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### About the Cover

Author Nancy R. Lee examines how and to what extent the downstream response to reduce the spread of COVID-19 has incorporated social marketing principles, strategies, and best practices.

# Integrating the Theory of Planned Behavior With Norm Activation in a Pro-Environmental Context

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## Abstract

**Background:** The theory of planned behavior (TPB) is one of the famous theories used to predict a person's intentions in various contexts, using the subjective normative component. This article, therefore, focused on proposing a conceptual model to fill the existing gaps related to the pro-environmental context, based on the TPB, with the normative aspects supplemented by incorporating the norm activation theory (NAT).

**Focus of the Article:** The interaction between subjective and personal norms needs to be considered in order to acquire empirical data support from social marketing scholars. The awareness of consequences is used to form personal norms that function as an “instrumental attitude” in predicting intention. The existence of attitude needs to be distinguished between the experiential and instrumental, reflected in the awareness of consequences.

**Program Design/Approach:** Pro-environmental behavior (PEB) in the context of waste sorting is a shared function of intentions, personal norm, and perceived control. It plays an important role in mediating the influence of motivational factors of TPB and personal norm of NAT, on waste sorting. Communication strategies in promoting waste sorting activity have to integrate social pressure with a feeling of moral obligation.

**Importance to the Social Marketing Field:** The conceptual model shows that the integration of TPB and NAT contributes a more comprehensive perspective for social marketers to promote the waste sorting behavior of the targeted society.

**Methods:** Five essential stages are systematically arranged to integrate TPB and NAT. The first stage explains the basic equation of TPB and NAT. The second proposes three essential propositions. The third provides logical thinking of the integrated equation model, while the fourth stage creates the visual form and explains it in detail. The fifth stage provides a clear and concise managerial implication and limitation of the model, accompanied by the possibility to expand it in future studies.

**Recommendations for Research or Practice:** The social marketing practitioners and academicians interested in the issue of PEB context from the community, need to consider the integration of

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TPB and NAT in their activities. Social pressure within the community is strengthened by the formation of a sense of moral obligation with the simultaneous strengthening of the experiential and instrumental attitude.

**Limitations:** The proposed conceptual model is limited to the utilization of a cultural approach as the central premise. It is also limited to the use of the fundamental theory in predicting humans' behavior in a waste sorting context.

### Keywords

theory of planned behavior, norm activation theory, pro-environmental behavior, waste sorting behavior, social marketing

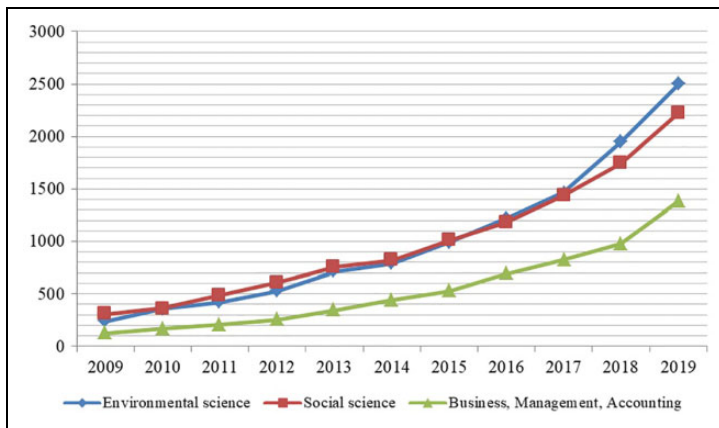
The increase in human population led to a rise in the manufacture of various types of products, which invariably led to an increase in the amount of waste in the environment. This is because manufacturers always try to boost their production capacity through industrialization, in order to meet the demands of consumers, leading to a rise in the generation of harmful waste materials. The industrialization has influenced the emergence of various sustainable development problems, particularly urban waste management, which has been of considerable interest (Chong et al., 2016).

Environmental problems have become an essential discussion in various academic, public, corporate, political, and global fields. In the academic field, there is a burgeoning body of literature, which focuses on the discussion of sustainability, and pro-environmental behavior (PEB; Bhuian et al., 2018). The research related to pro-environmental behavior based on the Scopus database, which was carried out from 2009 till 2019, showed an increasing trend on the topic researched, as shown in Figure 1. This discovery is consistent with the research conducted by Grimmer and Miles (2017), which states that studies in the field of PEB have been at the forefront for over 30 years.

