Feeling or following? A field-experiment comparing social norms-based and emotions-based motives encouraging pro-environmental donations

Magnus Bergquist1,2 | Lina Nyström1,2 | Andreas Nilsson1,2

1Department of Psychology, University of Gothenburg, Göteborg, Sweden
2Centre for Collective Action Research, University of Gothenburg, Göteborg, Sweden

Correspondence
Magnus Bergquist, Department of Psychology, University of Gothenburg, Haraldsgatan 1, 423 14, Göteborg, Sweden.
Email: magnus.bergquist@psy.gu.se

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Centre for Collective Action Research

Abstract
In this study, we design and explore interventions encouraging pro-environmental donations by testing social norms and anticipated positive emotions. The social norms-based intervention included descriptive and injunctive social normative information while the emotions-based intervention included information about anticipated positive emotions. The two intervention techniques were tested in a field-experiment; applying social norms-based or emotions-based messages to a real choice situation between retaining versus donating one’s own money (i.e., using recycling machines giving people the choice to either retain money obtained from their recycled bottles, or to donate their money to a pro-environmental organization). Results showed that more people donated their money after being exposed to the emotions-based message, than the social norms-based message or no message.

1 | INTRODUCTION

Everyday actions can mitigate climate change (Dietz, Gardner, Stern, & van den Bergh, 2009; Dietz, Ostrom, & Stern, 2003). To reach such an impact, single actions must, however, be cumulated. Pro-environmental interventions have shown the capacity to cumulate pro-environmental actions (Allcott, 2011; Karlin, Zinger, & Ford, 2015). In this study, we focus on donations, exploring to what extent psychological interventions can promote pro-environmental donations. There are various forms of pro-environmental interventions using different techniques for behavioral change (e.g., Schultz, 2014). Among these techniques, social normative information techniques (see Bergquist, Nilsson, & Schultz, 2019 for meta-analysis) have shown to be more effective than interventions based on pro-environmental concerns (e.g., Goldstein, Cialdini, & Griskevicius, 2008; Scheibehenne, Wagenmakers, & Jamil, 2016) and financial information (e.g., Schultz, Estrada, Schmitt, Sokoloski, & Silva-Send, 2015; see also Abrahamse & Steg, 2013). From a psychological perspective, social norms-based interventions are changing individual behaviors because people are motivated to act appropriately or/and accurately (Cialdini & Goldstein, 2004).

Within the context of donations, studies have reported that prosocial donations are associated with increased happiness (Dunn, Aknin, & Norton, 2008). Could the anticipation of such positive emotions be applied to encourage pro-environmental donations? According to Goal-framing theory (Lindenberg & Steg, 2007), people are driven by both normative and hedonic goals when engaging in pro-environmental actions. In this study, we compare a social norms-based intervention to an emotions-based intervention as two techniques for promoting pro-environmental donations.

1.1 | Pro-environmental interventions

Psychological interventions promoting pro-environmental behaviors aims to (a) identify behaviors to be changed, (b) examine psychological determinants for these behaviors, (c) design and apply interventions, and (d) evaluate the effect of the interventions (Steg & Vlek, 2009).
There are various forms of interventions, using single or multiple appeals to change behaviors (Abrahamse & Steg, 2013; see Schultz, 2014 for review). For example, interventions can be based on contests, social norms, commitments, and individual-, or financial feedback (Alberts et al., 2016; Bergquist, Nilsson, & Ejelöv, 2019; Jaeger & Schultz, 2017; Schultz et al., 2015). Field-experiments have shown that both social norms and positive emotions can promote pro-social behavior, respectively (Bartlett & DeSteno, 2006; Isen & Levin, 1972; Keizer, Lindenberg, & Steg, 2013, see Baumeister, Vohs, DeWall, & Zhang, 2007, for review). We apply these motives to a social norms-based and an emotions-based intervention, aiming to compare if and how these interventions can increase monetary donations to a pro-environmental organization.

