

The Green Gender Effect: The Impact of Feminine Gender Attributes on Pro-Environmental Consumer Perceptions

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The Green Gender Effect: The Impact of Feminine Gender Attributes on Pro-Environmental Consumer Perceptions

This research investigates the implicit association between gender and environmental perceptions across eight experimental and correlational studies involving brands, countries, political parties, and individuals. Entities with feminine gender attributes are consistently perceived as more pro-environmental. This effect can be explained through higher perceptions of warmth. A single-paper meta-analysis across the eight studies confirms a moderate positive correlation ($r = .32$, $SE = .07$, 95% CI [.19, .45], $p < .001$) between femininity and pro-environmental perceptions while masculinity shows no significant correlation with pro-environmental perception ($r = -.04$, $SE = .067$, 95% CI [-.17, .09], $p = .584$). Practical implications suggest leveraging gendered branding to encourage sustainable consumption while addressing potential biases that discourage male participation in eco-friendly behaviors. Strategies for reducing the association and promoting inclusivity in sustainability are discussed.

Keywords: brand gender, pro-environmental perceptions, stereotypes.

Track: Consumer Behavior

1. Introduction

Imagine you are grocery shopping, either online or in-store. A jar of peanut butter catches your eye—its matte packaging and earthy texture suggest a natural, wholesome product. The warm caramel-colored label in cursive gives it an eco-friendly feel, fitting your environmentally conscious shopping habits. Yet, when you check the packaging for sustainability symbols—like an eco-label or green icon—none are found. You realize you assumed its eco-friendliness based on appearance alone. But why? What made you assume this peanut butter was sustainable in the first place?

We suggest that consumers don't just perceive brands or products, but certain entities, as environmentally friendly due to an implicit cognitive link. With regard to sustainable marketing, prior literature so far suggested, that consumers use cues related to greenness, for example eco-labels as heuristics to decide whether a product is eco-friendly or not (Bauer & Schäfer, 2013; D'Souza, Taghian and Lamb, 2006). However, we propose that consumers also use unrelated heuristics, such as gender stereotypes, to make these judgments.

Specifically, we argue that brands and entities perceived as feminine are often seen as more environmentally friendly. We also propose that warmth and caringness mediate the relationship between the entities gender attributes and its perceived pro-environmental image.

2. Background

In response to escalating environmental issues, like global warming, consumers are increasingly expressing their concerns by choosing environmentally friendly products and services, driving a rise in sustainable purchasing across various sectors since the 1990s (Choi & Kim, 2005; Fischer et al. 2012; Sun, Wang, Gao, and Li, 2018). The global rise in sustainable consumption has prompted brands to position themselves as environmentally friendly to gain competitive advantages (Fontes, Moreira, and Carlos, 2021; Pickett-Baker & Ozaki, 2008). Yet, a gap remains between consumers' expressed pro-environmental attitudes and their purchasing behaviors, known as the Attitude-Behavior Gap (Alwitt & Pitts, 1996; Tanner & Kast, 2003; Vermeir & Verbeke, 2008). This gap is particularly pronounced along gender lines, with women consistently displaying stronger pro-environmental behaviors and attitudes than men (Davidson & Freudenburg, 1996; Diamantopoulos, Schlegelmilch Sinkovics, and Bohlen, 2003; Zelezny, Chua, and Aldrich, 2000).

Understanding how individuals perceive brands as being “green” is crucial to understand (non-)sustainable consumer decisions. In social cognition, perceptions of environmental friendliness often intertwine with brand gender stereotypes, forming a framework that influences consumer decisions. Central to this framework is the Stereotype Content Model (SCM) (Fiske, Cuddy, and Glick, 2007; Fiske, Cuddy, Glick, and Xu, 2002), which suggests that stereotypes are primarily perceived along two dimensions: warmth and competence. These dimensions align with the core elements of gender stereotypes consistently labeled as competence for masculine stereotypes and warmth for feminine stereotypes (Judd, James-Hawkins, Yzerbyt, and Kashima, 2005), which account for 82% of the variance in human perception (Wojciszke, Bazinska, and Jaworski, 1998). These gender stereotypes are also applicable to brands (Aaker, Vohs and Mogilner, 2010; Aaker, Garbinsky, and Vohs, 2012; Fournier & Alvarez, 2012; Kervyn, Fiske, and Malone, 2012), with brands possessing feminine gender attributes often seen as warmer and more caring—traits which align with eco-friendly perceptions (Abele, 2003; Brough, Wilkie, Ma, Isaac, and Gal, 2016; Rudman & Glick, 2008). Based on these theoretical foundations we propose three main hypotheses.

