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# Role of anthropomorphization on pro-social behavior

Pro-social  
behavior

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## Abstract

**Purpose** – This paper aims to examine the effect of anthropomorphic entities in the public service advertisements (PSA) on individuals' pro-social behavior. In addition, the role of individuals' need for affect and self-construal in moderating the effect of anthropomorphism toward pro-social behavior is explored.

**Design/methodology/approach** – An experimental research design is executed to identify the causal relationship between anthropomorphic representations in the advertisements and pro-social behavior.

**Findings** – The findings suggest that anthropomorphism in PSA is helpful in increasing compliance behavior amongst individuals. Besides, an individual's need for affect was found to positively moderate pro-social behavior.

**Research/limitations implications** – The authors extend the existing literature on the usage of anthropomorphism in social causes. The authors also explore the role of one of the intrinsic motivations, need for affect, in pro-social behavior.

**Social implications** – The study demonstrates how best one could use anthropomorphization in PSA by sensitizing individuals to social causes and compliance behavior.

**Originality/value** – The study builds upon the existing research on anthropomorphization, need for affect and pro-social behavior in increasing compliance with PSA.

**Keywords** Need for affect, Anthropomorphism, Pro-social behavior, Persuasive advertisement, Self-construal theory

**Paper type** Research paper

## Introduction

A vital part of social marketing in communicating social causes is public service advertisement (PSA) (Fox and Kotler, 1980; Andreasen, 2006). Unlike a general advertisement, PSAs are designed with an objective to educate or apprise people about an issue requiring their attention. Some of the issues covered by PSAs include health and safety, social causes, environmental issues, government issues and so on. PSA comprise some of the themes like smoking, safe sex, alcoholism, drink and drive, saving resources like trees, water and electricity, maintaining cleanliness and hygiene, donation for charitable causes, filing tax duly and a few others. According to Bagozzi and Moore (1994), these PSAs are of two types:

- (1) One is addressed to the people who are in need of help.
- (2) Another is targeted to make people help others.

In the latter type, it has been observed that people are often hesitant to comply with the advertisement of public services aiming at the social cause, as it requires contributing their time, effort or money. For PSAs to be successful that may bring about a change in people's



behavior, it is necessary that the advertisements are perceived to be unusual and different from other such campaigns (Sciulli and Bebko, 2006).

Marketers as a part of their communication strategy have been using anthropomorphism, implying attributing human-like characters to a non-human entity, for a long time (Aggarwal and McGill, 2007; Kim and Kramer, 2015). Delbaere *et al.* (2011) found that anthropomorphization in advertisements elicits emotions, attributions, and greater liking. Similarly, Ahn *et al.* (2014) have argued that anthropomorphizing social causes enhances the compliance by providing intrinsic motivation for individuals to act. The intrinsic motivation as suggested by Ahn *et al.* (2014) was anticipatory guilt. However, in the present study, we propose the need for affect as an intrinsic motivation responsible for the pro-social behavior of individuals. It is important to examine pro-social behavior from affect point of view as it has been established to have a long-term effect on pro-social behavior (Eberly and Montemayor, 1999). Maio and Esses (2001) suggested the need for affect as an effective equivalent of the need for cognition. The literary evidence advocates “even mild affective states can substantially influence cognitive processing and social behavior” (Aaker *et al.*, 1986, p. 365). To the best of our knowledge, need for affect, as an intrinsic motivation toward social behavior has been untapped in existing works.

We also emphasize on individuals’ self-construal along with anthropomorphization on pro-social behavior. PSA for social causes calls for people to help others. Under such scenario, it is important to view it from the lens of self-construal theory as it gives an insight on how people see self in relation to another human being (anthropomorphic entity). Self-construal theory, provided by Markus and Kitayama (1991), compares two views, independent and interdependent view. Individuals with independent self-construal see themselves as separate from another human being, whereas individuals with interdependent self-construal see them self as a part of another human being. Furthermore, Markus and Kitayama (1991) argued that an individual may possess both selves, however, culture, in which the individual is embedded, influences the dominant one. Cross *et al.* (2011) highlighted the need for further research on consequences of different self-construal on the social behavior of individuals.

Overall, this work proposes to bring together the literature on anthropomorphism and self-construals to examine the effect of persuasive advertisements with anthropomorphic entities on individuals’ pro-social behavior. The pro-social behavior of an individual would be contingent upon how the individual sees himself in connection with others. The study would also examine the effect of self-construal on persuasion of consumers toward pro-social behavior in case of anthropomorphized PSAs. Furthermore, the role of need for affect is explored. In the next section, we provide a conceptual background of the key concepts followed by theorizing the hypotheses. Further, research methodology is proposed to test the hypotheses followed by reporting of results. Toward the end, we discuss our findings, provide contributions and limitations of the study.

