

# USING SOCIAL NORMS TO ENCOURAGE SUSTAINABLE BEHAVIOUR: A META-ANALYSIS

**Mykolas Simas Poškus**

PhD student, lecturer  
Mykolas Romeris University  
Faculty of Social Technologies  
Institute of Psychology  
Ateities str. 20, LT-08303 Vilnius, Lithuania  
Tel. (8 5) 271 4620  
E-mail: mykolas.simas@gmail.com

*The aim of this study is to evaluate the effectiveness of using social norms to promote sustainable behaviour. To achieve this aim, a meta-analysis was conducted. Studies published in peer reviewed journals after 1990 that experimentally tested the effectiveness of social norms in promoting sustainable behaviour were included in the analysis. No distinction was made among various populations when selecting studies. Random-effects models were used to calculate the pooled effect sizes. It was found, that social norms can be effectively used in promoting sustainable behaviour ( $d = 0.35$ , 95% CI [0.13, 0.57]), the effect is highest in cases that imitate real-life situations ( $d = 0.52$ , 95% CI [0.38, 0.65]), and remains significant when comparing normative interventions against alternative appeals that are aimed at promoting sustainable behaviour ( $d = 0.18$ , 95% CI [0.03, 0.32]). The article concludes that normative interventions are an effective way of promoting sustainable behaviour. Those who are engaged in promoting sustainable behaviour should strongly consider using social norms as a means to their goals as it is an effective and evidence-based way of promoting desired behaviour.*

**Key words:** social norms, descriptive norms, injunctive norms, sustainable behaviour.

## Introduction

Sustainable behaviour has become an expression that is commonly used in various contexts and is often interchanged with other popular expressions like *environmentally-friendly*, *eco-friendly*, and *green* behaviour (Minton, Lee, Orth, Kim, & Kahle, 2012). In general, sustainable behaviour describes behaviours that are in some way beneficial to the natural environment, or are environmentally neutral. The ever-increasing interest in sustainability research is certainly justified, since environmental problems (such as pollu-

tion, global warming, depletion of natural resources) are of paramount importance to everyone and should be addressed and mitigated as effectively as possible.

Research on sustainable behaviour can be executed in a variety of ways. Some researchers focus more on the cognitive and moral aspects of sustainable behaviour (Chan & Bishop, 2013; Greaves, Zibarras, & Stride, 2013), while others emphasize the role of personal values (Jakovcovic & Steg, 2013; Oreg & Katz-Gerro, 2006), while still others take on a more hands-on and experimental approach to studying su-

sustainable behaviour (Bohner & Schlüter, 2014; Goldstein, Cialdini, & Griskevicius, 2008). These hands-on approaches usually use social norms as a stimulus for promoting sustainable behaviour and are largely grounded in the focus theory of normative conduct (Cialdini, Reno, & Kallgren, 1990; Kallgren, Reno, & Cialdini, 2000).

*Two types of social norms.* Social norms are most commonly differentiated into descriptive and injunctive (Brauer & Chaurand, 2010; Cialdini et al., 1990). Descriptive norms are formed by observing the behaviour of others and describe what people perceive to be a common behaviour in a given situation (Gerber & Rogers, 2009; Kallgren et al., 2000; Reno, Cialdini, & Kallgren, 1993; Smith & Louis, 2008; White, Smith, Terry, Greenslade, & McKimmie, 2009). The observation of behaviour not only helps people determine what behaviours are allowed in a given situation, but also provides information on the adaptiveness and effectiveness of a behaviour. Descriptive norms often serve as a heuristic for behaviour shortening the amount of time one spends on making behavioural decisions (Cialdini et al., 1990).

Injunctive norms describe perceived rules and regulations that are present in society; they represent what one perceives to be the accepted or desired behaviour in a given situation (Cialdini et al., 1990; Kallgren et al., 2000). It appears that compliance with injunctive norms comes not from the perceived adaptiveness of behaviour, rather it comes from one's conformity or the fear of punishment that might follow if one is caught breaking the rules. Thus, motivation to comply with injunctive and descriptive norms may have different sources (Cialdini et al., 1990). As a

matter of fact, some researchers find that when descriptive and injunctive norms are conflicted, people tend to behave in accordance of what they perceive other people are doing, i.e., they follow the descriptive norm (Burger & Shelton, 2011; Croson, Handy, & Shang, 2009; Gerber & Rogers, 2009; Smith et al., 2012).

