PERSONAL NORM AND PRO-ENVIRONMENTAL CONSUMER BEHAVIOR: AN APPLICATION OF NORM ACTIVATION THEORY

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Abstract

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Research Aims: *This study aims to fill the research gap from previous research regarding personal norms in explaining pro-environmental behavior, which does not involve awareness of consequences and ascription of responsibility as antecedents to activate personal norms. Therefore, this study tries to examine personal norms based on norm activation theory in explaining behavior.*

Design/methodology/approach: *The final sample size is 300 respondents selected through purposive sampling technique. Primary data is collected through a closed-end questionnaire. Data analysis consists of two stages, namely the confirmatory factor analysis and structural equation model.*

Research Findings: *Awareness of consequences and ascription of responsibility significantly form a personal norm as a core factor of the norm activation theory. Consumers feel that they have a moral obligation concerning the environment. Active personal norm, successfully forming both intention and actual behavior in the context of sorting out waste. In the downstream stage of consumer behavior, it will lead to becoming pro-environmental consumer behavior based on altruistic values.*

Theoretical Contribution/Originality: *Personal norm is proven to be activated by awareness of consequences and ascription of responsibility. Active personal norm will lead to affect behavior, with or without being preceded by intention.*

Practitioner/Policy Implication: *Social marketers can encourage consumers to behave pro-environmentally by activating the personal norm from their target audience first.*

Research limitation/Implications: *This study was conducted in a cross-sectional period. Therefore, future studies will be more robust if the actual behavior is measured in a longitudinal period.*

Keywords: Personal norm, norm activation theory, social marketing, pro-environmental consumer behavior, waste sorting behavior

INTRODUCTION

The daily behavior of consumers is a good starting point in contributing to environmental sustainability. This is related to consumers' routine behavior in choosing, using (consuming), and disposing of products, which have a significant proportion of impact on environmental sustainability (Benedetti & Laureti, 2017; Moser, 2015).

There are at least seven clusters related to pro-environmental consumer behavior, namely: waste reduction, eco-shopping and eating, regular water and domestic energy conservation, one-off domestic energy conservation actions, eco-driving, political actions, dan reducing car use and flights (Whitmarsh & O'Neill, 2010).

In this context, social marketing has emerged as a popular and straightforward approach to promoting pro-environmental behavior (Jesson, 2009; Setiawan, Afiff, & Heruwasto, 2020, 2021; Takahashi, 2009). Social marketing principles and techniques can benefit society in general and targeted audiences, particularly in comprehensive ways. Four main domains have been the focus of social marketing efforts over the years: health promotion, injury or accident prevention, environmental protection, and community mobilization (Kotler & Lee, 2008). Sorting out waste is one of the behaviors that become a primary concern in social marketing. The results of a literature study conducted by Kim et al. (2019) revealed that waste sorting is the most commonly targeted behavior in research that focuses on pro-environmental behavior. Therefore, on the downstream side of consumer behavior, waste sorting behavior is a specific behavior from consumers concerned about the environment.

There are various theoretical perspectives on which the researchers base their study of pro-environmental consumer behavior from multiple contexts. One of them is a theoretical perspective that focuses on the role of consumers' moral obligation to act that will benefit others. In this perspective, the personal norm will be active when a consumer is aware of the consequences of the behavior and the feeling of being responsible for the action. This perspective is based on the concept of Norm activation theory by Schwartz (1977).

Previous research found that in the context of sorting and managing household waste, personal norms were shown to influence intentions significantly (Botetzagias, Dima, & Malesios, 2015; Fan, Yang, & Shen, 2019; Ma, Hipel, Hanson, Cai, & Liu, 2018; Nguyen, Zhu, & Le, 2015; Setiawan et al., 2020, 2021; Wan, Shen, & Choi, 2017; Wang, Wang, Zhao, & Yang, 2019; Zhang, Lai, Wang, & Wang, 2019). The research gap that arises is awareness of the consequences and ascription of responsibility, not yet involved as antecedents to activate personal norm in explaining intentions and behavior.

Therefore, this study aims to fill the research gap by examining the role of personal norms based on norm activation theory in explaining behavior. Waste sorting behavior becomes a focus of this study as one of the central clusters of pro-environmental consumer behavior.

