Research Paper

Understanding Green Purchase Intention through Theory of Planned Behavior and Norm Activation Theory

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Abstract
The rapid growth of global consumption has intensified environmental challenges, with individual activities contributing substantially to greenhouse gas emissions and ecological degradation. This condition underscores the importance of examining the psychological and social factors that influence green purchase intentions, particularly in developing countries such as Indonesia, where awareness and practices of sustainable consumption are still in development. The Theory of Planned Behavior (TPB) and the Norm Activation Theory (NAT) have been widely employed to investigate pro-environmental actions. However, only a few attempts have been made to integrate both theoretical frameworks, despite their potential complementarity in providing a more holistic understanding of consumer decision-making processes. Survey data were collected from 200 respondents. The research model was tested using Structural Equation Modeling with Partial Least Squares (PLS-SEM). The results reveal that awareness of consequences (AOC), subjective norms (SN), and perceived behavioural control (PBC) significantly influence green purchase intention, while attitudes exert no significant effect on personal norms. Furthermore, personal norms emerge as a central mechanism that strongly drives the actual purchase of environmentally friendly products, thereby bridging the intention-behavior gap. The integration of these two theories provides a stronger explanatory model compared to using either theory alone. Theoretically, this study extends the literature on green purchase intention by combining two theories into a single integrative framework. Practically, the findings provide actionable insights for businesses, marketers, and policymakers to design campaigns, strategies, and policy initiatives that can encourage sustainable consumption, enhance environmental responsibility, and foster long-term ecological balance in the Special Region of Yogyakarta.

Keywords: *TPB, NAT, Green Product, Green Purchase Intention.*

INTRODUCTION

Global human consumption has caused severe damage to the environment and the planet (Marvi et al., 2020). Individual consumption accounts for approximately 60% of global greenhouse gas emissions (Berger & Wyss, 2021). The development of environmentally conscious societal mindsets has influenced consumers worldwide in various behavioral contexts, such as purchasing environmentally friendly products (Dhir et al., 2021; Nguyen et al., 2017; Khare, 2015). Eco-friendly consumers choose environmentally friendly products with the intention of reducing pollution and mitigating the global environmental crisis (Tseng et al., 2021). Due to changes in customer purchasing behavior patterns, green purchasing behavior has become a key focus of new consumer research studies (Zhao & Zhong, 2015). Zero waste is an environmentally responsible lifestyle that reduces the accumulation of all types of waste streams and is currently trending in various circles (Gierszewska & Seretny, 2019; Castigliego et al., 2021). On the other hand, many companies have also adjusted their production strategies to proactively address environmental concerns and shift

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consumer attitudes toward the environment. They are abandoning products that are relatively polluting or harmful to human health and shifting to environmentally friendly products (Zhang & Dong, 2020).

This study utilizes two theories that contribute to pro-environmental behavior: the TPB and the Norm Activation Model (NAT). The Norm Activation Model (NAT) explains altruistic and environmentally friendly behavior, providing a theoretical foundation for research into prosocial behavior and altruism (Liu et al., 2017). The NAT suggests that an individual's pro-environmental behavior is determined by their level of personal responsibility for that behavior, which is reflected in their personal norms. The NAT assumes that the norm activation process is determined by two factors: Awareness of Consequences (AC) and Ascription of Responsibility (AR). The Theory of Planned Behavior (TPB) assumes that an individual's intention is a direct determinant of their behavior, and that a person's intention is a function of their attitude, subjective norm (SN), and perceived behavioral control (PBC) (Ajzen, 1991). The NAT and the TPB are used in green research to predict environmentally friendly behavioral intentions (Han & Stoel, 2016). The NAT focuses on a person's behavioral intentions derived from altruistic and moral beliefs and is considered the most influential theory in the environmental context (Kim & Hwang, 2020).

