Getting Consumers to Recycle NOW! When and Why Cuteness Appeals Influence Prosocial and Sustainable Behavior

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Policy makers and social agencies need novel insights to manage the major global challenge of encouraging prosocial and sustainable behaviors. This research identifies a positive aesthetic cue, “Kindchenschema cuteness,” that can reliably induce some people—specifically, those who exhibit high approach motivational orientation (per the behavioral approach system [BAS]; Carver and White 1994)—to engage in prosocial and conservation behaviors. Studies 1 and 2 show that consumers high (vs. low) in BAS (measured) react more favorably to conservation appeals featuring cuteness, an effect mediated by experienced feelings of tenderness. Study 3 replicates the effect using a prime of approach motivation (BAS) to assess donation intentions. Study 4, a large-scale field experiment conducted over eight weeks at multiple locations, shows that people recycle more at bins featuring cute visuals with active (high-BAS) messages compared with bins featuring cute visuals with passive (low-BAS) messages. The authors conclude with a discussion of practical implications for policy makers.

Keywords: Kindchenschema cuteness, aesthetics, sustainability, prosocial behavior, motivation

Modern economic development has led to great improvements in living standards, but there is growing recognition that unprecedented rates of overconsumption and waste, promoted by economic development, are inflicting increasing harm on the environment (Geller 2002). The prognosis is grim, and action is needed on multiple fronts. In recognition of the scale and scope of the crisis facing our planet, the United Nations has set 17 Sustainable Development Goals for 2030, which aim to tackle environmental and social issues such as eradication of poverty, sustainable agriculture, sustainable water sanitation, and sustainable consumption and production patterns (United Nations Economic and Social Council 2016). The message is clear: all stakeholders need to take actions to steer the world onto “a sustainable and resilient path, leaving no one behind” (United Nations Economic and Social Council 2016, p. 1).

In efforts to communicate prosocial messages and instill behavior change, public policy makers and social agencies frequently rely on mass media communications such as advertisements and promotional campaigns. Researchers have noted that extant policies and promotion tactics are predominantly coercive in nature, aiming either to frighten people about the plight of the environment (e.g., “Every 60 seconds a species dies out. Each minute counts”) or to induce them using monetary rewards (Griskevicius, Cantu, and Van Vugt 2012; Moller, Ryan, and Deci 2006). Some researchers have claimed that the coercive strategies tend to prompt defiance and resentment and are therefore ineffective, particularly in terms of long-term behavior change (Geller 2002; Moller, Ryan, and Deci 2006). Clearly, prosocial and sustainability initiatives need to be implemented and communicated more effectively. Summarizing the situation, Prothero et al. (2011) called for fresh perspectives to help create and implement policies and strategies.

In this spirit, the current research investigates the interplay between a noncoercive and frequently used but understudied element in communications—namely, cute visuals—and an individual difference in approach tendency (behavioral approach system [BAS]) with the goal of identifying their joint effectiveness in driving prosocial and sustainable behaviors.
Cuteness is a popular tactic in many product categories (Nenkov and Scott 2014) and is not uncommon in prosocial appeals. For example, organizations such as the World Wide Fund for Nature and the American Society for the Prevention of Cruelty to Animals sometimes employ images of cute animals in their advertising, in addition to the more frequently used fear strategies. Given the enduring success of cuteness in the market (e.g., Hello Kitty reaps $5 billion annually in profits for Sanrio), it is possible that cuteness may well “sell” people on prosocial and sustainable behaviors (Shrum, Lowrey, and McCarty 1994). However, there is no academic research on this important phenomenon, and it is unclear whether, when, and how cuteness can enhance people’s prosocial and sustainability-enhancing behaviors.

Moreover, not every consumer responds to cute products in the market in the same way. In fact, it is likely that the persuasiveness of cute prosocial advertising varies across consumers (Kollmuss and Agyeman 2002). Therefore, this research aims to investigate the personal characteristics that shape consumer responses to cute prosocial appeals. Building on prior research on motivation (Gray 1970, 1981) as well as research on the evolutionary significance of cuteness (Kringelbach et al. 2016; Lorenz 1943; Shaver, Mikulincer, and Shemesh-Iron 2010), we propose and demonstrate that consumers’ behavioral approach tendencies (i.e., BAS; Carver and White 1994) interact with prosocial cuteness appeals to influence their behaviors, such that consumers who are high in BAS respond more positively to cuteness in prosocial communications. Moreover, we identify that it is the emotional response to cuteness—specifically, feelings of tenderness—that drive this effect. Our results hold true using both self-reported intentions in experiments and actual behaviors in a large-scale field experiment, and our findings corroborate previous insights into the advantages of noncoercive policies (Moller, Ryan, and Deci 2006; Ryan and Deci 2000) and inform policy makers and social entrepreneurs about an effective new approach to stimulate behavior change.

**Theoretical Development**

**BAS and Consumer Responses to Rewards**

It is widely acknowledged that human beings tend to approach rewards (Gray 1970), a fact that explains the success of sustainability programs that provide monetary rewards to engage consumers (Griskevicius, Cantu, and Van Yvgt 2012). However, people differ in their sensitivity to and their general approach tendencies toward rewards. These differential responses to reward are attributable to an individual difference variable: baseline levels of activation of the BAS (Carver and White 1994; Gray 1970, 1981).

The BAS is a primary biologically based motivational system that regulates approach motivations. It facilitates the expenditure of energy, prompts actions to pursue rewards, and guides responses to rewards (Gray 1970, 1981). The strength of the BAS varies across individuals, and these variations in sensitivity to rewards are often measured using Carver and White’s (1994) behavioral inhibition system/behavioral approach system (BIS/BAS) scale. In other words, people with strong BAS possess strong general approach tendencies; are highly responsive to rewarding cues in the environment; and tend to show intense emotional, cognitive, and behavioral reactions to rewards. In contrast, people with weak BAS are relatively insensitive to rewarding cues and tend to exhibit indifferent responses to rewarding stimuli and neutral stimuli. According to Henriques and Davidson (2000), people with clinical depression typically have weak BAS and exhibit reduced sensitivity to rewards. In the consumption domain, Wadhwa, Shiv, and Nowlis (2008) found that participants who scored low on BAS did not approach rewarding consumption cues whether in the presence of a rewarding consumption cue or no cue, while participants who scored high on BAS exhibited approach behaviors to obtain other rewarding consumption cues when in the rewarding-cue (vs. no-cue) condition. Corroborating these behavioral studies, recent functional magnetic resonance imaging (fMRI) research provides direct evidence that when in receipt of monetary rewards, low-BAS (vs. high-BAS) people showed reduced (vs. heightened) activity in the ventral striatum and the medial orbitofrontal cortex, the neural substrates of reward processing (Simon et al. 2010). These findings all suggest that a rewarding stimulus elicits heightened approach-related responses from high-BAS consumers but fails to elicit such responses from low-BAS consumers.

