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Abstract

People are often reluctant to comply with social causes because doing so may involve personal sacrifices of time, money, and effort for benefits that are shared by other members of society. In an effort to increase compliance, government agencies and public institutions sometimes employ financial tools to promote social causes. However, employing financial tools to induce prosocial behavior is expensive and often ineffective. We propose that anthropomorphizing a social cause is a practical and inexpensive tool for increasing compliance with it. Across three prosocial contexts, we found that individuals exposed to a message from an anthropomorphized social cause, compared with individuals exposed to a message relating to a nonanthropomorphized social cause, were more willing to comply with the message. This effect was mediated by feelings of anticipatory guilt experienced when they considered the likely consequences of not complying with the cause. The theoretical and practical implications of these findings are discussed.

Keywords

anthropomorphism, prosocial behavior, anticipatory guilt

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Every man is guilty of all the good he did not do.

—quote commonly attributed to Voltaire (e.g., Majdi, 2012)

Social causes (e.g., conserving energy, fighting cancer, preventing bullying) typically involve benefitting a broader community, not single individuals, although ultimately these benefits are shared among everyone. This nature of shared benefits can deter individuals from pursuing such causes because there is a diffused sense of personal ownership for them. Furthermore, people may be reluctant to comply with social causes because doing so often involves some level of personal sacrifice, such as giving up money, time, or effort. As a way to increase prosocial behavior, policymakers sometimes employ financial tools (e.g., fines) that not only are expensive to implement but may also be ineffective (Gneezy & Rustichini, 2000). There remains a crucial need to increase the frequency with which people behave in prosocial ways. The present research suggests an inexpensive alternative way in which to increase compliance, namely, anthropomorphizing the cause itself. We propose that

anthropomorphizing a social cause can be effective in increasing compliance with it because an anthropomorphized social cause presents individuals with an intrinsic incentive to act—the need to avoid aversive feelings of guilt that emanate from harming another person through one’s action or inaction.

Anthropomorphism, or seeing human qualities in non-human entities, pervades human judgment (Guthrie, 1993). People commonly anthropomorphize everyday objects and entities, such as when they see faces in the clouds (Guthrie, 1993), portray God in humanlike form (Leshner, 1992), or see a car “smiling” at them (Aggarwal & McGill, 2007). In fact, Hume (1757/1957) suggested that anthropomorphism is a universal phenomenon—people anthropomorphize objects and entities quite naturally and even unconsciously. Evidence from neuroscience has suggested that anthropomorphized nonhuman entities are processed

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much like humans are because similar brain regions are activated when thinking about the behavior of anthropomorphized nonhuman entities and humans (Gazzola, Rizzolatti, Wicker, & Keysers, 2007). In addition, research has shown that the mere presence of a humanlike face or movement often leads to inferences of humanlike mental states in an object (Johnson, Slaughter, & Carey, 1998; Morewedge, Preston, & Wegner, 2007). Anthropomorphism thus results in attributions of distinctly human capacities to nonhumans. Recent work has suggested that experiences of emotions or cognitions (e.g., fear, pain, pleasure, hunger) account for 88% of all variance in perceptions of what it means to have a mind—a key dimension of being human (Gray, Gray, & Wegner, 2007). Because anthropomorphized agents are seen as being capable of conscious experience, they are likely to be treated as moral agents worthy of care and concern, similar to their human counterparts.

One common emotion that people experience when they see other beings suffer is guilt (Hoffman, 1982). Guilt has been described as the unpleasant emotional state associated with the negative consequences of one's actions, inactions, circumstances, or intentions (Baumeister, Stillwell, & Heatherton, 1994). Guilt is predominantly experienced when people feel responsible for harming another person (Lewis, 1971; Zeelenberg & Breugelmans, 2008). Although typical causes of guilt may be the infliction of harm, loss, or distress to a relationship partner, feelings of guilt are experienced even when there is minimal interaction or connection with the person who bears the consequences of one's actions (Brewer, 1979). Thus, the knowledge that one has harmed another person is enough to cause guilt even if the victim is in no position to retaliate.