On the other hand, the TPB explains a person's deliberate behavioral intentions (Ajzen, 1991). Unlike previous research, this study attempts to combine two theories, the NAT and the TPB, to explain the formation of environmentally friendly behavior. It is hoped that a comprehensive approach into a single theoretical framework can explain environmentally friendly behavior in purchasing green products. Combining the complementary NAT and the TPB allows for the development of a more comprehensive model in predicting environmentally friendly behavior that is not fully understood by individual theories. NAT focuses on the ability to predict behavior based on moral considerations. In contrast, TPB predicts beliefs about the benefits of green products, the cost of acquiring green products, and the rationality in purchasing green products. Therefore, the objective of this study is to explicitly investigate the determinants of green purchase intention in the Special Region of Yogyakarta by integrating the Theory of Planned Behavior (TPB) and the Norm Activation Theory (NAT) into a single comprehensive model.

LITERATURE REVIEW

Theory of Planned Behavior (TPB)

The theory of planned behavior (Ajzen, 1991) has been considered one of the most influential models for explaining various types of human behavior (Koon et al., 2020; Sánchez-García et al., 2021), particularly those related to environmental protection, such as energy saving and green purchasing (Han & Stoel, 2016). The TPB posits that pro-environmental behavior is influenced by the intention to perform the behavior, which in turn is a function of attitude, subjective norm, and perceived behavioral control (Ajzen, 1991). In this context, attitude refers to a person's overall evaluation of a pro-environmental behavior. In contrast, subjective norm and perceived behavioral control refer to a person's perceived social pressure and perceived ease of performing the pro-environmental behavior, respectively (Koon et al., 2020). A recent meta-analysis confirmed the TPB's ability to explain environmentally responsible consumption behavior (Han & Stoel, 2016). The TPB has been utilized by numerous studies due to its explanatory power in predicting sustainable behavior (Nguyen et al., 2017; Choi & Johnson, 2019) across several environmental contexts (Zhang & Dong, 2020).

A positive attitude toward environmentally friendly products, such as the belief that the product is beneficial, safe, and makes a tangible contribution to one's desires, can encourage the internalization of these beliefs into personal norms (personal norms) reflecting a moral obligation to act in accordance with environmental values. Several previous studies have confirmed this

relationship. Meanwhile, when individuals perceive that their environment emphasizes the importance of environmentally friendly behavior, this social pressure will be internalized into personal moral beliefs in the form of personal norms. In other words, external social norms can shape an individual's internal sense of moral obligation to engage in pro-environmental behavior. Previous research has provided empirical evidence regarding this relationship. Subjective norms play a significant role in shaping personal norms in the context of green consumption. Meanwhile, Munerah et al. (2021) emphasized that subjective norms from the surrounding environment can strengthen individuals' moral beliefs regarding the purchase of environmentally friendly products.
Hypothesis 1: Attitudes influence personal norm.
Hypothesis 2: Subjective norms influence personal norms.

Norm Activation Theory (NAT)

Norm Activation Theory (NAT) explains that moral behavior, including pro-environmental behavior, is triggered by the activation of personal norms. Personal responsibility and norms play a central role in the NAT framework. Personal norms are understood as internal moral obligations that encourage individuals to behave in accordance with pro-environmental values. Strong personal norms emerge when an individual feels responsible for the environmental impact of their actions; thus, these moral beliefs act as a primary driver of intention to purchase environmentally friendly products. Previous research has demonstrated the importance of personal norms (Jaini et al., 2020).

Furthermore, Awareness of Consequence (AC) plays a crucial role in norm activation. Individuals who are aware of the negative impacts of non-environmentally friendly behavior are more likely to feel responsible, thereby generating stronger personal norms (Hwang et al., 2020; Jaini et al., 2020). These internalized personal norms then serve as a key driver of actual behavior, including the purchase of green products, as internal moral obligations drive consistent environmentally friendly consumption (Stern, 2000). Liu et al. (2017) found that AC significantly influenced personal norms in sustainable transportation behavior in China. Jaini et al. (2020) confirmed that personal norms resulting from the activation of AC and AR influenced green product purchase intentions.
Hypothesis 3: Awareness of consequences influences personal norms.
Hypothesis 4: Personal norms influence green product purchasing behavior.