Cuteness is an inherently rewarding aesthetic cue for human beings, who are born with instinctive predispositions to approach cute entities and treat them as rewards (Kringelbach et al. 2016; Lorenz 1943). Next, we provide the definition of “cuteness” as investigated in this research and develop propositions for the interplay between prosocial cuteness appeals and BAS—specifically, how people with varying general approach tendencies respond to prosocial cuteness appeals.

**Kindchenschema Cuteness**

Colloquial usages of “cute” have various connotations, ranging from “someone that is sweet and nice” to “behaviors that are funny and humorous” (per 2014 entries for “cute” on UrbanDictionary.com). Fortunately, the academic representation of this construct is limited to two distinct facets: *Kindchenschema* and whimsicality. *Kindchenschema* is the classical definition of cuteness, which assesses the degree to which a given stimulus is baby-like in appearance (Lorenz 1943). A prototype would be the human infants photographed by Anne Geddes, with their big eyes, round faces, and chubby bodies. By definition, *Kindchenschema* cuteness is linked to infantility and the helplessness of the young. In contrast, whimsical cuteness is a more recent addition to the literature; this emphasizes representations of whimsical fun, playfulness, and capricious humor, as created by marketers (Nenkov and Scott 2014, p. 327)—for example, “an ice-cream scoop shaped like a miniature person or a dress with tropical colors and pink flamingos.” In the current research, we focus on *Kindchenschema* cuteness. This concept is not limited to human infants but generalizes to other infant-like stimuli, such as human adults, animals, and inanimate objects (Kringelbach et al. 2016; Lorenz 1943). An entity that possesses a sufficient proportion of infantile features, including a relatively big head, round and protruding cheeks, large eyes, and plump body with soft-elastic surface texture simulates the physical attractiveness of infants and thereby causes people to perceive it as being cute (Alley 1981, 1983; Lorenz 1943).

Germane to the current research, *Kindchenschema* cuteness has the capacity to ignite nurturing instincts and elicits innately unique human behaviors, to the extent that Kringelbach et al.
whether, when, and why it is effective in motivating prosocial behaviors can enhance the evolutionary fitness of the human species (De Waal 1996, 2008; Sober and Wilson 1998). The argument here is that prosociality is an extension of the nurturing instinct, which is the most fundamental altruistic behavior that enhances the reproduction and survival of the human species (Batson et al. 2005; McDougall 1908; Shaver, Mikulincer, and Shemesh-Iron 2010). Relatedly, a key feature of Kindchenschema cuteness is its capacity to induce nurturing responses. This implies a possible evolution-based link between prosocial behaviors and Kindchenschema cuteness, because the cuteness of an infant spurs adults to care for and protect it.

Importantly, because of the social nature of humans, these nurturing responses are not restricted to one’s own offspring but rather generalize to “other human beings’ needs for comfort, protection, support, and encouragement” (Shaver, Mikulincer, and Shemesh-Iron 2010, p. 73), which are prosocial behaviors. Thus, human prosociality represents a direct extension of the nurturing instinct that can be triggered by cuteness. Corroborating this, Glocker et al. (2009) find that exposure to cute infant faces can activate the ventral striatum, a brain region associated with general altruistic behaviors, signaling that responses to cuteness and prosocial behaviors may share a common neural basis. This reasoning suggests that the use of cuteness in prosocial appeals may induce heightened general prosocial intentions. However, as we reasoned previously, people with strong BAS are responsive to cuteness, whereas people with weak BAS tend to exhibit indifferent reactions toward cute and neutral stimuli. Therefore, we argue that the potential positive relationship between cuteness and prosociality should manifest itself among people high in BAS but not among people low in BAS. Formally,

\[ H_1: \text{People’s approach tendencies (BAS) moderate their responses to Kindchenschema cutie (vs. noncutie) appeals, such that people high in BAS show enhanced prosocial and sustainable motivations in response to the same Kindchenschema cutie (vs. noncutie) appeal, whereas people low in BAS do not.} \]

The Mediating Effect of Tenderness

Prosocial behaviors are not automatic but, rather, depend on psychological and situational triggers (Batson et al. 2005; De Waal 2008). Existing research has agreed that empathic concern, defined as “an other-oriented emotional response elicited by and congruent with the perceived welfare of someone in need” (Batson 2009, p. 8), is the motivating impetus for prosocial behaviors (Batson 2009; De Waal 2008; Lishner, Batson, and Huss 2011). Moreover, empathy is composed of two distinct emotions: tenderness and sympathy. Tenderness is a warm, positive emotional response triggered by perceiving someone’s vulnerability (Niezink et al. 2012), whereas sympathy represents a state of compassion toward someone’s plight and is elicited by an appraisal of someone’s current need (Lishner, Batson, and Huss 2011).

Critically, Kindchenschema cuteness has been argued to trigger empathy (Kringelbach et al. 2016), and specifically, it produces the emotion of tenderness, not sympathy (Lishner, Batson, and Huss 2011). This suggests that the positive effect of cuteness on prosociality may be caused by its produced tender feelings. This theorizing is consistent with the evolutionary link between cuteness and prosociality, as we have articulated. Many researchers have contended that feelings of tenderness originate from the nurturing instinct; people’s experienced
tender feelings elicited by cuteness help release caregiving behaviors toward their cute offspring (Batson et al. 2005; De Waal 2008; McDougall 1908; Sober and Wilson 1998). As Frijda (1986, p. 83) states, “Tenderness can be regarded as the impulse toward tender—that is, caregiving—behavior.” Furthermore, people with strong BAS who have enhanced responsiveness to cuteness should experience stronger feelings of tenderness toward a cute versus noncute stimulus, but in contrast, people with weak BAS who are insensitive to cuteness do not experience stronger feelings of tenderness toward a cute versus noncute object. Because tenderness prompts prosocial motivation, the stronger the tender feelings experienced by high-BAS (but not low-BAS) people, the more motivated they should be to behave prosocially. Formally,

\[ H_2: \text{The positive effect of Kindchenschema cuteness (vs. noncuteness) on prosociality among people high (vs. low) in BAS is mediated by tender feelings produced by cuteness, such that people with high BAS (vs. low BAS) experience greater tenderness in response to a cute appeal than to a noncute appeal, causing them to exhibit stronger prosocial intentions.} \]

Our conceptual framework (see Figure 1) diagrammatically represents the theoretical model that guides this research.

**Overview of the Empirical Investigation**

We report four studies testing our proposition that high-BAS (vs. low-BAS) people exhibit heightened prosocial and sustainable intentions toward cute prosocial appeals. Across these studies, we (1) expose people to cute appeals that promote prosociality, (2) measure (Studies 1 and 2) or prime (Studies 3 and 4) BAS orientation, and (3) measure proenvironmental intentions (Studies 1 and 2), charitable donation intention (Study 3), and actual recycling behavior (Study 4) to test the hypothesized effects. Study 1 examines participants’ intentions to recycle and to consume environmentally friendly products after exposure to conservation advertisements that feature either Kindchenschema cuteness or noncuteness; it reveals heightened prosocial intentions among high-BAS participants after exposure to the cute ads. Study 2 demonstrates that feelings of tenderness produced by cuteness mediate this effect. Study 3 primes participants’ BAS by using active versus passive appeals and generalizes the effect to charitable donation intentions. Study 4 tests our propositions in a large-scale field study conducted at multiple locations on a university campus over eight weeks, demonstrating the effect of an intervention combining cuteness and active high-BAS appeals on the amount of materials recycled.