1.2 | Normative motives

Within social psychology, social norms are often defined as "...rules and standards that are understood by members of a group, and that guide and/or constrain social behavior without the force of law" (Cialdini & Trost, 1998, pp. 152, see also Nolan, 2018 for review). Two types of norms have been distinguished: the descriptive norm (what other people do), and the injunctive norm (other people's [dis]approvals; e.g., Cialdini, Reno, & Kaligren, 1990). Studies implementing descriptive normative motives have promoted pro-environmental behaviors, such as energy conservation (Dwyer, Maki, & Rothman, 2015; Goldstein et al., 2008; Jaeger & Schultz, 2017) and sustainable transportation (e.g., Kormos, Gifford, & Brown, 2015), and also pro-health behaviors, such as increased physical activity (e.g., Burger & Shelton, 2011), handwashing (Lapinski, Maloney, Braz, & Shulman, 2012), and decreased alcohol consumption (e.g., Burger, LaSalvia, Hendricks, Mehdipour, & Neudeck, 2011). Similarly, studies implementing injunctive normative motives have shown to reduce for example littering (Reno, Cialdini, & Kaligren, 1993) and plastic bag usage (de Groot, Abrahamse, & Jones, 2013). Importantly, research suggests that injunctive and descriptive norms are most effective when combined (Ajzen, 2006; Ajzen, 2012; Bator, Tabanico, Walton, & Schultz, 2013; Bergquist & Nilsson, 2016; Hamann, Reese, Seewald, & Loschinger, 2015; Oceja & Berenguer, 2009; Schultz, Nolan, Cialdini, Goldstein, & Griskevicius, 2007; Schultz et al., 2015, see also Cialdini, 2003). It should, however, be noted that there are social norms-based interventions reporting no or even negative effects. For example, Richter, Thogersen, and Klockner (2018) found that normative information did not positively influence consumers choice of seafood with sustainable labels. (See also Bohner & Schluter, 2014; Peth, Mußhoff, Funke, & Hirschauer, 2018). Consequently, meta-analyses on social norms-based interventions have reported variability among studies, showing that some studies find no or negative effects (i.e., Bergquist, Nilsson, & Schultz, 2019; Borsari & Carey, 2003; Scheibeheenne et al., 2016). It is, therefore, important to explore the boundaries for when and why social norms-based interventions can promote pro-environmental actions. In this study, we explore one such boundary by applying social norms-based interventions to the unattended behavior domain: pro-environmental donations.

Moreover, past research has compared the effect of social norms-based interventions to interventions based on for example pro-environmental information (Goldstein et al., 2008), financial motives (Bergquist, Nilsson, & Ejelöv, 2019; Bolderdijk, Steg, Geller, Lehman, & Postmes, 2013; Schultz et al., 2015), and commitments (Jaeger & Schultz, 2017). To the best of our knowledge, no study has compared social norms-based interventions to emotions-based interventions.

1.3 | Emotions-based motives

Hedonic motives to encourage pro-environmental behaviors can be defined as "ways to improve...[people's]...feelings in a particular situation, such as avoiding effort, seeking direct pleasure or seeking excitement" (Steg, Bolderdijk, Keizer, & Perlaviciute, 2014; Venhoeven, Bolderdijk, & Steg, 2016). Applied to environmental psychology, studies have reported that acting environmentally friendly is associated with increased positive emotions and decreased negative emotions (e.g., Bergquist & Nilsson, 2019; Nilsson, Hansla, & Biel, 2014). Within the context of giving, the emotions-based appeal is important as studies have reported higher levels of happiness for people who recall previous purchases made for others compared to purchases made for themselves (Aknin, Dunn, and Norton, 2012). This effect of giving has been described by the warm-glow-effect (Andereoni, 1989, 1990), suggesting that people contribute to a public good because they "derive some utility from the act of giving" (Andereoni, 1989, pp. 1457). The warm-glow effect has also been observed in the domain of pro-environmental behavior, showing that participants receiving feedback that they acted environmentally friendly rated higher room temperatures than comparison groups (Taufik, Bolderdijk, & Steg, 2015); suggesting that environmentally friendly behavior can be intrinsically rewarding.