RESEARCH METHOD

This research was conducted by integrating two theories, *the Theory of Planned Behavior* (TPB) and *Norm Activation Theory* (NAT), in the context of green purchasing behavior in the Special Region of Yogyakarta (DIY), using an explanatory study (Neuman, 2014). The object of this research was green products. Based on the time dimension, this study used a cross-sectional approach. The population in this study consisted of all individuals who had purchased green products in the Special Region of Yogyakarta. The sampling technique used was non-probability sampling, namely purposive sampling. There were three criteria for respondents to be included in this study: (1) respondents were individuals familiar with green products; (2) individuals who had never purchased green products; and (3) individuals who were highly involved in the decision-making process for green products. The sample size used in this study met the minimum sample size requirements for partial least squares structural equation modeling (PLS-SEM) and structural equation modeling (SEM). It is explained that the minimum sample size required in PLS-SEM is ten times the total measurement items in the study (Hair Jr. et al., 2021). The total number of measurement items in this study was 20. Therefore, based on this explanation, the sample size used in this study was 200 respondents.

The data used in this study were primary data collected through questionnaires and secondary data through article reviews. The questionnaire was sent to respondents via a link containing a Google Form. Questionnaire items were measured using a 5-point Likert scale. All instruments employed in this study will first undergo validity and reliability testing. These tests are essential, as they serve as the foundation of every measurement and ensure that each measurement accurately reflects the intended construct (Neuman, 2014). Conducting validity and reliability assessments also helps establish the accuracy, credibility, and level of confidence in the research findings (Neuman, 2014). Hypothesis testing was carried out using path coefficient (β) and significance (p-value) analysis. The path coefficient reflects the strength and direction of the relationship between latent variables, while the p- and t-values are employed to determine its statistical significance. A hypothesis is considered supported when the p-value is < 0.05 and the t-statistic > 1.96 (Hair Jr. et al., 2021).

FINDINGS AND DISCUSSION

Respondent Characteristics and Research Variables

This study utilized data from 200 respondents who are familiar with green products, have never purchased them, and are highly involved in the decision-making process for green products. Data collection was conducted online using the Google Forms digital platform. The characteristics of the study respondents are shown in Table 1 below. Based on gender, the majority were female (53.0%), followed by male (45.5%), and a small portion identified as other (0.5%) or did not disclose their gender (1.0%). In terms of age, the largest group of respondents was aged 20–29 years (44.5%), followed by those aged 30–39 (29.0%), under 20 (17.0%), 40–49 (6.5%), and 50 years or older (3.0%). Regarding the level of education, most respondents had completed senior high school (40.0%), followed by bachelor's degree holders (30.5%), diploma holders (22.5%), and postgraduate degree holders (7.0%), with no respondents having an education below junior high school. In terms of occupation, respondents were predominantly students (35.0%), employees (30.0%), and entrepreneurs (25.0%), with the remaining 10.0% comprising other categories. When viewed by income, 35.0% of respondents earned between Rp1,000,000 and Rp3,000,000, followed by 30.0% who earned between Rp3,000,000 and Rp5,000,000, 20.0% who earned above Rp5,000,000, and 15.0% who earned less than Rp1,000,000. As for their residence, the majority lived in Yogyakarta City (45.0%), followed by Sleman (30.0%), Bantul (15.0%), and other regions within the Special Region of Yogyakarta (10.0%).

Table 1. Respondents' Characteristic

		Amount	Percentage
Gender	Male	94	45,5%
	Female	106	53,0%
Age	< 20	34	17,0%
	20-29	90	44,5%
	30-39	60	29,0%
	40-49	16	6,5%
Education Level	SD/SMP	0	0%
	SMA/SMK	40	40,0%
	Diploma (D1-D3)	45	22,5%
	Bachelor degree (S1)	80	30,5%
	Postgraduate (S2/S3)	35	7,5%
Occupation	Student	70	35,0%

		Amount	Percentage
	Employee	60	30,0%
	Entrepreneur	50	25,0%
	Others	20	10,0%
Monthly Income	< Rp1.000.000	30	15,0%
	Rp1.000.000 – Rp3.000.000	70	35,0%
	Rp3.000.000 – Rp5.000.000	60	30,0%
	> Rp5.000.000	40	20,0%
Residence	Yogyakarta	20	9,0%
	Sleman	75	37,0%
	Bantul	90	45,0%
	Other	15	9,0%

Source: data processed by researchers (2025)