Across studies, we use a self-reported measure of participants’ motivational approach tendencies with Carver and White’s (1994) scale (Studies 1 and 2) or prime participants’ approach motivation using messages that emphasize (vs. do not emphasize) action (Studies 3 and 4). This method of manipulating BAS is new to the literature and stems from its core function of regulating responses to rewards. The defining feature of high-BAS people is their heightened responsiveness to and active approach-related behaviors toward rewards, compared with low-BAS people’s lack of these actions toward rewards (Gray 1970, 1981; Wadhwa, Shiv, and Nowlis 2008). As such, emphasizing action orientation might prime strong BAS and thus elicit heightened prosocial intentions toward cute prosocial ads. We implement this logic in Studies 3 and 4 by creating active prosocial slogans that stress action orientation. Specifically, to serve the purpose of enhancing BAS, these slogans (1) call for immediate prosocial actions with specific words adopted from the Carver and White (1994) scale; (2) are written in italic font, which heightens behavioral movement (Cian, Krishna, and Eder 2015); and (3) are expressed in a relatively assertive tone, which is associated with extraversion, a personality feature linked with strong BAS (Barrick and Mount 1991; Muris et al. 2005; i.e., “Donate NOW!” [Study 3] and “Recycle NOW!” and “Recycling is FUN!” [Study 4]). We contrasted these active slogans with passive slogans in normal font and in a nonassertive tone (i.e., “Donate please” [Study 3] and “Recycle please” and “Recycle for me” [Study 4]), which functioned as the low-BAS messages. Importantly, both the scale measure and the prime of BAS yielded similar results that are consistent with our theorizing.

**Study 1: Cuteness Enhances Sustainability-Related Intentions Among High-BAS (vs. Low-BAS) People**

The purpose of Study 1 was to test the proposed interactive effect of cuteness and participants’ BAS on sustainability-related intentions. For this purpose, we designed posters promoting recycling, which featured images of either Kindchenschema cute animals or noncute animals, and measured respondents’ BAS and their intentions to engage in sustainability-related behaviors. We predicted that for high-BAS (but not low-BAS) participants, there would be a positive effect of the cute (but not the noncute) images.

**Method**

**Design and Stimuli**

This experiment was in a 2 (appeal: cute vs. noncute) × 2 (BAS: high vs. low) between-subjects design, with BAS as a measured variable. Participants (N = 202; 125 men; M_age = 33 years) were recruited for US$.30 on Amazon Mechanical Turk (MTurk). Using the cover story of examining the effectiveness of poster design, we showed participants a poster that featured either four cute animals or four noncute animals with the slogan “Recycling saves animals. Please recycle” (see Appendix A).

We selected images of four cute animals (to appear in the cute poster) that possess multiple prototypical Kindchenschema...
features as identified in the literature (Alley 1981, 1983) and, correspondingly, four equivalent noncute animals that possessed few Kindchenschema features to appear in the noncute poster. We then pretested the selected images. Participants (N = 27) were shown a set of four animals, either all cute or all noncute, and rated the cuteness of each animal (1 = “not cute at all,” and 100 = “extremely cute”). A one-way analysis of variance (ANOVA) showed that the cute animals were indeed perceived as being cuter than the noncute ones (all ps < .05).

**Procedure**

Participants were randomly assigned to view either the cute recycling poster or the noncute one, depending on condition. Afterward, we assessed participants’ sustainability-related intentions by assessing their intentions to recycle (“To what extent are you willing to recycle after seeing this poster?,” “How likely are you to recycle after seeing this poster?,” and “To what extent does this poster motivate you to recycle?”) and their willingness to try environmentally friendly products (“How much do you want to try products that are made of recycled materials/biodegradable trash bags/phosphate-free detergents?”). All questions were administered on seven-point scales (1 = “not at all,” and 7 = “very much”) and later combined to form an index of sustainability-related intentions (α = .91). Then, as a manipulation check, we asked participants to rate the cuteness of the animals on the poster (1 = “not cute at all,” and 7 = “extremely cute”). Finally, participants responded to the BIS/BAS questionnaire (Carver and White 1994), which was presented as an ostensibly different consumer survey.

**Results and Discussion**

**Manipulation Check**

A one-way ANOVA showed that the animals in the cute poster were rated as being much cuter than the equivalent animals in the noncute condition (M_{cute} = 6.24 vs. M_{noncute} = 5.32; p < .0001).

**Sustainability-Related Intentions**

Participants’ scores on the index of sustainability-related intentions were regressed on type of appeal (1 = cute, –1 = noncute), BAS (standardized), and the appeal × BAS interaction. In support of H1, there was a significant interaction effect (β = .29, t = 2.93, p < .01), and no other effects were significant (p > .10). Follow-up spotlight analyses revealed that high-BAS participants (i.e., +1 SD) reported higher intentions to behave sustainably after having viewed the cute recycling poster compared with the noncute one (M_{cute} = 5.38 vs. M_{noncute} = 4.74; β = .32, t = 2.31, p < .03), suggesting a positive effect of cuteness on sustainability-related intentions among high-BAS consumers. In contrast, among low-BAS participants (i.e., –1 SD) there was a directionally significant difference in the opposite direction (M_{cute} = 4.47 vs. M_{noncute} = 4.99; β = –.26, t = –1.86, p = .07; see Figure 2). We did not expect this marginally significant negative effect of cuteness among low-BAS participants. We test this further in the following studies and return to it in the “General Discussion” section.

We also analyzed the slopes of BAS for the two posters and found that BAS had a significantly positive effect for the cute poster (β = .45, t = 3.53, p < .01) but no effect for the noncute poster (β = –.13, t = –.84, p > .40). That is, among those who saw the cute poster, higher BAS led to increasingly positive intentions. In contrast, all participants regardless of BAS responded similarly to the noncute poster.

These results provided initial evidence for our hypothesized positive effect of cuteness in enhancing sustainability-related motivation among people who have strong general approach tendencies (H1). Consistent with our predictions, exposure to a poster that presented images of cute (vs. noncute) animals enhanced high-BAS participants’ intentions to recycle and to try environmentally friendly products; this effect was not apparent for participants with low BAS.

**Study 2: The Mediating Role of Tenderness**

The goal of Study 2 was to test the mechanism underlying the effect observed in Study 1 (H2). We expected that high-BAS people would be more predisposed to respond with tenderness to a cute (vs. noncute) appeal and that these feelings of tenderness would drive their prosocial intentions. In this study, we measured two different empathic emotions—tenderness and sympathy (Lishner, Batson, and Huss 2011; Niezink et al. 2012)—to test whether it is indeed tenderness, rather than sympathy, that drives the proposed cuteness by BAS interaction.

