

PREDICTING RECYCLING BEHAVIOR BY INCLUDING MORAL NORMS INTO THE THEORY OF PLANNED BEHAVIOR

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 theory of planned behavior is a popular and well grounded model of predicting and explaining behavior; however, some researchers propose that in the case of sustainable behavior the model could benefit from the inclusion of moral norms as an additional variable. A paper-and-pencil survey has been carried out to test the assumption that the addition of moral norms can improve the theory of planned behavior in the case of recycling behavior. A sample of 142 university students participated in the study, their mean age was 20 years ($SD = 2.5$). Participants filled in questionnaires that measured constructs of the theory of planned behavior and moral norms regarding recycling. The results have shown that in the case of recycling behavior, the addition of moral norms to the theory of planned behavior increases the amount of explained behavioral variance. These findings suggest that when using the theory of planned behavior for recycling and perhaps sustainable behavior in general, researchers should consider adding moral norms as an additional predictor of behavioral intention and perhaps behavior as well.

Keywords: recycling, theory of planned behavior, TPB, moral norms.

Introduction

Working on saving the natural environment is a hard and complicated task. Some researchers strive to understand what drives sustainable behavior as a whole (Ballantyne & Packer, 2005, 2011; Iveroth & Bengtsson, 2014; Peters, Sinclair, & Fudge, 2012; Sahin, Ertepinar, & Teksoz, 2012), while others focus on specific behaviors that might contribute to saving or preserving the natural environment (Young, Hwang, McDonald, & Oat-

es, 2010; Jakovcevic & Steg, 2013; Liu, Wang, Shishime, & Fujitsuka, 2012; Spence, Leygue, Bedwell, & O'Malley, 2014). One common behavior that contributes to sustainability is recycling (Chan & Bishop, 2013; Huffman, Van Der Werff, Henning, & Watrous-Rodriguez, 2014; Tonglet, Phillips, & Read, 2004; Wan, Shen, & Yu, 2014). Most people have the means to recycle trash, therefore, understanding what motivates this behavior may bring us closer to the ways of effectively encouraging it. One of the most common ways to

predict and explain recycling and sustainable behavior in general is the theory of planned behavior.

The theory of planned behavior and ways to extend it

The theory of planned behavior (TPB, see Figure 1) is a general model aimed at predicting and explaining human behavior (Ajzen, 1991, 2011). This theory is especially valuable in predicting sustainable behavior. As a matter of fact, when compared to the widely used value-belief-norm model (Stern & Dietz, 1994), TPB has been shown to be better at predicting and explaining sustainable behavior (Aguilar-Luzón, García-Martínez, Calvo-Salguero, & Salinas, 2012). Perhaps because of its universality the TPB has become one of the most frequently used models for predicting human behavior (Ajzen, 2011).

The TPB is used to study a wide spectrum of sustainable behaviors. For example, it has been used to predict recycling (Chan & Bishop, 2013; Wan et al., 2014), sustainable transportation use (Donald, Cooper, & Conchie, 2014), sustainable consumption (Richetin et al., 2012), household energy-saving (Webb, Soutar, Maz-

zarol, & Saldaris, 2013), personal stance on sustainable development (Read, Brown, Thorsteinsson, Morgan, & Price, 2013), or a combination of these behaviors (Oreg & Katz-Gerro, 2006; Whitmarsh & O’Neill, 2010). It is apparent that the theory of planned behavior is a powerful framework for sustainable behavior research and can be applied to most behaviors.

Despite being widely used to predict and explain sustainable behavior, the amount of behavioral variance that the TPB can explain is inconsistent among behaviors and varies among studies (Aguilar-Luzón et al., 2012). As a matter of fact, Ajzen (1991) states that the theory of planned behavior generally can explain about 25% to 30% of behavioral variance. However, in one example the behavioral intention of conservation behavior was found to explain 95% of behavioral variance (Kaiser, Hubner, & Bogner, 2005), in still another case the explained variance of behavioral intention to recycle reaches 99% (Taylor & Todd, 1995). As Taylor & Todd (1995) state, high explained variances in TPB models can occur because of high inter-correlations between the TPB constructs.

