad of brand x express the following aspects?*). Participants

had to rate the three aspects: sustainability, ecological aspects and social engagement.

The English scales for ad credibility, attitude toward the ad and brand attitude have been translated into German using the method of translation and backward translation to achieve valid items. All items were rated on 5-point scales. The unipolar items for measuring brand personality, ad credibility and the manipulation check items were anchored by 1 = strongly disagree agree and 5 = strongly agree. In addition, sociodemographic questions on gender and age were included in the last section of the questionnaire.



Results

Analysis

To test hypotheses H2a, H3a and H4a, we calculated structural equation models using the Maximum Likelihood Estimation (ML) for the data of the experimental conditions 'environmental' and 'social' separately. Convergent and discriminant validity of the measurement models were investigated by a confirmatory factor analysis and Cronbach's alpha scores as indicators for scale reliability.

To compare the three experimentally manipulated advertising conditions (hypotheses H1a, H1b, H2b, H3b, H4b), we conducted one-way analyses of variance (ANOVA) with advertising condition as the within-subject factor (with the levels neutral, environmental and social). The three manipulation check items and the averaged multi-item scales for brand personality, credibility, attitude toward the ad and brand attitude were used as dependent variables. Greenhouse–Geisser correction was used to adjust for lack of sphericity (Greenhouse and Geisser 1959). We applied univariate ANOVA instead of MANOVA because the constructs have mostly been investigated separately in previous research studies (Huberty and Morris 1989). Due to the assumed relations between the four constructs brand personality, ad credibility, attitude toward the ad and brand attitude, the level of significance was set at 0.01 (instead of 0.05) which is slightly more conservative than Bonferroni correction ($0.05/4 = 0.0125$). One-tailed t-tests with Bonferroni correction ($\alpha = 0.01$) were performed as post hoc tests.

Statistical analysis was performed with IBM SPSS 25.0 and IBM SPSS AMOS 25.0 for the structural equation models.

Measurement models

Confirmatory factor analysis of the constructs demonstrated good overall model fit for both the environmental and social sustainability advertising conditions based on established standards (Hu and Bentler 1999). The analysis of the environmental advertising condition resulted in $\chi^2(113) = 158.846$, $p < 0.001$, $\chi^2/df < 2.0$, Root Mean Square

Error of Approximation RMSEA = 0.050, Standardized Root Mean Square Residual SRMR = 0.043, Comparative Fit Index CFI = 0.975. For the social condition, we found $\chi^2(113) = 156.868$, $p < 0.001$, $\chi^2/df < 2.0$, RMSEA = 0.049, SRMR = 0.0388, CFI = 0.977.

Table 1 displays reliability and convergent validity metrics of the measurement scales for the variables of both experimental conditions. All factor loadings and Average Variance Extraction (AVE) estimates exceeded 0.50, indicating good convergent validity of both measurement models. Square root of the AVE scores was greater than the correlations between the corresponding constructs (see Table 2), demonstrating good discriminant validity (Fornell and Larcker 1981). Smaller differences in the corresponding values of the two experimental conditions could be observed. Since for both measurement models the square root of the AVE scores clearly exceeded the correlations between the constructs, we assume that there were no systematic differences in terms of discriminant validity between the two experimental conditions. One item of the naturalness scale (fresh) was removed in advance due to low factor loading. For the resulting 2-item scale, the more appropriate Spearman–Brown coefficient was calculated instead of Cronbach's alpha (Eisinga et al. 2013). Spearman–Brown and Cronbach's alpha coefficients ranged between 0.823 and 0.921 indicating good scale reliability. Overall, all reliability and validity metrics exhibited acceptable measurement quality.

With regard to the subsequent ANOVAs, reliability scores for the data of the neutral conditions were calculated as well. The Cronbach's alpha scores for the constructs ranged from 0.890 to 0.900, and the Spearman–Brown coefficient for the naturalness scale was 0.693, also indicating acceptable scale reliability.