Another purpose of Study 2 was to examine an alternative explanation for the observed effect. Prior research has argued that cuteness is generally liked and produces general positive affect among its viewers (Hildebrandt and Fitzgerald 1978), which raises the possibility that high-BAS people’s positive responses to cute prosocial appeals might be caused not by tenderness but by enhanced general positive feelings toward cuteness. Drawing on prior research, we theorize that the general positive affect account is less likely. The extant literature has revealed no conclusive findings regarding the relationship between general positive affect and prosocial behaviors (e.g., Fisher, Vandenbosch, and Antia 2008; Small and Verrochi 2009). Rather, it has been suggested that prosocial...
appeals that produce positive feelings may not be more effective in eliciting prosocial behaviors (Small and Verrochi 2009) and could even discourage prosocial motivations (Fisher, Vandenbosch, and Antia 2008). To empirically disentangle the underlying process, in Study 2 we measured participants’ affective responses, including tenderness, sympathy, and general positive affect, and conducted mediation analyses to test which construct mediates the observed effect.

**Method**

Study 2 employed a 2 (appeal: cute vs. noncute) × 2 (BAS: high vs. low; measured factor) between-subjects design. People recruited from MTurk (N = 240; 145 men; M_age = 35 years) participated in return for US$.50. We adopted a similar procedure to that of Study 1, except that we also measured participants’ affective responses. As a cover story, we claimed we were examining the effectiveness of recycling poster designs. Participants were randomly assigned to view one of the two posters used in Study 1 and then indicated their willingness to recycle on a seven-point scale (1 = “not at all,” and 7 = “very much”). Afterward, participants responded to multiple items that describe how they might have felt when viewing the poster on seven-point scales (1 = “strongly disagree,” and 7 = “strongly agree”). These items were displayed in randomized order and measured feelings of tenderness (three items: “tender,” “warm,” and “softhearted”; Niezink et al. 2012), sympathy (three items: “compassionate,” “moved,” and “sympathetic”; Niezink et al. 2012), and general positive feelings (five items: “happy,” “alert,” “inspired,” “determined,” and “attentive”; Positive and Negative Affect Schedule [PANAS short version]; Thompson 2007). Following this, as manipulation check, participants rated the cuteness of the animals in the poster (1 = “not cute at all,” and 7 = “extremely cute”). Finally, they completed the BIS/BAS questionnaire, which was administered as an ostensibly different consumer survey.

**Results**

**Manipulation Check**

A one-way ANOVA of the averaged cuteness ratings showed that participants perceived the animal images in the cute poster as being cuter than those used in the noncute poster (M_cute = 6.09 vs. M_noncute = 5.50; F(1, 238) = 18.06, p < .001).

**Willingness to Recycle**

We regressed participants’ willingness to recycle on appeal (1 = cute, −1 = noncute), BAS (standardized), and the appeal × BAS interaction. As we predicted, there was a significant interaction effect (β = .21, t = 1.96, p = .05). No other effects were significant (ps > .10). Follow-up spotlight analyses revealed that high-BAS participants (i.e., +1 SD) were directionally more willing to recycle after viewing the cute poster than after viewing the noncute one (M_cute = 5.50 vs. M_noncute = 4.99; β = .25, t = 1.66, p < .05 [one-tailed]). In contrast, low-BAS participants (i.e., −1 SD) did not differ in their stated intention to recycle (M_cute = 4.71 vs. M_noncute = 5.05; β = −.17, t = −1.11, p = .27). This null effect is different from what we observed in Study 1, and we return to this point in the “General Discussion” section.

In addition, we conducted simple slopes analyses and found that in the cute poster condition, higher BAS led to significantly higher willingness to recycle (β = .39, t = 2.64, p < .01). However, in the noncute poster condition, there was no effect of BAS on recycling intentions (β = −.03, t = −.20, p = .84).

**Tenderness as the Underlying Mechanism**

We averaged participants’ responses to each of the three sets of items measuring tenderness (α = .96), sympathy (α = .95), and general positive feelings (α = .86), to create indices of each. We then regressed the tenderness index on appeal (1 = cute, −1 = noncute), BAS (standardized), and the appeal × BAS interaction. There was a marginally significant interaction effect (p = .09), such that high-BAS consumers reported significantly greater feelings of tenderness in response to the cute poster than to the noncute poster (M_cute = 5.60 vs. M_noncute = 4.86; β = .37, t = 2.38, p < .02). In contrast, low-BAS consumers experienced similar levels of tenderness (M_cute = 4.84 vs. M_noncute = 4.85; β = .0, t = −.02, p = .98). Separate similar analyses with sympathy and positive affect as dependent variables revealed no significant interaction effect on sympathy (p < .19, n.s.) or positive affect (p < .17, n.s.), suggesting that neither sympathy nor positive affect mediates the observed effect.

To directly test whether tenderness, and not the other two affective states, mediates the observed effect, we conducted three separate mediated moderation analyses with tenderness, sympathy, and general positive feelings as the possible mediators (Model 7, Hayes 2013). Most importantly, introducing tenderness to the regression model on participants’ willingness to recycle yielded a significant indirect effect of the appeal × BAS interaction through tenderness. Among high-BAS participants, as we predicted in H2, tenderness mediated the effect on their willingness to recycle (β = .21, bootstrapped 95% confidence interval [CI]: [.04, .44]; 5,000 samples). In contrast, tenderness did not mediate the effect among low-BAS participants (β = 0, bootstrapped 95% CI: [−.17, .17]; 5,000 samples), and the direct effect was no longer significant (β = −.08, p = .40).

Additional analyses ruled out possible mediating roles of sympathy and positive affect. When sympathy (instead of tenderness) was used as the mediator, there was no significant indirect effect of the appeal × BAS interaction through sympathy among either high-BAS participants (β = .16, bootstrapped 95% CI: [−.01, .37]; 5,000 samples) or low-BAS participants (β = 0, bootstrapped 95% CI: [−.17, .17]; 5,000 samples). Similarly, using general positive affect (instead of tenderness) revealed no significant indirect effect of the appeal × BAS interaction through positive affect among high-BAS participants (β = .17, bootstrapped 95% CI: [−.001, .38]; 5,000 samples) or low-BAS participants (β = 0, bootstrapped 95% CI: [−.15, .16]; 5,000 samples).

**Discussion**

Study 2 builds on Study 1 to support our proposition that participants’ general approach tendencies (BAS) determine their responses to prosocial cuteness appeals (H1). Importantly, it provides direct support for our proposed underlying mechanism implicating feelings of tenderness (H2). As the mediation analyses results show, high-BAS participants’ enhanced prosocial motivation was mediated by their experienced feelings of tenderness. Notably, similar tests of mediation revealed that neither participants’ experienced sympathy nor their generalized positive
feelings of tenderness, which are emotional antecedents of nurture.