The study related to PEB received sufficient attention in three interrelated fields of science in marketing, as depicted in Figure 1. The first is on the environmental science that focused on policies, economics, and personal choices related to environmental sustainability. The second is on social science that focuses on societies and the connections between persons within these societies. The third is associated with business management and accounting science that focuses on problem-solving and decision making in private or public organizations to achieve goals. The increasing trend of studies related to PEB led to the use of social marketing as an essential and straightforward approach.

According to Andreasen (1994), social marketing aims to change particular behavior from the target audience. Therefore, the favorable outcome of any social marketing program is evaluated by determining whether the desired behavioral change has occurred. Social marketing approaches can be used as an essential guide to address various activities in PEB context, by seeking to create proper programs based on social marketing principles (Kim et al., 2019). According to Jesson (2009), waste sorting as well as waste recycling activity is an aspect of PEB that is primarily based on knowledge and education. It creates gaps in the consumer's perspective and employs socio-psychological tools to motivate changes in accordance with the social marketing techniques of the target audience (Haq et al., 2013). This approach is elaborated from different perspectives such as the normative beliefs of individuals toward PEB.

The theory of planned behavior (TPB) is the theoretical foundation concerned with the prediction of a person's behavioral intentions and behavior, based on three fundamental beliefs, namely, behavioral belief, normative belief, and control belief (Ajzen, 1991). It is well known that TPB become one of the most frequently cited and significantly influential models for the prediction of human social behavior (Ajzen, 2011). TPB has been used to describe PEBs across various contents, which includes waste sorting and recycling (Chan & Bishop, 2013; Ramayah et al., 2012). TPB is systematically used to identify various factors that influence the sorting and recycling of household wastes. It has also been



**Figure 1.** Research trend in pro-environmental behavior.

widely used to investigate people's attitude in managing household waste products using several empirical factors (Bortoleto et al., 2012; Ghani et al., 2013; Tonglet et al., 2004; D. Zhang et al., 2015).

TPB is used to predict PEB and boost various perspectives by integrating some existing theoretical contexts. One way of achieving this is to pay attention to the normative component, in which the model only covers subjective norms, excluding its personal aspects. A proper comprehension of the values and motives that underlie environmental apprehension and behavior is fundamentally needed. PEB is predicated upon egoistic, altruistic, and biospheric values (Schultz & Zelezny, 1999). These values are fundamental for shaping a person's normative and beliefs to form behavioral intentions. An egoist or a self-centered person tends to behave pro-environmentally if they consider the benefit of behaving is greater than the cost incurred. An altruistic person tends to actualize their moral obligation to protect the environment as a concern for the well-being of others. A person with biospheric value orientation tends to emphasize their behavior to environmental sustainability. Schultz and Zelezny (1999) suggested that the use of a theoretical research on altruistic behavior may serve a beneficial base used to approach the study of environmental behaviors.

Culture is a term that includes social behavior and norms found in human society, as well as beliefs, habits, and traditions among members of society. Culture is symbolic communication as a way of life shared by a group of people that are passed along from one generation to the next that guide behavior. Therefore, a norm approach is an important element of culture used to resolve societal problems (Stern et al., 1999). Social pressure tends to encourage PEB, which has become part of the lifestyle in the community. It has also encouraged individuals to make the welfare of others their moral obligation to help protect the environment by easing the work of scavengers and reducing waste generation in landfills using personal norms.

According to Schwartz (1977), personal norm is the principal construct in NAT, which captures a person's selfless or altruistic characteristics. It occurs when a person is aware of the consequences of a particular behavior and ascribes its responsibility for the welfare of others (Harland et al., 1999; Schwartz, 1977). Previous studies conducted 10 years ago integrated the constructs of personal norms in relation to the various contexts of PEB in TPB modeling, such as the purchasing attitude of environmentally friendly products, the use of public transportation compared to private vehicles, organic food menus in restaurants, reduction of PM2.5 particles, avoiding food waste, and the preference to sort or recycle waste (Botetzagias et al., 2015; Fan et al., 2019; Liu et al., 2017; Ma et al., 2018; Moser, 2016; Nguyen et al., 2015; Onwezen et al., 2013; Ru et al., 2019; Shin et al., 2018; Visschers et al., 2016; B. Zhang et al., 2019).

