Social Dominance Orientation Shapes Perceptions of Eco-friendly Products

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Abstract

The present correlational study assessed the influence of social dominance orientation (SDO) on perceptions of an eco-friendly product. SDO, a personality trait describing an individual's basic preference towards or against social equality and hierarchy attenuation, has been found to affect perceptions of and preferences for commercial products. Previous research uncovered that SDO is negatively correlated with perceptions of fair-trade products, such that those who prefer social inequality perceive fair-trade products to be inferior in quality (Rios, Finkelstein, & Landa, 2015). This study extended recent findings to assess the role of SDO on perceptions of an eco-friendly laundry detergent. Results revealed that individuals who scored higher on the SDO scale (i.e., had higher preferences for social inequality) evaluated the appeal, quality, and performance of eco-friendly products significantly more poorly than those with lower SDO scores. This research extends previous findings that SDO shapes perceptions of fair-trade products (e.g., Rios, Finkelstein &Landa, 2015) into the domain of eco-friendly and green products, and provides a further demonstration of how personality factors can influence affective and cognitive preferences for certain product types.

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The availability of eco-friendly products has grown exponentially since the beginning of the modern environmental and sustainability movement of the 1960s; green products now exist in nearly all sectors of industry in all segments of the marketplace (Lin & Chang, 2012). Salient examples include hybrid and energy-efficient cars, shirts made of recycled materials, natural household cleaners, BPA-free water bottles, compostable cutlery, organic mattresses, and batteries that recharge from kinetic energy. Adoption of eco-friendly products is somewhat stunted, however, by perceptions of some individuals that these products are somehow qualitatively inferior in performance and overall quality to conventional alternatives. The present study addressed the impact of personality factors on shaping perceptions of eco-friendly products.

The proliferation of environmentally friendly products in the marketplace is not without due cause. As many as 93 percent of consumers indicate they engage in reducing environmental impacts (Hartmann Group, 2007). 57 percent of respondents from a global survey indicated they were willing to pay a price premium for products made from "fresh, natural, and/or organic ingredients," and 45 percent indicated they would pay a higher price for products coming from companies dedicated to environmental concerns (Nielsen Group, 2015). But these numbers have been contested, as willingness to buy may not reflect actual behavior.In 2005, for example, the United Nations Environment Program indicated 40 percent of consumers reported willingness to buy green products, but only 4 percentactually purchased green products (Luchs, Naylor, Irwin & Raghunathan, 2010). Still, increased consumer awareness and acceptability helps provide a market force for ecofriendly products.

The methods by which companies indicate the eco-friendliness of their products or services differ. This practice, known as green marketing, has been defined as "all activities designed to generate and facilitate any exchanges intended to satisfy human needs or wants, such that the satisfaction of these needs and wants occurs, with minimal detrimental impact on the natural environment" (Polonsky, 1994, para. 10). While green marketing involves all four 'P's' of the marketing mix including place, price, product, and promotion (Kotler, 1999), the differentiation between green products and non-green products is most evident in the product. The 'product' of the four tools in the marketing mix describes the physical entity or set of services that consumers gain from making a purchase (Kotler, 1999).

Green marketing aims to convey the eco-friendly status of products by utilizing product cues, like "the colors of the product's packaging and content (e.g., green, pink, colorless), the wording of its brand name (e.g., Green Works, Palmolive's Pure + Clear, SC Johnson's Nature's Source) and the use of additional labels (e.g. the Environmental Protection Agency's "Design for the Environment" certification logo and "Energy Star Label, the European Commission's "Ecolabel")" (Lin & Chang, 2012, p.125). Unfortunately, the diversity of labeling, product design, package design, and branding methods has created unintended consequences. Research has indicated a concerning plateau that the growth of green industry is projected to face (Borin, Cerf & Krishnan, 2011). Many consumers have indicated confusion and a decline in trust in the variety of eco-labels (Bhaskaran, Polonsky, Cary & Fernandez, 2006; Borin et al., 2011).