## Conceptual background

### *Anthropomorphism*

“Anthropomorphism refers to imbuing the imagined or real behavior of nonhuman agents with humanlike characteristics, motivations, intentions, and emotions” (Epley *et al.*, 2007, p. 864). Anthropomorphism has been studied in various contexts in literature including religion (Gilmore, 1919), animals (Cheney, 1992), and gadgets (Epley *et al.*, 2008). The seminal works of Epley *et al.* (2007) in social psychology provides a foundation for studies in the area of anthropomorphization, which they gave a three-factor theory for why and when people anthropomorphize. Waytz *et al.* (2010) built one of the factors from the three-factor theory, effectance motivation, as one of the important determinants of anthropomorphism. Aggarwal

and McGill (2007) were the first to explore the phenomenon of anthropomorphization in the field of marketing. The adoption of the concept in marketing saw a shift from why and when to how anthropomorphization affects the behavior and judgments of consumers.

Epley *et al.* (2007) introduced the theory of anthropomorphization advocating that individual's propensity to anthropomorphize an object differs in strength based on individual characteristics. Waits *et al.* (2010) further examined the importance of individual differences in anthropomorphism. Recent studies in marketing have explored the effect of individual differences, such as personality type, on perceiving anthropomorphism (Puzakova *et al.*, 2013). One such individual characteristic is one's independent and interdependent views of the self-influence cognition, emotion, and motivation (Markus and Kitayama, 1991). In the current work, we propose that these individual differences of independent and interdependent view of self-construal may have an impact on anthropomorphism.

### *Self-construal theory*

Markus and Kitayama (1991) proposed the concept of self-construal referring the way in which individuals defined and made meaning of self. They classified two such self-construals, interdependent self-construal and independent self-construal. Researchers (Singelis, 1994) have argued that there exists both independent and interdependent self-construals in an individual, however it is the culture that influences the dominant self. Cross and Madson (1997) reasoned that not only between cultures but also within a culture, individuals can consist of both independent and interdependent self-construals. Present study would embrace a within-culture focus to examine the effect of individual's self-construal on the persuasion of the consumer's toward pro-social behavior in case of anthropomorphized advertisements.

### *Pro-social behavior*

Literature in social psychology suggests numerous approaches for why an individual indulges in pro-social behavior. For example, Clary and Snyder (1991) reasoned that individuals indulge in pro-social behaviors as they have certain motives to engage in such behavior. Furthermore, Clary *et al.* (1998) argued that some motives are to derive enjoyment and satisfaction from prosocial behaviors. Another approach, social role theory (Grube and Piliavin, 2000; Piliavin and Callero, 1991), claims that motivation to volunteer arises from early external influences, including those of parents and society. As individuals continue volunteering activities, pro-social values are "adopted as a component of the self" (Piliavin *et al.*, 2002, p. 472).

## **Hypotheses development**

### *Anthropomorphism and self-construal on pro-social behavior*

PSAs of social causes are believed to trigger emotional appeals such as fear, disgust, anger, concern, surprise, and sadness to comply with pro-social behavior (Sciulli and Bebko, 2006). The emotional appeals are vital as they direct compliance of an individual toward pro-social behavior. An individual would be motivated to help others when he sees emotional connection by trying to relation oneself with others. Fournier (1998), on the basis of relationship theory, suggests that for a viable relationship, an individual must perceive others as those having human qualities, referred as anthropomorphism. Anthropomorphization in advertisements is found to elicit emotions, attitude toward advertisement and brand, increased brand love, and greater liking (Choi *et al.*, 2001; Delbaere *et al.*, 2011; Rauschnabel and Ahuvia, 2014). Thus, anthropomorphizing the advertisements would elicit emotions to have a viable relationship with the social cause leading to pro-social behavior. Previously, Tam *et al.* (2013) have found that the compliance to conservation behavior could be augmented with the help of

anthropomorphizing the nature. Thus, anthropomorphizing social causes boosts the compliance by providing intrinsic motivation for individuals to act.

As discussed earlier, self-construal is usually described as how individuals see the self in relation to others (Markus and Kitayama, 1991). When an individual sees self as separate from others is independent self-construal, whereas individual seeing self in connection with others they are referred as interdependent self-construal. Based on self-construal theory, it can be argued that individuals with interdependent self-construal view anthropomorphism in connection with self and thus, would have greater compliance to pro-social behavior for anthropomorphic advertisements as compared to non-anthropomorphic advertisements. However, individuals with independent self-construal do not see any connection with anthropomorphic entities as they see self as separate from others. Here, social connectedness of individual with other human beings also gains prominence (anthropomorphic entity). A sense of social connectedness causes pro-social behavior amongst individuals (Pavey *et al.*, 2011). Thus, they would have lesser compliance behavior than interdependent self-construal and would not differ with regard to both anthropomorphic and non-anthropomorphic advertisements. In line with the findings from the extant literature and mentioned arguments, we hypothesize the following:

- H1. Compliance behavior of individuals with interdependent self-construal would be higher in case of anthropomorphic representation in advertisements as compared non-anthropomorphic advertisements.
- H2. Compliance behavior of individuals with independent self-construal would not differ in case of anthropomorphic representation in advertisements as compared non-anthropomorphic advertisements.