The present study applies anticipated positive emotions, more specifically, the notion that pro-environmental donations will elicit positive emotions (see, Taufik & Venhoeven, 2018), as an intervention technique. Anticipated positive emotions have been linked to various pro-environmental behaviors such as sustainable consumption (Wang & Wu, 2016), reduced food waste (Russell, Young, Unsworth, & Robinson, 2017), recycling and sustainable transportation (Carrus, Passafaro, & Bonnes, 2008; Passafaro et al., 2014). In line with these results, interventions have shown that pro-environmental behaviors can be promoted by inducing positive emotions (Ro, Brauer, Kunz, Shukla, & Bensch, 2017) and reducing negative emotions (Dickerson, Thibodeau, Aronson, & Miller, 1991; Kantola, Syme, & Campbell, 1984; see also Focella & Stone, 2013 for review). Importantly, however, none of these interventions are targeting anticipated positive emotions as the antecedent to pro-environmental behavior.

1.4 | Aims and expectations

As past research supports the influence of both social norms-based and emotions-based interventions to promote pro-environmental behaviors, while no study that we know of has compared these motives; the present research seeks to (a) apply social norms-based...
interventions in the unattended behavior pro-environmental donation and (b) explore the relative influence of social norms-based and emotions-based interventions. We expect that both social norms-based interventions (e.g., Bergquist, Nilsson, & Schultz, 2019; Scheibehenne et al., 2016) and emotions-based interventions (e.g., Steg et al., 2014) will promote pro-environmental donations. The relative influence of these interventions will be explorative, as we have no clear theoretical or empirical rational for predicting that one of these intervention techniques should be more or less influential than the other.

2 | METHOD

2.1 | Setting

In Sweden, recycling machines (for aluminum cans, glass and PET bottles) are placed in grocery stores, offering monetary incentives of 0.1–0.2 USD for each recycled item. In these recycling machines, customers are presented with a choice after recycling: they can push the green button to retain the money (from now on termed retain) or push the yellow button to donate the money (from now on termed donate). In this study, we used Swedish recycling machines giving participants the opportunity to donate their money to a pro-environmental organization. The pro-environmental organization receiving the donations was “We effect” (www.weffect.se), which uses the donation to plant trees in Africa. On these recycling machines an information message next to the green button reads: "Recycling button: Push here to get your receipt," next to the yellow button an information message reads: “Donation button: Push here and the deposit of your bottles will be used to plant a tree in Africa.” We gained access to data from six recycling machines located in grocery stores in a large Swedish city. Data were obtained during 2 months (January and February in 2019), yielding 14,322 observations. We gained access to data on the number of times each button (recycling button vs. donation button) was pressed for each month.

2.2 | Materials

In the control condition, no information was added to the machines. Hence, recycling machines contained two buttons: the green button with the corresponding text “Recycling button: Push here to get your receipt,” and the yellow button with the corresponding text “Donation button: Push here and the deposit of your bottles will be used to plant a tree in Africa.” In the two intervention conditions, the manipulation was implemented by adding three stickers communicating either social norms-based or emotions-based motives for donating. On the machines in the intervention conditions, one sticker was applied to the middle of the machine, one sticker next to the donation button, and one sticker on the recycling button (see Figure 1).

The social norms-based intervention included both a descriptive and an injunctive normative message. Stickers with a descriptive content (“In this store many people choose to donate their recycling credit”) was applied both on the middle of the machine and next to the donation button. Furthermore, to also communicate an injunctive norm, signaling that donations were the approved choice, the sticker on the recycling button depicted a thumb up.

In the emotions-based condition, the sticker applied to the middle of the machine and next to the donation button read “It feels good to donate the recycling credit.” In this condition, the corresponding symbol on the donation button was a positively valenced emoticon (a smiley face). Hence, the stimulus material in the emotions-based condition aimed to induce anticipated positive emotions associated with making a pro-environmental donation.

2.3 | Intervention

We gained access to 419 grocery stores from the same store chain: Coop Sweden. First, we choose 6 of these 419 store as they were (a) using the same type of recycling machines, (b) using recycle machines located within the stores, (c) all medium-sized grocery stores, and (d) located in different districts, within the Gothenburg region, to minimize the risk of people going to multiple stores. Second, these six stores were matched into three pairs based on donation frequency from 2018. Two pairs of stores were randomized to either a social norms-based or an emotions-based condition. The third pair of stores served as the control condition.