Inferior Perceptions of Eco-Friendly Product Quality

Skepticism threatens the adoption of green products, the industry, and the environment. The perception of eco-friendly products as qualitatively inferior to conventional products is even more pervasive. Recent research shows the perceived trade-off of purchasing green, wherebyconsumers believe they are sacrificing quality or some other technical aspect of a product by choosing eco-friendly options (Borin et al., 2011; D'Souza, Taghian, & Khosla, 2007; Lim, Ting, Ng, Chin, & Boo, 2013; Lin & Chang, 2012). The effects of perceived trade-off include consumers overusing green cleaning products because they think that more product is required to achieve the same results of a conventional product (Lin & Chang, 2012).Results of the trade-off effect are inherently antithetic to environmental goals like reducing consumption and waste. Additionally, consumers have reported reduced functionality and effectiveness of the green products, which has resulted in a lower customer delivered value of the good (Lim et al., 2013). The perceived inferiority of green products has shown to be relative to the desired attributes of a product type (Luchs et al., 2010). Consumershow reduced preferences for sustainable products for which strength is a desirable attribute, but increased preference for products for which gentleness-related attributes.

While empirical evidence demonstrates that individuals perceive some eco-friendly products as being inferior in quality, research has not determined the cause. Some have likened the issue to the problems that nonprofit organizations face, where customers may feel less confident in buying a product produced by a nonprofit than by a for-profit company because nonprofits are perceived of as "warmer" and individuals associate ethicality positively with gentleness and negatively with strength (Aaker, Vohs& Mogilner, 2010; Lin & Chang, 2012; Luchs et al., 2010). There have also been insights into lowered perceptions of complexity, sophistication, and sexiness among green products and brands (Luchs et al., 2010). Evidently, eco-labeling and green marketing can lead to a vast array of associations and product perceptions.

Consumer Differences: Personality Variables

Research has also focused on the characteristics of green consumers as they affect buying decisions. Such investigations are crucial, as market segmentation is a key component to marketing and targeting the proper audience (Kotler, 1999). However, prior studies aimed to determine correlations betweengreen consumption and demographics, socioeconomic status, gender, culture, or personality have not been successful (Balderjahn, 1988). A study that sought to link three key personality variables, alienation, emotional expressiveness, and ideology control, as predictors of ecologically responsible consumption concluded, "No general picture of the ecologically concerned consumer can be drawn from our results" (Balderjahn, 1988, p. 56). One possibility for the negative findings is the specific personality constructs chosen for assessment.

More recently, social psychology and marketing researchers ventured to link a particular personality variable with product perceptions, but in the domain of socially-responsible (i.e. distinct from ecologically-responsible) goods. Rios, Finkelstein, and Landa (2015) found that social dominance orientation (SDO) correlated negatively with perceptions of fair-trade products. SDO is a relevant personality variable that may predict attitudes and perceptions of fair-trade products for several reasons. SDO is rooted in social dominance theory and describes a person's inherent preference towards hierarchy and inequality in social groups (Pratto, Sidanius, Stallworth &Malle, 1994). SDO is fundamentally different than social or political ideologies such as right wing authoritarianism and conservatism, and stands to be a personality trait as substantial in its predictive qualities as the well-known 'big five'personality factors (Pratto et al., 1994). The SDO model operates as "a dynamic model of human oppression in which different kinds of people (e.g., with high or low SDO) play different roles (e.g., enhance or attenuate inequality) and have different effects on each other (e.g., in how much they discriminate in the allocation of resources)" (Pratto et al., 1994). SDO is not a subset of another overarching personality variable, but rather viewed as a basic personality trait that shapes attitudes and behavior (Pratto et al., 1994).

A high social dominance orientation is in direct opposition to the socially equitable values that fair-trade promotes; thus, the basis for the researchers' postulation of negative correlation (Rios et al., 2015).

Their findings showed not only did high-SDO individuals find "fair-trade" to be less 'fair,' but also that their preferences for social inequality led to lowered perceptions of quality (taste) in fair-trade as compared to con ventional products (Rios et al., 2015). Two key points have been illuminated in their research; first, that perso nality influences affective and cognitive preferences for certain product types. Secondly, preference can influe nce sensorial perceptions (Rios et al., 2015).