*Using social norms as a means of promoting sustainable behaviour.* Many interventions that are aimed at promoting sustainable and environmentally friendly behaviour are in one way or another related to making certain sustainability social norms salient in the minds of the subjects (Bohner & Schlüter, 2014; Carrico & Riemer, 2011; Dwyer, Maki, & Rothman, 2015; Ferguson, Branscombe, & Reynolds, 2011; Goldstein et al., 2008; Huffman, Van Der Werff, Henning, & Watrous-Rodriguez, 2014; Interis & Haab, 2014). Most commonly either descriptive, or injunctive social norms are made salient by informing subjects about the behaviour that is expected from them and/or about the behaviour that is most common. It is noteworthy that the perceived descriptive norms are not always true (Barriger & Vélez-Blasini, 2013; Larimer & Neighbors, 2003), yet they still can serve as a predictor for behaviour. Therefore, to be effective the norms that are communicated to a subject do not necessarily have to be true.

Despite the fact that some researchers claim that normative messages can be an extremely effective in inducing desired behaviour (Bator & Cialdini, 2000; Cialdini, 2003; Sundie, Cialdini, Griskevicius, & Kenrick, 2012), norm-based interventions are considered to be underused in real life (Griskevicius, Cialdini, & Goldstein, 2008) and their use appears not to ventu-

re beyond academic research. As a matter of fact, people tend to underestimate the effectiveness of norm-based interventions on their behaviour (Nolan, Schultz, Cialdini, Goldstein, & Griskevicius, 2008) and this tendency to underestimate normative influence may be one of the causes why norm-based interventions are so underused in real life. A meta-analysis on this subject would help in illuminating the effectiveness of social norms in promoting sustainable behaviour. The present study is also carried out in hopes of providing insights that are valuable not only to researchers, but to policy makers, and non-governmental organisations that are actively involved in promoting sustainability as well.

**The aim of this study** is to evaluate the effectiveness of using social norms to promote sustainable behaviour.

## Method

*Eligibility criteria.* All articles published in peer-reviewed scholarly journals after 1990 that experimentally tested the effectiveness of either descriptive, injunctive, or both social norms in promoting sustainable behaviour were included in the analysis. No distinction was made among various populations (student samples, random samples, etc.) when selecting studies. Correlational studies that used self-report measures were excluded from the analysis because of the inability to infer causality and determine actual behavioural change that resulted from salient social norms. Articles in all languages were included, provided that they could be found using our search strategy.

*Search strategy.* The search was conducted in these bibliographical and full-text databases: Academic Search Complete

(206), Education Research Complete (74), Health Source: Nursing/Academic Edition (60), SocINDEX with Full Text (60), Business Source Complete (57), MasterFILE Premier (28), ERIC (15), GreenFILE (11), PsycARTICLES (6), and Taylor & Francis Online (30). The numbers in the brackets indicate the number of articles that matched our search string: “((environment\*) OR (sustainab\*)) AND ((injunctive OR descriptive) AND (norm))”. References of included articles were also searched for additional studies. The search was conducted on January 22<sup>nd</sup>, 2015, and includes articles available at that time.

*Quality assessment and inclusion criteria.* It was decided to include any scholarly peer-reviewed articles that satisfied the following criteria:

- The study tests an intervention or a manipulation that uses social norms as a stimulus for inducing sustainable behaviour;
- The study tests the effect of either descriptive, injunctive, or both types of social norms;
- The study is an experiment;
- The study measures actual (not self-reported) behaviour;
- The stimulus is clearly defined and can be replicated;
- It is possible to calculate the effect size from the data presented in the study.

*Coding of studies.* Nine articles matched the criteria and were included in the review. Coding was done by the author of the present study; to ensure that no mistakes were made in the coding procedure, the author checked the codes for the second time (no mistakes were found). The effect sizes and their confidence intervals were

calculated from the data presented in the articles. This resulted in 18 usable effect size measures that were coded alongside the sample sizes from which they were calculated. In most cases, multiple effect sizes were calculated for each study each effect representing a separate sample. When multiple comparisons were available, it was decided to favour effects that compare the effectiveness of a normative stimulus on promoting sustainable behaviour to a non-manipulation baseline.

The type of norm (descriptive, injunctive, or both) used in the experiment and the manipulation (or lack thereof) that served as a control for the normative manipulation in a study, as well as the design of the experiment (intervention or field) was coded. In this study, we regard a “field” experiment as one that utilizes a stimulus that is not obviously aimed at inducing behaviour in a subject, e.g., witnessing a clean or littered environment (for example: Cialdini et al., 1990). Alternatively, a study was coded as an “intervention” if it had a clear normative stimulus that is presented to a subject and the subject is aware that the stimulus is aimed at inducing a certain behaviour, e.g., a message suggesting that people more often use the stairs than the elevator (for example: Burger & Shelton, 2011).