In addition, the gap identified in previous studies failed to consider the moderation roles of personal and subjective norms. Personal norms aid in developing intentions as well as moderating its relationship with subjective aspects. The increase in social pressure accompanied by a feeling of intense moral obligation tends to boost a person's intention to sort waste. Therefore, this study aims to eradicate the theoretical gap by proposing some propositions that affirm the importance of integrating personal norm in the TPB model, in the context of PEB. The first section explains the research trends and its gaps, which is the main objective of this article. The next section explains the role of TPB and NAT as a theoretical basis to predict PEB, while the fabricated propositions and the integration models of TPB and NAT were shown in subsequent sections, which also consists of a comprehensively conveyed conclusion.

## Background and Literature

### *TPB as a Theoretical Basis to Predict Waste Sorting Intention*

PEB is an individual effort to limit various destructive actions capable of endangering the natural environment (Albayrak et al., 2011; Steg & Vlek, 2009). These include reducing the use of energy resources, nontoxic raw materials, and waste production. It also involves the purchase of products certified and recycled materials manufactured by companies with little impact on the ecosystem (Cleveland et al., 2012; Whitmarsh & O'Neill, 2010). In the context of researches related to PEB, social marketing has emerged as the effective approach in promoting PEB, with waste sorting as the most commonly targeted behavior (Jesson, 2009; Kim et al., 2019; Takahashi, 2009). Kotler and Lee (2008) state that social marketing is the application of marketing principles and techniques to create, communicate, and provide values that influence the behavior of the target audience is beneficial to society. This definition marked a critical change in the field of social marketing, namely, redefining the initial conceptualization from Kotler and Zaltman (1971) as an approach that promotes social ideas.

The waste sorting behavior serves as a target in a social marketing campaign or program that primarily benefits individuals and the community at large (Andreasen, 1994). The waste sorting as a particular part of waste management, simultaneously influenced by motivational and contextual factors (Stern et al., 1999). This has attracted quite a lot of scholars, with researches on various influential factors (Pakpour et al., 2014; Wan et al., 2014; Z. Wang et al., 2018).

TPB is a theoretical concept often used in the study of PEB based on a more hedonistic model of human beings (Bamberg & Möser, 2007). It emerged from the theory of reasoned action (TRA) and was initially a predictor which acted as a function of two determinants, namely, attitude toward behavior and subjective norm. In Equation 1,  $B$  is a person's actual behavior,  $I$  is a person's intention to perform behavior  $B$ ,  $AB$  is a person's attitude toward behavior  $B$ ,  $SN$  is a person's subjective norm represents a social pressure regarding behavior  $B$ . The weight parameters ( $W_1$  and  $W_2$ ) were also used to empirically predict a person's behavior proportional to their total weight.

$$B \sim I \propto [w_1 AB + w_2 SN]. \quad (1)$$

TPB complements TRA, that is, when individual behavior is carried out even though it is not under volitional control. A new construct is added in the TPB model, namely, perceived behavioral control, which is influenced by the opportunities and resources available. Ajzen (1991) states that performance is extended to a shared function of intentions and control perceptions. During its implementation, the TPB model was improved in the context of PEB as an effort to describe a person's waste sorting performance from various perspectives (Chan & Bishop, 2013; Ramayah et al., 2012). TPB is widely used to explain a community's effort toward managing waste generated from household consumption activities. The behavioral performance is extended to a shared function and perceived control. Intention is defined as a motivation, willingness, and individual effort to exhibit a particular behavior. It is

directly proportional to the belief that determines attitude toward behavior ( $AB$ ), normative beliefs in accordance with subjective norm ( $SN$ ), and the perceived behavioral control ( $PBC$ ).

$$B = I \propto [w_1AB + w_2SN + w_3PBC] + PBC. \quad (2)$$

In Equation 2, behavior is defined as a shared function of intention ( $I$ ), and perceived behavioral control ( $PBC$ ). Therefore, it is rewritten as follows:

$$B = f(x; y), \quad (3)$$

where:

$$x = f(a; b; y), \quad a = AB, \quad b = SN, \quad y = PBC,$$

$$y = PBC, \quad x = I.$$

Attitude is a personal factor, and it is also the extent of a person's positive or negative evaluation (Ajzen, 1985, 1991; Bezzina & Dimech, 2011). According to Greaves et al. (2013), attitude is also a determinant that shows a person's overall evaluation of a specific behavior with the estimated value of attitude used to obtain the belief in salient outcomes ( $b_i$ ) of a particular behavior and its evaluation ( $e_i$ ).