*Moderating role of need for affect on pro-social behavior*

Maio and Esses (2001) suggested need for affect as an effective equivalent of the need for cognition. Need for affect was referred by Maio and Esses (2001) as “general motivation of people that are emotion inducing for themselves and others” (p. 585). This makes strong theoretical consideration along with self-construal. As discussed earlier, self-construal is the view of seeing self in connection/disconnection to others. Individuals with interdependent self-construal, who see self in connection to others, would have a strong motivation to induce emotion with other human beings. Such individuals would to induce emotions with the anthropomorphic entity in the advertisement, and thus would have greater compliance behavior towards PSA. On the other hand, individuals with independent self-construal who see self in separation, would have less motivation to induce emotion with others human beings in our case the anthropomorphic entity in the advertisement and thus would have lesser compliance behavior toward PSA (Maio and Esses, 2001). Thus, with the support of the above arguments, we hypothesize the following:

- H3a. In presence of high need for affect, individuals with interdependent self-construal, as compared to independent self-construal, would have greater compliance behavior for anthropomorphic representations, compared non-anthropomorphic representations.
- H3b. In presence of low need for affect, individuals with independent self-construal, as compared to interdependent self-construal, would have lesser compliance behavior for anthropomorphic representations, compared non-anthropomorphic representations.

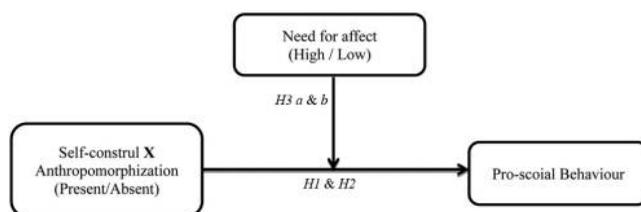
The overall model is presented below in [Figure 1](#).

### Methodology

Experimental research design is commonly used in marketing literature to establish causation ([Kuhfeld et al., 1994](#); [Koschate-Fischer and Schandelmeier, 2014](#)). With the same objective, the present study involves experimental research design to identify the causal relation between anthropomorphized image (independent variable) of PSA and pro-social behavior (outcome variable) of individuals. Because anthropomorphized image of advertisement is hypothesized to cause an effect on the outcome variable, it is manipulated using human schemas or human-like visual elements. Self-construal is primed as suggested in relevant literature. The study would involve treatments, as given in [Table I](#), in the context of PSAs and response to pro-social behavior as the dependent variable.

In alignment with the research objective, the primary objective of using image was to depict the presence and absence of anthropomorphization. [Faloutsos et al. \(1994\)](#) identified the use of images as a useful technique in questionnaires. Previous studies ([Aggarwal and McGill, 2007](#); [Ahn et al., 2014](#)) have used the image as stimuli for manipulation of anthropomorphization. The image used was a tap and electric socket depicting human characters in the anthropomorphized image. In the non-anthropomorphized image, a tap without any human characters or features was used. The images are depicted in [Appendix Figures A1 and A2](#). The image was pretested and significant differences between the two images were found. Also, the anthropomorphic image was perceived to have human characters and the non-anthropomorphic image was perceived to not have any human characters. The presence or absence technique was adapted to manipulate the independent variable by presenting a conditioned image of the anthropomorphic entity to one group of respondents and withholding the condition from another group of respondents. "A between-subject design is good when subjects are exposed to one of the treatment randomly" ([Aronson and Carlsmith, 1968](#), p. 114). Therefore, we adopted between-subject design where half of the participants, randomly selected, received anthropomorphized image present in the scenario, while the remaining half received non-anthropomorphized image.

As [Sawyer and Ball \(1981\)](#) suggested, we aimed to maintain at least 30 subjects for each cell/treatment condition. Thus, the total sample of 120 participants was needed. Students from a postgraduate programme of the institute were recruited as respondents on a voluntary basis, while student samples have come under criticism recently because of



**Figure 1.**  
Overall model

| Treatment        | Condition 1 | Condition 2    |
|------------------|-------------|----------------|
| Anthropomorphism | Present     | Absent         |
| Self-construal   | Independent | Interdependent |

**Table I.**  
Study treatments

external validity concerns, as those were found to be reasonable for experimental studies (Druckman and Kam, 2009). As the objectives of the study are to compare the behavior of individuals, we require to compare the population means, and thus, between-group homogeneity is required (Reynolds *et al.*, 2003). The student population is more homogenous than any other mixed population, which takes care of the within-cell variance (Iacobucci, 2001). At the same time, student respondents may be used if the topic explored like one in this study, is of their concern and relevance (Burnett and Dune, 1986). In past studies also, responses from student subjects are empirically found to be suitable for responding to topics corresponding to the general public and not decision-makers (Mintz *et al.*, 2006). The context of the current study also involves information processing requiring general cognitive abilities thus the use of student subjects is suitable (Libby *et al.*, 2002).