The intervention was carried out from January to February in 2019. January 2019 served as a baseline period: all conditions contained two buttons with the corresponding text, as described in the
control condition above. In February 2019, messages (see Section 2.2) were attached to the four recycling machines in the social norms-based and emotions-based conditions. Customers were able to use the recycling machines during the store's opening hours. Customers did not sign informed consent for participation. Nevertheless, as data was anonymous and the study did not include risks or violations of participants' health and rights, this research was carried out in line with the declaration of Helsinki. The intervention materials were controlled each week, and all stickers were replaced to assure readability. We obtained data on the number of instances of recycling (retain vs. donate) for each month.

3 | RESULTS

We obtained 14,328 observations in January (n = 7,434) and February (n = 6,893) 2019. The data was averaged across the pairs of stores from each condition (control in January n = 3,677, control in February n = 3,498, social norms-based January n = 2,597, social norms-based February n = 2,284, emotions-based January n = 1,161, emotions-based February n = 1,111). To control for donation in the baseline month, a chi-square test showed that the three pairs of stores did not differ in number of donations ($\chi^2[2, 7,435] = 0.92, p = .63$). We, therefore, first assessed donations between conditions in the intervention period. First, no significant difference was found between the social norms-based intervention and the control condition ($\chi^2[1, 5,782] = 1.51, p = .22, \psi = .016$). Second, higher frequency of donations was found in the emotions-based intervention compared to the control condition ($\chi^2[1, 4,609] = 4.01, p = .045, \psi = .029$, see Figure 2). In sum, compared to the control condition in the intervention period, the number of donations was descriptively higher in both the social norms-based condition (5.7%) and in the emotions-based condition (7.5%); however, this difference reached statistical significance only for the emotions-based condition.

Although the three conditions did not differ at baseline significantly, they are not equal in descriptive terms. Therefore, to also assess the data in terms of change from baseline, we compared the difference between the baseline month and the intervention month for each condition. No statistically significant change in number of donations was observed in the control condition (−0.1%, OR = 0.98, 95% CI [0.80, 1.21], n = 7,174), nor in the social norms-based condition (+0.1%, OR = 1.02, 95% CI [0.81, 1.29], n = 4,879). In the emotions-based condition, we found a positive effect (+1.5%, OR = 1.25, 95% CI [0.89, 1.76], n = 2,269), showing that donations increased by 1.5% (see Figure 2) from the baseline period to the intervention period.

4 | DISCUSSION

In a 2 month field-experiment, we assessed the effect of interventions based on social norms- and emotions-based messages. Results showed an increase in pro-environmental donations when using the emotions-based intervention, compared to both a control condition and to baseline. No significant effects were found in the social norms-based intervention. In the emotions-based intervention, donation was 1.5% higher compared to baseline. These findings add to past research both by providing data to increase our understanding of the boundary conditions of social norms-based interventions and by suggesting that the emotions-based intervention is a promising technique to promote pro-environmental behaviors.

One explanation for the lack of effect in the social norms-based intervention is that people might have perceived donation behaviors as normative in the definition “the right thing to do.” From a goal-framing perspective, this can be expressed as an already active normative goal, making the social norms-based intervention redundant. Furthermore, the positive effect of the emotions-based intervention can be explained by activation of a complementary goal. Pro-environmental behaviors can be encouraged by framing “compatibility...
of goals” (Steg et al., 2014). For example, framing a pro-environmental behavior as both normative (e.g., other approve of the behavior) and hedonic (e.g., performing the behavior is pleasurable). From this perspective, the effect of emotions-based interventions is that this technique aligns a pre-existing normative goal (i.e., making pro-environmental donations is approved by others) with the hedonic goal (i.e., it feels good to donate), framing the pro-environmental donation as a means to fulfill both normative and hedonic goals.

In this field-experiment, we explicitly communicated positive emotional as a consequence of acting pro-environmental. Importantly, independent of our message, some people may have perceived pro-environmental donations as associated with positive emotions while others did not. We encourage future research to assess if people’s initial anticipated emotions of acting pro-environmental moderate the effect of an emotions-based intervention. In this case, it could be tested if an emotions-based intervention will not influence those who already anticipate positive emotions, or that initial anticipated positive emotions are necessary for an emotions-based intervention to influence behavior.