Some studies used behavioural instances as the N for their analysis, allowing multiple instances of behaviour for the same person. This potentially can introduce some bias into the results. However, given that these studies generally have a large number of observations, the overall effect is quite robust and any bias of allowing multiple observations from the same person would be negligible. Therefore, it

was decided not to distinguish from these and other studies.

*Analysis.* To calculate the overall effects random-effects models were run using the *rmeta* package for the R language (R Development Core Team, 2012). The effects were weighted by sample size. Bearing in mind that we should not expect high homogeneity between various studies that utilize different methodologies and have different samples, random-effects measures were used in order to obtain data that is more representative of the general population (Field & Gillett, 2010). Effect sizes were computed using the formulas and online resources presented by Lipsey & Wilson (2001).

## Results

The descriptions of the analysed studies are presented in Table 1. As one can see, most of the studies used either descriptive norms, or a combination of descriptive and injunctive norms to elicit sustainable behaviour. It appears that normative messages indeed are an effective way of promoting sustainable behaviour, however in one study (Bohner & Schlüter, 2014) normative manipulations did appear to be less or equally as effective as alternative ones. In all other cases normative messages aimed at promoting sustainable behaviour were more effective than default non-normative messages that targeted the same behaviour.

It must be noted that sustainable behaviour is a broad term and many behaviours fall under its definition. This means that the scope of behaviour analysed in this study is quite wide, ranging from littering to elevator use, to towel reuse in hotels, or power consumption. However, social norms are generally considered to be an

Table 1. Descriptions of the analyzed studies

Citation (sorted alphabetically)	#	N	Norm type used as stimulus	Compared against	Design	<i>d</i> [CI]	Summary of what was compared	Key findings of the whole study
(Bohner & Schlüter, 2014)	1.1	723	Descriptive	Alternative	Intervention	0.04 [-0.11, 0.18]	Effectiveness of a descriptive normative message was compared to a non-normative environmental message.	Authors analysed the effectiveness of various messages asking hotel visitors to reuse their towels. Descriptive normative messages were found to be significantly more effective than no message, but not as or equally effective as a non-normative message asking hotel visitors to reuse towels.
	1.2	162	Descriptive	Alternative	Intervention	-0.33 [-0.64, -0.02]		
(Burger & Shelton, 2011)	2.0	517	Descriptive	Baseline	Intervention	0.22 [0.04, 0.39]	Effectiveness of a descriptive normative message was compared to a no-message baseline.	A normative message was placed near an elevator door that stated that most people use the stairs. Elevator usage significantly decreased under this manipulation. The normative message had an increase in effectiveness during a period of three weeks.
(Cialdini et al., 1990)	3.1	139	Descriptive	Opposing descriptive	Field	0.75 [0.39, 1.10]	The effect of the descriptive pro-littering norm (littered environment) was compared to the effect of the descriptive anti-littering norm (clean environment).	The descriptive norm of littering, made salient by an environment full of litter, increased littering, while an environment that made salient the anti-littering social norm (by being free of, or having little litter) decreased littering. Making the injunctive norm of anti-littering salient also decreased littering.
	3.2	291	Descriptive	Opposing descriptive	Field	0.43 [0.19, 0.66]		
	3.3	118	Injunctive	Baseline	Intervention	0.42 [0.05, 0.78]		

Citation (sorted alphabetically)	#	N	Norm type used as stimulus	Compared against	Design	<i>d</i> [CI]	Summary of what was compared	Key findings of the whole study
(Dwyer et al., 2015)	4.1	69	Combined	Injunctive, descriptive, and baseline	Mixed	4.02 [2.96, 5.08]	The effect of the combined injunctive and descriptive norms was compared to all other conditions, where either injunctive, descriptive, or neither norms were made salient.	Experiment 1 was conducted in a computer laboratory of a university. Injunctive norms were made salient by placing (or not) notices on computer monitors that asked users to turn off all machines when they were done using them. Descriptive norms were made salient by turning off (or not) the machines prior to their use by the participants. Injunctive norms had little impact on behaviour, however descriptive norms had a significant effect and the normative impact was even greater when descriptive and injunctive norms were used together. Experiment 2 produced similar results, showing that injunctive and descriptive norms presented together are effective in changing behaviour to be more sustainable.
	4.2	773	Combined	Baseline	Mixed	1.31 [1.04, 1.59]	The effect of the combined injunctive and descriptive norms was compared to a baseline where no manipulations were present.	