In the present study, we examined how different self-construal evaluate anthropomorphized (non-anthropomorphized) image with regard to the PSAs. Thus, the experimental study adopted 2 (advertisement: anthropomorphized/non-anthropomorphized) X2 (self-construal: independent/interdependent) between-subjects design. The subjects willing to participate in the academic study were asked to randomly pick one amongst the four questionnaires that would be difficult to differentiate for the respondents. We printed questionnaire with anthropomorphized image and non-anthropomorphized image and the questionnaires were mixed. By taking these steps randomization was ensured. Also, to ensure equal cell sizes for both anthropomorphized and non-anthropomorphized image condition the number of printouts for each questionnaire was restricted to 32. Subjects were provided with a questionnaire consisting two different images as discussed earlier and would be asked to fill three parts: first, the priming activity for independent and interdependent self-construal, second, the anthropomorphized image (or non-anthropomorphized image) of a PSA following the image questions for manipulation check of the anthropomorphized advertisement and third, questions on compliance behavior in PSAs and realism check of the advertised poster. In total, 124 participants were asked to evaluate the advertisement for water and energy conservation, designed based on a pre-test conducted. Following this, the participants answered the compliance behavior toward the advertised poster. Next believability and realism of the advertised poster were captured. Finally, we captured the demographic profile of the respondents including age, gender, and education qualifications.

### Measures

The various concepts used in our study included anthropomorphism, individuals' self-construal, pro-social behavior, and need for affect. Apart from this, realism as a manipulation check was captured. As we used anthropomorphic image in the ad, it was mandatory to check if the manipulation of the image has worked. The scale developed by Guido and Peluso (2015) on anthropomorphism was used. It consisted of three dimensions, namely, human body lineaments, human facial physiognomy and self-brand congruity. For the purpose of our study, the second dimension was more relevant and useful. Thus, we adopted five items of the second dimension of human facial physiognomy from the scale developed by Guido and Peluso (2015) on anthropomorphism. The items were measured on a seven-point Likert scale (1 = strongly disagree, 7 = strongly agree).

For priming self-construal, we adopted the technique proposed by Brewer and Gardner (1996), where a story about the trip to the city was used to manipulate the independent and interdependent self-construal. In this approach, respondents were asked to encircle singular pronouns (e.g. I, me and mine) for independent construal. For interdependent self-construal, participants were asked to encircle plural pronouns (e.g. we, our and us). Researchers (Gardner *et al.*, 1999; Wiekens and Stapel, 2008) have used similar priming condition for

independent and interdependent self-construal. Compliance to pro-social behavior was captured using three-item scale consisting of questions (If the campaign was implemented, how likely is it that you will participate in the campaign; how likely is that you will conserve water/electricity; I will conserve water/electricity). First two items were measured on seven-point Likert scale with 1 being “very unlikely” and 7 being “very likely”. The final item was measured on a seven-point Likert scale (1 = strongly disagree, 7 = strongly agree).

Maio and Esses (2001) first developed the scale for the need for affect. Later a short version of need for affect scale was developed by Appel *et al.* (2012). The shorter version of the ten-item scale was adopted in the present study. The scale consists of ten-item with five items reversed captured on the seven-point Likert scale (1 = strongly disagree, 7 = strongly agree). To test the realism of the scenario, two-item scale with questions “how realistic is the given campaign poster?” measured on seven-point Likert scale with 1 being “not at all realistic” and 7 being “very realistic” and “how believable is the above-given campaign poster?” measured on seven-point Likert scale with 1 being “not at all believable” and 7 being “very believable” was used.

## Results

Table II presents a summary statistics report for treatment and control group in the study.

A *t*-test on the group demographics were found to be non-significant. Thus, it can be inferred that there was no difference in treatment and control group and follow-up analysis to test hypotheses may be performed. The manipulation check confirmed that anthropomorphized image as compared to the non-anthropomorphized image of PSA ( $M_{\text{anthro}} = 5.27$ ,  $M_{\text{non-anthro}} = 2.50$ ) was significantly perceived as different ( $p < 0.05$ ). One sample *t*-test confirmed that participants perceived the campaign poster of PSA as realistic and believable ( $M = 4.40$ ;  $p < 0.05$ ).

Consistent with the hypothesized relationship for *H1* and *H2*, it is found that compliance behavior of individuals with interdependent self-construal is found to be significantly higher in case of anthropomorphic representation in advertisements as compared non-anthropomorphic advertisements. In case of individuals with independent self-construal were found to be similar in case of anthropomorphic representation in advertisements as compared non-anthropomorphic advertisements. The results are shown in Table III.