It is also important to stress the specific context of the present field-experiment. The fact that we assessed pro-environmental donations after participants had recycled their bottles might have affected the results as recycling is a pro-environmental behavior in its own. That is, in practice, we assessed a series of pro-environmental behaviors including (a) recycling and (b) pro-environmental donations. First, this procedure limits our sample to people who recycle their bottle. Second, recycling ones bottle comes with a financial incentive, as each bottle is worth 0.1–0.2 USD. This might have affected participants’ mindsets or plans. Third, the literature on behavioral spillovers shows that a first pro-environmental behavior could either promote or prevent a second pro-environmental behavior (Maki et al., 2019; Nilsson, Bergquist, & Schultz, 2017; Truelove, Carrico, Weber, Raimi, & Van denbergh, 2014).

Field-experiments can provide important psychological insights, as these studies, in general, have high ecological validity. At the same time, high ecological validity is often associated with decreased internal validity. The present field-experiment was strengthened by using a large sample, conducted in a naturalistic environment, and measuring overt pro-environmental donations, still the present study had a number of limitations. First, although we suggest that anticipated positive emotions was the psychological antecedent that increased pro-environmental donations, the experimental design unable us to measure participant’s perceived emotions. Thus, we do not know how people perceived the stimulus materials. It could be the case that participants were influenced by perceived rather than anticipated positive emotions. Another possibility is that people were motivated by avoiding negative emotions associated with not making pro-environmental donations (e.g., Elgaied, 2012; Onwezen, Antonides, & Bartles, 2013), rather than seeking the anticipated positive emotions associated with making the donation. We encourage future research to test if and how emotions-based messages are affecting people’s perceived or anticipated emotions or both. The dependent variable, making pro-environmental donations or not, assessed by frequency of “the recycling button” did not ensure unique observations. That is, we do not know if each observation was a unique person. Furthermore, we do not know if participants recycled in company by others or alone, or if participants were exposed to more than one condition. Also, when investigating donation behaviors in a recycling setting, it is important to note that customers may divide their recycling by pushing the donation button after, for example, half of the bottles are recycled. Also, customers may choose to give their bottles to beggars outside the store or choose to retain the money while later giving the receipt to beggars. Another possible limitation is that the number of observations differed between the stores, which might reflect that some stores were located in districts with higher population density, which might have affected the results. Future research should make an attempt to control for some of these factors and investigate if the results are valid in other applied settings.

4.1 Practical implications

The increase in donations of +1.5% may seem modest, nevertheless, it should be stressed that this effect captures the influence on actual donations behaviors in an applied setting using an intervention that could easily be scaled up. For example, if the emotions-based intervention would have been applied to all these recycling machines in Sweden, we would predict that this simple "stickers intervention" would have generated an increase in pro-environmental donations of approximately 18,000$ during 1 month only.

4.2 Conclusion

In the current article, we explored two intervention techniques for promoting pro-environmental donations. In a field experiment, social norms-based and emotions-based messages were applied to recycling machines. No significant effect was found in the social norms-based intervention. Increased donations were observed in the emotions-based intervention, both compared to baseline and compared to the control condition. One explanation for why the emotions-based intervention was more influential is that donation behaviors are likely to be interpreted as normative at baseline. Thus, adding further normative motives may be less influential than if the already normative behavior (making pro-environmental donation) is aligned with the complementary goal of hedonism, resulting in a message communicating both that donations are “the right thing to do” and that it “feels good” to donate.

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DATA AVAILABILITY STATEMENT

Data are available at https://osf.io/pxdv/.
ENDNOTES

1 Our stickers were designed to match the original text and were put over the original text resulting in that the text next to the donation button was changed depending on the condition, while the text next to the recycling-button was not changed.

2 We choose the wording “in this store” to improve the influence of the social norms-message, as past research has reported that proximal norms are more influential than distal norms (e.g., Goldstein et al., 2008).

3 The opening hours for each store was: Trångsö (emotions-based), Mariagatan 12 (social norms-based), & Doktor Bex gatan 4 (control) 08-22; Gamla riksvägen 202, Lindome (emotions-based) 08-21; Kyrbygården 3 (social norms-based) 09(10)-21; Träsksgatan 2 (control) 09-19.