In addition, the null effect of general positive affect is consistent with previous research showing that positive affect may not effectively elicit prosocial behaviors (Fisher, Vandenbosch, and Antia 2008; Small and Verrochi 2009). Importantly, in this study we were able to tease apart two distinct empathic emotions, tenderness and sympathy. The mediation analyses revealed that high-BAS participants effectively elicit prosocial behaviors (Fisher, Vandenbosch, and Antia 2008; Small and Verrochi 2009). Importantly, in this study we were able to tease apart two distinct empathic emotions, tenderness and sympathy. The mediation analyses revealed that high-BAS participants’ enhanced prosocial motivation is driven by experienced tenderness rather than sympathy. This finding corroborates previous research stating that cuteness elicits feelings of tenderness, which are emotional antecedents of nurturing tendencies (Frijda 1986; Sober and Wilson 1998).

Study 3: Cuteness and Primed Approach Motivation Enhance Charitable Intentions

Study 3 aims to lend additional support to the conceptual framework and extend it in two key ways. First, it examines a more general prosocial intention—people’s intention to donate to charities—to generalize the scope of the effect. In addition, it captures the role of approach motivation by priming (instead of measuring) BAS by displaying either an action-oriented active message versus a passive one. To recap our logic, cuteness, as a reward, spurs approach motivation, and BAS regulates approach tendencies toward rewards. People with strong general approach tendencies actively approach rewards, whereas people with weak approach tendencies show reduced sensitivity to rewards (Gray 1970, 1981). As such, messages that stress action orientation may prime strong BAS and subsequently elicit enhanced responses toward cuteness. Following this logic, we expect that prosocial advertisements that combine high-BAS messages with cute visuals should be more likely to induce heightened donation intentions, akin to the effect of cuteness for high-BAS people who display chronically strong approach tendencies.

Method

Design and Stimuli

This study followed a 2 (appeal: cute vs. noncute) × 2 (BAS priming: active vs. passive) between-subjects design and examined participants’ responses toward charitable advertisements that request donations to help animals. We created four posters featuring images of a dog with a caption (see Appendix B). We manipulated cuteness using either a cute puppy or a noncute adult dog in the images. These images were pretested on participants (N = 30) who were randomly shown one of the two images and rated its cuteness (1 = “not cute at all,” and 7 = “very cute”). A two-sample t-test confirmed that the cute dog was perceived as significantly cuter than the noncute one ($M_{cute} = 6.03$ vs. $M_{noncute} = 4.23$; t(29) = 6.60, p < .001).

As manipulation of BAS, the advertisements featured either an action-oriented message that called for a donation written in italics with an exclamation mark (“Your donation can help animals. Donate NOW!”) in the high-BAS condition or a passive message written in normal font (“Your donation can help animals. Please Donate”) in the low-BAS condition. We expected that the BAS priming would affect participants’ prosocial intentions only in the cute image condition, and that the priming alone would not directly influence prosocial intentions. To confirm this, we conducted a separate study with participants (N = 64), in which they were randomly shown either the poster featuring the high-BAS message or the poster featuring the low-BAS message (no visual images appeared in either poster). There were no differences in prosocial intentions across the two BAS-priming conditions ($M_{active} = 4.02$ vs. $M_{passive} = 4.39$; F(1, 62) = 1.17, p = .28).

Participants and Procedure

Participants (N = 144; 81 men; $M_{age} = 36$ years) were recruited for US$.50 on MTurk. Participants were told that a local animal protection agency had designed a poster to generate donations to help save animals and improve their living conditions, and we were interested in their reactions to the poster. Depending on condition, participants were shown one of the four posters. After they saw the poster, participants indicated the extent to which they were willing to donate their payment for participating in this research to help the animals (1 = “not at all,” and 7 = “very much”). As a manipulation check, they also rated the cuteness of the animal appearing in the poster (1 = “not at all,” and 7 = “extremely cute”).

Results

Manipulation Check

A one-way ANOVA showed that the animal image used in the cute condition was rated as significantly cuter than the one used in the noncute condition ($M_{cute} = 6.19$ vs. $M_{noncute} = 5.16$; F(1, 142) = 9.55, p < .001).

Willingness to Donate Research Payment

A two-way cuteness × prime ANOVA on participants’ willingness to donate their payment revealed a significant interaction (F(1, 140) = 3.87, p = .05). No other effects reached significance ($ps > .30$). As predicted, there was a significant simple effect of BAS priming in the cute condition, such that participants who saw the cute appeal that displayed the active (high-BAS) message were more willing to donate their payment than those who saw the cute appeal with the passive (low-BAS) message ($M_{active} = 3.21$ vs. $M_{passive} = 2.22$; F(1, 140) = 4.23, p < .05). In contrast, participants had similar intentions to donate after viewing the noncute active versus the noncute passive poster ($M_{active} = 2.73$ vs. $M_{passive} = 3.05$; F(1, 140) = .49, p > .45).

Discussion

Study 3 replicates the interactive effect of cuteness and BAS (primed) on charitable intentions to provide further support for our conceptual framework. Participants who saw the prosocial appeal featuring the combination of a cute visual and a high-BAS message reported greater intentions to donate.
than others. The generalization of our proposed effect from proenvironmental intentions (Studies 1 and 2) to charitable donation intentions lends additional external validity to our findings.

Taken together, the results of Studies 1–3 are supportive of our conceptual framework, but each of them measures intentions and not actual behaviors. It is well known that there is some inconsistency between consumers’ articulated attitudes and their actual behaviors (Fazio, Powell, and Williams 1989). This attitude–behavior gap is particularly relevant to the current context of prosocial and sustainable behaviors because many people may articulate what they believe is the “right” thing to do but do not follow through with their actions (Kollmuss and Agyeman 2002). We explore this notion in Study 4, a large-scale field study conducted at a university campus, in which we demonstrate the positive effect of prosocial cuteness appeals with BAS orientation on actual recycling behaviors over an extended period of time.

**Study 4: Recycling Field Experiment**

This field experiment had two purposes. First, we aimed to test whether our proposed interactive effect of cuteness and BAS, as observed on intentions in the preceding studies, influenced people’s actual recycling behaviors. Second, we wanted to observe whether recycling behaviors promoted by high-BAS cuteness appeals had a relatively long-lasting effect or wore out quickly. To serve these purposes, we collaborated with a university’s sustainability unit on a field intervention, in which we used appropriately designed, visually appealing cute images and messages on recycle bins and measured the amount of recycled materials over eight weeks.

Our study design was subject to some key considerations and constraints and, thus, has some limitations. Most notably, the total cost of one recycling bin, including sourcing the bin and designing and producing the images, was over US$500. This imposed a limit on the total number of bins we could install, with implications for the study design. Given that our key proposition was that approach motivation regulates responses to cuteness (H1), we chose to design bins that were all cute, but featured either active (high-BAS) or passive (low-BAS) messages.

**Method**

**Quasi-Experimental Designs**

Given the amount of traffic, estimated amount of use of recyclable materials, and ease of comparisons, we initially selected four undergraduate dormitories (UG Halls 1, 2, 8, and 9) and the new business school building (SBM hereinafter) for this field study. Due to unforeseen data collection issues, we had to exclude UG Halls 8 and 9 from the study. Consequently, our final data are from UG Halls 1 and 2 (separate buildings), which are similar in architectural structure and could be closely matched to each other, and from SBM, in which the comparison was within the building across floors. UG Halls 1 and 2 accommodate approximately 1,000 residential undergraduate students (mixed genders, from different majors and years), and SBM hosts approximately 4,300 students and 250 faculty and staff. The study lasted eight weeks, from March until early May, in two phases: a control phase lasting three weeks, and an experimental phase that lasted five weeks.