A key function of guilt is that it affects people's future behavior. If people feel guilty about hurting someone, or for neglecting the needs of another, they are motivated to change their future behavior to avoid experiencing this aversive feeling again. In fact, the affective residue of a prior emotional outcome such as guilt plays a crucial role when people are considering their current behavior: The mere anticipation of feeling guilty may be sufficient to make people act in such a way that they will not feel bad later (Baumeister, Vohs, DeWall, & Zhang, 2007). Researchers have used the terms *anticipated guilt* or *anticipatory guilt* to refer to concern about experiencing these feelings in the future and have suggested that such guilt has the power to influence people's behavior going forward (Grant & Wrzesniewski, 2010). In a manner similar to how the feelings of guilt resulting from interpersonal transgressions motivate people to make reparations (Williamson, Sandage, & Lee, 2007), anticipatory guilt emanating from the thought of refusing a prosocial

request is also likely to result in an increased compliance with that request to avoid the unpleasant feelings of guilt (O'Keefe & Figgé, 1997).

Bridging the existing streams of research on anthropomorphism, anticipatory guilt, and prosocial behavior, we propose that anthropomorphizing a social cause can increase compliance with it. In particular, we offer a novel process mechanism by positing that compliance with an anthropomorphized prosocial cause increases as a result of feelings of anticipatory guilt: People avoid feeling guilty about causing harm to the anthropomorphized prosocial entity by complying with its request. Thus, if an anthropomorphized overheated lightbulb were to be portrayed as saying, "I am burning hot, please switch me off," the message would likely be more effective than if a nonanthropomorphized overheated lightbulb were presented with the caption, "This bulb is burning hot, please switch it off." This predicted effect of anthropomorphism on compliance is consistent with the findings of Tam, Lee, and Chao (2013), who noted that anthropomorphism of nature can enhance conservation behavior. Tam et al. focused on one specific issue—concern for the environment—and proposed connectedness with the environment as the mediator of the effect. In our research, in contrast, we look at the broader issue of prosocial behaviors in general and proposed anticipatory guilt as the primary motivator for increased compliance with an anthropomorphized cause. We examined our premise in two laboratory studies and one field study and found converging evidence in support of our hypotheses across three domains—energy conservation, recycling, and the environment.

Study 1

Method

The goal of Study 1 was to establish the basic effect of anthropomorphizing a social cause and its influence on people's compliance. In this study, 96 undergraduates at a large North American university participated in return for course credit (58% female and 42% male; mean age = 20.8 years). Participants were told that they would be evaluating a new energy-conservation campaign poster being developed by the city's electric supply company and were randomly assigned to one of two conditions. In the anthropomorphism condition, participants were shown a version of the poster that portrayed a lightbulb with humanlike features (created by adding images of eyes, a nose, and a mouth to the lightbulb) and that contained a message stating, "I'm burning hot, turn me off when you leave!" In the nonanthropomorphism condition, participants were shown a version of the poster

in which the lightbulb lacked humanlike features and was accompanied by a message stating, “Our bulbs are burning hot, turn the lights off when you leave!” (see Fig. S1 in the Supplemental Material available online). As a measure of compliance, we had participants indicate their behavioral intentions (example item: “If the campaign is implemented, how likely would you be to participate in energy conservation?”); responses were made using a scale from 1 (*very unlikely*) to 9 (*very likely*).

Results and discussion

As hypothesized, compliance with the campaign was significantly higher in the anthropomorphism condition ($M = 7.14$, $SD = 1.83$) than in the nonanthropomorphism condition ($M = 6.28$, $SD = 1.99$), $t(94) = -2.23$, $p < .05$ (see Table 1). Although this initial support for our hypothesis relating to increased compliance was quite encouraging, Study 1 nonetheless was constrained because it did not assess the underlying process mechanism. Thus, we designed Study 2 to explore the mediating role of anticipatory guilt while testing the effect in a different context to extend the applicability of our thesis to a broader domain of prosocial issues.