The interaction effect of anthropomorphism and need for affect was found to be significant at ( $F = 5.260$ ;  $p < 0.05$ ). Even after running the regression the results remained the same. The results are mentions in Appendix Tables AI-AIII.

For *H3a* and *b*, we ran ANOVA and found a few effects to be significant after controlling for age, gender and qualification, as showed in Table IV.

Apart from the three-way interaction, all other interactions were found to be significant at  $p < 0.05$ .

| Variable      | Code       | Group statistics |       |                |                 |
|---------------|------------|------------------|-------|----------------|-----------------|
|               |            | <i>N</i>         | Mean  | Std. deviation | Std. error mean |
| Age           | Anthro     | 62               | 23.42 | 1.742          | 0.221           |
|               | Non-Anthro | 62               | 23.40 | 1.384          | 0.176           |
| Gender        | Anthro     | 62               | 0.61  | 0.491          | 0.062           |
|               | Non-Anthro | 62               | 0.63  | 0.487          | 0.062           |
| Qualification | Anthro     | 62               | 2.03  | 0.254          | 0.032           |
|               | Non-Anthro | 62               | 2.10  | 0.433          | 0.055           |

Notes: Anthro: Anthropomorphized; Non-Anthro: Non-anthropomorphized

Table II.  
Summary statistics

## Discussion and implications

The main objective of the study was to examine:

- the effect of self-construal and anthropomorphism on individuals' pro-social behavior; and
- the role of need for affect on anthropomorphism on individuals' pro-social behavior.

We found empirical support for compliance behavior of individuals with interdependent self-construal to be higher in case of anthropomorphic representation in advertisements as compared non-anthropomorphic advertisements. Individuals with independent self-construal were found to be similar in case of anthropomorphic representation in advertisements as compared non-anthropomorphic advertisements. Although there have been many studies examining the effect of anthropomorphism in marketing, studies exploring the role of anthropomorphism in social marketing have been limited. Also, there has been another stream of research under anthropomorphism dealing with negative effects including product wrongdoings (Puzakova *et al.*, 2013), price unfairness (Kwak *et al.*, 2015), risk perception and power (Kim and McGill, 2011) on anthropomorphism. Extant literature on positive and negative affective states the effect may have a varying effect on cognition and behavior (Isen, 1987). Our results have been found to be consistent in some cases or opposite in few other studies and completely unrelated in some studies. In recent years, many marketers are investing significantly in anthropomorphization as a part of their positioning or as a part of communication strategy to advance positive connotations with their advertisements. The present study contributes to deepening the understanding of individual differences in self-construal (i.e. independent/interdependent view of self) and examines its moderating effect on anthropomorphization in social causes advertisements and offers a theoretical and empirical explanation for the underlying process involving the impact of anthropomorphization, based on the self-construal theory, on compliance to pro-social behavior in PSAs.

## Limitations and future directions

This work has certain limitations. First, the study included student sample. Although student sample has found to be suitable for experimental studies (Druckman and Kam, 2009), non-student sample may be included for better generalizability. Future studies may verify the external validity of the current findings using field experiments or natural experiments.

**Table III.**  
Self-construal vs  
anthropomorphism

| Self-construal | $M_{\text{anthro}}$ | $M_{\text{non-anthro}}$ | $t$ -value | Significance level |
|----------------|---------------------|-------------------------|------------|--------------------|
| Interdependent | 5.57                | 4.71                    | 5.67       | 0.001*             |
| Independent    | 4.95                | 4.58                    | 1.47       | 0.310              |

**Note:** \* $p < 0.05$

**Table IV.**  
Moderator results

|  | Mean square | $F$ -value | Significance level |
|--|-------------|------------|--------------------|
| Ant_code $\times$ SC_code              | 7.41        | 4.727      | 0.035*             |
| Ant_code $\times$ NFA                  | 3.665       | 2.338      | 0.021*             |
| SC_code $\times$ NFA                   | 2.930       | 1.869      | 0.046*             |
| Ant_code $\times$ SC_code $\times$ NFA | 0.682       | 0.435      | 0.822              |

**Note:** \* $p < 0.05$

Second, the study only considered water and electricity conservation, there may be other social causes may be considered e.g. blood donation camps, usage of contraceptive products like condoms that may have greater involvement of self in campaign participation. Third, as noted by Williams *et al.* (2015), one of the important factor to be considered while exploring the phenomenon of anthropomorphization in social causes is framing effect of the message in the campaign as this may have an impact on the pro-social behavior of individuals.

Future research may also look into exploring the role of relational self-construal, which was not considered in the present study. The relational self-construal may have the same effect as interdependent self-construal but this has to be empirically verified. Role of other moderators like the need for cognition or social connectedness may be further examined that may have an impact on the pro-social behavior.