LITERATURE REVIEW

Awareness of Consequences

In the early stages of activation, a person's personal norm will be triggered by an awareness of the consequences of not behaving pro-environmentally. This will then produce a person's feelings of moral obligation formed by personal norms (Schwartz, 1977). Awareness of consequences is a condition when a person realizes negative consequences for others or other things that a person values when they do not behave altruistically (Bamberg, Hunecke, & Blo¨baum, 2007; De Groot & Steg, 2009). Awareness of the consequences is also the level of

a person's belief that actions (which he/she does or does not do) can worsen a problem (Lauper, Moser, Fischer, & Matthies, 2016).

Awareness of the consequences is often used as a term that describes a person's instrumental attitude, measured from a utilitarian perspective, referring to the difference between the benefits and costs related to behavior outcomes (Tonglet, Phillips, & Read, 2004; Wan et al., 2017).

> H_1: Awareness of consequences has a positive and significant effect on the personal norm

Ascription of Responsibility

Besides being activated by awareness of the consequences, the personal norm is also activated by an ascription of responsibility. When these two conditions meet, a person's personal norm will become active, thus forming a feeling of personal obligation that guides behavior (Schwartz, 1977). Initially, the ascription of responsibility is defined as a feeling of responsibility from the negative consequences of not behaving in a pro-social manner (Bamberg et al., 2007; De Groot & Steg, 2009). Therefore, when someone realizes the negative consequences of not behaving pro-environmentally, that person will prefer to attribute these adverse consequences to himself as a consumer and assume responsibility for not having concern for the environment.

Referring to research from Bamberg et al. (2007) and Xiao et al. (2017), it is known that community members will believe that they have a moral obligation to sort waste when they feel that they have a shared responsibility for the negative consequences of not sorting waste. Conversely, when community members do not assign negative consequences for themselves and deny feeling responsible, their personal norms will not be formed (Bamberg et al., 2007; Xiao et al., 2017). This argument provides a strong foundation that taking responsibility for the negative consequences does not sort out household waste, is positively related to personal norms. Besides, when consumers feel that they have a moral obligation to sort waste, they are more likely to sort waste in their daily lives (Saphores, Ogunseitan, & Shapiro, 2012; Setiawan et al., 2020, 2021).

> H_2: Ascription of responsibility has a positive and significant effect on the personal norm.

Personal Norm

Personal norm is a core component in the NAT model, defined as a feeling of a moral obligation to perform or refrain from a specific action (Schwartz, 1977). The term personal norm is used to signify self-expectations based on internalized values, personalities, and habits, for particular activities in certain situations developed by individuals, as a feeling of a moral obligation to behave. Therefore, this personal norm is different from subjective norms that focus more on the normative influence of other people and groups considered important.

Besides, personal norms play a role as an intrinsic factor that influences waste sorting intention and behavior (Park & Ha, 2014). The research synthesis results also show that personal norms play an important role as an intrinsic factor that encourages the behavior of sorting and recycling household waste (Saphores et al., 2012; Setiawan et al., 2020, 2021).

H_3: Personal norm has a positive and significant effect on waste sorting intention

H_4: Personal norm has a positive and significant effect on waste sorting behavior

Waste Sorting Intention and Behavior

The intention is an indication or reflection of a person's readiness to display a certain behavior (Fishbein & Ajzen, 2011). Intention as readiness to behave can be expressed by a consumer in several statements, as a measurement indicator representing the intention to behave.

When someone intends to display a behavior, this person will prefer to continue the next step, namely actual behavior, and vice versa (Tweneboah-Koduah, Adams, & Nyarku, 2019). In the context of actual waste sorting behavior, the intention has been proven to have a positive effect on the actual behavior of sorting and managing waste (Aktas et al., 2018; Heidari et al., 2018; Khan, Ahmed, & Najmi, 2019; Li, Zuo, Cai, & Zillante, 2018; Liao & Li, 2019; Ma et al., 2018; Setiawan et al., 2021).