Structure models

Results from both structural models suggest an adequate overall fit: $\chi^2(115) = 162.237$, $p < 0.001$, $\chi^2/df < 2.0$, RMSEA = 0.050, SRMR = 0.0421, CFI = 0.974 for the model of the environmental condition, $\chi^2(115) = 163.914$, $p < 0.001$, $\chi^2/df < 2.0$, RMSEA = 0.051, SRMR = 0.0546, CFI = 0.975 for the model of the social condition. All hypothesized relations between the constructs were

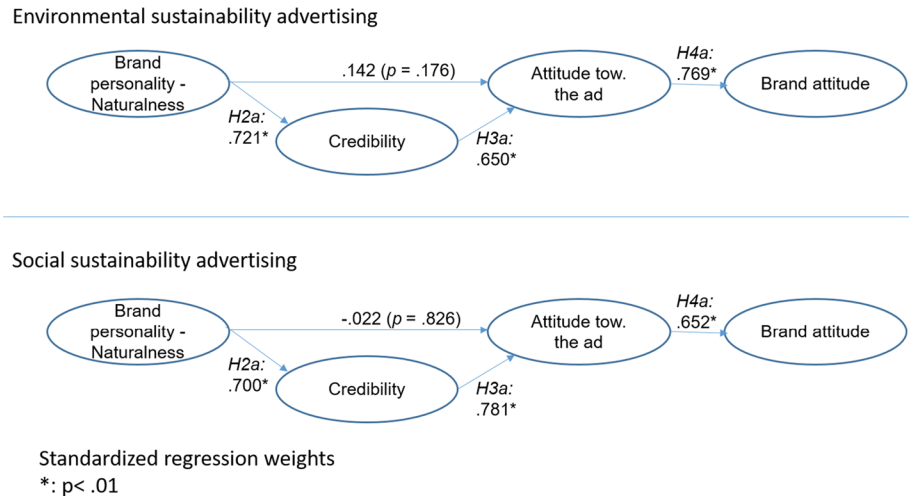
Table 2 Discriminant validity

	Environmental				Social			
	C1	C2	C3	C4	C1	C2	C3	C4
BP Naturalness (C1)	.837				.845			
Ad credibility (C2)	.721	.783			.700	.780		
Attitude tow. ad (C3)	.596	.746	.832		.507	.752	.812	
Brand attitude (C4)	.559	.613	.759	.775	.469	.590	.632	.836

Values on the diagonal: squared root of AVE; under diagonal: correlation coefficients



Fig. 1 Structural models and hypotheses for environmental and social sustainability advertising



significant (H2a, H3a, H4a, see Fig. 1). The only nonsignificant path in both models was the direct connection between brand personality and attitude toward the ad.

Comparisons of advertising conditions

One-way repeated measures ANOVAs for all dependent measures were significant (see Table 3). Post hoc tests revealed significant differences between all experimental conditions for the three manipulation check items. The environmental sustainability advertising condition was perceived as significantly more sustainable than the other two conditions ($p < 0.001$). The socially oriented condition showed significantly greater values for sustainability and ecological aspects than the neutral control condition ($p < 0.001$), and it was associated with social engagement to a greater extent than the other two conditions ($p < 0.001$). Therefore, it can be concluded that the experimental manipulation had been successful.

Post hoc tests for the brand personality dimension ‘naturalness’ revealed significant differences between the environmental and the other two conditions ($p < 0.001$) with the

environmental condition being perceived as most natural; no significant differences could be found between the conditions neutral and social ($p = 0.076$).

The significant main effect of the ANOVA, with ad credibility as the dependent measure, is also based on the significant difference between the environmental and the other two conditions (post hoc test for environmental vs. neutral: $p = 0.006$; environmental vs. social: $p < 0.001$). The conditions neutral and social did not differ from each other ($p = 0.198$). Hence, the advertising condition focusing on environmental aspects was perceived as more credible than the other two conditions, whereas there was no positive effect for the social condition.