Social Dominance Orientation and Perceptions of Eco-Friendly Products

In a similar fashion, social dominance orientation may also be predictive of green product perceptions, prefere nces, and purchase behaviors. Several studies have shown these effects (D'Souza et al., 2007; Pratto et al., 19 94). While establishing the variable as a basic personality trait, Prattoand colleagues (1994) found SDO was n egatively correlated with support of environmental programs and policies. More specifically, consumers who p lace higher demands on companies to prioritize reducing pollution—a problem that disproportionately affects groups of lower socioeconomic status—over profitability have higher green purchase intention (D'Souza et al., 2007). In other words, consumers who expect hierarchy-attenuation also show favorability towards green pro ducts. Research is now needed to exposethe opposing paradigm—that individuals who are more prone to mai ntaining social hierarchies will perceive green products to be of inferior quality.

As SDO "serves as an orientation in shaping new attitudes," (Pratto et al., 1994) it could help guide the proc ess by which individuals come to build perceptions of products. SDO has been measured based on positive a nd negative feelings towards statements related group hierarchies and social dominance (Pratto et al., 1994). High positive regard towards statements such as "some groups of people are simply inferior to other groups," "if certain groups stayed in their place, we would have fewer problems," and "to get ahead in life, it is som etimes necessary to step on other groups" is associated with high SDO. This type of thinking seems incongru ent with statements that would suggest commitment to environmental stewardship that are concerned with the enduring wellbeing of all social groups.

The present study assessed the impact of the personality factor of social dominance orientation (SDO) on per ceptions of the appeal, performance, and quality of eco-friendly products. We predicted that individuals of hi gh SDO would perceive eco-friendly products to be qualitatively inferior to conventional products than indivi duals with low SDO.

Method

Participants

Participants were 116 undergraduate college students, recruited via convenience sampling at a small private co llege in Philadelphia, Pennsylvania. The mean age of participants was 20.59 years (*SD* = 1.6). Participants we re largely white (67.5%) and female (78.3%). Other ethnicities in the sample included African American/Blac k (7.5%), Hispanic/Latino (6.7%), multiracial (5.0%), and Asian/Pacific Islander (4.2%). 1.7% of participants were 2 first-year students (1.7%), 40 sophomores (34.2%) 24 juniors (20.5%), 50 seniors (42.7%), and one un identified (0.9%). Participants received a description of the scope of the study and told participation was opti onal and anonymous. Participation was voluntary and no inducements were given.

Materials

Participants completed a paper survey that contained two sets of detergent descriptions followed by six 5-poin t Likert style scales that measured participant's rating of the detergent, and a rank order question that instruct ed participants to select the product they overall preferred. The detergent descriptions were functionally equiv alent; that is, each product was equally capable of removing stains. Differences between descriptions include t he manufacturing process (natural versus formulated) and the agent of stain removal (natural and biodegradabl e versus synthetic; see Figure 1 and Figure 2). Product descriptions were differentiated in 12 point Arial font and contained in a light gray box. To reduce order effects, presentation of detergent description and ratings were reversed in half of the surveys and administered to participants in alternating order.

Figure 1. Conventional laundry detergent product description.

<TRADE NAME>
75 Years of Innovation
Powerful Clean | Oxi-Lift Formula
It works. Specially formulated synthetic enzymes penetrate fibers to remove the toughest stains
We care. Turbo-Charged for 6x the Cleaning Power. High-Efficiency Certified

Figure 2. Eco-friendly laundry detergent product description.

<TRADE NAME>
Sustainable Solutions for a Brighter Tomorrow
Powerful Clean | Plant-Based Formula
It works. Natural enzymes remove the toughest stains, but are gentle to your world
We care. 6x Cleaning Power with 100% Biodegradable and USDA Organic Ingredients. High-Efficien cy Certified

After providing product ratings, participants completed the Social Dominance Orientation Scale, a 14-item sca le that measures individual's preferences for hierarchy within a social system, and their belief in domination o ver lower-status groups (Sample question: *Some groups of people are simply not the equals of others*).Partici pantsrate their feelings (positive or negative) regardingeachstatement on a 7-point Likert scale (Pratto et. al, 1 994). Participants then provided demographic information of age, gender, race/ethnicity, academic year, and co llege.