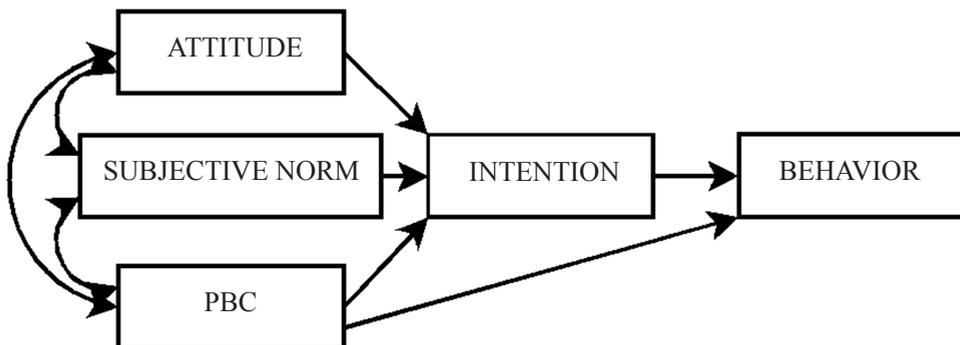


Figure 1. The classical model of the theory of planned behavior (Ajzen, 1991). PBC – perceived behavioral control.

The ability to predict sustainable behavior with the theory of planned behavior is often compared to that of the value-belief-norm (VBN) model (Aguilar-Luzón et al., 2012; Kaiser et al., 2005). Both models accentuate the cognitive aspects and normative influences on behavior, however, their approach to explain behavior somewhat differs in that the VBN model accentuates the influential role of values in forming personal attitudes and moral norms towards a certain behavior (Aguilar-Luzón et al., 2012; Jakovcevic & Steg, 2013; Oreg & Katz-Gerro, 2006; Stern, 2000). Despite both models being well grounded in empirical data and widely used, the TPB, albeit being a general theory of predicting and explaining behavior, has been shown to have a better predictive power than the VBN model (Aguilar-Luzón et al., 2012; Kaiser et al., 2005). This, however, does not mean that one model is better than the other; in fact, it may be reasonable to integrate the two models (Oreg & Katz-Gerro, 2006; Paillé & Boiral, 2013) at least in part to achieve a broader understanding of the underlying antecedents of behavior.

The theory of planned behavior also has some similarities to the norm activation model (NAM; Schwartz, 1973, 1977). Personal norms are the main constructs of the NAM that predict individual behavior (Schwartz, 1977), while personal norms in the TPB are just one of three constructs that predict intention to perform a certain behavior (Ajzen, 1991). The norm activation model was developed in the context of altruistic behavior, therefore, unlike in the TPB, in the NAM personal norms do not predict intentions nor are they intentions themselves; rather, they are described as moral obligations or feelings that drive

behavior (Schwartz, 1977). According to Schwartz (1977), personal norms are determined by the awareness of the consequences of a certain behavior (or the lack thereof) and the feeling of responsibility for performing (or not performing) these behaviors. It may be argued that while in the TPB norms represent perceived guidelines of behavior, the NAM focuses more on the moral basis of personal norms; therefore, the two constructs cannot be treated as identical.

Because of the similarities of the constructs used, some researchers have integrated the NAM with the TPB (Bamberg, Hunecke, & Blöbaum, 2007; Bamberg & Möser, 2007; Huijts, Molin, & van Wee, 2014; Onwezen, Antonides, & Bartels, 2013). These studies have found that the influence of personal norms on behavior, as one would expect in the light of the TPB, is mediated by behavioral intentions, and that including behavioral intention in the NAM substantially increases the explained variance in behavior. Conversely, introducing personal norms, as they are described in the NAM, into the TPB also increases the explained variance of behavioral intentions and behavior (Harland, Staats, & Wilke, 1999).

Extending the theory of planned behavior with moral norms

Moral norms may play a significant role in sustainable behavior (Jakovcevic & Steg, 2013), and adding moral norms (among other variables) to the TPB can in some cases improve the model's predictive ability (Donald et al., 2014). Furthermore, what the VBN and NAM models seem to have in common, and what separates them from the TPB, is a strong emphasis on

the moral component of behavior. While integrating several complex models may indeed improve the overall quantity of explained behavior, the end result may be an overly complex model. Science favors parsimony, therefore an overly complex model may be unusable in real life situations. It is believed by the author of the present study that integrating moral norms into the TPB is an efficient extension of the TPB that addresses its lack of regard towards the moral aspects of behavior. Some research even suggests that moral norms can successfully replace attitudes towards behavior in the TPB (Chan & Bishop, 2013) at least in the case of recycling behavior. However, expanding the TPB with moral norms is not widely practiced, and more research is needed to further ground the place of moral norms in the TPB.