Evaluating the Structural Model and Hypothesis Testing

Table 2. Data Distribution

Variable	Indicator	Factor Loading > 0.7	AVE > 0.5	Cronbach's Alpha > 0.7	CR > 0.7
Awareness of Concequencess	AK1	0,920	0,849	0,941	0,944
	AK2	0,942			
	AK3	0,918			
	AK4	0,904			
Attitude	ATT1	0,936	0,753	0,896	1,073
	ATT2	0,884			
	ATT3	0,884			
	ATT4	0,759			
Green Purchase Intention	GP1	0,864	0,76	0,896	0,924
	GP2	0,931			
	GP3	0,886			
	GP4	0,802			
Personal Norms	PN1	0,872	0,818	0,926	0,931
	PN2	0,892			
	PN3	0,938			
	PN4	0,916			
Subjective Norms	SN1	0,792	0,688	0,85	0,866
	SN2	0,896			
	SN3	0,814			
	SN4	0,811			

Source: data processed by researchers (2025)

Table 2 shows the outer loading value of each indicator in the research construct. The outer loading value can be used to evaluate convergent validity. It is known that the accepted outer loading value is > 0.70 (Hair Jr. et al., 2021). The results indicate that all indicators have an outer

loading > 0.70. Table 3 shows that all AVE (Average Variance Extracted) values, or the average value of the extracted variance, owned by the construct are ≥ 0.50, so the construct explains more than half of the variance of its indicators, or the results of the convergent validity test are good (Hair Jr. et al., 2021).

The reliability test results are shown in Table 2, based on the measurement model testing results in the Cronbach's alpha and composite reliability columns. It is known that all variables have varying values between 0 and 1. The highest value is attributed to the awareness of consequences (AOC) construct, with a value of 0.941, and the lowest value is attributed to the subjective norms construct, with a value of 0.850. All values are greater than 0.70, indicating that they can be considered reliable and can be used further in subsequent research (Hair Jr. et al., 2021).

Table 3. Discriminant Validity Fornell & Larcker Criterion

	AOC	ATT	GP	PN	SN
AOC	0,921				
ATT	0,139	0,868			
GP	0,686	0,177	0,872		
PN	0,808	0,154	0,713	0,905	
SN	0,631	0,159	0,737	0,664	0,829

Source: data processed by researchers (2025)

Table 3 presents the outcomes of the discriminant validity assessment using the Fornell-Larcker criterion. The bold diagonal figures in the table represent the square root of the AVE for each construct. According to Hair Jr. et al. (2021), discriminant validity is achieved when the square root of a construct's AVE exceeds its highest correlation with other constructs. Based on this standard, the results confirm that discriminant validity is good.

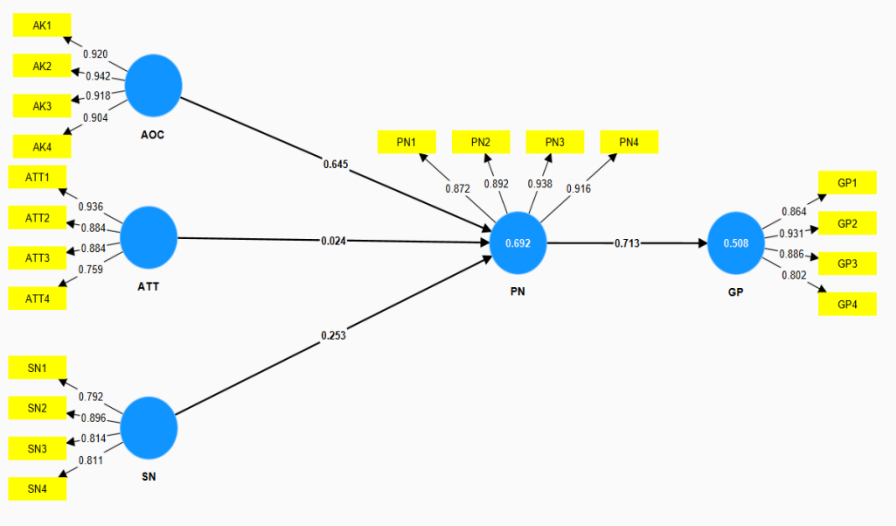

Figure 1. Model of Green Purchase Intention

The hypothetical relationships among the proposed variables are illustrated in Figure 1, which presents the structural model evaluation. The Smart-PLS analysis indicates that the model demonstrates a satisfactory fit. Findings reveal that the green product purchase intention model is acceptable, with all proposed hypotheses being supported. The R^2 values obtained in this study were 0,692 and 0,508.