REFERENCES

Abrahamse, W., & Steg, L. (2013). Social influence approaches to encourage resource conservation: A meta-analysis. *Global Environmental Change*, 23(6), 1773–1785. https://doi.org/10.1016/j.gloenvcha.2013.07.029

Ajzen, I. (2012). The theory of planned behavior. In P. A. M. van Lange, P. A. M., & Skitka, L. J. (Eds.), *Handbook of theories of social psychology*. London: Sage.

Ajzen, I. (2006). Constructing a TPB questionnaire: Conceptual and methodological considerations constructing a theory of planned behavior questionnaire. Retrieved from https://pdfs.semanticscholar.org/0574/b20db5813dd5a6961fa2db10df11dabe95df.pdf, September 2019.

Aknine, L. B., Dunn, E. W., & Norton, M. I. (2012). Happiness runs in a circular motion: Evidence for a positive feedback loop between prosocial spending and happiness. *Journal of Happiness Studies*, 13(2), 347–355.

Alberts, G., Gurguc, Z., Koutroumpis, P., Martin, R., Muuls, M., & Napp, T. (2016). Competition and norms: A self-defeating combination? *Energy Policy*, 96, 504–523.

Allcott, H. (2011). Social norms and energy conservation. *Journal of Public Economics*, 95(9–10), 1082–1095. https://doi.org/10.1016/j.jpubeco.2011.03.003

Andreoni, J. (1989). Giving with impure altruism: Applications to charity and ricardian equivalence. *Journal of Political Economy*, 97(6), 1447–1458. https://doi.org/10.1086/261662

Andreoni, J. (1990). Impure altruism and donations to public goods: A theory of warm-glow giving. *The Economic Journal*, 100(401), 464. https://doi.org/10.2307/2234133

Bartlett, M. Y., & DeSteno, D. (2006). Gratitude and prosocial behavior: Helping when it costs you. *Psychological Science*, 17(4), 319–325. https://doi.org/10.1111/j.1467-9280.2006.01705.x

Bator, R. J., Tabanico, J. J., Walton, M. L., & Schultz, P. W. (2013). Promoting energy conservation with implied norms and explicit messages. *Social Influence*, 9(1), 69–82. https://doi.org/10.1080/15534510.2013.778213

Baumeister, R. F., Vohs, K. D., DeWall, N., & Zhang, L. (2007). How emotion shapes behavior: Feedback, anticipation, and reflection, rather than direct causation. *Personality and Social Psychology Review*, 11(2), 167–203. https://doi.org/10.1177/1088868307301033

Bergquist, M., & Nilsson, A. (2016). I saw the sign: Promoting energy conservation via normative prompts. *Journal of Environmental Psychology*, 46, 23–31. https://doi.org/10.1016/j.jenvp.2016.03.005

Bergquist, M., & Nilsson, A. (2019). The DOs and DON'Ts in social norms: A descriptive don’t-norm increases conformity. *Journal of Theoretical Social Psychology*, 3(3), 158–166. https://doi.org/10.1002/jts5.43
personal responsibility. *Journal of Environmental Psychology*, 41, 30–34. https://doi.org/10.1016/j.jenvp.2014.11.002

Elgaaied, L. (2012). Exploring the role of anticipated guilt on pro-environmental behavior—a suggested typology of residents in France based on their recycling patterns. *Journal of Consumer Marketing*, 29(5), 369–377. https://doi.org/10.1108/07363761211247488

Focella, E. S., & Stone, J. A. (2013). The use of hypocrisy for promoting environmentally sustainable behaviors. In H. C. M. van Trijp (Ed.), *Encouraging sustainable behavior: Psychology and the environment* (pp. 203–216). New York, NY: Psychology Press. Retrieved from https://arizona.pure.elsevier.com/en/publications/the-use-of-hypocrisy-for-promoting-environmentally-sustainable-be

Goldstein, N. J., Cialdini, R. B., & Griskevicius, V. (2008). A room with a viewpoint: Using social norms to motivate environmental conservation in hotels. *Journal of Consumer Research*, 35(3), 472–482. https://doi.org/10.1086/586910

Hamann, K. R. S., Reese, G., Seewald, D., & Loeschinger, D. C. (2015). Affixing the theory of normative conduct (to your mailbox): Injunctive and descriptive norms as predictors of anti-ad sticker use. *Journal of Environmental Psychology*, 44, 1–9. https://doi.org/10.1016/j.jenvp.2015.08.003