The present study is aimed at investigating several possible models incorporating moral norms into the theory of planned behavior (see Figure 2). Model A is based

on the findings of Chan & Bishop (2013) and completely replaces attitudes with moral norms. Since in the value-belief-norm model personal norms are assumed to have a direct effect on behavior (Aguilar-Luzón et al., 2012; van Riper & Kyle, 2014), Model B includes a direct relationship between moral norms and behavior. Model C and Model D incorporate moral norms into the theory of planned behavior without removing attitudes.

Method

Participants. A convenience sample of 142 university students from various study programs participated in the study. Mean participant age was 20 years ($SD = 2.5$); 33 were male, 87 were female, and 22 did not specify their gender. According to Kline (2011), the sample size for a structural equation should be proportional to the number of parameters estimated in the model; a model should have at least a 5 to 1 ratio of participants to parameters. In the

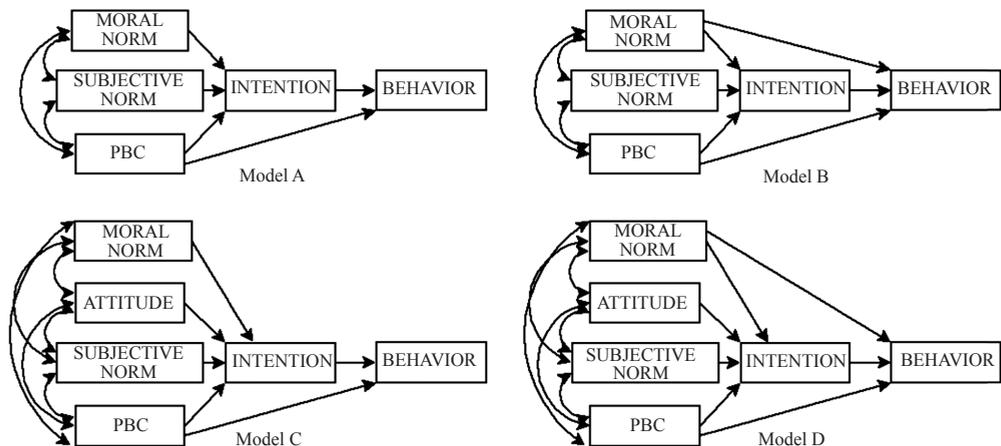


Figure 2. Four models integrating moral norms into the theory of planned behavior. PBC – perceived behavioral control. Model A and Model C are based on Chan & Bishop (2013)

present study, the number of parameters estimated in the most complex model is 19, and the participant-to-parameter ratio for that model is 7.5 to 1, which is an acceptable ratio.

Attitudes towards recycling were assessed with the statement “If in the following month I will recycle trash, my behavior will be...” followed by four word pairs in a 7-point semantic differential scale: “harmful – beneficial”, “blameworthy – praiseworthy”, “bad – good”, “unethical – ethical”. The scale showed a sufficient internal consistency ($\alpha = 0.74$, 95% CI [0.60, 0.87]; $\omega = 0.77$). The scale was constructed referring to the general recommendations for constructing a TPB questionnaire (Ajzen, 2006).

Recycling moral norms were assessed with the following four items based on Tonglet, Philips & Read (2004) and Chan & Bishop (2013): “my beliefs tell me to recycle trash”, “everyone should make a collective effort to recycle trash”, “I would feel guilty if I didn’t recycle trash”, “it would be bad of me not to recycle trash”. The scale showed good internal consistency ($\alpha = 0.82$, 95% CI [0.71, 0.93]; $\omega = 0.83$).

Subjective norm on recycling was assessed, similarly to Tonglet et al. (2004), with two items: “people who are important to me, whom I like and respect, would agree with my decision to recycle trash” and “it is important to me what the people who are important to me, whom I like and respect, think about my decision to recycle”. The items were rated on a 7-point Likert scale from completely disagree (1) to completely agree (7). The subjective norm score was computed by multiplying the scores of the two items.