Table 4. Hypothesis testing of factors affecting green purchase intention

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
AOC -> PN	0,645	0,648	0,067	9,647	0,000
ATT -> PN	0,024	0,028	0,079	0,308	0,758
PN -> GP	0,713	0,718	0,052	13,589	0,000
SN -> PN	0,253	0,251	0,073	3,479	0,001

Source: data processed by researchers (2025)

Table 4 presents the direct effects of each variable relationship. The results indicate that most of the hypothesized relationships are statistically significant with AOC → PN (t = 9.647; p = 0.000), PN → GP (t = 13.589; p = 0.000), and SN → PN (t = 3.479; p = 0.001) all exceeding the critical value of 1.96 and showing p-values below 0.05 except ATT → PN (t = 0.308; p = 0.758). This means that awareness of consequences (AOC) and subjective norms (SN) significantly influence personal norms (PN), while personal norms strongly drive green product purchase intention (GP). On the other hand, the path from attitude to personal norm is found to be insignificant, indicating that attitude does not substantially contribute to the formation of personal norms in this model. This outcome highlights the greater influence of normative and social factors over attitudes in shaping green purchase intentions.

This research supports previous studies, which demonstrate that purchase intention for environmentally friendly products is influenced by several key factors. Awareness of consequences has been shown to play a significant role in shaping consumers' pro-environmental decisions (Hwang et al., 2020; Jaini et al., 2020). Likewise, subjective norms, or the perceived social pressure from significant others, have been consistently identified as important predictors of green purchasing behavior (Choi & Johnson, 2019; Zhang & Dong, 2020). In addition, personal norms, which reflect an individual's internalized moral obligations, are also recognized as central determinants that drive intentions toward environmentally friendly product consumption (Liu et al., 2017; Jaini et al., 2020). Collectively, these findings reinforce the validity of the integrated TPB–NAT model in explaining green purchase intention.

CONCLUSIONS

The findings of this study support the validity of the purchase intention model for environmentally friendly products. All hypotheses were supported except for attitudes towards personal norms. This may have occurred because, in the TPB by Ajzen (1991), attitudes have a direct influence on purchase intentions. This finding aligns with previous research indicating that attitude is not a significant determinant of personal norms in pro-environmental behavior, as attitudes tend to influence intention directly, whereas personal norms are more strongly shaped by social and moral factors (Wu et al., 2022; Morren & Grinstein, 2021). This implies that consumers in the Special Region of Yogyakarta have an intention to purchase green products that is influenced by awareness of consequences, subjective norms, and personal norms.

Individuals who are aware of the consequences of polluting the environment will have an impact on their personal norms. Likewise, individuals who have subjective norms will also influence personal norms. Moreover, personal norms have a direct influence on green product purchase intentions. This suggests that pro-environmental behavior, as evidenced by the intention

to purchase green products, can be enhanced by raising awareness of the consequences of environmental damage, norms arising from the surrounding environment, and the individual's own personal norms. In this way, policymakers can focus on designing environmental campaigns, educational programs, and community-based initiatives that strengthen environmental awareness and social responsibility, while creating supportive regulations and incentives to encourage sustainable consumption. To increase consumers' green purchase intention, marketers can strive to foster consumer awareness, subjective norms, and personal norms by emphasizing the benefits of green products, leveraging social influence through peer endorsements or recommendations, and highlighting the moral and ethical values associated with green consumption in their communication strategies.

LIMITATIONS & FURTHER RESEARCH

The limitations of this study's cross-sectional design underscore the need for future longitudinal studies to investigate changes in personal norms, intentions, and green purchasing behavior over time. Future research could also test similar models in other geographic contexts in developing countries, allowing for cross-cultural comparisons. The use of mixed methods is also recommended to gain a deeper understanding of consumers' perceptions of personal norms and social pressures surrounding the purchase of green products. Future research can also expand the model by including other relevant variables in the context of pro-environmental behavior, such as emotional factors (Nguyen et al., 2017), local cultural values (Koon et al., 2020), or consumers' environmental literacy levels (Tseng et al., 2021).

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