H_5: Intention has a positive and significant effect on waste sorting actual behavior

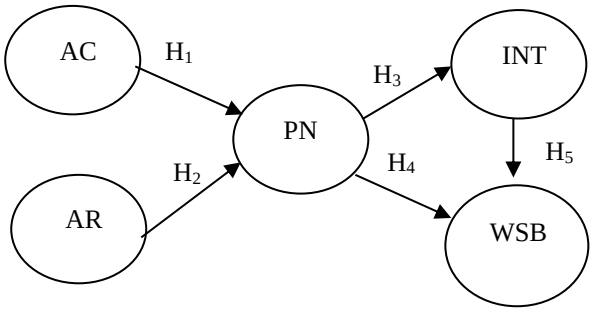

Figure 1. Research model

RESEARCH METHOD

Sampling Frame

The target population that is the unit of analysis for this research is individuals in three major cities in Indonesia, namely Jakarta, Bogor, and Depok. The final sample size of this study was 300 respondents with purposive sampling as the sampling technique. The primary data gathered from these respondents successfully passed from the initial questionnaire screening. Therefore, statistical data analysis was then conducted to rely on these 300 data.

In the main study, the respondents are generally aged 41 to 50 years old, have a profession as private employees and entrepreneurs, have a formal high school education and undergraduate, and have a monthly income of approximately 4 - 5 million rupiah. Respondents were selected with two main criteria: a residential area where a waste bank is available and adequate facilities to conduct waste sorting.

Data collection and analysis

The measurement of each research variable is as presented in Table 1. Primary data is collected through a closed-end questionnaire. Data analysis consists of two stages, namely the confirmatory factor analysis and structural equation model. Lisrel version 8.80 is used as a statistical tool to test the hypotheses.

Table 1. Measurement

Variable	Item	Source
Awareness of conse-quences (AC)	I aware of a serious health threat to me and my family at home (AC1)	Nguyen et al (2015)
	I aware of a serious environmental problem	Nguyen et al (2015)

Variable	Item	Source
	(AC2)	
	I aware of serious social-environmental problems (AC3)	Nguyen et al (2015), modified
	I aware of the adverse impact on the lives of generations of descendants (AC4)	Zhang et al (2019)
Ascription of responsi-bility (AR)	I feel responsible for sorting out waste in my daily life (AR1)	Wang et al (2019)
	I feel responsible for the negative impact on social interactions as a result of not conducting waste sorting (AR2)	Wang et al (2019)
	I feel responsible for the problem of environmental damage from not conducting a waste sorting (AR3)	Wang et al (2019)
	I should take responsibility if the waste is not properly sorted (AR4)	Zhang et al (2019)
Personal norm (PN)	I feel I have a moral obligation to protect the environment by conducting a waste sorting (PN1)	Wang et al (2019), Onwezen et al (2013)
	I feel that I should help others by conducting a waste sorting (PN2)	Wang et al (2019)
	I feel that I should protect the environment (PN3)	Onwezen et al (2013)
	I feel guilty for not conducting a waste sorting (PN4)	Tonglet et al (2004)
	I care about maintaining the living environment (PN5)	Tonglet et al (2004)
Waste sorting intention (INT)	I intend to sort organic waste (INT1)	Zhang (2019)
	I intend to sort out the waste that can still be reused (INT2)	Zhang (2019)
	I intend to sort out non-organic waste which has economic value (INT3)	Zhang (2019), modified
	I intend to sort out hazardous/toxic waste (INT4)	Zhang (2019)
Waste sorting behavior (WSB)	Sorting out organic waste (WSB1)	Zhang (2019)
	Sorting out waste that can still be reused (WSB2)	Zhang (2019)
	Sorting out non-organic waste which has economic value (WSB3)	Zhang (2019), modified
	Sorting out hazardous/ toxic waste (WSB4)	Zhang (2019)

RESULT AND DISCUSSION

Results

In the first stage, a confirmatory factor analysis test was carried out. This test is carried out to ensure that all measurement items are valid and reliable to measure the latent variable. As referring to Table 2, it is known that all measurement items have a standardized loading factor (SLF) value that exceeds the threshold. Thus, all measurement items at each latent are valid to be used as measurements. The value of construct reliability (CR) and the average variance extracted (AVE) of each latent have also shown that the value exceeds the threshold. Therefore, there is an internal consistency of each measurement item on the latent variable.