Perceived behavioral control was assessed referring to the general recommendations for TPB questionnaires (Ajzen, 2006). Two statements were presented and were followed by word or sentence pairs rated in a 7-point semantic differential scale. The first statement was directed at the capability to perform a behavior: “in the upcoming months, for me recycling would be...”, this statement was followed by the word pairs “complex – simple”, “difficult – easy”, and “impossible – possible” ($\alpha = 0.86$, 95% CI [0.73, 0.99]; $\omega = 0.90$). The second statement was directed at the controllability of the behavior: “my recycling in the upcoming month is...”, this statement was followed by the sentence pairs “completely not up to me – completely up to me” and “not in my power – completely in my power” ($\alpha = 0.73$, 95% CI [0.49, 0.97]; $\omega = 0.73$). The word and sentence pair ratings of each of the two items were averaged and multiplied to compute the perceived behavioral control score.

Recycling intention and behavior were assessed with one item each. Intention to recycle was assessed with the item “in the following month I intend to (I know that I will truly do that) recycle” rated on a 7-point Likert scale from “completely disagree” (1) to “completely agree” (7). Recycling behavior was assessed with the item “last month I recycled trash” rated on a 7-point Likert scale from “never” (1) to “always” (7).

Procedure. Participants filled in the questionnaires during lectures, they were assured that the questionnaire was anonymous and that they had the option not to fill in the questionnaire or not to answer any questions they did not want to an-

swer. The present study is a part of a larger study, and the participants had to fill in additional measures that are not discussed in this paper.

Results

A factor analysis with at fixed two-factor solution using the maximum likelihood estimator and the *promax* rotation method was run to determine whether moral norms and attitudes toward behavior formed two distinct factors. All items loaded into their predicted factors with factor loadings greater than 0.4, the model showed good fit ($\chi^2(13) = 18.42, p = 0.14$; RMSEA = 0.06, 90% CI [0, 0.11]; TLI = 0.97). The factors were only slightly correlated ($r = 0.21$). This implies a discriminant validity between moral norms and attitudes in the present study.

A correlation analysis was run to explore the linear relationships among all of the variables (see Table 1). The analysis revealed that there were no significant linear relationships between attitudes and other variables. This may be due to the low variability of the attitude scores, as the participants appear to have indicated their attitudes in a very socially desirable manner, which also resulted in a noticeable deviation from normality in the scores. Moral norms, however, were strongly correlated with other constructs of the theory of planned behavior.

To establish a base against which other models could be compared, the first path model that was tested was the classical model of the theory of planned behavior. The model fit information for this and other models are presented in Table 2. The clas-

Table 1. Descriptives of observed variables and Pearson correlations among them

Variables	M [95% CI]	SD [95% CI]	S	K	r [95% CI]				
					1	2	3	4	5
1. Attitude	6.63 [6.52, 6.73]	0.61 [0.49, 0.72]	-2.10	5.19	1				
2. Moral norm	4.72 [4.50, 4.93]	1.27 [1.14, 1.40]	-0.46	-0.11	0.16 [-0.04, 0.37]	1			
3. Subjective norm	24.60 [22.64, 26.58]	12.24 [11.11, 13.28]	0.24	-0.75	0.04 [-0.11, 0.21]	0.38* [0.23, 0.51]	1		
4. PBC	26.80 [24.75, 28.84]	13.00 [12.00, 13.88]	0.01	-0.93	0.15 [-0.02, 0.29]	0.44* [0.27, 0.57]	0.28* [0.12, 0.42]	1	
5. Intention	4.13 [3.83, 4.44]	1.77 [1.62, 1.91]	-0.25	-0.85	0.12 [-0.07, 0.33]	0.66* [0.56, 0.75]	0.48* [0.32, 0.63]	0.47* [0.33, 0.60]	1
6. Behavior	2.94 [2.61, 3.26]	1.92 [1.75, 2.07]	0.59	-0.82	0.05 [-0.12, 0.21]	0.63* [0.51, 0.73]	0.34* [0.17, 0.49]	0.47* [0.32, 0.59]	0.71* [0.61, 0.79]

Notes. CI – confidence intervals, S – skewness, K – kurtosis, PBC – perceived behavioral control, * $p < 0.01$. Confidence intervals are bias-corrected and accelerated, the results are bootstrapped using 2000 samples.

sical model fit the data well, as did Model B and Model D. While comparing Model B and Model D against the classical model, we must consider factors other than model fit. The classical model has the Bayesian information criterion value of 65.42, while Model D has a value of 96.22. When eva-

luating models, a lower BIC is preferred, and it is suggested that a BIC difference of 5 indicates a possible difference in models while a BIC difference of 10 or greater is regarded as a strong evidence for model difference (Raftery, 1993, 1995). Therefore, Model D can be disregarded on the