$$AB = \sum_{i=1}^n b_i e_i. \quad (4)$$

People tend to develop positive attitude toward household waste sorting with the creation of positive response. Conversely, when someone believes that waste sorting is harmful, they develop a negative attitude, which is unfavorable, and leads to rejection. A positive evaluation helps in increasing the capacity of recycling or being able to contribute to a cleaner environment and increases a person's waste sorting intention and behavior (Heidari et al., 2018; Kumar, 2019; Liao et al., 2018; Liao & Li, 2019; Ma et al., 2018; Thi Thu Nguyen et al., 2019; Tweneboah-Koduah et al., 2019; Yu et al., 2018; B. Zhang et al., 2019).

Ajzen (1991) defines subjective norms as social pressures perceived by individuals. Generally, humans have the intention to exhibit a particular character when positively evaluated, which is referenced by another group. According to Fishbein and Ajzen (2011), a person tends to exhibit a particular behavior due to the social pressure mounted by families, friends, social groups, organizations that are also part of social agents (Bortoleto et al., 2012). A person's perception of someone else's expectations serves as a motivation (Norman & Cooper, 2011). An individual tends to behave in a way that is approved by important people and groups (Khan et al., 2019). Estimation of subjective norms is directly proportional to the number of times between normative beliefs concerning referrals ( $b_i$ ) and the motivation to comply with referrals ( $m_i$ ).

$$SN = \sum_{i=1}^n b_i m_i. \quad (5)$$

Household waste sorting is an activity that mounts social pressure on individuals to demonstrate attitudes that support the environment. Individuals or groups provide social pressure for people to participate in waste sorting; therefore, they tend to significantly influence behavior. In addition, subjective norms have a significant effect on waste sorting intention and its proper management (Alhassan et al., 2018; Kumar, 2019; Liao et al., 2018; Russell et al., 2017; Thi Thu Nguyen et al., 2019; Z. Wang et al., 2018; Xu et al., 2017; Yu et al., 2018).

According to Ajzen (1991), perceived behavioral control is a persons' level of perception in exhibiting a particular attitude. It is based on experiences that are influenced by information and encounters with colleagues, friends, and a variety of factors that increase or reduce the perception of behavioral difficulty. When it is identified as being more facilitating than inhibiting, the person's perceived control tends to increase. Fishbein and Ajzen (2011) stated that individuals have control



over their behavioral performance when they tend to act according to their intentions. Perceived behavioral control is the antecedent of a person's intention, which is often considered important when it concerns attitudes under volitional control (Paul et al., 2016). Household waste management in the context of PEB shows a person's intention to support the environment by easily carrying out household waste sorting.

$$PBC = \sum_{i=1}^n c_i p_i. \quad (6)$$

Tonglet et al. (2004) states that household waste sorting needs more effort from individuals for proper storage, disposal, and recycling; therefore, some factors need to be considered appropriately. In addition, perceived control in waste sorting and recycling has a significant effect on intentions and in conducting household waste management (Aktas et al., 2018; Heidari et al., 2018; Kumar, 2019; Liao & Li, 2019; Visschers et al., 2016).

### *NAT as a Theoretical Basis to Predict Waste Sorting Intention*

PEB of an individual is shown by reducing waste through recycling (Whitmarsh & O'Neill, 2010). According to Moser (2016), the PEB reflects the actions taken by consumers, with the aim to optimize the positive consequences of the environment to meet the needs of the present and future generations; therefore, PEB is beneficial to the society. Waste sorting is also considered a pro-social or PEB, influenced by several psychological factors (Boonrod et al., 2015; Stoeva & Alriksson, 2017; Z. Wang et al., 2018). In addition to TPB, the theoretical model often used to systematically explain a person's attitude in supporting social or environmental behavior is the norm activation theory (NAT; Onwezen et al., 2013; Shi et al., 2017; X. Zhang et al., 2018).

There is an extensive range of studies concentrated on the role of moral and normative considerations underlying a person's PEB from various theoretical perspectives (Steg & Vlek, 2009). The NAT is one of the specific research areas that focuses on moral obligations to behave pro-environmentally. According to Schwartz (1977), the NAT is a theoretical model successfully applied to predict the diversity of pro-social altruistic intentions and behavior. Since its development over the past 3 decades, the application of the norm activation model has become a part of pro-environmental and empirical support (De Groot & Steg, 2009). Its attribute is often regarded as a type of pro-social behavior because it has a positive impact on society (Steg & Groot, 2010).