Table 2. Validity and reliability test

Latent	Item	SLF	CR	AVE
AC	AC1	0.96	0.88	0.65
	AC2	0.97		
	AC3	0.94		
	AC4	0.80		
AR	AR1	0.96	0.88	0.65
	AR2	0.94		
	AR3	0.96		
	AR4	0.82		
PN	PN1	0.96	0.92	0.70
	PN2	0.98		
	PN3	0.96		
	PN4	0.78		
	PN5	0.81		
INT	INT1	0.97	0.88	0.65
	INT2	0.92		
	INT3	0.94		
	INT4	0.85		
WSB	WSB1	0.90	0.88	0.65
	WSB2	0.92		
	WSB3	0.96		
	WSB4	0.86		

The next step of the validity test related to the measurement phase is discriminant validity. This step is required to test whether the latent variables

are different from one another. The discriminant validity is conducted by comparing the Square Root of average variance extracted of a particular construct with the correlation between that construct with other constructs. The results of the discriminant validity test are presented in Table 3.

Table 3. Discriminant validity

Latent	AC	AR	PN	INT	WSB
AC	**0.81**				
AR	0.59	**0.81**			
PN	0.60	0.59	**0.84**		
INT	0.59	0.58	0.59	**0.81**	
WSB	0.60	0.60	0.59	0.60	**0.81**

After successfully passed the confirmatory factor analysis stage, the next stage is testing the hypotheses. The goodness of fit test was conducted formerly before testing the hypotheses. Each type of fit index, namely absolute fit index, incremental fit index, and other fit indexes, reveals satisfactory results. The complete results of the goodness of fit in the CFA stage and structural stage are presented in Table 4.

Table 4. Goodness of Fit

Parameter	CFA	Structural
X^2	296.28 (p = 0.00)	330.14 (P = 0.00)
GFI	0.79	0.77
SRMR	0.036	0.11
RMSEA	0.047	0.052
NNFI	0.99	0.99
NFI	0.99	0.98
RFI	0.98	0.98
IFI	0.99	0.99
CFI	0.99	0.99
CN	229.01	209.69

After successfully met all the requirements, the hypothesis test is now ready to conduct. The results revealed empirical data support for all the t-value of each path. Therefore, all research hypotheses (H_1, H_2, H_3, H_4, and H_5) are accepted or adequately supported by empirical data. The complete results of the hypotheses results are presented in Table 5. Personal norms of the consumers that been activated previously succeed to form both intention and behavior.

Table 5. Hypotheses test results

	Path	Estimates	S.E.	t-value
H1	AC→PN	0.38	0.073	5.25
H2	AR→PN	0.37	0.074	5.06
H3	PN→INT	0.60	0.057	10.46
H4	PN→WSB	0.37	0.072	5.16
H5	INT→WSB	0.38	0.072	5.20

The information regarding how much the endogenous variable's variability can be explained by its exogenous variable(s) can be found through the coefficient of determination. The results are presented in Table 6.

Table 6. Coefficient of determination

Exogenous	Endogenous	R^2
AC, AR	PN	0.45
PN	INT	0.36
PN, INT	WSB	0.45

As referring to Table 6, it is revealed that 45% variability of the personal norm can be explained by awareness of consequences and ascription of responsibility. Consumers' intention of sorting out waste can be explained through personal norm by 36%. Meanwhile, the consumers' actual behavior to sorting out waste can be explained through the personal norm and waste sorting intention by 45%.

Discussion

Awareness of consequences has a significant effect on personal norm (b = 0.38, S.E. = 0.073, t-value = 5.25). Therefore, when a consumer is aware of the negative consequences that can arise as the result of not sorting out waste, it will create a personal norm within him. Products that have been consumed certainly leave packaging waste that is disposed of in the trash. Consumers realize

that if the waste is not sorted first, it will be detrimental to themselves, their families, and their environment. This awareness succeeds in activating the personal norm of consumers to have an environmental concern.

Ascription of responsibility has a significant effect on personal norm (b = 0.37, S.E. = 0.074, t-value = 5.06). When a consumer ascribed that he/she is responsible for protecting the environment, the internalized values will be active as a reflection of moral obligation. Consumers feel responsible for sorting out waste in their daily lives as consumer behavior concerning the environment. Therefore, consumers feel they should take responsibility if the waste from various products they bought is not properly managed.