H1: Brands with feminine gender attributes are perceived as more pro-environmental compared to brands with masculine gender attributes.

H2: The gender-greenness association can be explained through the mediating role of warmth.

H3: Male entities with induced feminine gender attributes will be perceived as more environmentally friendly than those with induced masculine gender attributes.

The stereotypical link of femininity (i.e., gender identity) or women (i.e., biological sex) being associated with warmth, while masculinity or men are linked to competence, sets the stage for understanding how gendered perceptions of entities intersect with environmental attributions. Our research aims to extend the research on gender stereotypes by demonstrating that across various entities and methodological designs entities with feminine gender attributes (compared to masculine gender attributes) are stereotypically seen as having a more pro-environmental image.

This gender-greenness association is based on two research streams. The first examines actual pro-environmental attitudes and behavior, revealing that women tend to hold more pro-environmental attitudes and engage more in environmentally friendly behavior compared to men

(Diamantopoulos et al., 2003). This can be explained by an association between environmentally friendly behavior and feminine gender identity, leading men to avoid environmentally friendly actions to maintain a masculine gender identity (Brough et al., 2016). The second stream focuses on the perception of nature as feminine, rooted in cultural, mythological, and linguistic factors. Nature is viewed as more feminine than masculine and people associate nature and women (Reynolds & Haslam, 2011). Thus, we propose that feminine gender attributes signal pro-environmental characteristics. This association is deeply ingrained in social cognition and reinforces the idea that individuals use gender-related cues, to make quick judgments about various ascriptions (Hess & Melnyk, 2016), presumably extending to judgements about environmental friendliness. Therefore, feminine gender attributes of an entity are used by consumers as a subtle indicator that this entity possesses pro-environmental characteristics.

3. Methodology

Across eight studies using both correlational and experimental methods, we demonstrated that entities—including brands (Studies 1A, 1B, and 5), humans (Studies 2, 6, and 7), political parties (Study 3), and countries (Study 4)—are perceived as more environmentally friendly when they display feminine (versus masculine) gender attributes.

We organized our studies around the phenomena, the underlying mechanisms and the moderator. Studies 1A and 1B used a between-subjects design to examine the gender-greenness association and its underlying mechanisms of warmth and caringness, while Study 2 employed a 2×2 design to assess the moderation role of biological sex. In studies 3 to 7 we used correlational approaches to explore the association across entities like political parties, countries, organizations, and celebrities. We also conducted a meta-analysis to estimate the effect size for the relationship between gender attributes and pro-environmental perceptions.

3.1 Study 1A

In Study 1A, 224 participants ($M_{\text{age}}=26.76$; $SD=7.18$; 50% female) engaged in an online experiment, based on a 2 (feminine vs. masculine brand gender attributes) × 3 (brand replicates) between-subjects design. Six fictitious advertisements for a non-existent electronics brand were created, manipulating brand gender attributes (masculine vs. feminine) through elements like brand name, logo shape, font, color, and celebrity endorser. Stimuli were pretested to ensure

clear gender attribution. Participants viewed one ad and rated the brand's pro-environmental image and gender attributes.

Consistent with our assumption, brands with induced feminine gender attributes ($M = 2.56$, $SD = 1.25$, $BCa\ 95\% CI [2.31, 2.82]$) were perceived as having a stronger pro-environmental image compared to brands with induced masculine gender attributes, $M = 1.94$, $SD = 0.69$, $BCa\ 95\% CI [1.75, 2.14]$, $t(202) = 3.79$, $p < .001$. The mean difference was 0.62, $BCa\ 95\% CI [0.31, 0.96]$, corresponding to a medium effect size, $d = 0.50$, $r = .25$, $BCa\ 95\% CI [.11, .37]$.

3.2 Study 1B

In Study 2, results demonstrate that the gender-greenness link is explained by warmth. We used a 2 (feminine vs. masculine brand gender attributes) between-subjects design with 81 participants ($M_{age}=29.63$, $SD=12.50$; 53% female). Consistent with study 1A, feminine brands ($M = 2.83$, $SD = 1.42$, $BCa\ 95\% CI [2.31, 3.31]$) were perceived as having a stronger pro-environmental image than brands with induced masculine gender attributes ($M = 2.13$, $SD = 1.38$, $BCa\ 95\% CI [1.75, 2.58]$), $t(78.99) = -2.25$, $p = .027$. The mean difference was 0.70, 95% CI [0.08, 1.32], reflecting a medium effect size, $d = 0.50$, $r = .25$.