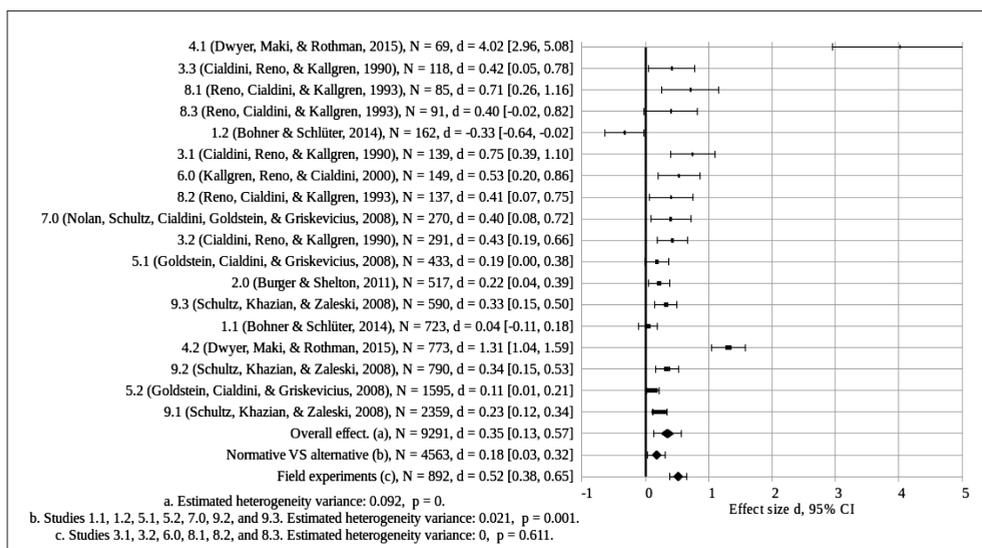
Citation (sorted alphabetically)	#	N	Norm type used as stimulus	Compared against	Design	<i>d</i> [CI]	Summary of what was compared	Key findings of the whole study
(Goldstein et al., 2008)	5.1	433	Descriptive	Alternative	Intervention	0.19 [0, 0.38]	The effect of a descriptive normative message was compared to the effect of a non-normative pro-environmental message.	Researchers conducted the experiments in a hotel, trying to encourage visitors to reuse their towels. In experiment 1, presenting hotel guests with messages that made descriptive norms salient resulted in greater towel reuse than presenting them with standard pro-environmental messages. In experiment 2, variously worded descriptive normative messages were found to be more effective in promoting sustainable behaviour than a standard pro-environmental message.
	5.2	1595	Descriptive	Alternative	Intervention	0.11 [0.01, 0.21]	The effect of various descriptive normative messages was compared to the effect of a non-normative pro-environmental message.	
(Kallgren et al., 2000)	6.0	149	Injunctive	Baseline	Field	0.53 [0.20, 0.86]	The effect of injunctive anti-littering norms, made salient by witnessing someone pick up a piece of litter, was compared to the effect of a low norm salience condition, where the subjects did not witness anyone picking up litter.	Authors conducted several experiments that consistently showed that by putting the injunctive anti-littering norm at the focus of ones attention, littering decreases. Norm violation decreases when the subject is under stress or the potential norm violation would have a bigger impact: people tend to litter less often when they have two pieces of litter, as opposed to having just one.

Citation (sorted alphabetically)	#	<i>N</i>	Norm type used as stimulus	Compared against	Design	<i>d</i> [CI]	Summary of what was compared	Key findings of the whole study
(Nolan et al., 2008)	7.0	270	Descriptive	Alternative	Intervention	0.40 [0.08, 0.72]	The effect of a descriptive normative message in promoting energy conservation was compared to the effect of alternative non-normative messages aimed at promoting energy conservation.	The researchers mailed postcards to households, informing them of an ongoing study. Five days after mailing the postcards, research assistants delivered persuasive messages (printed on doorhangers) to these households, encouraging them to conserve energy. Normative messages decreased household energy consumption, however were paradoxically rated by the households as the least persuasive method of encouraging energy conservation.
(Reno et al., 1993)	8.1	85	Combined	Baseline	Field	0.71 [0.26, 1.16]	The effect of making descriptive or injunctive norm salient by either picking up a piece of litter (injunctive norm) or by dropping a piece of litter (drawing the subjects attention to the otherwise clean environment), was compared to a no-manipulation control condition.	Descriptive norms were found to be not as effective as injunctive norms in reducing littering. When injunctive anti-littering norms were made salient, littering decreased even in littered environments that showed a descriptive norm of littering.