Isen, A. M., & Levin, P. F. (1972). Effect of feeling good on helping: Cookies and kindness. *Journal of Personality and Social Psychology*, 21(3), 384–388. https://doi.org/10.1037/h0032317

Jaeger, C. M., & Schultz, P. W. (2017). Coupling social norms and commitments: Testing the underdetected nature of social influence. *Journal of Environmental Psychology*, 51, 199–208. https://doi.org/10.1016/j.jenvp.2017.03.015

Kantola, S. J., Syme, G. J., & Campbell, N. A. (1984). Cognitive dissonance and energy conservation. *Journal of Applied Psychology*, 69(3), 416–421. https://doi.org/10.1037/0021-9010.69.3.416

Karlin, B., Zinger, J. F., & Ford, R. (2015). The effects of feedback on energy conservation: A meta-analysis. *Psychological Bulletin*, 141(6), 1205–1227. https://doi.org/10.1037/a0039650

Keizer, K., Lindenberg, S., & Steg, L. (2013). The importance of demonstratively restoring order. *PloS One*, 8(6), 1–7. https://doi.org/10.1371/journal.pone.0065137

Kormos, C., Gifford, R., & Brown, E. (2015). The influence of descriptive social norm information on sustainable transportation behavior: A field experiment. *Environment and Behavior*, 47(5), 479–501. https://doi.org/10.1177/0013916513520416

Lapinski, M. K., Maloney, E. K., Braz, M., & Shulman, H. C. (2012). Testing the effects of social norms and behavioral privacy on hand washing: A field experiment. *Human Communication Research*, 39(1), 21–46. https://doi.org/10.1111/j.1468-2958.2012.01441.x

Lindenberg, S., & Steg, L. (2007). Normative, gain and hedonic goal frames guiding environmental behavior. *Journal of Social Issues*, 63(1), 117–137. https://doi.org/10.1111/j.1540-4560.2007.00499.x

Maki, A., Carrico, A. R., Raimi, K., Truelove, H. B., Araujo, B., & Yeung, K. L. (2019). Meta-analysis of pro-environmental behaviour spillover. *Nature Sustainability*, 2(4), 307–315.

Nilsson, A., Bergquist, M., & Schultz, P. W. (2017). Spillover effects in environmental behavior, across time and context: A review and research agenda. *Environmental Educational Research*, 23(4), 573–589.

Nilsson, A., Hansla, A., & Biel, A. (2014). Feeling the green? Value orientation as a moderator of emotional response to green electricity. *Journal of Applied Social Psychology*, 44(10), 672–680. https://doi.org/10.1111/jasp.12258

Nolan, J. M. (2018). Social norms and their enforcement. In S. Harkins, K. D. Williams, & J. Burger (Eds.), *The Oxford handbook of social influence*. Oxford: Oxford University Press.

Oceja, L., & Berenguer, J. (2009). Putting text in context: The conflict between pro-ecological message and anti-ecological descriptive norms. *The Spanish Journal of Psychology*, 12(2), 657–666. https://doi.org/10.1017/S113874160000202X

Onwezen, M. C., Antonides, G., & Bartles, J. (2013). The norm activation model: An exploration of the functions of anticipated pride and guilt in pro-environmental behaviour. *Journal of Economic Psychology*, 39, 141–153.

Passerini, C., Conca, A., Piccini, M. P., Metastasio, G., Gambardella, V., Gullace, G., & Lettiere, C. (2014). The bicycle and the city: Desires and emotions versus attitudes, habits and norms. *Journal of Environmental Psychology*, 38, 76–83.

Peth, D., Mußhoff, O., Funke, K., & Hirschauer, N. (2018). Nudging farmers to comply with water protection rules—Experimental evidence from Germany. *Ecological Economics*, 152, 310–321. https://doi.org/10.1016/j.ecolecon.2018.06.007

Reno, R. R., Cialdini, R. B., & Kallgren, C. A. (1993). The transsituational influence of social norms. *Journal of Personality and Social Psychology*, 64(1), 104–112. https://doi.org/10.1037/0022-3514.64.1.104

Richter, I., Thogersen, J., & Klockner, C. A. (2018). A social norms intervention going wrong: Boomerang effects from descriptive norms information. *Sustainability*, 10(8), 2848. https://doi.org/10.3390/su10082848