To test whether the effect of brand gender on pro-environmental brand image is mediated by warmth, we conducted a mediation analysis using PROCESS Model 4 (Hayes 2018) with 5,000 bootstrap samples and bias-corrected confidence intervals. The indirect effect of brand gender on pro-environmental brand image via warmth was significant (indirect effect = 0.32, $BootSE = 0.08$, 95% $BCa\ CI [0.18, 0.50]$).

3.3 Study 2

Our previous studies indicate that when brands possess feminine gender attributes, they are perceived as more environmentally friendly. However, beyond these ascribed gender attributes, entities—such as consumers—also have a biological sex, which may impact these perceptions. To

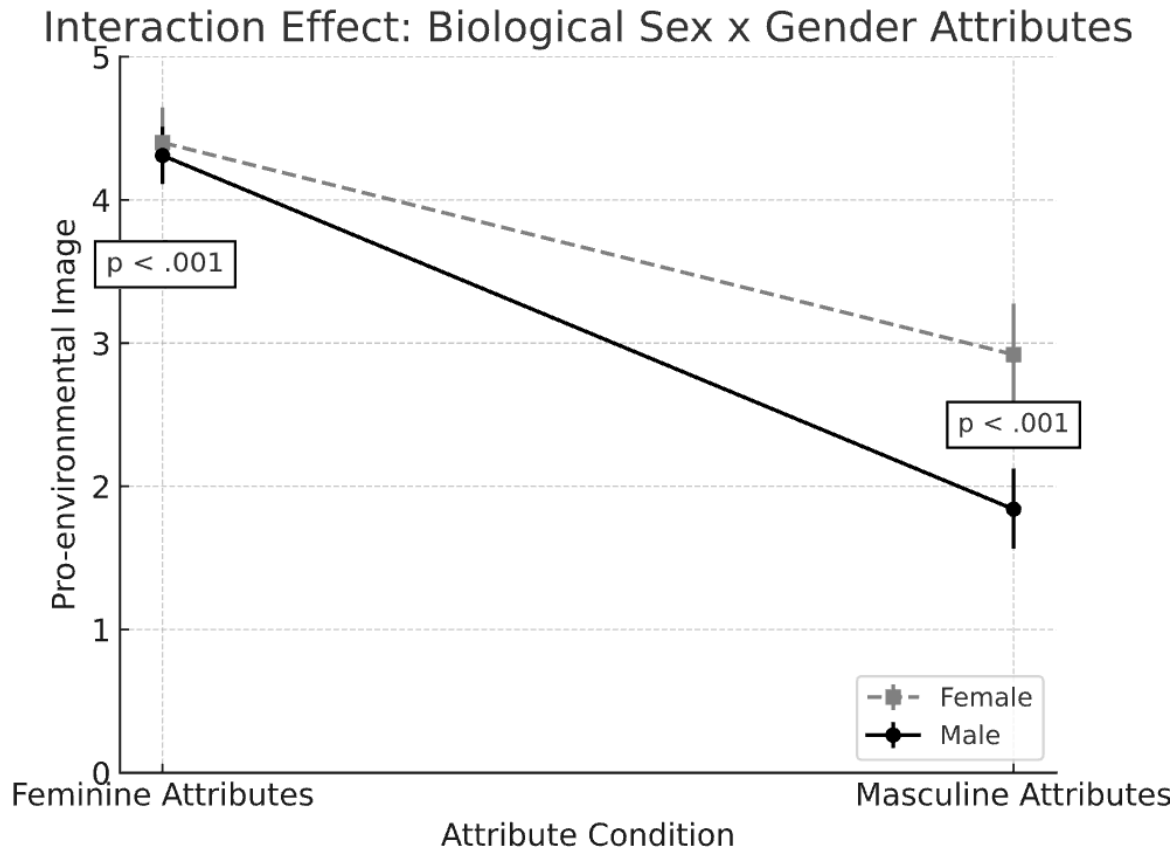
explore this, we conducted a new experiment examining whether the biological sex of an entity influences the link between its gendered attributes and its perceived pro-environmental image. Specifically, we focused on male entities to see if adding feminine gender attributes could shift their perception and make them seem more eco-friendly.

A total of 119 people ($M_{age}=32.35$, $SD=10.79$; 57% female) participated in an online experiment, based on a 2 (gender attributes of stimulus person: feminine, masculine) $\times$ 2 (biological sex of stimulus person: female, male) between-subjects design to explore how the biological sex and gender attributes of a person affect perceptions of their environmental friendliness. Participants were randomly assigned to one of four groups, each exposed to a vignette describing a fictional person with manipulated gender attributes (feminine or masculine) and biological sex (female or male). Vignettes, which are commonly used in social science research (Kawakami et al. 2012; Mugge et al. 2010) allowed us to systematically vary these traits while holding other characteristics constant. Each vignette described a person with a name strongly associated with either male (e.g., Markus) or female identity (e.g., Maria), clearly signaling their biological sex.