Citation (sorted alphabetically)	#	<i>N</i>	Norm type used as stimulus	Compared against	Design	<i>d</i> [CI]	Summary of what was compared	Key findings of the whole study
(Reno et al., 1993)	8.2	137	Injunctive	Baseline	Field	0.41 [0.07, 0.75]	The effect of an injunctive norm made salient by witnessing a person picking up a piece of litter was compared to a no-manipulation control condition.	Descriptive norms were found to be not as effective as injunctive norms in reducing littering. When injunctive anti-littering norms were made salient, littering decreased even in littered environments that showed a descriptive norm of littering.
	8.3	91	Combined	Baseline	Field	0.40 [-0.02, 0.82]	The effect of making descriptive or injunctive norms salient by either picking up a piece of litter and dropping it into a trash receptacle (injunctive norm) or by dropping a carried piece of litter into a trash receptacle (descriptive norm), was compared to a no-manipulation control condition.	
(Schultz, Khazian, & Zaleski, 2008)	9.1	2359	Combined	Injunctive, descriptive, and alternative	Intervention	0.23 [0.12, 0.34]	The effect of a message that combined descriptive and injunctive norms was compared to other experimental conditions that had either descriptive, injunctive, or non-normative messages.	The samples consisted of hotel or condo stays that allowed the opportunity for towel reuse. Researchers used normative messages aimed at promoting towel reuse in a hotel. In experiment 1, descriptive and injunctive messages, used in

Citation (sorted alphabetically)	#	N	Norm type used as stimulus	Compared against	Design	<i>d</i> [CI]	Summary of what was compared	Key findings of the whole study
(Schultz, Khazian, & Zaleski, 2008)	9.2	790	Combined	Alternative	Intervention	0.34 [0.15, 0.53]	The effect of a message that combined descriptive and injunctive norms was compared to the effect of a non-normative message.	conjunction, produced best results, while injunctive and descriptive messages alone did not increase towel reuse. A combined injunctive and descriptive normative message was demonstrated to be an effective way to promote towel reuse in subsequent experiments.
	9.3	590	Combined	Alternative	Intervention	0.33 [0.15, 0.50]		

*Note.* Sample sizes presented in this table represent the number of participants or observations for which the effect sizes were computed, not the N of the whole study. When multiple comparisons were available, it was decided to include effect sizes that represent the effectiveness of social norms when compared against a baseline, a standard situation, or a non-intervention condition. Where available, multiple effect sizes are included for each study, each effect is calculated from a separate sample. CI – confidence interval.



**Figure 1. Forest plot of the effect sizes in the analysed studies. Study numbers correspond to the numbers presented in Table 1. The sample sizes, the effect sizes, and their confidence intervals are presented next to the corresponding citations. Random effects models were used to estimate the combined effects. The Overall effect (a) represent the pooled effect of all analysed studies; the Normative VS alternative (b) effect represents intervention studies that compared the effectiveness of normative interventions against alternative interventions; the Field experiments (c) effect represents the effect of normative manipulations in everyday situations. CI = confidence interval.**

effective way of inducing behaviour and are considered especially useful in promoting sustainable behaviour (Cialdini, 2003; Griskevicius et al., 2008). Therefore, it is the author’s belief that the analysed studies are indeed comparable to one another and do not differ like “apples and oranges” (Field & Gillett, 2010).

As can be seen in Figure 1, the overall effect of the social norms that were used to encourage sustainable behaviour is positive and significant ( $d = 0.35$ , 95% CI [0.13, 0.57]). Perhaps what is more of interest is that the normative interventions appear to be slightly more effective than standard non-normative interventions ( $d = 0.18$ , 95% CI [0.03, 0.32]). It must be noted that the overall effect and the Normative

VS alternative effect were computed from heterogeneous data. This was expected and compensated by opting to calculate random-effects models; however, this also shows that the analysed studies do differ from one another. For example, one can see in Figure 1 that study 4.1 is a clear outlier and one may even consider study 4.2 to be an outlier as well. The least surprising result was that social norms can effectively be used to encourage sustainable behaviour when compared to non-intervention baselines ( $d = 0.52$ , 95% CI [0.38, 0.65]). What was surprising, however, is that in this case the data were homogeneous showing that the effect of social norms compared against a baseline is similar in various situations.

It has to be noted that the number of studies analysed was relatively small and the studies were heterogeneous, therefore, it is somewhat hard to objectively determine the publication bias that could be present in the analysis. Even though the data presented in Figure 1 visually does not appear biased towards positive results (especially when focusing separately on *Field experiments* or *Normative VS alternative interventions*), the results of the analysis should be interpreted bearing in mind the possibility of publication bias. One way of determining publication bias is computing the number of studies that would be required to obtain a non-significant overall effect (Rosenthal, 1979). Based on the formulas provided by Rosenthal (1979), 1137 studies with non-significant results would be needed to bring the overall effect of this meta-analysis to non-significance, therefore, it is unlikely that the present study suffers from the “file drawer problem”.