The behaviors relevant to the environment are more appropriately classified in the moral rather than economic motivation. Therefore, rather than balancing costs with personal benefits, people tend to evaluate what is morally right or wrong to the environment. Schwartz (1977), states that personal norm is a core component of the NAT model defined as a feeling of moral obligation to perform or refrain from specific actions. It differs from other concepts such as behavioral determinants, which refers to evaluations based on material, social, or psychological benefits. Furthermore, it exclusively focuses on evaluating actions based on moral values with different social norms. Expectations, sanctions, and obligations that are bound to personal norms are inborn in individual and anchored in social groups.

The results from the research synthesis show that personal norms specifically refer to feelings of one's moral obligations based on personal values, which act as intrinsic factors that encourage the behavior of waste sorting and recycling (Matthies et al., 2012; Saphores et al., 2012). Therefore, personal norms differ from subjective, which highlight the normative influence of other people and essential groups. Additionally, subjective norms act as extrinsic factors that influence waste sorting intention and behavior (Park & Ha, 2014).

Personal norm is a core factor of NAT that plays a role in developing the altruistic characteristics of consequences and ascription of responsibility. Therefore, it is influenced by the awareness of consequences (*AC*), the ascription of responsibility (*AR*) on pro-social and PEB (Steg & Groot, 2010). In

addition, PEB ( $B$ ) is a shared function of intentions ( $I$ ) and personal norms ( $PN$ ) formed by awareness of consequences ( $AC$ ) and ascription of responsibility ( $AR$ ).

$$B = f(x; z), \quad (7)$$

where:

$$z = f(d; e), \quad d = AC, \quad e = AR,$$

$$x = I, \quad z = PN.$$

Personal norms are shown to significantly influence the waste sorting intention (S. Wang et al., 2019) as well as the waste recycling intention (Wan et al., 2017). It has been proven to influence behavior with adequate empirical data support, which proves that personal norms influence children's behavior toward waste recycling, accompanied by social and descriptive norms shown by their parents (Matthies et al., 2012). Personal norm is also proven to have a significant effect on people's behavior in sorting solid organic waste in Vietnam (Loan et al., 2017).

## Method

In an effort to integrate TPB and NAT as theoretical bases used to predict waste sorting behavior, the sequential process of the integration method was explicitly described. First, in the literature review section, this study explained the basic equation of TPB and NAT as a theoretical basis used to predict waste sorting intention. These explanations are used to deliver the logic thinking of TPB and NAT, which is integrated into one comprehensive equation model. In TPB, behavior is a shared function of intention and perceived behavioral control. Meanwhile, NAT is a shared function of intention and personal norm.

Second, based on the literature supporting the core theories, this study proposes three essential propositions that directly relate to the balancing and integration of the equation model. Therefore, these three fundamental propositions will be marked as an essential guideline in conducting future studies related to PEB in a specific context. Third, based on the basic equations of TPB and NAT along with the three propositions, this study proposed an integrated equation model. Fourth, to provide a clearer understanding of the integration model, a visual form is created and explained in detail. In the last stage, this study provides the managerial implication as a constructive response to the integration model proposed, informing the limitation of the model and the possibility of expansion in future studies.

## Discussion

### *Integration of TPB and NAT as a Theoretical Basis to Predict Waste Sorting Intention*

Many studies have been conducted in accordance with the use of TPB and NAT as a theoretical basis for predicting waste sorting intention which focuses on the incomplete normative aspects of TPB. According to the TPB model, waste sorting is formed by two factors. First, intention factors formed by attitude toward behavior ( $AB$ ), subjective norm ( $SN$ ), and perceived behavioral control ( $PBC$ ). Second, perceived behavioral control ( $PBC$ ) serves as a proxy for measuring one's ability. People tend to sort waste when the results from the evaluations of behavioral beliefs provide favorable conditions. In addition, social pressure through subjective norms supports waste sorting intention and shapes the actual behavior, either directly or indirectly.

In the NAT model, a person's behavior to sort waste is based on a feeling of moral obligation which is activated due to the awareness of the negative consequences associated with sorting waste. The

awareness of consequences and ascription of responsibility play an important role in activating personal norms. Consequently, with regard to NAT, waste sorting acts as a function of intention ( $I$ ) and personal norm ( $PN$ ) which is directly proportional to the awareness of consequences ( $AC$ ) and ascription of responsibility ( $AR$ ).