Study 2

Method

In this study, we adopted a food-waste composting campaign. A total of 104 undergraduates (54% female and 46% male; mean age = 19.8 years) participated in return for course credit. Participants in the anthropomorphism condition were exposed to a campaign poster showing a garbage bin with humanlike features of eyes, a nose, and a mouth alongside the caption, “Please feed me food waste only!” Participants in the nonanthropomorphism condition were shown a campaign poster in which the garbage bin lacked humanlike features and was accompanied by the caption, “Please put food waste in only!” (see Fig. 1). Participants completed a measure of expected compliance with the campaign ($\alpha = .89$) using response

scales from 1 (*very unlikely*) to 9 (*very likely*). In addition, we employed a 4-item measure of anticipatory guilt adapted from Cotte, Coulter, and Moore (2005). The four items assessed the degree of guilt, shame, responsibility, and accountability, respectively, that participants would feel if they did not comply with the campaign and were administered with 9-point scales ($\alpha = .89$).

Results and discussion

Results are shown in Table 1. As expected, we found increased compliance in the anthropomorphism condition ($M = 6.99$, $SD = 1.62$) compared with the nonanthropomorphism condition ($M = 6.24$, $SD = 1.80$), $\beta = 0.22$, $SE = 0.34$, $p < .05$. Moreover, anticipatory guilt was higher in the anthropomorphism condition ($M = 5.16$, $SD = 1.39$) compared with the nonanthropomorphism condition ($M = 4.49$, $SD = 1.64$), $\beta = 0.22$, $SE = 0.30$, $p < .05$, which in turn resulted in an increased level of compliance, $\beta = 0.45$, $SE = 0.10$, $p < .001$. When we controlled for anticipatory guilt, the direct effect of anthropomorphism on compliance was no longer significant, $\beta = 0.12$, $SE = 0.32$, $p = .17$, Sobel $z = 2.04$, $p < .05$, which suggests that anticipatory guilt mediated the effect of anthropomorphism on compliance. In addition, we performed a series of regressions with 5,000 bootstrap resamples using Preacher and Hayes’s (2008) SPSS macro, as recommended by Zhao, Lynch, and Chen (2010). To test the significance of the indirect pathway, we considered the bias-corrected 95% confidence interval. Because the interval (0.0519–0.6969) did not include 0, we concluded that anticipatory guilt mediated the effect of anthropomorphism on compliance. Furthermore, in this laboratory study (as well as the previous one), participants’ mood (Salovey & Birnbaum, 1989) was no different across conditions, thus ruling out mood as an alternative explanation.

Although the results of Study 2 replicated and extended those of Study 1 by showing the effect of anthropomorphism on compliance and providing evidence for the mediating role of anticipatory guilt, in these two studies, we assessed behavioral intentions rather than actual behaviors. Because an assessment of actual behaviors

Table 1. Summary of Results From Studies 1 and 2

Measure and study	Anthropomorphism condition	Nonanthropomorphism condition
Compliance		
Study 1	7.14 (1.83)	6.28 (1.99)
Study 2	6.99 (1.62)	6.24 (1.80)
Anticipatory guilt		
Study 2	5.16 (1.39)	4.49 (1.64)

Note: The table presents mean scores for each measure. Standard deviations are shown in parentheses.