## Discussion

This study was aimed at evaluating the effectiveness of using social norms to promote sustainable behaviour. Most of the studies included in this meta-analysis suggest that using social norms can indeed be an effective way of promoting sustainable behaviour. It was found that the overall effectiveness of normative manipulations in promoting sustainable behaviour is quite high. This should not be a shocking revelation to anyone who studies the effect of social norms on human behaviour; as a matter of fact, the results of this study provide a strong empirical point and compliment the research of others demonstrating once again that social norms can be a very useful tool in promoting sustaina-

bility (Bator & Cialdini, 2000; Cialdini, 2003; Griskevicius et al., 2008; Nolan et al., 2008; Reno et al., 1993; Sundie et al., 2012).

The extent to which normative messages are more effective than standard pro-environmental messages closely borders on non-significance, but the effect, nonetheless, is statistically significant. This means that one should not dismiss normative messages as equally effective as any other because even small improvements in sustainability can help save the environment. Furthermore, research is constantly done to improve the techniques of creating persuasive normative messages (Cialdini, 2003; Griskevicius, Cantú, & Vugt, 2012), while standard appeals to one’s consciousness or the goodness of one’s will that are used for promoting sustainability are crafted intuitively, by sheer guesswork. Therefore, normative messages can be a great evidence-based way of promoting sustainable behaviour.

Another important insight is that social norms can be effectively used to influence behaviour without actually asking people to behave in a certain way. For example, a simple cleaning of a littered environment could provide the necessary normative influence needed to reduce littering (Cialdini et al., 1990; Kallgren et al., 2000). The results of this meta-analysis have shown that normative influences in the natural environment are the most effective way of using social norms to elicit sustainable behaviour. Coupled with the fact that normative influence is largely under-detected (Griskevicius et al., 2008; Nolan et al., 2008) one can perceive a multitude of ways that the environment can be manipulated to make certain social norms sa-

lient and promote sustainable behaviour without the realization of the public. As a matter of fact, a reasonable path to take in promoting sustainable behaviour would be to target subjects in such a way that plays to their innate tendencies, following social norms being one of them (Griskevicius et al., 2012; Sundie et al., 2012).

It must be noted that this study has its limitations. First of all, the effect sizes used in the meta-analysis were derived from published data only, which could potentially introduce a bias into the results. Future meta-analyses should try to solve this problem by searching for unpublished studies that investigate the effect normative interventions have on sustainable behaviour.

In summary, social norms appear to be an extremely effective tool in promoting

sustainable behaviour. The fact that social norms are underused and underestimated (Griskevicius et al., 2008) may indeed work to society's advantage, because it shows that there is potential for improvement in promoting sustainable behaviour by using social norms more extensively. Another point that has to be made is that normative interventions that promote sustainability could be non-coercive and can be effectively used without actually asking people to make conscious decisions to change their behaviour. Those who are engaged in promoting sustainability should consider using social norms as a means to their ends. Whether by crafting persuasive normative messages, or by cleaning up the streets, or by setting an example, social norms can be effectively used to help save the natural environment.

## REFERENCES

- Barriger, M., & Vélez-Blasini, C. J. (2013). Descriptive and injunctive social norm overestimation in hooking up and their role as predictors of hook-up activity in a college student sample. *Journal of Sex Research, 50* (1), 84–94. <http://doi.org/10.1080/00224499.2011.607928>.
- Bator, R. J., & Cialdini, R. B. (2000). New ways to promote proenvironmental behavior: The application of persuasion theory to the development of effective proenvironmental public service announcements. *Journal of Social Issues, 56* (3), 527–541. <http://doi.org/10.1111/0022-4537.00182>.
- Bohner, G., & Schlüter, L. E. (2014). A room with a viewpoint revisited: Descriptive norms and hotel guests' towel reuse behavior. *PLoS ONE, 9* (8). <http://doi.org/10.1371/journal.pone.0104086>.
- Brauer, M., & Chaurand, N. (2010). Descriptive norms, prescriptive norms, and social control: An intercultural comparison of people's reactions to uncivil behaviors. *European Journal of Social Psychology, 40*, 490–499. <http://doi.org/10.1002/ejsp.640>.
- Burger, J. M., & Shelton, M. (2011). Changing everyday health behaviors through descriptive norm manipulations. *Social Influence, 6* (2), 69–77. <http://doi.org/10.1080/15534510.2010.542305>.
- Carrico, A. R., & Riemer, M. (2011). Motivating energy conservation in the workplace: An evaluation of the use of group-level feedback and peer education. *Journal of Environmental Psychology, 31* (1), 1–13. <http://doi.org/10.1016/j.jenvp.2010.11.004>.
- Chan, L., & Bishop, B. (2013). A moral basis for recycling: Extending the theory of planned behaviour. *Journal of Environmental Psychology, 36*, 96–102. <http://doi.org/10.1016/j.jenvp.2013.07.010>.
- Cialdini, R. B. (2003). Crafting normative messages to protect the environment. *Current Directions in Psychological Science, 12* (4), 105–109. <http://doi.org/10.1111/1467-8721.01242>.
- Cialdini, R. B., Reno, R. R., & Kallgren, C. A. (1990). A focus theory of normative conduct: Recycling the concept of norms to reduce littering in public places. *Journal of Personality and Social*