## References

- Aaker, D.A., Stayman, D.M. and Hagerty, M.R. (1986), "Warmth in advertising: measurement, impact, and sequence effects", *Journal of Consumer Research*, Vol. 12 No. 4, pp. 365-381.
- Aggarwal, P. and McGill, A.L. (2007), "Is that car smiling at me? Schema congruity as a basis for evaluating anthropomorphized products", *Journal of Consumer Research*, Vol. 34 No. 4, pp. 468-479.
- Ahn, H.K., Kim, H.J. and Aggarwal, P. (2014), "Helping fellow beings anthropomorphized social causes and the role of anticipatory guilt", *Psychological Science*, Vol. 25 No. 1, pp. 224-229.
- Andreasen, A.R. (Ed.) (2006), *Social Marketing in the 21st Century*, Sage Publications, Thousand Oaks, CA.
- Appel, M., Gnambs, T. and Maio, G.R. (2012), "A short measure of the need for affect", *Journal of Personality Assessment*, Vol. 94 No. 4, pp. 418-426.
- Aronson, E. and Carlsmith, J.M. (1968), "Experimentation in social psychology", in Lindzey, G. and Aronson, E. (Eds), *Handbook of Social Psychology*, Vol. 2.
- Bagozzi, R.P. and Moore, D.J. (1994), "Public service advertisements: emotions and empathy guide prosocial behavior", *Journal of Marketing*, Vol. 58 No. 1, pp. 56-70.
- Brewer, M.B. and Gardner, W. (1996), "Who is this 'we'? Levels of collective identity and self-representations", *Journal of Personality and Social Psychology*, Vol. 71 No. 1, pp. 83-93.
- Burnett, J.J. and Dune, P.M. (1986), "An appraisal of the use of student subjects in marketing research", *Journal of Business Research*, Vol. 14 No. 4, pp. 329-343.
- Cheney, D.L. (1992), *How Monkeys See the World: Inside the Mind of Another Species*, University of Chicago Press, Chicago, IL.
- Choi, Y.K., Miracle, G.E. and Biocca, F. (2001), "The effects of anthropomorphic agents on advertising effectiveness and the mediating role of presence", *Journal of Interactive Advertising*, Vol. 2 No. 1, pp. 19-32.
- Clary, E.G. and Snyder, M. (1991), "A functional analysis of altruism and prosocial behavior: the case of volunteerism", in Clark, M.S. (Ed.), *Review of Personality and Social Psychology, Prosocial Behavior*, Sage Publications, Thousand Oaks, CA, Vol. 12, pp. 119-148.
- Clary, E.G., Snyder, M., Ridge, R.D., Copeland, J., Stukas, A.A., Haugen, J. and Miene, P. (1998), "Understanding and assessing the motivations of volunteers: a functional approach", *Journal of Personality and Social Psychology*, Vol. 74 No. 6, pp. 1516-1530.
- Cross, S.E. and Madson, L. (1997), "Models of the self: self-construal and gender", *Psychological Bulletin*, Vol. 122 No. 1, pp. 5-37.
- Cross, S.E., Hardin, E.E. and Gercek-Swing, B. (2011), "The what, how, why, and where of self-construal", *Personality and Social Psychology Review*, Vol. 15 No. 2, pp. 142-179.
- Delbaere, M., McQuarrie, E. and Phillips, B.J. (2011), "Personification in advertising: using a visual metaphor to trigger anthropomorphism", *Journal of Advertising*, Vol. 40 No. 1, pp. 121-130.