UG Halls 1 and 2 were paired in a time-trend design. Prior to the study, the dorms had only one recycling bin placed outside the hall entrance (each bin had three compartments for paper, plastic, and metal). During the study period, we installed one recycling bin in the common room on each floor of the dorms. In the control phase, normal three-compartment recycling bins were introduced to both halls. Then, in the experimental phase, all bins in UG Hall 1 were switched to reveal a passive (low-BAS) message coupled with an image of a passive cute animal (described next). At the same time, all bins in UG Hall 2 were switched to reveal an active (high-BAS) message coupled with an image of an active cute animal.

The SBM design was more complicated because different populations use this building and there is a varied amount of traffic on each floor. The first three floors consist of classrooms while the top three floors house faculty offices (offices from the same department are located together on the same floor). In the control phase, normal recycling bins were introduced on each floor. Then, in the experimental phase, all bins were switched to reveal the cute visuals and messages. On student floors, three sets of recycling bins were systematically placed at three different types of locations: high-traffic areas (i.e., near a lift), high-visibility areas (i.e., at the end of a hallway), or common-study seating areas. On faculty floors, two sets of recycling bins were placed near each of the two departments’ general offices. Alternate floors displayed the active and passive executions.

**Pretest: Stimulus Development**

Our objective was to create four different images to be used as frontage for the recycling bins. The images all needed to be cute, but had to vary in the extent of the approach motivation they elicited. Following the same logic as in Study 3, we created different executions, which combined either images of cute baby animals that were running toward the viewer, with active slogans in italic font and exclamation marks (i.e., “Recycle NOW!” and “Recycling is FUN!”; high-BAS condition), or images of passive cute baby animals with passive slogans in normal font (i.e., “Recycle please” and “Recycle for me”; low-BAS condition). In line with Study 3, we expected that the executions in the high-BAS condition would prime people with approach motivations.

Using the created slogans and selected images of cute animals, we initially designed six different executions, either cute active (high-BAS) or cute passive (low-BAS). To avoid exposing the stimuli to the focal subjects, we pretested these on 89 college students (37 men) at a different local university. Participants were randomly presented with one of the six executions and asked to answer two questions: (1) “Does this poster make you want to recycle?” and (2) “How much do you like this poster?” (1 = “not at all,” and 7 = “very much”). One-way ANOVA revealed that there was no difference in participants’ stated motivation to recycle ($p > .14$), but there was a significant difference in liking ($F(5, 83) = 2.42, p < .05$). Thus, we deleted the two posters that participants liked the most and the least, leaving four executions (two active and two passive) rated as equally likable ($F(3, 39) = 2.05, p > .12$). To increase confidence in any effects we might observe, we used both executions for each condition. A posttest in which MTurk participants ($N = 374$) were shown either the active or the passive posters, between-subjects, and were then administered the BIS/BAS scale (Carver and White 1994), revealed that the active posters enhanced approach motivation (BAS score) directionally more than the passive posters did ($M_{active} = 39.20$ vs. $M_{passive} = 38.20$;


In the business school building, we computed a measure of SBM Building pounds was from the undergraduate dormitories. Approximately 1,103 pounds came from SBM, and the remaining 1,984 recycled at the installed bins at these five locations. During the study period, over 3,087 pounds of materials were printed on high-quality foam boards of the F(1, 373) = 3.03, p = .08. The four selected executions (see Appendix C) were put under the paper-collecting compartment of the recycling bins (900 mm × 760 mm), which were stuck on the bins.

**Data Tracking: Custom-Made Bins and Bags**

Fifty-two recycling bins were custom-made, each containing three separate built-in compartments for paper, metal, and plastic. Each bin was assigned a three-digit code, such that the first digit represented the location (e.g., UG Hall 1 = 1), the second digit represented the floor the bin was on, and the last digit represented the type of location (e.g., residence hall common room = 0). For example, the bin assigned the code “120” was placed in the common room on the second floor in UG Hall 1. We then ordered thousands of transparent plastic collection bags and marked each bag with the code number of the bin in which it would be placed and letters representing paper (PP), metal (M), and plastic (PL). For example, bags marked with “120PP” were put under the paper-collecting compartment of the bin numbered “120.”

**Data Collection**

Across the control and experimental periods, the amount of recycling in all locations was regularly weighed and recorded. We coordinated 7 student helpers, 29 janitorial staff, 34 UB Hall attendants, and 12 managerial staff in the collection of data. Specifically, the janitorial staff collected recyclables daily (twice per week for SBM) from our new recycling bins, replaced them with appropriately labeled empty plastic bags, and transferred the marked filled bags to designated weighing and storage areas. The student volunteers weighed the recycled materials and recorded the data for each bin daily (twice per week for SBM). They then transferred the recycled materials to a central collection center for municipal pickup.

**Results and Discussion**

During the study period, over 3,087 pounds of materials were recycled at the installed bins at these five locations. Approximately 1,103 pounds came from SBM, and the remaining 1,984 pounds was from the undergraduate dormitories.

**SBM Building**

In the business school building, we computed a measure of relative increase (or decrease) in recycling for each individual bin during the experimental versus control period by dividing the amount of material recycled at that bin during the experimental phase by the average amount of goods recycled there during the control phase. Thus, each bin functioned as its own control. We regressed this relative amount of recycling on condition (high-BAS active bins = 1, low-BAS passive bins = -1), while controlling for time (coded from 1 to 16, representing the first to the last data point in the study) and bin number. The regression results revealed significant effects of condition (Mactive = 1.55 vs. Mpassive = 1.02; β = .20, t = 2.32, p < .03) and time (β = .19, t = 2.20, p = .03). As we predicted, the cute active posters enhanced the amount of recycling by up to 55% compared with the regular recycling bins, whereas the passive recycling posters did not have any incremental effect. Moreover, the time trend was positive, which suggests that the positive effect of the manipulated bins did not wear off but, rather, was sustained over the study period.

Additional one-way ANOVAs investigating different types of users (student floors = 1, faculty floors = 2) revealed no differences among social study areas, high-traffic areas, and high-visibility areas on the student floors (F(2, 77) = 1.46, p = .24) and no differences between the two wings on the faculty floors (F(1, 46) = .29, p = .60). The patterns of total quantities recycled did not vary across replicate (i.e., the two active executions were similar to each other, as were the two passive executions). Moreover, further investigation revealed that the observed effects were driven by quantities of plastic and paper recycled rather than metal (metal constituted less than 15% of the recycled materials by weight, far less than the others).