- Psychology*, 58 (6), 1015–1026. Paimta is <http://doi.org/10.1037/0022-3514.58.6.1015>
- Crosen, R., Handy, F., & Shang, J. (2009). Keeping up with the Joneses: The relationship of perceived descriptive social norms, social information, and charitable giving. *Nonprofit Management and Leadership*, 19 (4), 467–489. <http://doi.org/10.1002/nml.232>.
- Dwyer, P. C., Maki, A., & Rothman, A. J. (2015). Promoting energy conservation behavior in public settings: The influence of social norms and personal responsibility. *Journal of Environmental Psychology*, 41 (1), 30–34. <http://doi.org/10.1016/j.jenvp.2014.11.002>.
- Ferguson, M. A., Branscombe, N. R., & Reynolds, K. J. (2011). The effect of intergroup comparison on willingness to perform sustainable behavior. *Journal of Environmental Psychology*, 31 (4), 275–281. <http://doi.org/10.1016/j.jenvp.2011.04.001>.
- Field, A. P., & Gillett, R. (2010). How to do a meta-analysis. *The British Journal of Mathematical and Statistical Psychology*, 63 (3), 665–694. <http://doi.org/10.1348/000711010X502733>.
- Gerber, A. S., & Rogers, T. (2009). Descriptive social norms and motivation to vote: Everybody's voting and so should you. *The Journal of Politics*, 71 (01), 178–191. <http://doi.org/10.1017/S0022381608090117>.
- 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. <http://doi.org/10.1086/586910>.
- Greaves, M., Zibarras, L. D., & Stride, C. (2013). Using the theory of planned behavior to explore environmental behavioral intentions in the workplace. *Journal of Environmental Psychology*, 34, 109–120. <http://doi.org/10.1016/j.jenvp.2013.02.003>.
- Griskevicius, V., Cantú, S. M., & Vugt, M. Van. (2012). The evolutionary bases for sustainable behavior: Implications for marketing, policy, and social entrepreneurship. *Journal of Public Policy & Marketing*, 31 (1), 115–128. <http://doi.org/10.1509/jppm.11.040>.
- Griskevicius, V., Cialdini, R. B., & Goldstein, N. J. (2008). Social norms: An underestimated and underemployed lever for managing climate change. *International Journal of Sustainability Communication*, 3, 5–13. Retrieved from <http://www.ecy.wa.gov/programs/wq/stormwater/municipal/MUNIdocs/SocialNormsResearch.pdf>.
- Huffman, A. H., Van Der Werff, B. R., Henning, J. B., & Watrous-Rodriguez, K. (2014). When do recycling attitudes predict recycling? An investigation of self-reported versus observed behavior. *Journal of Environmental Psychology*, 38, 262–270. <http://doi.org/10.1016/j.jenvp.2014.03.006>.
- Interis, M. G., & Haab, T. C. (2014). Norms, self-sanctioning, and contributions to the public good. *Journal of Environmental Psychology*, 38, 271–278. <http://doi.org/10.1016/j.jenvp.2014.03.004>.
- Jakovcevic, A., & Steg, L. (2013). Sustainable transportation in Argentina: Values, beliefs, norms and car use reduction. *Transportation Research Part F: Traffic Psychology and Behaviour*, 20, 70–79. <http://doi.org/10.1016/j.trf.2013.05.005>.
- Kallgren, C. A., Reno, R. R., & Cialdini, R. B. (2000). A focus theory of normative conduct: When norms do and do not affect behavior. *Personality and Social Psychology Bulletin*, 26 (8), 1002–1012. <http://doi.org/10.1177/01461672002610009>.
- Larimer, M. E., & Neighbors, C. (2003). Normative misperception and the impact of descriptive and injunctive norms on college student gambling. *Psychology of Addictive Behaviors*, 17 (3), 235–243. <http://doi.org/10.1037/0893-164X.17.3.235>.
- Lipsey, M. W., & Wilson, D. (2001). *Practical Meta-analysis*. Thousand Oaks: SAGE Publications, Inc.
- Minton, E., Lee, C., Orth, U., Kim, C., & Kahle, L. (2012). Sustainable marketing and social media: A cross-country analysis of motives for sustainable behaviors. *Journal of Advertising*, 41 (4), 69–84. <http://doi.org/10.2753/JOA0091-3367410405>.
- Nolan, J. M., Schultz, P. W., Cialdini, R. B., Goldstein, N. J., & Griskevicius, V. (2008). Normative social influence is underdetected. *Personality and Social Psychology Bulletin*, 34, 913–923. <http://doi.org/10.1177/0146167208316691>.
- Oreg, S., & Katz-Gerro, T. (2006). Predicting proenvironmental behavior cross-nationally: Values, the theory of planned behavior, and value-belief-norm theory. *Environment and Behavior*, 38 (4), 462–483. <http://doi.org/10.1177/0013916505286012>.
- R Development Core Team. (2012). *R: A language and environment for statistical computing*.