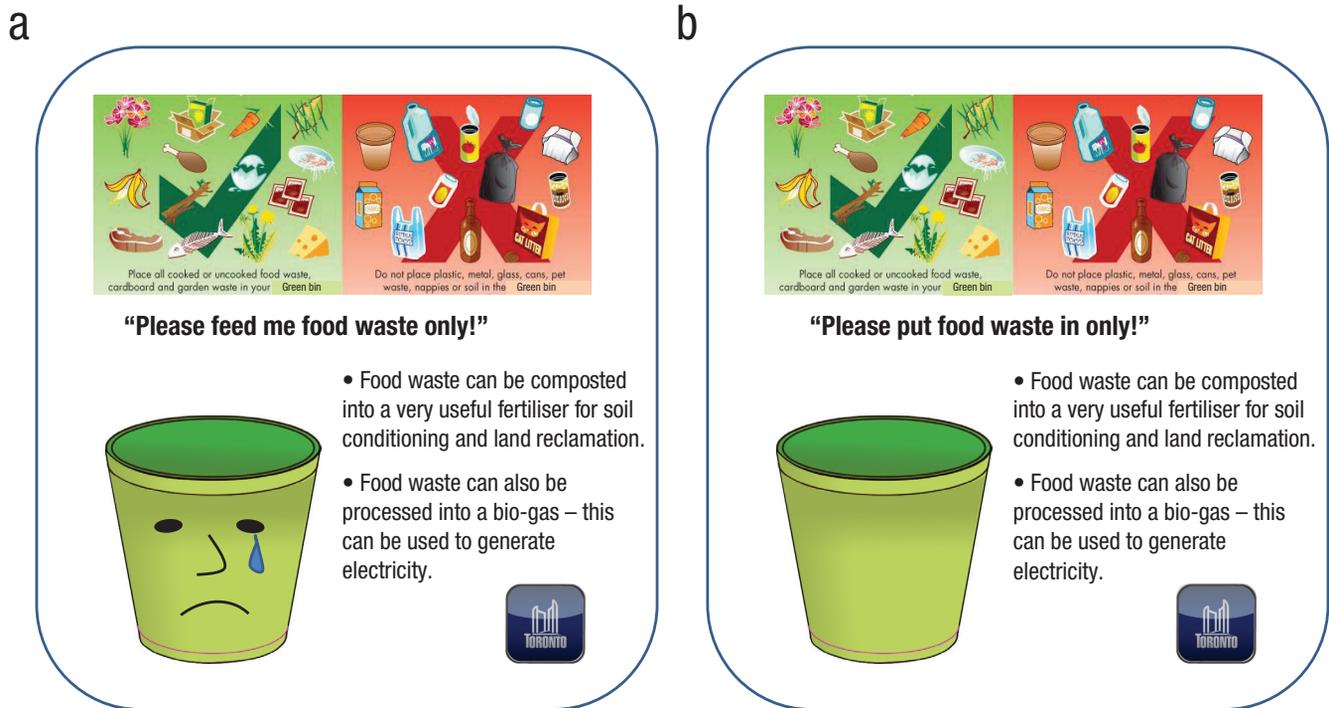


Fig. 1. Anthropomorphic (a) and nonanthropomorphic (b) stimuli used in Study 2.

would be not only externally valid but also a powerful test of our hypothesis, we attempted to replicate the effects found in Studies 1 and 2 in a more realistic setting.

Study 3

Method

Study 3 consisted of a field experiment administered in a coffee shop located near a large university and patronized primarily by students. Customers ($N = 97$; 55% female and 45% male) were exposed to a small poster that sought donations for a tree-planting campaign presented as part of the “Clean World Movement.” The campaign poster and a donation box were both placed on the cashier’s counter such that all customers would clearly see them. Customers in the anthropomorphism condition ($n = 48$) saw a campaign poster showing a tree with humanlike features (eyes and a mouth) and saying, “Save me!” In the nonanthropomorphism condition ($n = 49$), the humanlike features were absent from the tree in the campaign poster, and the poster caption read, “Save trees!” (see Fig. S2 in the Supplemental Material). To assess the extent to which customers complied with the request in the natural setting of the coffee shop, we had

a research assistant unobtrusively record (a) the number of customers who donated any money and (b) the amount of money donated by each customer as customers placed their orders.

Results and discussion

As expected, there was a significant effect of anthropomorphism on donation (see Table 2). A majority of customers in the anthropomorphism condition (64.6%; 31 out of 48) donated money, whereas significantly fewer customers donated in the nonanthropomorphism condition (42.9%; 21 out of 49), $\chi^2(1, N = 97) = 4.60, p < .05$. In addition, the amount of money donated was significantly higher in the anthropomorphism condition ($M = 192$ South Korean won, $SD = 208$) than in the nonanthropomorphism condition ($M = 113$ South Korean won, $SD = 170$), $t(95) = -2.04, p < .05$.