Ro, M., Brauer, M., Kuntz, K., Shukla, R., & Bensch, I. (2017). Making cool choices for sustainability: Testing the effectiveness of a game-based approach to promoting pro-environmental behaviors. *Journal of Environmental Psychology*, 53, 20–30. https://doi.org/10.1016/j.jenvp.2017.06.007

Russell, S. V., Young, C. W., Unsworth, K. L., & Robinson, C. (2017). Bringing habits and emotions into food waste behaviour. *Resources, Conservation and Recycling*, 125, 107–114. https://doi.org/10.1016/j.resconrec.2017.06.007

Scheibehenne, B., Wagenmakers, E., & Jamil, T. (2016). Do descriptive social norms enhance pro-environmental behaviour? A bayesian reanalysis of hotel towel reuse. *Advances in Consumer Research, 44*, 610–611.

Schultz, P. W. (2014). Strategies for promoting pro-environmental behavior. *European Psychologist*, 19(2), 107–117. https://doi.org/10.1027/1016-9040/a000163

Schultz, P. W., Estrada, M., Schmitt, J., Sokoloski, R., & Silva-Send, N. (2015). Using in-home displays to provide smart meter feedback about household electricity consumption: A randomized control trial comparing kilowatts, cost, and social norms. *Energy*, 90, 351–358. https://doi.org/10.1016/j.energy.2015.06.130

Schultz, P. W., Nolan, J. M., Cialdini, R. B., Goldstein, N. J., & Griskevicius, V. (2007). The constructive, destructive, and reconstructive power of social norms. *Psychological Science*, 18(5), 429–434. https://doi.org/10.1111/j.1467-9280.2007.01917.x

Steg, L., Bolderdijk, J. W., Keizer, K., & Perlaviciute, G. (2014). An integrated framework for encouraging pro-environmental behaviour: The role of values, situational factors, and goals. *Journal of Environmental Psychology*, 38, 104–115. https://doi.org/10.1016/j.jenvp.2014.01.002

Steg, L., & Vlek, C. (2009). Encouraging pro-environmental behaviour: An integrative review and research agenda. *Journal of environmental psychology*, 29(3), 309–317.

Taufik, D., Bolderdijk, J.W., & Steg, L. (2015). Acting green elicits a literal warm glow. *Nature Climate Change*, 5(1), 37–40. https://doi.org/10.1038/nclimate2449

Taufik, D., & Venhooven, T. (2018). Emotions and pro-environmental behavior. In L. Steg & M. de Groot (Eds.), *Environmental psychology*. Oxford, England: Wiley-Blackwell.

Truelove, H. B., Carrico, A. R., Weber, E. U., Raimi, K. T., & Vandenbergh, M. P. (2014). Positive and negative spillover of pro-environmental behavior: An integrative review and theoretical framework. *Global Environmental Change*, 29, 127–138.

Venhooven, L. A., Bolderdijk, J. W., & Steg, L. (2016). Why acting environmental-friendly feels good: Exploring the role of self-image. *Frontiers in Environmental Psychology*, 7(1846). https://doi.org/10.3389/fpsyg.2016.01846
Wang, J., & Wu, L. (2016). The impact of emotions on the intention of sustainable consumption choices: Evidence from a big city in an emerging country. *Journal of Cleaner Production*, 126, 325–336. https://doi.org/10.1016/j.jclepro.2016.03.119

**AUTHOR BIOGRAPHIES**

**Magnus Bergquist**, PhD, works as a post-doc in environmental psychology at the University of Gothenburg, Sweden. In his research, Bergquist has examined pro-environmental interventions in both field- and experimental settings, focusing on how social psychological factors can motivate and promote pro-environmental behavioral change.

**Lina Nyström**, MSc, works as a researcher’s assistant in psychology at the University of Gothenburg, Sweden. In her research, Nyström has examined nudging both in terms of ethics and psychological consequences such as behavioral spillovers.

**Andreas Nilsson** is a professor in environmental psychology at the University of Gothenburg, Sweden. Nilsson works on environmental issues such as policy acceptance, spillover effects, and developing and evaluating field-experiments to promote sustainable behavioral change.

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