Personal norm has a significant effect on waste sorting intention (b = 0.60, S.E. = 0.057, t-value = 10.46). 45% of the personal norm variability can be explained by awareness of consequences and ascription of responsibility. Consumers' feeling of moral obligation successfully predicts the intention of consumers to sorting out waste. The personal norm can explain 36% of the variability of intention. Personal norm also has a significant effect on waste sorting behavior (b = 0.37, S.E = 0.072, t-value = 5.16). Therefore, an active personal norm can directly influence behavior, with or without being preceded by intention. This finding is supporting the conceptual model from Setiawan, et al (2020) regarding to pro-environmental behavior. They state, from norm activation theory perspective, waste sorting behavior is a shared function of intention and personal norm.

Waste sorting intention has a significant effect on waste sorting behavior (b = 0.38, S.E. = 0.072, t-value = 5.20). Therefore, consumers intend to sort out waste from the products they bought, successfully translated into actual behavior. Simultaneously with the personal norm, waste sorting intention can explain the variability of waste sorting behavior by 45%. The intention has a power that a little bit bigger than the personal norm in explaining behavior. Nevertheless, these two variables are significant in predicting waste sorting behavior. Consumers who feel moral obligation will be driven to sort out waste from the product they have bought. Simultaneously, the feeling of moral obligation and the intention of sorting out waste is realized to become actual behavior.

There are a large number of antecedents of pro-environmental consumer behavior that have been researched previously. It was revealed that the antecedents are commonly relly on environmental values, knowledge, concerns, and attitudes (Ertz, Karakas, & Sarigöllü, 2016). This study relies on the theoretical basis of norm activation theory (Schwartz, 1977) to link personal norm to pro-environmental consumer behavior. This study proves that personal norm as a core factor of norm activation theory can be applied to explain pro-environmental consumer behavior in the downstream stage. Consumers' personal norm successfully explains waste sorting behavior as a particular action in pro-environmental consumer behavior.

The increasing value of the consumer's personal norms will be followed by increasing intention and behavior in the waste sorting context. Even though personal norms significantly affect

intention and behavior, it is revealed that personal norm is much more robust in explaining intention. Therefore, to create pro-environmental consumer behavior related to disposing waste from the products they have already bought, it needs intention and personal norm simultaneously.

CONCLUSION

This study aims to fill the research gap by examining the role of personal norms based on norm activation theory in explaining behavior. This study's findings have provided empirical evidence regarding the personal norm's role in explaining pro-environmental consumer behavior. Awareness of consequences and ascription of responsibility significantly affect consumers' personal norms. Consumers feel that they have a moral obligation concerning the environment. Active personal norm, successfully forming both intention and actual behavior in the context of sorting out waste. The downstream stage of consumer behavior will lead to becoming pro-environmental consumer behavior based on altruistic values. Personal norm is proven can be activated through awareness of consequences and ascription of responsibility. Active personal norm will lead to affect behavior, with or without being preceded by intention.

This study's findings can have an essential theoretical contribution to applying norm activation theory in explaining pro-environmental consumer behavior. Consumers' personal norms will be active when they aware of the consequences and have an ascription of responsibility related to waste sorting behavior. An active personal norm can directly affect behavior without being preceded by intention.

The finding of this study also brings up an essential practical contribution. Social marketers concerned with influencing their target audience's behavior to behave more environmentally can apply this approach. Social marketers can encourage consumers to behave pro-environmentally by activating the personal norm from their target audience first. This active personal norm will lead consumers to manage waste from the products they already bought more appropriately.

The finding of this study also stimulates an implication regarding managerial perspective. Marketing manager, for instance, can integrate their promotion program by stimulating the customer's personal norm regarding the environmental concern. Marketing managers can embed it in their product package by adding symbols that can encourage customer awareness and responsibility to the environment. An embedded message, a feeling of moral obligation in protecting the environment, for instance, can also be considered in order to activate the customer's personal norm.

Even though this study already has a robust basis for all the measurements, it still opens for further research to expand and fill the gap that exists. This study was conducted in a cross-sectional period. Therefore, future studies will be more robust if the actual behavior is measured in a longitudinal period.