The integration of TPB and NAT begins with the interaction between subjective and personal norms have both been each proven to have a significant effect on waste sorting intention. The normative belief in TPB does not consider its internalized factors; therefore, a gap is needed for its completion. An individual is motivated to sort waste with a feeling of high moral obligation triggered by social pressure and personal norms.

**Proposition 1:** Personal norm does not only play an important role as an antecedent of waste sorting intention; it also moderates the relationship between subjective norm and waste sorting intention.

**Proposition 2:** Personal norm is not only able to form waste sorting intention it is also able to develop its actual behavior.

Having an awareness of the consequences associated with indiscriminate waste disposal is one of the antecedents of a personal norm. This argument was supported because it is based on logical and rational considerations and is also related to the negative consequences of sorting waste. A health threat is a logical consideration arising from unsorted waste.

**Proposition 3:** Awareness of consequences plays an essential role as an instrumental attitude that tends to form waste sorting intention.

Integration of TPB and NAT models in the context of PEB, and household waste sorting is formulated in the following equation model:

From Equation 3, we have the TPB model as shown below:

$$B = f(x; y),$$

where:

$$x = f(a; b; y), \quad a = AB, \quad b = SN, \quad y = PBC,$$

$$y = PBC, \quad x = I.$$

From Equation 7, the NAT model is

$$B = f(x; z),$$

where:

$$z = f(d; e), \quad d = AC, \quad e = AR,$$

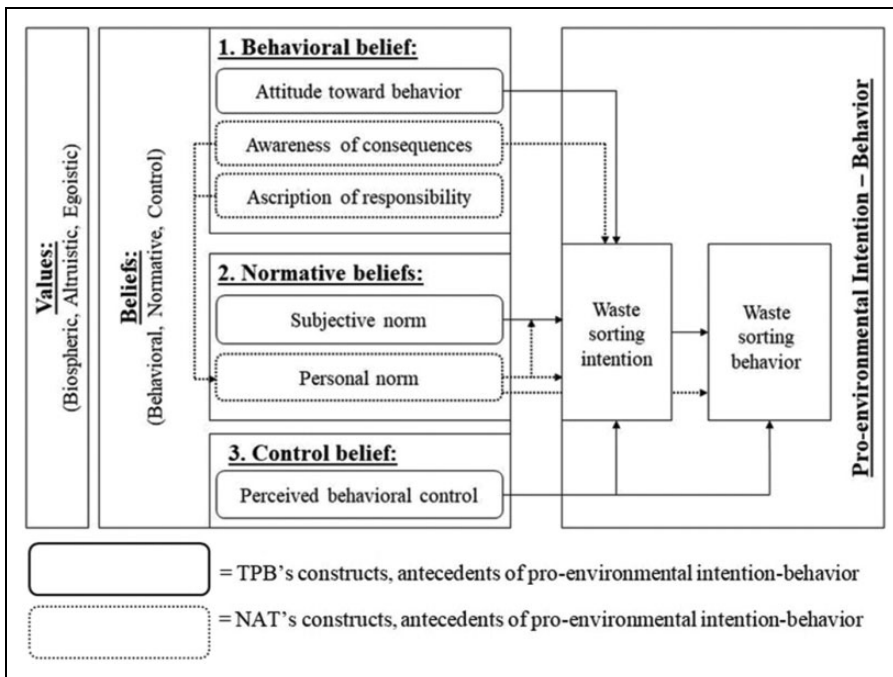
$$z = PN, \quad x = I.$$

Therefore, based on these two equations and the propositions made in this study, the equation becomes

$$B = f(x; y; z), \tag{8}$$

where:

$$x = I \propto f(a, b, y, z, bz), \quad a = AB, \quad b = SN, \quad y = PBC, \quad z = PN, \quad bz = SN.PN.$$



**Figure 2.** Integration rationale of theory of planned behavior and norm activation theory.

To provide a clearer understanding of the integration concept of the TPB and NAT model in the context of PEB, it's important to create a visual form as shown in Figure 2.

The above conceptual model integrates TPB with NAT from the cultural approach, which plays an important role as a behavioral driver (Solomon, 2018). The prevailing culture in society includes values, ethics, and material things that are produced by community members, in addition to culture, which is the accumulation of beliefs, rituals, norms, and traditions among members of an organization or society.