**UG Halls**

For each recycling bin, we again divided the amount of recycling in the experimental period by the average amount of recycling across the control period across all recycling bins. We then regressed this measure of relative increase or decrease in recycled amounts on bin design condition, location, and time. The regression analysis revealed significant effects of condition (Mactive = 1.27 vs. Mpassive = .93; β = .24, t = 2.04, p < .05), location (β = −.28, t = −2.39, p < .05), and a marginally significant effect of time (β = .08, t = 1.70, p < .09). In particular, the active cute recycling bins increased the amount of recycling by 27% compared with the regular recycling bins, while the passive cute recycling bins had no effect (if anything, they had a slightly negative effect), replicating the result from SBM. Dorm occupants are assigned by gender to floor, and, using floor as proxy for gender, we found no variation by gender (p > .30) (see Figure 3).

**Time Trend**

The positive effect of time in the regression analyses suggests that the cute active recycling bins induced a sustained effect over time. As an additional test, we conducted a t-test of the weights (in pounds) collected in each recycling bin in UB Halls 1 and 2 on the first versus the last day of the experimental phase. The results revealed a marginal increase (Mfirst = 5.45 vs. Mlast = 14.48; t(19) = −3.84, p < .001). More recyclables were collected in the last day than the first day of the experimental phase. Pooling the data of UB Halls and SBM yielded a significant difference (Mfirst = 3.51 vs. Mlast = 9.24; t(37) = −3.93, p < .001), showing that people recycled more materials at the end of the experimental phase than when they first saw the cute bins.

In addition, we counted the number of recycling bins that collected equal or greater amounts of materials on the last day/half-week of the experimental phase than on the first day/half-week of the experimental phase. In UB Halls 1 and 2, out of the total 18 recycling bins, 10 bins (56%) collected more recyclable materials on the last day than on the first day, and 2 bins (11%) collected equal amounts on both days, accounting for 67% of the recycling bins. Similarly, we found that in SBM, out of the 20 recycling bins, 18 bins (90%) collected more materials on the last half-week than on the first half-week of the experimental phase, and one recycling bin collected equal amounts on both half-weeks (5%), constituting 95% of the bins. Consistently, we
observed that the semweekly absolute quantity of recycled goods averaged across all active bins (and all passive bins) in SBM first increased but then decreased in the control phase (i.e., the impact of introducing new bins wore off quickly), and then exhibited a slow upward trend over the experimental phase (we observed a similar trend for the passive bins; i.e., the effect of the cute interventions tended to sustain). These results suggest that the effect of the cute high-BAS interventions did not dwindle over time.

Discussion

The results of this field study replicate Study 3 and demonstrate that all cute appeals are not uniformly effective—those combined with approach messages have a positive impact on people’s actual recycling behaviors, which is consistent with our proposition (H1). The Study 4 results provide cogent and strong evidence for the generalizability of the cuteness x BAS effect over different populations: we observed the same pattern of results across the business school building and undergraduate residence halls, where different manipulations of BAS were utilized with different target populations.

Moreover, the observed time trends showed that people’s recycling behaviors lasted the duration of the experimental portion of the study (i.e., eight weeks), which suggests that the observed positive effect does not wear off quickly but rather induces a sustained increase in recycling over several weeks. This is probably driven by the intrinsically rewarding nature of the evolutionarily functional Kindchenschema cuteness for people, as previous research has shown that communications that use intrinsic incentives tend to elicit sustained behavior change over time (Moller, Ryan, and Deci 2006; Ryan and Deci 2000). Another possibility is that during the eight-week period, people may have developed enhanced familiarity with the recycling bins and even developed habits (thus reducing the perceived effortfulness of recycling, which previous research has shown to encourage recycling behaviors; Ludwig, Gray, and Rowell 1998; Pieters 1991). It is worth noting that in the control phase after the introduction of the new bins, the recycling activity first increased but then decreased, which suggests that as the recycling bins became more familiar, people’s motivation to recycle may have decreased. However, the upward trend of recycling in the experimental phase seems to suggest that the positive effect of our interventions may have overridden the downward trend and sustained its effect over several weeks.

We note several limitations in the design of field study. First, we did not measure the amount of trash, as opposed to recyclables, that was disposed of at the chosen locations. This allows for the alternative explanation that the cute high-BAS bins enhanced people’s tendency to dispose of materials in general, leading to increases not only in recycling but also in the amount of regular trash.1 Our data do not allow us to address this possibility. However, it has been suggested that Kindchenschema cuteness enhances consumers’ motivation to retain (vs. discard) objects (Jia, Pol, and Park 2017), a finding that contradicts the aforementioned alternative explanation. Another limitation of this study is that we did not measure potential recyclers’ chronic BAS characteristics and thus are not able to investigate the relative influence of our interventions on people’s chronic BAS. In addition, we did not measure specific demographic information and were unable to generate more insights regarding the role of individual differences (Iyer and Kashyap 2007). Furthermore, the recycling bins were positioned in public locations, and thus, the recycling activity was measured at group level rather than at individual level. Finally, we discontinued measuring and recording of recycled materials immediately after the study period, but the bins with the designated posters remained in the locations for some time after the study ended; consequently, we were unable to examine whether the influence of our interventions sustained even after the manipulated posters were removed.

General Discussion

Theoretical Contributions

Convergent findings from the lab and the field provide strong support for our propositions. Visual cues of cuteness enhance prosocial and sustainable motivations in people who have strong (vs. weak) approach motivation. This proposition holds true for appeals that encourage recycling behaviors (Studies 1, 3, and 4) and those that request for donations to help animals (Study 3). Moreover, the mediation analyses in Study 2 indicates that feelings of tenderness (vs. sympathy or general positive affect) underlie the observed cuteness x BAS interaction effect.

Most importantly, our findings contribute to the literature on prosociality and sustainability by demonstrating that unlike the frequently used coercive strategies to elicit behavior change,

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1We thank a reviewer for bringing this to our attention.
In line with previous research, we found that cues of cuteness elicit feelings of tenderness, which is a basic type of empathic emotion (Lishner, Batson, and Huss 2011; Niezink et al. 2012), and these tender feelings lead to heightened motivation to behave prosocially. This finding agrees with the consensus in the prosociality literature that empathic concern plays a crucial role in motivating prosocial behaviors (Batson 2009; De Waal 2008; Lishner, Batson, and Huss 2011). Moreover, the mediation analyses revealed that neither sympathy nor general positive feelings mediate the observed effect. This rules out potential alternative explanations and is consistent with previous findings that positive affect may not always motivate prosocial behaviors (Fisher, Vandenbosch, and Antia 2008; Small and Verrochi 2009). Altogether, the findings suggest that the observed effect is not due to reliance on feelings versus cognition but is driven by the specific emotion of tenderness.