The ANOVAs for the dependent measures attitude toward the ad and brand attitude showed similar result patterns. In both analyses, post hoc tests revealed significant differences between the environmental and the other two conditions (post hoc tests for attitude toward the ad: environmental vs. neutral and environmental vs. social: $p < 0.001$; tests for brand attitude: environmental vs. neutral and environmental vs. social: $p < 0.001$). Again, the environmental advertising positively affected the two dependent measures, whereas

Table 3 Mean comparisons of advertising conditions

Dependent measure	Mean (SD)			F	df	η_p^2	p
	Neutral	Environmental	Social				
Manipulation check—sustainability	1.87 (1.03)	4.37 (.86)	3.28 (1.28)	229.00	1.89/308.28	.58	< .001*
Manipulation check—ecological aspects	1.89 (1.01)	4.35 (.78)	2.86 (1.31)	251.23	2/326	.61	< .001*
Manipulation check—social engagement	1.91 (1.11)	3.33 (1.15)	4.33 (.89)	224.50	2/326	.58	< .001*
BP naturalness	3.31 (.96)	4.12 (.85)	3.08 (1.10)	57.75	1.86/306.38	.26	< .001*
Ad credibility	3.36 (.80)	3.59 (.77)	3.24 (.84)	11.15	1.86/304.69	.06	< .001*
Attitude toward the ad	3.44 (.94)	3.86 (.89)	3.34 (.98)	16.70	1.92/314.06	.09	< .001*
Brand attitude	3.63 (.78)	3.97 (.68)	3.63 (.87)	12.25	1.87/305.36	.07	< .001*

* < .01, significant; η_p^2 : Partial Eta²



there was no effect for the social advertising ($p = 0.500$ for attitude toward the ad and for brand attitude).

Since the environmental condition showed significantly greater values across all dependent measures compared to the social condition, H1b, H2b, H3b and H4b could be confirmed. Due to the fact that only the environmental condition differed significantly from the neutral condition, whereas there was no such effect for the social condition, H1a was only partially confirmed. Table 4 summarizes our findings.

Discussion and conclusion

Overall, we can confirm that sustainability advertising, especially with an environmental focus, has an impact on brand personality. The benefits of a favorable brand personality, such as enhanced brand attitude and purchase intention, can be enforced by sustainability advertising. This is in line with previous studies. Davis (1993), Olsen et al (2014) and Matthes et al (2014) prove a positive impact of green advertising on the brand. Various other studies show a positive correlation of brand personality on brand attitude/purchase intention (Freling and Forbes 2005; Freling et al. 2011). The comparison of environmental versus social sustainability advertising showed a stronger impact of the environmental dimension of sustainability. Findings show that consumers actually do show a stronger reaction to 'green' messages. This could be due to two reasons: firstly, for many consumers, sustainability is linked primarily with aspects of environmental protection. Simpson and Radford (2012) showed in their study that about 75% of the keywords mentioned by consumers on the subject of sustainability related to environmental protection. Contrary to the three-dimensional definition of sustainability, consumers often assume a one-dimensional understanding of the term. Therefore, a first

potential reason for the stronger effect of environmental sustainability advertising is linked to a 'quantitative' dominance of that dimension of sustainability.

Secondly, a higher favorability of an environmentally oriented brand personality appeal might also be relevant here, adding a qualitative aspect to the explanation. Freling et al (2011) developed a measure of a brand's ability to appeal to consumers based on its personality. This measure includes the three dimensions 'favorability,' 'originality' and 'clarity' of a brand's human characteristics, with 'favorability' being a result of the satisfaction consumers derive from a specific attribute (Freling et al. 2011). This satisfaction is a result of an evaluation process, assessing the 'goodness or badness' connected to a brand trait. The current challenges of climate and environmental protection, which have dominated the public debate on sustainability in recent years, have certainly reinforced an urgency related to environmental aspects that is less present for social considerations. A focus on environmental aspects in advertising might therefore lead to a brand personality perceived as more satisfying, leading also to a more positive attitude toward the brand.