Table 2. Fit statistics of all tested models

Criterion or fit index	Classical model	Model A	Model B	Model C	Model D
χ^2 (df)	0.99 (2)	11.16* (2)	0.33 (1)	12.88* (3)	2.05 (2)
TLI	1.03	0.83	1.03	0.82	1
RMSEA [90% CI]	0 [0, 0.14]	0.18 [0.09, 0.29]	0 [0, 0.19]	0.15 [0.07, 0.24]	0.01 [0, 0.17]
BIC	65.42	75.59	69.72	102.09	96.22

Note. *p < 0.01. CI – confidence interval.

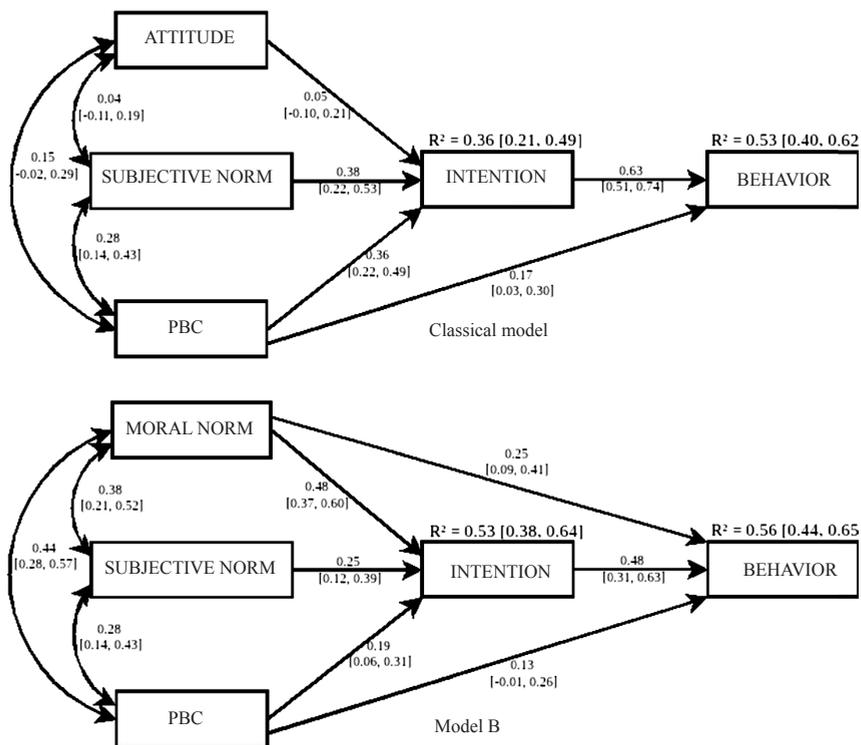


Figure 3. Path analysis results with 95% bias-corrected percentile confidence intervals for the classical TPB model and Model B. PBC – perceived behavioral control. The results are bootstrapped with 1000 samples.

grounds of being too complex and substantially inferior to the classical model and Model B. Model B, however, differs from the classical model only slightly, with a BIC difference of 4.3. Although the classical model is more parsimonious, Model B can explain much more of recycling intention and slightly more recycling behavior (see Figure 3). Therefore, adding moral norms to the theory of planned behavior increases its predictive power.

There is no support, however, for replacing attitudes with moral norms, since in the present study attitudes did not function as a significant predictor of intention, neither did attitudes show convergent validity with moral norms. Moral norms, on the other hand, not only significantly contribute to recycling intention, but to recycling behavior as well.

Discussion

In the present study, recycling moral norms and attitudes were found to form two distinct factors and did not show convergent validity, which is quite different from what Chan & Bishop (2013) found. This is most likely due to the fact that the attitudes towards recycling were quite skewed because of participants' responding in a very socially desirable manner. On the other hand, these findings suggest that perhaps attitudes and moral norms should not be regarded as identical and interchangeable.

Even though attitudes towards recycling did not significantly contribute to any of the tested models, while recycling moral norms, conversely, were a significant predictor not only of recycling intention, but of recycling behavior as well; this in no way shows that recycling attitudes can be replaced by recycling moral norms.

Additionally, the findings of the present study differ from previous research where recycling moral norms were a predictor of recycling intention only (Chan & Bishop, 2013; Donald et al., 2014). This shows that moral norms, at least in the present study, function differently than what is expected of attitudes.