Limitations and Future Research

One may wonder whether the construct of anthropomorphism, which has been shown to elicit heightened intentions to protect the environment (Tam, Lee, and Chao 2013), is relevant to our findings. For example, Tam, Lee, and Chao (2013) showed that an advertisement with a talking tree can increase environmentally friendly attitudes resulting from increased feelings of connectedness with nature. However, the literature has clearly shown that cuteness and anthropomorphism are two different constructs: human-like features may lead to humanization (Tam, Lee, and Chao 2013), but only Kindchenschema features constitute the perception of cuteness (Lorenz 1943). Essentially, not all cute objects are humanized, and not all humanized objects are cute. In our investigation, we used nonhuman animals in all conditions. Our cute and noncute stimuli possess equal amounts of human-like features and thus do not differ in anthropomorphization. Therefore, unless one argues that noncute animals are somehow less human than cute baby animals, it is not possible to attribute the observed differences across conditions to anthropomorphization. In addition, the moderating effect of participants’ motivational approach tendencies originates from the unique evolutionary advantage of cuteness as a major elictor of parental instinct, which has nothing to do with anthropomorphization. Our finding that feelings of tenderness produced by cuteness mediate the observed effect help triangulate on the role of cuteness rather than humanization.

Another research direction worth exploring relates to the influence of Kindchenschema versus whimsical cuteness on prosocial motivation. The playful nature of whimsical cuteness suggests that it may have no effect, or even a negative effect, on prosocial motivation, and this may be a notable point of contrast for future research. Moreover, recent work has suggested that the concept of Kindchenschema cuteness can be extended to include babyish features of senses other than vision, such as positive infantile sound and smell, and that cuteness may affect human behaviors through these senses (Kringelbach et al. 2016). Such an expansion of Kindchenschema suggests that adopting cute infantile sounds in prosocial advertising may have similar positive effects on encouraging prosocial behaviors, an idea worth future examination.

Finally, apart from the established positive effect of cuteness for people with strong BAS across studies, we believe that
question of how to motivate low-BAS people’s prosociality is theoretically interesting and practically important. Our data reveal mixed results regarding the effect of cuteness among low-BAS people. In Study 1, we find that low-BAS people respond less favorably to cute appeals than to noncute ones ($p = .07$), suggesting a potentially negative influence of cuteness among low-BAS consumers. This effect is not replicated in Study 2 ($p = .84$, self-reported BAS). In Study 3, when participants’ BAS was manipulated, we observe a marginally significant negative effect of cuteness in the weak BAS priming condition ($p = .08$). Given the mixed findings from our data, we believe additional investigation is needed to establish the reliability of and the possible reasons for this negative effect among low-BAS people. It is possible that low-BAS people might react more strongly to persuasion attempts that aim to shape their behaviors and thus respond negatively to prosocial advertisements that employ cute visuals (Friestad and Wright 1994). Future research can investigate this proposition.

**Practical Implications for Policy Implementation and Communication**

This research shows that using aesthetic stimuli characteristic of cuteness can enhance prosocial and conservation behaviors among consumers who have strong approach motivation. In terms of implementation, policy makers have prioritized reducing transaction costs related to sustainable behaviors, such as increasing the provision of recycling bins to enhance the convenience and ease of recycling (Pieters 1991). Consistently, our field study showed that the mere introduction of recycling bins can increase the amount of recycling. This study revealed that the appropriate use of cuteness can further stimulate recycling behavior; specifically, the recycling bins that feature the combination of cute visuals and strong BAS messages engendered more recycling activity than the cute low-BAS bins. Moreover, people’s enhanced recycling activity toward the cute high-BAS recycling bins lasted over a period of several weeks. Across studies, we found that the combination of cute visuals and strong BAS heightened people’s intentions to behave in prosocial and sustainable manners as well. Therefore, drawing on these findings, we recommend that governments, environmental practitioners, and policy makers consider adopting the noncoercive aesthetically cute appeals to subtly motivate prosocial behaviors. Our findings suggest two distinct approaches to implement the cuteness tactic: (1) segment the market on the basis of consumers’ BAS characteristics and target high-BAS consumers with cuteness appeals (Studies 1 and 2) or (2) prime strong BAS using action-oriented messages in ads that feature cute visuals and target these ads to the public (Studies 3 and 4).

The segmenting approach corroborates a basic marketing tenet that it is more efficient to divide people into different segments in line with meaningful criteria and target persuasion efforts to each segment (Shrum, Lowrey, and McCarty 1994). This approach points to the need for policy makers to account for differences across individuals when selecting target markets, positioning products, and designing communication strategies (Sciandra, Lamberton, and Reczek 2017). Relatedly, our finding provides a valuable indicator of high-yield consumer profiles—consumers who possess strong BAS. However, from a practical standpoint, it is indeed challenging to segment the general population and identify target consumers according to their BAS characteristics. Sciandra, Lamberton, and Reczek (2017) offer a practical solution to address this issue: use surveys to identify observable and easy-to-measure variables (demographic, psychographic, or behavioral variables) that are highly correlated with people’s approach tendencies, and then use these variables as proxies to segment and spot target consumers. Given the limitation of our data, which contain few demographic variables (gender, age, nationality, and native language), we recommend that policy makers and social entrepreneurs pinpoint specific observable correlates of BAS in the general population (e.g., demographic profiles, common lifestyles, shopping patterns) to use for segmentation. Previous research has revealed several potential correlates of strong BAS, including personality traits such as extroversion and impulsivity (Muris et al. 2005), behavioral predispositions such as risky behaviors (Cooper, Agocha, and Sheldon 2000), and demographic factors such as relatively strong BAS among adolescents (Doremus-Fitzwater, Varlinskaya, and Spear 2010). Future endeavors can further investigate these variables to guide policy makers. After identifying consumers who have strong BAS, policy makers could employ cute visuals in the design of prosocial and sustainability-related messages to induce them to act accordingly. The priming approach provides a valid alternative method of employing the cuteness tactic—apart from using observable correlates of BAS, policy makers can prime strong BAS through action-oriented messages. Across both lab and field experiments, we found that priming BAS using action-oriented slogans combined with cute visuals enhanced people’s prosocial and sustainability-related behaviors beyond the influence of their chronic BAS characteristics. This priming approach can also be effective in influencing relatively large and diverse populations. As such, we suggest that public policy makers combine BAS-related primes with cute visuals to elicit desired prosocial behaviors. Policy makers might consider designing prosocial and sustainability-related appeals that feature a combination of cute images and action-oriented messages (e.g., active slogans that call for immediate actions in italic font and in assertive tone, which function to prime strong BAS), and target these ads to the general population to elicit enhanced prosocial and sustainable behaviors that leverage the influence of the cuteness aesthetic for the greater good. Like our recycling field study, environment protection agencies may consider decorating recycling bins with posters that display the combination of action-oriented high-BAS messages and cute images to motivate participation in recycling.

Finally, our results suggest a potentially effective placement strategy, particularly for prosocial and sustainability-related communications that target young people who are heavy users of the Internet and social media platforms. Images of cute babies and animals are abundant online, and people actively share, tweet, and forward them. Because cuteness can enhance high-BAS people’s prosociality, we advise policy makers to place prosocial messages featuring images and videos of cute entities on social media platforms to attract high-BAS people and stimulate their engagement. Such practical applications of our findings, with some thought given to localization and creativity in implementation, may help further efforts to attain the United Nations’ 2030 Sustainable Development Goals.
References