- Druckman, J.N. and Kam, C.D. (2009), "Students as experimental participants: a defense of the 'Narrow data base'", available at: SSRN 1498843.
- Eberly, M.B. and Montemayor, R. (1999), "Adolescent affection and helpfulness toward parents: a 2-year follow-up", *The Journal of Early Adolescence*, Vol. 19 No. 2, pp. 226-248.
- Epley, N., Waytz, A. and Cacioppo, J.T. (2007), "On seeing human: a three-factor theory of anthropomorphism", *Psychological Review*, Vol. 114 No. 4, pp. 864-886.
- Epley, N., Akalis, S., Waytz, A. and Cacioppo, J.T. (2008), "Creating social connection through inferential reproduction loneliness and perceived agency in gadgets, gods, and greyhounds", *Psychological Science*, Vol. 19 No. 2, pp. 114-120.
- Faloutsos, C., Barber, R., Flickner, M., Hafner, J., Niblack, W., Petkovic, D. and Equitz, W. (1994), "Efficient and effective querying by image content", *Journal of Intelligent Information Systems*, Vol. 3 Nos 3/4, pp. 231-262.
- Fournier, S. (1998), "Consumers and their brands: developing relationship theory in consumer research", *Journal of Consumer Research*, Vol. 24 No. 4, pp. 343-353.
- Fox, K.F. and Kotler, P. (1980), "The marketing of social causes: the first 10 years", *Journal of Marketing*, Vol. 44 No. 4, pp. 24-33.
- Gardner, W.L., Gabriel, S. and Lee, A.Y. (1999), "'I' value freedom, but 'we' value relationships: self-construal priming mirrors cultural differences in judgment", *Psychological Science*, Vol. 10 No. 4, pp. 321-326.
- Gilmore, G.W. (1919), *Animism or Thought Currents of Primitive Peoples*, Marshall Jones Company, Boston.
- Grube, J.A. and Piliavin, J.A. (2000), "Role identity, organizational experiences, and volunteer performance", *Personality and Social Psychology Bulletin*, Vol. 26 No. 9, pp. 1108-1119.
- Guido, G. and Peluso, A.M. (2015), "Brand anthropomorphism: conceptualization, measurement, and impact on brand personality and loyalty", *Journal of Brand Management*, Vol. 22 No. 1, pp. 1-19.
- Iacobucci, D. (2001), "Human participants-respondents and researchers", *Journal of Consumer Psychology*, Academic Press, Vol. 10 Nos 1/2, pp. 115-121.
- Isen, A.M. (1987), "Positive affect, cognitive processes, and social behavior", In *Advances in Experimental Social Psychology*, Vol. 20, pp. 203-253.
- Kim, H.C. and Kramer, T. (2015), "Do materialists prefer the 'Brand-as-Servant'? The interactive effect of anthropomorphized brand roles and materialism on consumer responses", *Journal of Consumer Research*, Vol. 42 No. 2, pp. 284-299.
- Kim, S. and McGill, A.L. (2011), "Gaming with Mr Slot or gaming the slot machine? Power, anthropomorphism, and risk perception", *Journal of Consumer Research*, Vol. 38 No. 1, pp. 94-107.
- Koschate-Fischer, N. and Schandelmeier, S. (2014), "A guideline for designing experimental studies in marketing research and a critical discussion of selected problem areas", *Journal of Business Economics*, Vol. 84 No. 6, pp. 793-826.
- Kuhfeld, W.F., Tobias, R.D. and Garratt, M. (1994), "Efficient experimental design with marketing research applications", *Journal of Marketing Research*, Vol. 31 No. 4, pp. 545-557.
- Kwak, H., Puzakova, M. and Rocereto, J.F. (2015), "Better not smile at the price: the differential role of brand anthropomorphization on perceived price fairness", *Journal of Marketing*, Vol. 79 No. 4, pp. 56-76.
- Libby, R., Bloomfield, R. and Nelson, M.W. (2002), "Experimental research in financial accounting", *Accounting, Organizations and Society*, Vol. 27 No. 8, pp. 775-810.
- Maio, G.R. and Esses, V.M. (2001), "The need for affect: individual differences in the motivation to approach or avoid emotions", *Journal of Personality*, Vol. 69 No. 4, pp. 583-614.
- Markus, H.R. and Kitayama, S. (1991), "Culture and the self: implications for cognition, emotion, and motivation", *Psychological Review*, Vol. 98 No. 2, pp. 224-253.
- Mintz, A., Redd, S.B. and Vedlitz, A. (2006), "Can we generalize from student experiments to the real world in political science, military affairs, and international relations?", *Journal of Conflict Resolution*, Vol. 50 No. 5, pp. 757-776.