It appears that the recycling behavior is in a large part morally driven, which is evident by the fact that the effects of recycling moral norms on recycling behavior are not only mediated by recycling intention, but a direct relationship between recycling moral norms and recycling behavior can be observed. These results are reminiscent of the VBN model (Stern, 2000) where the sense of obligation to perform a certain behavior is linked directly to that behavior, and of the NAM model (Schwartz, 1977) where the main predictor of behavior is conceptualized as feelings of moral obligation to perform a certain behavior. However, in the present study, even after adding recycling moral norms as an additional predictor of recycling behavior, intention remained the strongest predictor of recycling behavior. On the one hand, this shows that the TPB can be considered a sufficiently strong model by itself. On the other hand, this shows that the classical model of the TPB can certainly benefit from the inclusion of moral norms, at least in the case of recycling behavior and perhaps sustainable behavior in general (Chan & Bishop, 2013; Donald et al., 2014); the inclusion of moral norms can provide a wider understanding of why a person chooses to behave in one way or another.

The present study, as all research, has its limitations. First of all, the convenience sample used in the present study was suf-

ficient for path-analytical models only, and the future research should strive to gather samples that are sufficient to use latent variables. Secondly, the fact that respondents filled in the measures of recycling attitudes in a socially desirable way may be considered as a limiting factor. Other researchers have noted that recycling attitudes often differ from actual recycling behaviors (Huffman et al., 2014; Thøgersen, 2014); and it is difficult to solve this divide by using self-report measures; however, further research could be carried out using more discrete

measures of attitudes towards behavior than the semantic differential scale.

In summary, it can be concluded that on its own the theory of planned behavior is a strong and time-tested model of predicting behavior (Ajzen, 2011), but it neglects the moral component which, as evident by the present study, can be a strong predictor of behavior as well. It would be not only reasonable, but also wise to include moral norms in the theory of planned behavior as a predictor of behavioral intention and perhaps behavior as well (at least in the case of recycling).

REFERENCES

- Aguilar-Luzón, M. D. C., García-Martínez, J. M. Á., Calvo-Salguero, A., & Salinas, J. M. (2012). Comparative study between the theory of planned behavior and the value-belief-norm model regarding the environment, on Spanish housewives' recycling behavior. *Journal of Applied Social Psychology, 42* (11), 2797–2833. <http://doi.org/10.1111/j.1559-1816.2012.00962.x>.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50* (2), 179–211. [http://doi.org/10.1016/0749-5978\(91\)90020-T](http://doi.org/10.1016/0749-5978(91)90020-T).
- Ajzen, I. (2006). Constructing a TPB questionnaire: Conceptual and methodological considerations. Retrieved from http://chuang.epage.au.edu.tw/ezfiles/168/1168/attach/20/pta_41176_7688352_57138.pdf.
- Ajzen, I. (2011). The theory of planned behaviour: Reactions and reflections. *Psychology & Health, 26* (9), 1113–1127. <http://doi.org/10.1080/08870446.2011.613995>.
- Ballantyne, R., & Packer, J. (2005). Promoting environmentally sustainable attitudes and behaviour through free-choice learning experiences: What is the state of the game? *Environmental Education Research, 11* (3), 281–295. <http://doi.org/10.1080/13504620500081145>.
- Ballantyne, R., & Packer, J. (2011). Using tourism free-choice learning experiences to promote environmentally sustainable behaviour: The role of post-visit “action resources.” *Environmental Education Research, 17* (2), 201–215. <http://doi.org/10.1080/13504622.2010.530645>.
- Bamberg, S., Hunecke, M., & Blöbaum, A. (2007). Social context, personal norms and the use of public transportation: Two field studies. *Journal of Environmental Psychology, 27* (3), 190–203. <http://doi.org/10.1016/j.jenvp.2007.04.001>.
- Bamberg, S., & Möser, G. (2007). Twenty years after Hines, Hungerford, and Tomera: A new meta-analysis of psycho-social determinants of pro-environmental behaviour. *Journal of Environmental Psychology, 27* (1), 14–25. <http://doi.org/10.1016/j.jenvp.2006.12.002>.
- 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>.
- Donald, I. J., Cooper, S. R., & Conchie, S. M. (2014). An extended theory of planned behaviour model of the psychological factors affecting commuters' transport mode use. *Journal of Environmental Psychology, 40*, 39–48. <http://doi.org/10.1016/j.jenvp.2014.03.003>.
- Harland, P., Staats, H., & Wilke, H. A. M.