Vienna, Austria: the R Foundation for Statistical Computing. Retrieved from <http://www.r-project.org/>.

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. <http://doi.org/10.1037/0022-3514.64.1.104>.

Rosenthal, R. (1979). The “file drawer problem” and tolerance for null results. *Psychological Bulletin*, 86 (3), 638–641. <http://doi.org/10.1037/0033-2909.86.3.638>.

Schultz, W. P., Khazian, A. M., & Zaleski, A. C. (2008). Using normative social influence to promote conservation among hotel guests. *Social Influence*, 3 (1), 4–23. <http://doi.org/10.1080/15534510701755614>.

Smith, J. R., & Louis, W. R. (2008). Do as we say and as we do: the interplay of descriptive and injunctive group norms in the attitude-behaviour relationship. *The British Journal of*

*Social Psychology*, 47 (4), 647–666. <http://doi.org/10.1348/014466607X269748>.

Smith, J. R., Louis, W. R., Terry, D. J., Greenaway, K. H., Clarke, M. R., & Cheng, X. (2012). Congruent or conflicted? The impact of injunctive and descriptive norms on environmental intentions. *Journal of Environmental Psychology*, 32 (4), 353–361. <http://doi.org/10.1016/j.jenvp.2012.06.001>.

Sundie, J. M., Cialdini, R. B., Griskevicius, V., & Kenrick, D. T. (2012). The world’s (truly) oldest profession: Social influence in evolutionary perspective. *Social Influence*, 7 (3), 134–153. <http://doi.org/10.1080/15534510.2011.649890>.

White, K. M., Smith, J. R., Terry, D. J., Greenslade, J. H., & McKimmie, B. M. (2009). Social influence in the theory of planned behaviour: The role of descriptive, injunctive, and in-group norms. *The British Journal of Social Psychology*, 48 (1), 135–158. <http://doi.org/10.1348/014466608X295207>.

## SOCIALINIŲ NORMŲ PANAUDOJIMAS SKATINANT TVARIĄ ELGSENĄ: METAANALIZĖ

Mykolas Simas Poškus

### S a n t r a u k a

Šio tyrimo tikslas yra įvertinti socialinių normų efektyvumą skatinant tvarią elgseną. Tikslui pasiekti atlikta metaanalizė. Į analizę buvo įtraukti nuo 1990 metų recenzuojamuose žurnaluose išspausdintuose straipsniuose aprašyti eksperimentiniai tyrimai, kuriuose tvari elgsena skatinta pasitelkiant socialines normas. Renkant tyrimus analizei, nebuvo išskiriamos jokios populiacijos. Bendriems efekto dydžiams apskaičiuoti naudoti atsitiktinių efektų modeliai. Aptikta, kad socialinės normos gali būti sėkmingai panaudotos tvariai elgsenai paskatinti ( $d = 0,35$ , 95 proc. CI [0,13, 0,57]), jų efektyvumas didžiausias tada, kai jos naudojamos kasdienėse situ-

acijose ( $d = 0,52$ , 95 proc. CI [0,38, 0,65]), taip pat normomis pagrįstos intervencijos yra efektyvesnės, nei alternatyvūs kreipimaisi, skirti paskatinti tvarią elgseną ( $d = 0,18$ , 95 proc. CI [0,03, 0,32]). Daroma išvada, kad socialinėmis normomis pagrįstos intervencijos efektyviai skatina tvarią elgseną. Siekiant paskatinti tvarią elgseną, ypač rekomenduojama kaip įrankį pasitelkti socialines normas, nes socialinių normų naudojimas yra įrodymais pagrįstas ir efektyvus būdas paskatinti norimą elgseną.

**Pagrindiniai žodžiai:** socialinės normos, apsakomosios normos, privalomosios normos, tvari elgsena.

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