Procedure

Surveys were administered in five undergraduate classrooms and completed within the class period. Students completed the survey anonymously over one session in approximately 10 minutes. Students were encouraged t o take their time and answer the questions as honestly as possible in order to promote the accuracy of the res ults. All participants were treated in accordance with the APA Ethical Principles of Psychologists and Code of Conduct (American Psychological Association, 2017).

Results

Scoring

Social Dominance Orientation Scale (Pratto et al., 1994). Participant data were transformed to account for the reverse coding in the 14-item 7-point SDO scale. A total SDO score (SDO_{total}) was computed by summing participant's responses to items on the 14-item scale following reverse scoring. SDO_{total} ranged from 14 to 71 with a mean of 29.31 (*SD* = 11.3).

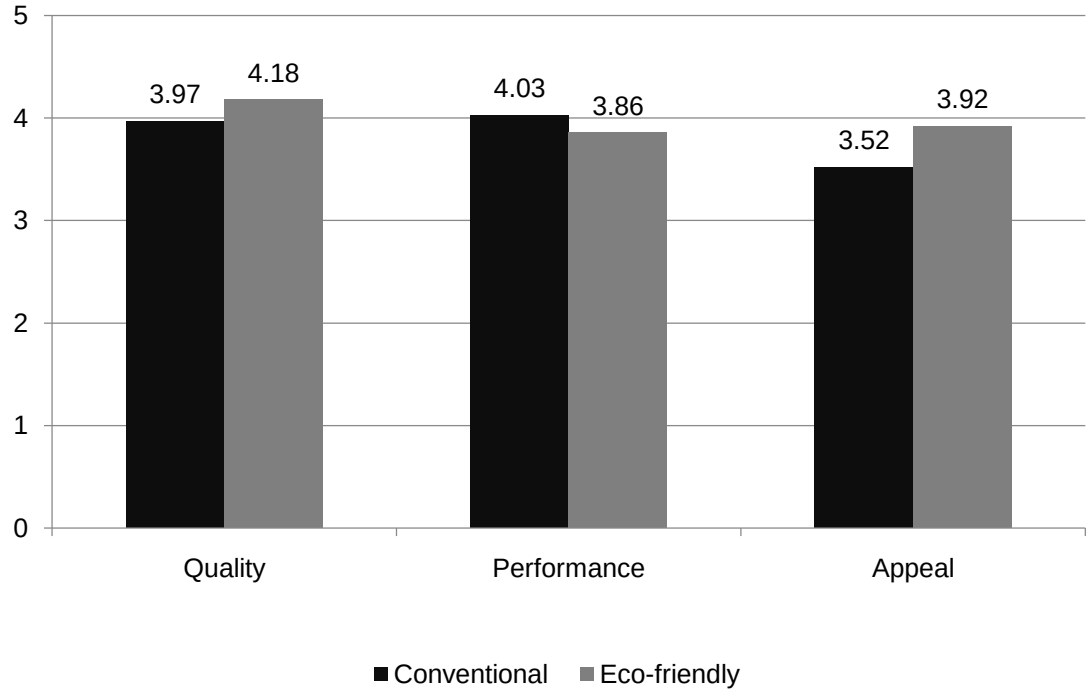
Detergent Ratings. Participant ratings of attributes on 5-point scales were entered and analyzed for descriptive purposes.

All data were entered and analyzed using the PASW statistical program (Predictive Analytics SoftWare, version 18.0).

Product Preference and Ratings

Across all participants, 75.9% selected the eco-friendly detergent as their preferred product while 24.1% selected the conventional detergent. Figure 3 displays appeal, performance, and quality ratings for the conventional and eco-friendly detergent descriptions. Paired samples tests were computed to evaluate these ratings. Participants rated the eco-friendly detergent significantly higher than the conventional product on quality (*M* = 4.18, *SD* = 0.7 versus *M* = 3.97, *SD* = 0.7; *t*(116) = 2.92, *p*<0.004]) and appeal (*M* = 3.92, *SD* = 0.9] versus 3.92, *SD* = 0.9; *t*(115) = 3.70, *p*< 0.001]). The conventional product was rated higher on performance than the eco-friendly detergent(M = 4.03, *SD* = 0.6) versus *M* = 3.86, *SD* = 0.75; *t*(115) = 2.34, *p*< 0.021).