A key practical implication for brand management is that the differentiation of a brand by promoting sustainability will be more successful with the help of environmental messages. The higher level of knowledge about environmental aspects obviously offers more points of reference for environmental sustainability messages of a brand. As a result, the impact on the brand personality is increased, and the credibility of the advertisement is also better evaluated.

A key implication for academic research on the topic of brand personality is that the construct of brand personality should be expanded or updated in the course of the current debate, considering the greatly increased relevance of sustainability aspects also in other national contexts. As Davies et al (2001) and Alpatova and Dall'Olmo Riley (2011) have

Table 4 Summary of hypotheses testing

Hypothesis	Confirmation
H1a Environmental and social sustainability advertising lead to a positive impact on brand personality	Partially (for ecological advertising)
H1b Environmental sustainability advertising has a stronger effect (i.e., a brand personality created by environmental sustainability advertising is perceived to be more 'natural' than brand personality created by social sustainability advertising)	Yes
H2a Brand personality—here specifically a stronger profile with regard to the naturalness of a brand—has a positive impact on ad credibility	Yes
H2b Environmental sustainability advertising is perceived to be more credible than social sustainability advertising	Yes
H3a Ad credibility has a positive impact on attitude toward the ad	Yes
H3b Environmental sustainability advertising builds a more positive attitude toward the ad than social sustainability advertising	Yes
H4a Attitude toward the ad has a positive impact on brand attitude	Yes
H4b Environmental sustainability advertising builds a more positive brand attitude than social sustainability advertising	Yes



already pointed out, the five dimensions identified by Aaker are not supported enough, and hence are not complete. In the course of this detailing, it could then also be examined whether aspects of sustainability should be included, and how they should be measured. The naturalness subscale of Mäder's brand personality instrument only consists of three items, with one item showing insufficient item properties. Subscales with more items might improve the reliability and validity of measuring instruments addressing environmentally oriented aspects of brand personality.

Limitations

The results of this research are subject to a number of limitations. Regarding sustainability, a clear dominance of environmental aspects in consumers' perception is evident. However, further studies should examine the interdependencies between the two concepts of CSR and sustainability in more detail. Tarabashkina et al (2020) already showed an impact of CSR communication on brand personality. However, further research in this area is needed to assess whether social sustainability could play an equally important role for consumers, but is more strongly linked to CSR.

In addition, other moderating variables could also strengthen the impact of social sustainability advertising: It might for example be more relevant in collectivist cultures. In contrast to individualistic cultures, collectivistic cultures have social rules that promote selflessness and put community needs ahead of individual needs; people tend to do what's best for society (Hofstede 1984; Wang et al. 2017). Hence, it might be expected that people in collectivist cultures identify more with social sustainable advertising, as the cause supports the community's need rather than the individual's goals.

Furthermore, it is conceivable that a positive attitude of consumers toward ethical consumption and their knowledge of sustainability reinforces the importance of social sustainability advertising, as both would help to better grasp the complexity of the term (Kim et al. 2016; Sudbury-Riley and Kohlbacher 2016). It could also be expected that the more consumers already show an ethically minded purchasing behavior, or the more this behavior is practiced in their environment (thereby creating social norms), the greater the impact of social aspects in brand communication. Thus, the future research could include collectivism versus individualism as a moderating variable as well as consumers' attitude toward ethical consumption, actual ethical consumption behavior and sustainability knowledge.

In addition, our research focuses on one brand personality dimension only, the 'naturalness.' This is the only plausible dimension of Mäder's five dimensions that reflects environmental sustainability properly. However, we see the need to revise and/or expand the existing scales to include

all aspects of sustainability, also social sustainability. This revision/expansion is not only relevant for Mäder's scale for Germany, but also for others, such as Aaker's scale for the USA. Geuens et al's (2009) 'responsibility' dimension of brand personality could serve as a basis to include the aspect of 'caring for others' even more explicitly in brand personality scales and thereby be able to assess the impact of social sustainability advertising.