The results of Study 3 replicated the effects found in Studies 1 and 2 in a real-life setting, thereby bolstering our claim that anthropomorphizing a social cause can significantly increase people’s compliance with it. Nevertheless, a trade-off of using the uncontrolled environment of a field study versus a laboratory study is that we cannot claim with complete certainty that the results were in fact driven by anticipatory guilt as per our proposed

Table 2. Summary of Results From Study 3

Measure	Anthropomorphism condition	Nonanthropomorphism condition
Percentage of participants who donated	64.6	42.9
Donation amount	192 KRW (208)	113 KRW (170)

Note: Standard deviations are shown in parentheses. KRW = South Korean won.

hypothesis because other unobserved factors could potentially have affected the results. However, in conjunction with the results of the two laboratory studies, a replication of the main effect in a context in which real consumers exhibited actual prosocial behavior when exposed to appeals for help from an anthropomorphized social cause is an important validation of our proposed theory.

General Discussion

This work contributes to the literature on anthropomorphism by underscoring the role of anticipatory guilt as a significant driver of compliance. The research has implications for improving the effectiveness of prosocial campaigns: One way to increase compliance is to increase feelings of anticipatory guilt, which can be achieved by anthropomorphizing public-policy initiatives. Our studies provide direct empirical support for the premise that anthropomorphism of social causes and their symbolic entities is an effective tool for influencing people to behave prosocially—an action that emanates from their anticipatory guilt for not helping the anthropomorphized cause. Results of the field study reinforce inferences from the two laboratory studies and highlight the significant practical value of anthropomorphizing social causes by incorporating minor changes in messages about them.

It is worth noting that the manipulation in Study 1 used a context of preventing harm to the anthropomorphized entity (i.e., “I’m burning hot, turn me off when you leave!”), whereas the manipulation in Study 2 used a context of promoting a benefit to the anthropomorphized entity (i.e., “Please feed me food waste only!”). Future research might examine whether there are any systematic differences in people’s responses to messages that are promotion focused versus those that are prevention focused. Similarly, it might be worth investigating whether the effects are stronger for anthropomorphized entities that are viewed negatively (e.g., pollution) rather than positively (e.g., the environment). One may expect stronger effects for messages that are framed negatively, in keeping with prior work on prospect theory (Kahneman & Tversky, 1979). Furthermore, given that research has

suggested differences in people’s regret for acts of omission versus acts of commission (Gilovich & Medvec, 1995), it might be useful to examine whether anticipatory guilt and, hence, compliance increase when the prosocial behavior is seen as an act of commission (vs. omission).

Finally, it is conceivable that the very act of anthropomorphizing a prosocial cause may make an otherwise private behavior (e.g., recycling) public because the humanized entity would presumably be watching the individual’s actions. This proposed effect is consistent with prior findings that have shown that perceived surveillance due to the presence of stylized “eyes” in stimuli can increase altruistic behavior (Haley & Fessler, 2005). Although this earlier research did not take any direct measures of the underlying process, anticipatory guilt arguably could have been driving those effects as well. At the very least, Haley and Fessler’s (2005) findings are consistent with our findings and simultaneously point to other potential ways in which anthropomorphism could influence people’s prosocial behavior.

Anthropomorphism, or seeing nonhuman entities as human, has the ability to affect prosocial behavior. Here, we have presented evidence of one such process, namely, anticipatory guilt for not helping a fellow being—the anthropomorphized social cause. It is possible that if people feel increased connection to an anthropomorphized cause (Tam et al., 2013), they might experience higher levels of anticipatory guilt, as suggested by interpersonal research (Baumeister et al., 1994). Hence, the nature of the relationship between the individual and an anthropomorphized entity could potentially moderate the effects of anthropomorphism on compliance. Clearly, there are several avenues open for future research to explore this theoretically rich and managerially important area.

Author Contributions

H.-K. Ahn developed the study concept. All authors contributed to the study design and performed the testing and data collection. H.-K. Ahn and H. J. Kim analyzed and interpreted the data. P. Aggarwal supervised the analysis and interpretation of the data. H.-K. Ahn drafted the manuscript. H. J. Kim and P. Aggarwal critically revised the manuscript. All authors con-

tributed equally to the manuscript and approved the final version for submission.

Declaration of Conflicting Interests

The authors declared that they had no conflicts of interest with respect to their authorship or the publication of this article.

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Supplemental Material

Additional supporting information may be found at <http://pss.sagepub.com/content/by/supplemental-data>

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