References

Aktas, E., Sahin, H., Topaloglu, Z., Oledinma, A., Huda, A. K. S., Irani, Z., … Kamrava, M. (2018). A consumer behavioural approach to food waste. *Journal of Enterprise Information Management*, *31*(5), 658–673. https://doi.org/10.1108/JEIM-03-2018-0051

Bamberg, S., Hunecke, M., & Blo¨baum, A. (2007). Social context , personal norms and the use of public transportation : Two field studies. *Journal of Environmental Psychology*, *27*, 190–203. https://doi.org/10.1016/j.jenvp.2007.04.001

Benedetti, I., & Laureti, T. (2017). Exploring pro-environmental food purchasing behaviour: an empirical analysis of italian consumers. *Journal of Cleaner Production*. https://doi.org/10.1016/j.jclepro.2017.11.086

Botetzagias, I., Dima, A.-F., & Malesios, C. (2015). Extending the Theory of Planned Behavior in the context of recycling: The role of moral norms and of demographic predictors. *Resources, Conservation and Recycling*, *95*, 58–67. https://doi.org/10.1016/j.resconrec.2014.12.004

De Groot, J. I. M., & Steg, L. (2009). Morality and prosocial behavior: The role of awareness, responsibility, and norms in the norm activation model. *The Journal of Social Psychology*, *149*(4), 425–449. https://doi.org/10.3200/SOCP.149.4.425-449

Ertz, M., Karakas, F., & Sarigöllü, E. (2016). Exploring pro-environmental behaviors of consumers: An analysis of contextual factors, attitude, and behaviors. *Journal of Business Research*, *69*(10), 3971–3980. https://doi.org/10.1016/j.jbusres.2016.06.010

Fan, B., Yang, W., & Shen, X. (2019). A comparison study of 'motivation–intention–behavior' model on household solid waste sorting in China and Singapore. *Journal of Cleaner Production*, *211*, 442–454. https://doi.org/10.1016/j.jclepro.2018.11.168

Fishbein, M., & Ajzen, I. (2011). *Predicting and changing behavior: The reasoned action approach*. *Psychology Press Taylor & Francis Group*. https://doi.org/10.1192/bjp.111.479.1009-a

Heidari, A., Kolahi, M., Behravesh, N., Ghorbanyon, M., Ehsanmansh, F., Hashemolhosini, N., & Zanganeh, F. (2018). Youth and sustainable waste management: a SEM approach and extended theory of planned behavior. *Journal of Material Cycles and Waste Management*, *20*(4), 2041–2053. https://doi.org/10.1007/s10163-018-0754-1

Jesson, J. (2009). Household waste recycling behavior: A market segmentation model. *Social Marketing Quarterly*, *15*(2), 25–38. https://doi.org/10.1080/15245000902957326

Khan, F., Ahmed, W., & Najmi, A. (2019). Understanding consumers' behavior intentions towards dealing with the plastic waste: Perspective of a developing country. *Resources, Conservation and Recycling*, *142*, 49–58. https://doi.org/10.1016/j.resconrec.2018.11.020

Kim, J., Rundle-Thiele, S., & Knox, K. (2019). Systematic literature review of best practice in food waste reduction programs. *Journal of Social Marketing*, *9*(4), 447–466. https://doi.org/10.1108/JSOCM-05-2019-0074

Kotler, P., & Lee, N. R. (2008). *Social marketing: Influencing behaviors for good* (3rd ed.). Thousand Oaks, CA: Sage Publications.