- (1999). Explaining proenvironmental intention and behavior by personal norms and the theory of planned behavior. *Journal of Applied Social Psychology, 29* (12), 2505–2528. <http://doi.org/10.1111/j.1559-1816.1999.tb00123.x>.
- 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>.
- Huijts, N. M. A., Molin, E. J. E., & van Wee, B. (2014). Hydrogen fuel station acceptance: A structural equation model based on the technology acceptance framework. *Journal of Environmental Psychology, 38*, 153–166. <http://doi.org/10.1016/j.jenvp.2014.01.008>.
- Iveroth, E., & Bengtsson, F. (2014). Changing behavior towards sustainable practices using Information Technology. *Journal of Environmental Management, 139*, 59–68. <http://doi.org/10.1016/j.jenvman.2013.11.054>.
- 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>.
- Kaiser, F. G., Hubner, G., & Bogner, F. X. (2005). Contrasting the theory of planned behavior with the value-belief-norm model in explaining conservation behavior. *Journal of Applied Social Psychology, 35* (10), 2150–2170. <http://doi.org/10.1111/j.1559-1816.2005.tb02213.x>.
- Kline, R. B. (2011). *Principles and practice of structural equation modeling* (3rd ed.). New York: The Guilford Press.
- Liu, X., Wang, C., Shishime, T., & Fujitsuka, T. (2012). Sustainable consumption: Green purchasing behaviours of urban residents in China. *Sustainable Development, 20* (4), 293–308. <http://doi.org/10.1002/sd.484>.
- Onwezen, M. C., Antonides, G., & Bartels, 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. <http://doi.org/10.1016/j.joep.2013.07.005>.
- 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>.
- Paillé, P., & Boiral, O. (2013). Pro-environmental behavior at work: Construct validity and determinants. *Journal of Environmental Psychology, 36*, 118–128. <http://doi.org/10.1016/j.jenvp.2013.07.014>.
- Peters, M., Sinclair, P., & Fudge, S. (2012). The potential for community groups to promote sustainable living. *The International Journal of Interdisciplinary Social Sciences, 6* (8), 35–54. Retrieved from <http://centaur.reading.ac.uk/29445/>.
- Raftery, A. E. (1993). Bayesian model selection in structural equation models. In K. A. Bollen & J. S. Long (Eds.), *Testing Structural Equation Models* (pp. 163–180). Beverly Hills: Sage.
- Raftery, A. E. (1995). Bayesian model selection in social research. *Sociological Methodology, 25*, 111–163. <http://doi.org/10.2307/271063>.
- Read, D. L., Brown, R. F., Thorsteinsson, E. B., Morgan, M., & Price, I. (2013). The theory of planned behaviour as a model for predicting public opposition to wind farm developments. *Journal of Environmental Psychology, 36*, 70–76. <http://doi.org/10.1016/j.jenvp.2013.07.001>.
- Richetin, J., Perugini, M., Conner, M., Adjali, I., Hurling, R., Sengupta, A., & Greetham, D. (2012). To reduce and not to reduce resource consumption? That is two questions. *Journal of Environmental Psychology, 32* (2), 112–122. <http://doi.org/10.1016/j.jenvp.2012.01.003>.
- van Riper, C. J., & Kyle, G. T. (2014). Understanding the internal processes of behavioral engagement in a national park: A latent variable path analysis of the value-belief-norm theory. *Journal of Environmental Psychology, 38*, 288–297. <http://doi.org/10.1016/j.jenvp.2014.03.002>.
- Sahin, E., Ertepinar, H., & Teksoz, G. (2012). University students' behaviors pertaining to sustainability: A structural equation model with sustainability-related attributes. *International Journal of Environmental & Science Education, 7* (3), 459–478. Retrieved from <http://eric.ed.gov/?id=EJ990528>.
- Schwartz, S. H. (1973). Normative explanations of helping behavior: A critique, proposal, and empirical test. *Journal of Experimental Social Psychology, 9* (4), 349–364. [http://doi.org/10.1016/0022-1031\(73\)90071-1](http://doi.org/10.1016/0022-1031(73)90071-1).
- Schwartz, S. H. (1977). Normative influences on altruism. In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology* (Vol. 10, pp. 221–279).