Figure 3. Mean low-SDO and eco-friendly detergent descriptions.



Influence of SDO on Eco-Friendly Detergent Perceptions

Pearson's correlation analysis was used to assess the relationship between $SDO_{total}$and ratings of eco-friendly product quality, performance, and appeal. Higher scores on the SDO scale were significantly correlated with lower ratings of eco-friendly products for quality [r = -0.19, n = 115, p< 0.041] and appeal [r = -0.025, n = 115, p< 0.008]. Higher SDO scoreswere also associated with lowered ratings of eco-friendly product performance though this relationship fell just short of statisticalsignificant [r = -0.162, n = 115, p< 0.085].

Independent t-tests were conducted to analyze further the differences between high-SDO and low-SDO groups on product ratings (see Table 1).

Percentile analysis was conducted by comparing scores from the top third of the SDO distribution (High-SDO: Scores of 32 or better; top 33.9% of the population) to the bottom third of the SDO distribution (Low-SDO: Scores of 23 or less; bottom 33.0% of the population). Analysis revealed that the high-SDO group rated the eco-friendly detergent significantly lower than the low-SDO group on all three measures of appeal, performance, and quality, whereas ratings of the conventional product appeal, performance, and quality were comparable for both low-SDO and high-SDO groups (Table 1).

Table 1

Differences in appeal, performance, and quality product ratings for eco-friendly and conventional detergents by high-SDO and low-SDO groups.

Eco-Friendly Products					
	Low-SDO Mean (SD)	High-SDO Mean (SD)	*t* value (df=81)	df	Probability Level
Appeal	4.22 (0.7)	3.65 (0.9)	3.12	75	0.003
Performance	4.08 (0.6)	3.73 (0.8)	2.19	76	0.032
Quality	4.37 (0.5)	4.03 (0.6)	2.60	76	0.011
Conventional Products					
Appeal	3.42 (1.0)	3.43 (0.9)	0.02	76	0.99
Performance	3.97 (0.7)	4.05 (0.6)	0.51	76	0.61
Quality	4.03 (0.8)	3.88 (0.7)	0.91	76	0.37

Discussion

The results of the present study support the hypothesis that higher levels of social dominance orientation negatively influence perceptions of eco-friendly products.

Participants overall rated the eco-friendly detergent significantly higher than the conventional product on appeal and quality. However, high-SDO participants provided significantly lower ratings for appeal, quality, and performance of the eco-friendly detergent than did low-SDO participants. These differences were specific to the eco-friendly product: Ratings of the conventional product did not differ significantly between low-SDO and high-SDO participants.

These results confirm and extend previous findings that SDO influences evaluations of goods and services. Whereas previous work has shown that SDO shapes perceptions of fair-trade products (e.g., Rios, Finkelstein &Landa, 2015), the present findings demonstrate SDO's influence in the domain of eco-friendly and green products. These results are timely given the considerable increase in green marketing and the development of eco-friendly products, and highlight the importance of addressing what may be a substantial barrier to their use, a persistent skepticism of the quality and performance of these products. The skepticism may arise not from the marketing per se, but the internal cognitive biases affecting the evaluation of marketing claims.

SDO has been shown to correlate with specific aspects of the "Big Five" personality factors, and especially, with the key factors of agreeableness and openness to experience (Ekehammar and Akrami [2003]; Ekehammar,Akrami, Gylje, &Zakrisson, [2004]). Heaven &Bucci (2001), for example, noted that high SDO is associated with lower agreeableness and lower openness to experience. Thus, the present findings may reflect a more pervasive skepticism about new products in general. A resistance to change is often characteristic of a conservative viewpoint, a viewpoint shown to be associated with high SDO (Pratto et al., 1994).

Additionally, the SDO scale instructs participants to assess statements that may be polarizing. While individual differences in scoring may be an effect of response bias and responding on the extremes, it may also be due to social desirability bias and the phrasing of the statements. For example, participants are asked to circle how positive or negative they feel towards "Equality," "Increased social equity," and "Some people are just more worth than others." Within the polarizing social setting of United States, these objects and statements may induce heightened social desirability bias and therefore not be valid constructs.