Lauper, E., Moser, S., Fischer, M., & Matthies, E. (2016). Explaining car drivers' intention to prevent road-traffic noise: An application of the norm activation model. *Environment and Behavior*, *48*(6), 826–853. https://doi.org/10.1177/0013916515570476

Li, J., Zuo, J., Cai, H., & Zillante, G. (2018). Construction waste reduction behavior of contractor employees: An extended theory of planned behavior model approach. *Journal of Cleaner Production*, *172*, 1399–1408. https://doi.org/10.1016/j.jclepro.2017.10.138

Liao, C., & Li, H. (2019). Environmental education, knowledge, and high school students' intention toward separation of solid waste on campus. *International Journal of Environmental Research and Public Health*, *16*(9), 1–15. https://doi.org/10.3390/ijerph16091659

Ma, J., Hipel, K. W., Hanson, M. L., Cai, X., & Liu, Y. (2018). An analysis of influencing factors on municipal solid waste source-separated collection behavior in Guilin, China by Using the Theory of

Planned Behavior. *Sustainable Cities and Society*, *37*, 336–343. https://doi.org/10.1016/j.scs.2017.11.037

Moser, A. K. (2015). Thinking green, buying green? Drivers of pro-environmental purchasing behavior. *Journal of Consumer Marketing*, *32*(3), 167–175. https://doi.org/10.1108/JCM-10-2014-1179

Nguyen, T. T. P., Zhu, D., & Le, N. P. (2015). Factors influencing waste separation intention of residential households in a developing country: Evidence from Hanoi, Vietnam. *Habitat International*, *48*, 169–176. https://doi.org/10.1016/j.habitatint.2015.03.013

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. https://doi.org/10.1016/j.joep.2013.07.005

Park, J., & Ha, S. (2014). Understanding consumer recycling behavior: Combining the theory of planned behavior and the norm activation model. *Family and Consumer Sciences Research Journal*, *42*(3), 278–291. https://doi.org/10.1111/fcsr.12061

Saphores, J.-D. M., Ogunseitan, O. A., & Shapiro, A. A. (2012). Willingness to engage in a pro-environmental behavior: An analysis of e-waste recycling based on a national survey of U.S. households. *Resources, Conservation and Recycling*, *60*, 49–63. https://doi.org/10.1016/j.resconrec.2011.12.003

Schwartz, S. H. (1977). Normative influences on altruism. In *Advances in Experimental Social Psychology* (Vol. 10, pp. 221–279). https://doi.org/10.1016/S0065-2601(08)60358-5

Setiawan, B., Afiff, A. Z., & Heruwasto, I. (2020). Integrating the Theory of Planned Behavior With Norm Activation in a Pro-Environmental Context. *Social Marketing Quarterly*, *26*(3), 244–258. https://doi.org/10.1177/1524500420949220

Setiawan, B., Afiff, A. Z., & Heruwasto, I. (2021). The role of norms in predicting waste sorting behavior. *Journal of Social Marketing*, *ahead-of-p*(ahead-of-print). https://doi.org/10.1108/JSOCM-05-2020-0088

Takahashi, B. (2009). Social marketing for the environment: An assessment of theory and practice. *Applied Environmental Education & Communication*, *8*(2), 135–145. https://doi.org/10.1080/15330150903135889

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. https://doi.org/10.1016/j.resconrec.2003.11.001

Tweneboah-Koduah, E. Y., Adams, M., & Nyarku, K. M. (2019). Using theory in social marketing to predict waste disposal behaviour among households in Ghana. *Journal of African Business*, 1–16. https://doi.org/10.1080/15228916.2019.1597323

Wan, C., Shen, G. Q., & Choi, S. (2017). Experiential and instrumental attitudes: Interaction effect of attitude and subjective norm on recycling intention. *Journal of Environmental Psychology*, *50*, 69–79. https://doi.org/10.1016/j.jenvp.2017.02.006

Wang, S., Wang, J., Zhao, S., & Yang, S. (2019). Information publicity and resident's waste separation behavior: An empirical study based on the norm activation model. *Waste Management*, *87*, 33–42. https://doi.org/10.1016/j.wasman.2019.01.038

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. https://doi.org/10.1016/j.jenvp.2010.01.003

Xiao, L., Zhang, G., Zhu, Y., & Lin, T. (2017). Promoting public participation in household waste management: A survey based method and case study in Xiamen city, China. *Journal of Cleaner Production*, *144*, 313–322. https://doi.org/10.1016/j.jclepro.2017.01.022

Zhang, B., Lai, K., Wang, B., & Wang, Z. (2019). From intention to action: How do personal attitudes, facilities accessibility, and government stimulus matter for household waste sorting? *Journal of Environmental Management*, *233*(February 2018), 447–458. https://doi.org/10.1016/j.jenvman.2018.12.059