New York: Academic Press. [http://doi.org/10.1016/S0065-2601\(08\)60358-5](http://doi.org/10.1016/S0065-2601(08)60358-5).

Spence, A., Leygue, C., Bedwell, B., & O'Malley, C. (2014). Engaging with energy reduction: Does a climate change frame have the potential for achieving broader sustainable behaviour? *Journal of Environmental Psychology, 38*, 17–28. <http://doi.org/10.1016/j.jenvp.2013.12.006>.

Stern, P. C. (2000). New environmental theories: Toward a coherent theory of environmentally significant behavior. *Journal of Social Issues, 56* (3), 407–424. <http://doi.org/10.1111/0022-4537.00175>.

Stem, P. C., & Dietz, T. (1994). The value basis of environmental concern. *Journal of Social Issues, 50*(3), 65–84. <http://doi.org/10.1111/j.1540-4560.1994.tb02420.x>.

Taylor, S., & Todd, P. (1995). An integrated model of waste management behavior: A test of household recycling and composting intentions. *Environment and Behavior, 27* (5), 603–630. <http://doi.org/10.1177/0013916595275001>.

Thøgersen, J. (2014). Unsustainable consumption. *European Psychologist, 19* (2), 84–95. <http://doi.org/10.1027/1016-9040/a000176>.

Tonglet, M., Phillips, P. S., & Read, A. D. (2004). Using the theory of planned behaviour to

investigate the determinants of recycling behaviour: A case study from Brixworth, UK. *Resources, Conservation and Recycling, 41* (3), 191–214. <http://doi.org/10.1016/j.resconrec.2003.11.001>.

Wan, C., Shen, G. Q., & Yu, A. (2014). The moderating effect of perceived policy effectiveness on recycling intention. *Journal of Environmental Psychology, 37*, 55–60. <http://doi.org/10.1016/j.jenvp.2013.11.006>.

Webb, D., Soutar, G. N., Mazzarol, T., & Saldaris, P. (2013). Self-determination theory and consumer behavioural change: Evidence from a household energy-saving behaviour study. *Journal of Environmental Psychology, 35*, 59–66. <http://doi.org/10.1016/j.jenvp.2013.04.003>.

Whitmarsh, L., & O'Neill, S. (2010). Green identity, green living? The role of pro-environmental self-identity in determining consistency across diverse pro-environmental behaviours. *Journal of Environmental Psychology, 30* (3), 305–314. <http://doi.org/10.1016/j.jenvp.2010.01.003>

Young, W., Hwang, K., McDonald, S., & Oates, C. J. (2010). Sustainable consumption: Green consumer behaviour when purchasing products. *Sustainable Development, 18*, 20–31. <http://doi.org/10.1002/sd.394>.

ATLIEKŲ RŪŠIAVIMO PROGNOZAVIMAS Į PLANUOTO ELGESIO TEORIJĄ ĮTRAUKUS MORALĖS NORMAS

Mykolas Simas Poškus

S a n t r a u k a

Planuoto elgesio teorija yra populiarus ir tvirtai pagrįstas modelis, kuriuo prognozuojama ir aiškinama elgsena. Kai kurie tyrėjai, tiriantys tvarią elgseną, mano, kad planuoto elgesio teoriją galima pagerinti į ją kaip papildomą kintamąjį įtraukus moralės normas. Atlikta apklausa, kurios tikslas – patikrinti prielaidą, kad moralės normos gali pagerinti planuoto elgesio teoriją bent tuo atveju, kai tiriama atliekų rūšiovimo elgsena. Apklausti 142 universiteto studentai, kurių amžiaus vidurkis buvo 20 metų (SD = 2,5). Dalyviai užpildė klausimynus, kuriais vertinti pla-

nuoto elgesio teorijos konstruktai bei moralės normos rūšiovimo elgsenos atžvilgiu. Atskleista, kad atliekų rūšiovimo atveju, įtraukus moralės normas į planuoto elgesio teoriją, modelis leidžia paaiškinti daugiau elgsenos. Tokie rezultatai rodytų, kad, naudojant planuoto elgesio teoriją, tiriant rūšiovimo ar apskritai tvarią elgseną, prasminga į modelį įtraukti moralės normas kaip papildomą kintamąjį elgtis ar netgi elgsenos prediktorių.

Pagrindiniai žodžiai: rūšiovimas, planuoto elgesio teorija, moralės normos.

Įteikta 2015 0813