- Pavey, L., Greitemeyer, T. and Sparks, P. (2011), "Highlighting relatedness promotes prosocial motives and behavior", *Personality and Social Psychology Bulletin*, Vol. 37 No. 7, pp. 905-917.
- Piliavin, J.A. and Callero, P.L. (1991), *Giving Blood: The Development of an Altruistic Identity*, Johns Hopkins University Press, Baltimore, MD.
- Piliavin, J.A., Grube, J.A. and Callero, P.L. (2002), "Role as resource for action in public service", *Journal of Social Issues*, Vol. 58 No. 3, pp. 469-485.
- Puzakova, M., Kwak, H. and Rocereto, J.F. (2013), "When humanizing brands goes wrong: the detrimental effect of brand anthropomorphization amid product wrongdoings", *Journal of Marketing*, Vol. 77 No. 3, pp. 81-100.
- Rauschnabel, P.A. and Ahuvia, A.C. (2014), "You're so lovable: anthropomorphism and brand love", *Journal of Brand Management*, Vol. 21 No. 5, pp. 372-395.
- Reynolds, N.L., Simintiras, A.C. and Diamantopoulos, A. (2003), "Theoretical justification of sampling choices in international marketing research: key issues and guidelines for researchers", *Journal of International Business Studies*, Vol. 34 No. 1, pp. 80-89.
- Sawyer, A.G. and Ball, A.D. (1981), "Statistical power and effect size in marketing research", *Journal of Marketing Research*, Vol. 18 No. 3, pp. 275-290.
- Sciulli, L.M. and Bebko, C. (2006), "Social cause versus profit oriented advertisements: an analysis of information content and emotional appeals", *Journal of Promotion Management*, Vol. 11 Nos 2/3, pp. 17-36.
- Singelis, T.M. (1994), "The measurement of independent and interdependent self-construals", *Personality and Social Psychology Bulletin*, Vol. 20 No. 5, pp. 580-591.
- Waytz, A., Cacioppo, J. and Epley, N. (2010), "Who sees human? The stability and importance of individual differences in anthropomorphism", *Perspectives on Psychological Science*, Vol. 5 No. 3, pp. 219-232.
- Waytz, A., Morewedge, C.K., Epley, N., Monteleone, G., Gao, J.H. and Cacioppo, J.T. (2010), "Making sense by making sentient: effectance motivation increases anthropomorphism", *Journal of Personality and Social Psychology*, Vol. 99 No. 3, pp. 410-435.
- Wiekens, C.J. and Stapel, D.A. (2008), "I versus we: the effects of self-construal level on diversity", *Social Cognition*, Vol. 26 No. 3, pp. 368-377.
- Williams, L.A., Masser, B. and Sun, J. (2015), "Revisiting the effect of anthropomorphizing a social cause campaign", *PloS One*, Vol. 10 No. 9, p. e0138886.
- Tam, K.P., Lee, S.L. and Chao, M.M. (2013), "Saving Mr Nature: anthropomorphism enhances connectedness to and protectiveness toward nature", *Journal of Experimental Social Psychology*, Vol. 49 No. 3, pp. 514-521.

### Further reading

- Klein, J. and Dawar, N. (2004), "Corporate social responsibility and consumers' attributions and brand evaluations in a product-harm crisis", *International Journal of Research in Marketing*, Vol. 21 No. 3, pp. 203-217.
- Monga, A.B. and John, D.R. (2008), "When does negative brand publicity hurt? The moderating influence of analytic versus holistic thinking", *Journal of Consumer Psychology*, Vol. 18 No. 4, pp. 320-332.
- Oyserman, D. and Lee, S.W. (2008), "Does culture influence what and how we think? Effects of priming individualism and collectivism", *Psychological Bulletin*, Vol. 134 No. 2, pp. 311-342.
- Puzakova, M., Kwak, H. and Rocereto, J.F. (2009), "Pushing the envelope of brand and personality: antecedents and moderators of anthropomorphized brands", *Advances in Consumer Research*, Vol. 36, pp. 413-420.



**Figure A1.**  
Anthropomorphized  
image used in  
the study



**Figure A2.**  
Non-  
anthropomorphized  
image used in  
the study

**Table A1.**  
Regression results  
after controlling for  
age, gender and  
qualification: model  
summary

| Model | <i>R</i>           | <i>R</i> square | Adjusted <i>R</i> square | Std. error of the estimate |
|-------|--------------------|-----------------|--------------------------|----------------------------|
| 1     | 0.347 <sup>a</sup> | 0.120           | 0.091                    | 1.4500                     |

**Note:** <sup>a</sup>Predictors: (Constant), quali, age, group code, gender

**Table A1.**  
Regression results  
after controlling for  
age, gender and  
qualification:  
ANOVA<sup>a</sup>

| Model      | Sum of squares | <i>df</i> | Mean square | <i>F</i> | Sig.               |
|------------|----------------|-----------|-------------|----------|--------------------|
| 1          |                |           |             |          |                    |
| Regression | 34.195         | 4         | 8.549       | 4.066    | 0.004 <sup>b</sup> |
| Residual   | 250.212        | 119       | 2.103       |          |                    |
| Total      | 284.407        | 123       |             |          |                    |

**Notes:** <sup>a</sup>Dependent variable: ComB; <sup>b</sup>redictors: (Constant), quali, age, group code, gender

| Model      | Unstandardized coefficients |            | Standardized coefficients |          | Sig.  |
|------------|-----------------------------|------------|---------------------------|----------|-------|
|            | B                           | Std. error | $\beta$                   | <i>t</i> |       |
| <i>I</i>   |                             |            |                           |          |       |
| (Constant) | 2.780                       | 2.145      |                           | 1.296    | 0.197 |
| Group Code | -0.430                      | 0.118      | -0.317                    | -3.652   | 0.000 |
| Age        | 0.110                       | 0.085      | 0.114                     | 1.305    | 0.194 |
| Gender     | -0.069                      | 0.272      | -0.022                    | -0.255   | 0.799 |
| Quali      | 0.444                       | 0.372      | 0.104                     | 1.195    | 0.234 |

**Table AIII.**  
Regression results  
after controlling for  
age, gender and  
qualification:  
coefficients<sup>a</sup>

**Note:** <sup>a</sup>ependent variable: ComB

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