A 2×2 between-subjects ANOVA revealed a significant main effect of gender attributes on perceived pro-environmental image, $F(1,115) = 201.15$, $p < .001$, $\eta^2p = .64$, with feminine ($M = 4.36$, 95% CI [4.19, 4.53]) perceived as more environmentally friendly than masculine attributes ($M = 2.38$, 95% CI [2.18, 2.57]). A significant main effect of biological sex was also found, $F(1,115) = 17.57$, $p < .001$, $\eta^2p = .13$, such that female stimulus persons ($M = 3.66$, 95% CI [3.46, 3.86]) were evaluated as more environmentally friendly than male stimulus persons ($M = 3.08$, 95% CI [2.88, 3.28]). Moreover, the interaction between gender attributes and biological sex was significant, $F(1,115) = 12.62$, $p < .001$, $\eta^2p = .10$. Post-hoc comparisons showed that the effect of feminine attributes was particularly strong for masculine stimulus persons ($M_{fem} = 4.31$, 95% CI [4.13, 4.52] vs. $M_{masc} = 1.84$, 95% CI [1.55, 2.12]), whereas the difference was smaller but still significant for female stimulus persons ($M_{fem} = 4.40$, 95% CI [4.13, 4.64] vs. $M_{masc} = 2.92$, 95% CI [2.62, 3.23]).

Figure 5

Interaction Effect: Biological Sex x Gender Attributes



3.4 Study 3 to 7

In Studies 3 to 7, we aimed to test the generalizability of the gender-greenness association across a range of entities, assessing whether the link between feminine gender attributes and pro-environmental perceptions holds consistently. In each study, we measured the semi-partial correlation between the participants' perception of the pro-environmental image of the entity and their perception of feminine (or masculine) gender attributes of the respective entity as an effect size indicator. Across all studies, the presence of feminine gender attributes consistently correlated with a higher pro-environmental image, whereas masculine gender attributes had little to no effect (see Figure 4 and Figure 5). These findings support the hypothesis that femininity is associated with eco-friendliness, reinforcing the gender-greenness effect across a variety of entities.

3.5 Meta-Analysis

The meta-analysis employed sample-weighted correlations from the $k = 8$ studies, using a random-effects model (Hall and Brannick 2002; Schmidt and Hunter 2015) with an overall sample

size of $N = 3,123$. The results of the meta-analysis show a significant medium mean correlation between feminine gender attributes and pro-environmental image ($r = .32$, $SE = .07$, 95% CI [.19, .45], $p < .001$), while masculine gender attributes showed no significant correlation with pro-environmental image ascriptions ($r = -.04$, $SE = .067$, 95% CI [-.17, .09], $z = -0.55$, $p = .584$).

4. Results and Discussion

Our paper contributes to prior literature by showing that perceptions of whether an entity is pro-environmental or not, can be significantly influenced by gender attributes. People follow a simple heuristic: if an entity is perceived as possessing feminine gender attributes, it will also be perceived as being pro-environmental. This is because feminine gender attributes are associated with warmth, a trait that aligns closely with environmentalism and the effect is even stronger than the effect of biological sex. Thus, green image perceptions (e.g., of brands) are not only dependent on indicators related to greenness, such as eco-labels (Bauer et al. 2013), but also on indicators, which are not directly associated with greenness.

By understanding how and why consumers associate femininity with environmental friendliness, brands can develop strategies that bridge this gender gap in sustainable consumption. This is relevant, because the feminization of eco-friendly products may unintentionally deter men from engaging in sustainable consumption due to the conflict with traditional masculine norms (Brough et al., 2016; Swim et al., 2019). By recognizing and addressing these gendered associations, brands can foster a broader, more inclusive approach to sustainable consumption, aligning with the shift toward environmentally responsible purchasing behaviors that is evident in contemporary consumer trends (Fontes et al., 2021; Hunter et al., 2004). For consumers, an understanding of the gender-greenness association can help counteract implicit biases, leading to more informed purchasing decisions that reflect genuine environmental values. In conclusion, our research emphasizes the significant impact of gender attributes on perceptions of an entity's environmental image. Across multiple studies, we observed that people use a heuristic linking feminine characteristics with environmental friendliness, even stronger than the effect of biological sex. This association provides brands with a unique tool to communicate sustainability, but it also underscores the importance of transparency and ethical marketing practices to prevent greenwashing.

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