While analyzing the different impacts of environmentally or socially oriented sustainability advertising on brand personality and advertising effectiveness, our research is limited regarding its impact on other relevant success factors of brand management. Further studies could investigate the impact of environmental and social sustainability advertising on other key success factors, such as brand associations, brand loyalty or brand equity. Also, a comparison of socially or environmentally responsible behavior needs to be analyzed with regard to a larger range of topics, such as antecedents of the respective consumer behavior (Hosta and Zabkar 2020).

Furthermore, limitations may have been caused by aspects of our experimental design. We implemented several measures to achieve a high internal validity (e. g. randomization, within-subjects-design to reduce the effects of interpersonal differences, constant advertising elements such as text length or image sizes). The manipulation check items proved that the perception of the environmentally oriented condition was dominated by environmental aspects, and the social condition was perceived as being more social compared to the other conditions. But certain aspects of brands or advertising stimuli might have affected the results. For example, we did not control for brand involvement. Due to the use of multiple brands and the randomized assignment between brands and experimental conditions, we do not suspect systematic biases. But unsystematic effects may have occurred, which is why brand involvement should be taken into account in further studies. The same applies to cause-brand fit: several studies have found that a high perceived fit of the initiative and the brand lead to more positive consumer responses (Becker-Olsen et al. 2006). Therefore, in future studies, this aspect should also be analyzed more closely.

Finally, we investigated relations between sustainability advertising, brand personality and several measures of advertising effectiveness in a sample of German, predominantly younger, adults. As some research shows that older people are less concerned with environmental considerations, but show a higher degree of compassion for others (Sudbury and Simcock 2009), the results could be different in a sample that is more balanced in terms of age. In addition, results are only valid for German consumers, as former research had shown a need for nationally adapted brand personality scales. Therefore, our results should be confirmed using representative sampling techniques, larger sample sizes and a transnational approach.



Appendix A: Advertising conditions

	Advertising Condition		
	Environmentally oriented	Socially oriented	Neutral (control)
Min- eral water	Stimulus 1:  Text (translated): Teinacher provides active environmental protection For every 10th box of Teinacher sold, we plant a new tree! Picture sources: Forest: Landesbetrieb Wald und Holz NRW / Jan Preller Bottle and Logo: Teinacher, Nabu (Pictures not included in the article's Creative Commons license.)	Stimulus 2:  Text (translated): Dirty water costs the lives of nearly 1000 children every day... With every liter of water sold, Teinacher supports UNICEF in providing 10 liters of clean drinking water for people in Ethiopia! Picture sources: Kids: Plan / Mark Read Bottle and Logos: Teinacher, Unicef (Pictures not included in the article's Creative Commons license.)	Stimulus 3:  Text (translated): At the table with Teinacher Teinacher increases the pleasure (original brand slogan) Picture sources: Family: Shutterstock Bottle and Logo: Teinacher (Pictures not included in the article's Creative Commons license.)
	Yo- gurt	Stimulus 4: Picture: Cow grazing on green alpine meadow Text (translated): Ehrmann supports sustainable and regional cultivation! We make an active contribution to the environment and deliberately abstain from: pesticides, artificial additives and genetic engineering.	Stimulus 5: Picture: Faces of four people of different ethnic origin and skin color Text (translated): #equality We are against discrimination - At Ehrmann, the human being is our highest priority! We use anonymous application procedures! Equal qualification = equal opportunities
Sports shoes	Stimulus 7: Picture: Man hiking in the mountains on green meadows (sneaker in foreground) Text (translated): We make an active contribution to the environment! 85% of the materials used for production are recyclable.	Stimulus 8: Picture: Girl in a sewing shop at work (sneaker in Foreground) Text (translated): 152 million children between the ages of five and seventeen perform child labor... Reebok says NO to child labor!	Stimulus 9: Picture: Woman jogging on a long road (sneaker foreground) Text (translated): Live with fire (original brand slogan)



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Declarations

Conflict of interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

Ethical standards All procedures performed in this study involving human participants have been approved by the appropriate institutional research ethics committee and have been performed in accordance with the ethical standards as laid down in the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards.

Informed consent Informed consent was obtained from all individual participants included in the study.

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