More generally, the present results provide confirmation of a notable trend over the last decade in increased consumer acceptability of green products. Unilever (2017) now estimates over a third of all consumers purchase sustainable products. Similarly, Whalen and Kronthal-Sacco (2019) estimated that 50% of purchases of consumer-packaged goods involved sustainability-marketed products. In the present study, 75.9% of participants selected the eco-friendly detergent as their preferred product whereas only 24.1% selected the conventional detergent. Our participants were generally young (mean age of 20.59 years), an important consideration in understanding their preference for green products. White, Hardisty, and Habib, (2019) noted that consumer decision-making with the increased purchasing power of younger consumers of millenials is increasingly driven by underlying environmental concerns.

Further, our results demonstrate the potential for increased consumer acceptance of green products to extend into the domain of cleaning products whose preferred attribute is strength and effectiveness. Whereas, our participants demonstrated an overall manifest preference for the sustainable cleaning product, they rated the conventional product higher on performance than the eco-friendly detergent. This finding is consistent with previous research suggesting consumer skepticismofthe effectiveness of green cleaning products. Luchs et al.(2010) noted a crucia l distinction in consumer preferences for specific attributes of sustainable products: Sustainability enhanced c onsumer preferences for gentleness-related attributes but not for strength-related attributes. In the present study, participants accepted and provided high consumer preferences for the eco-friendly cleaning product advertised for its ability to remove the "toughest stains", yet rated it more poorly on performance than the conventional product.Whalen and Kronthal-Sacco also noted that the trend for increased sustainability-driven purchases did not include sustainable laundry detergents because of concerns about product effectiveness. Changing consumer attitudes for this critical domain of consumer goods remains a challenge for eco-friendly products.

Conversely, our results provide an important demonstration of consumer preference for a green product in the "inti mate" zone of proxemics. Proxemics regards human behavior and use of space (Watson, 1969), and includes t he study of how spatial zones differ across and within cultures in relation to physical proximity (Watson, 196 9). Four normative distance zones are regarded as influential to sensory processing and perception (Tesch, 19 79): the intimate zone (0-1.5'), the personal zone (1.5-4'), the social zone (4-12'), and the public zone (beyon d 12'). The zones differ based on how similar stimuli in each zone are interpreted. For example, a couple tha t is loudly speaking in the intimate (1.5') zone (i.e., fighting) is different from a couple loudly speaking 12' a part in the public zone (i.e., conversing). Proxemics has been adapted as a framework to product design. Diff erent products constitute separate categories. For example, a pair of sunglasses is an intimate zone-based prod uct that is marked by heightened sensitivity to their design.

In contrast, personal choice of products within the social zone, such as a wall clock, may have less sensitivity. Additionally, there may be differences in sensitivity to how products are used within each zone (i.e. a door knob is used externally whereas mouthwash is ingested and may be considered more intimate). We have dem onstrated consumer preference for a green product, laundry detergent, in the intimate zone, is a product with close proximity to the body, yet is not ingested. Acceptance of eco-friendly products in the intimate zone repr esent an important advancement in the green market in products such as intimate apparel (Monget, 2007) and beauty-care items (Pudaruth, Juwaheer,&Seewoo(2015).

One important limitation of the present study is that participants made buying decisions hypothetically rather than by actual purchases. This approach, while commonly employed (Bodur, Duval, &Grohmann, 2015), does not directly show changes in purchasing behavior. White al al. (2019) note that intentionality to purchase is not always a strong predictor of actual buying behavior, a discrepancy they labeled the "intention-action gap". Further work is necessary to extend these findings into the realm of actual consumer behavior.

The implications of the results (e.g., higher levels of SDO are related to inferior perceptions of eco-friendly products) extend beyond the assessed product. If high SDO shapes opinions about a green detergent, then this personality characteristic may very well shape opinions about other eco-friendly products, services, systems, ventures, and policies. Further, the influence of SDO may extend to perceptions related to eco-friendly, green, and sustainable matters beyond that of commercial products and into the realm of global public issues. For example, a potentially useful extension of this research would be to assess whether SDO influences beliefs about the authenticity of climate change. If SDO is found to shape attitudes towards such pervasive matters, then attempts at positioning green products and services must consider the broader picture if they wish to appeal to a wider consumer base.

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