In the pro-environmental context, the biospheric, altruistic, and egoistic constructs of the environment are responsible for shaping a person's beliefs, as essential antecedents in forming behavioral intentions. TPB focuses on three main constructs, namely, attitude, subjective norm, and perceived control. Therefore, to avoid contradictions, it is necessary to separate the experiential from the instrumental attitude. This is because the experiential attitude is properly reflected in the construct of attitude toward behavior, while instrumental attitude is the construct of the consequences of NAT.

TPB involves subjective norm as social pressure and does not require personal pressure as the core construct in NAT, formed by awareness of consequences and ascription of responsibility, for an effective TPB model. The integration of NAT into the TPB model increases one's intention and displays PEB. In the context of waste sorting, people are morally obligated to help others, protect the environment, and complement a person's normative beliefs toward the environment. A person's positive attitude toward waste sorting, existing social pressure, and absolute control becomes more complete.

PEB in the context of waste sorting is a shared function of intentions, personal norm, and perceived control. Therefore, waste sorting is shaped by self-motivation, social and personal norms, and perceived behavioral control. The intention plays an important role in mediating the influence of motivational factors of TPB and personal norm factors of NAT on waste sorting.

The integration between TPB and NAT is needed in the context of PEB. The existence of attitude needs to be distinguished between experiential and instrumental that is reflected in the awareness of consequences. Conversely, the awareness of consequences as the antecedent of the personal norms acts as the antecedent of intention. Normative aspects in TPB are still incomplete and only involve subjective norms. Personal norm, in addition to acting as an antecedent of intention, moderates the relationship between subjective norm and intention.

## **Managerial Implications**

Social marketing practitioners tend to promote various negative consequences of sorting waste and creating awareness of environmental preservation. This integration contributes to a comprehensive perspective for them to promote waste sorting in the targeted society. The community also needs to be convinced that the benefits of waste sorting are more significant than the sacrifice incurred which develops societal moral obligation to exhibit PEB. Concerning the significance of personal pressure, as reflected in the personal norm in developing one's waste sorting behavior, strategic communication campaigns should be appropriately designed to attract more people to perform waste sorting behavior. Communication strategies that integrate social pressure with a feeling of moral obligation should be taken to equip targeted society with knowledge about the proper methods of sorting waste, especially in the household context. Therefore, promotional activities need to be aligned in sorting waste and its numerous benefits, with the use of practical implementation carried out by employing an interactive approach, through counseling and discussions with targeted community groups. Social pressure within the community is strengthened by the formation of a sense of moral obligation with the simultaneous strengthening of the experiential and instrumental attitude.

## **Limitation**

Although this study provides appropriate logical thinking in integrating TPB and NAT, there are limitations associated with its integration. The conceptual model that was proposed is limited to the utilization of a cultural approach as the central premise. An individual's waste sorting intention becomes actual behavior when there is appropriate support from various situational factors, for example, availability of infrastructure and proper awareness or personal knowledge. This conceptual model did not involve specific situational factors; therefore, a person with high intention to sort waste tends not to implement it due to inadequate supply of trash bins. Conversely, lack of adequate personal knowledge of waste sorting hampers the realization of PEB.

## **Future Research**

The conceptual model proposed in this study needs to be supported by adequate empirical data, based on a theoretical basis, due to its robust fundamental propositions which need to be verified by a systematical approach. This model is also widely open to further enhance different perspectives by considering the availability of infrastructure and adequate personal knowledge, as situational factors.

## **Conclusion**

Over the past 10 years, the research on PEB sector has received considerable attention, with an increasing trend of its publication. Waste sorting is a specific context in PEB in the private sphere assessed from a social marketing approach. Its behavioral, normative, and control beliefs were developed by using the normative factors in TPB as social pressure, thereby creating the opportunity to be supplemented by a personal norm of the NAT model.

This study provides a conceptual model for the integration of TPB and NAT by proposing three propositions to bridge the existing gap. The integration of the TPB and NAT models in the context of pro-environmental, waste sorting intention, and behaviors is a more comprehensive theoretical foundation that needs to be obtained. Therefore, social marketing practitioners need to optimize the program for the formation of PEB in the community, based on the TPB and NAT integration. In addition, the moderating role of the personal and subjective norms, direct the effect of personal norms on actual behavior, and awareness of consequences that are positioned as instrumental attitudes toward waste sorting intention and as a fundamental proposition that is empirically tested.


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