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UNDERSTANDING PERSONAL PRO-ENVIRONMENTAL BEHAVIOR AMONG INDONESIAN YOUTH USING THEORY OF PLANNED BEHAVIOR

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Abstract:

This study examines the psychological determinants of personal pro-environmental behavior among Indonesian youth using the Theory of Planned Behavior (TPB). A total of 446 respondents aged 15 to 24 participated in the survey. Structural equation modeling (SEM) was employed to test the hypothesized relationships among attitude, subjective norms (SN), perceived behavioral control (PBC), intention (I), and personal pro-environmental behavior (PEB). The model demonstrated an acceptable fit, explaining 63.5% of the variance in intention and 19.1% in behavior. The results indicated that attitude and perceived behavioral control (PBC) significantly predicted intention, whereas subjective norms did not. Intention, in turn, significantly influenced personal pro-environmental behavior (PEB). Mediation analysis revealed that intention significantly mediated the relationships between attitude and perceived behavioral control (PBC) with personal pro-environmental behavior (PEB), but not between subjective norms and PEB. Implications and future research directions related to environmental psychology and youth engagement are discussed.

Keywords:

Pro-Environmental Behavior, Theory of Planned Behavior, Youth.

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Introduction

Environmental issues have become increasingly significant in the lives of Indonesians. Various forms of environmental degradation such as pollution, climate change, natural disasters, and poor waste management are now more prevalent (Aguilar-Luzón et al., 2012; Soares et al., 2021). Engaging in pro-environmental behavior is a key strategy for addressing environmental problems (Liu & Li, 2021). Such behavior contributes not only to environmental sustainability but also to the social and psychological well-being of individuals (Gustafson et al., 2022; Ibáñez-Rueda et al., 2020; Venhoeven et al., 2020; Zannakis et al., 2019). This role can be assumed by all members of society, particularly the younger generation. Young people play a crucial role in addressing environmental challenges (Riemer et al., 2016; Singh et al., 2020). This generation plays a vital role in addressing both current and future environmental issues (Dąbrowski et al., 2022). They are expected to take a more active role in driving change to protect the environment (Balundė et al., 2020).

Pro-environmental behavior encompasses all forms of human activity that promote environmental sustainability. It is defined as any behavior, grounded in environmental knowledge, that considers the societal context in efforts to protect or enhance environmental health (Anderson & Krettenauer, 2021; Tian & Liu, 2022). This behavior aims to preserve ecological sustainability and reduce environmental harm (Miller et al., 2022; Steg & Vlek, 2009). Pro-environmental behavior encompasses a wide range of actions that support environmental sustainability in both personal and public contexts. Examples of pro-environmental behavior in a personal context include reducing the use of environmentally harmful products (reduce), reusing items to conserve resources (reuse), and recycling or purchasing environmentally friendly products (Barr, 2007; Liao & Yang, 2022). In contrast, pro-environmental behavior in the public context includes donating to environmental causes, joining environmental organizations, participating in environmentally themed activities, and engaging in environmental advocacy and protests (Stern, 2000; Tsai et al., 2021). This study focuses on pro-environmental behavior in the personal context.

Pro-environmental behavior is a complex phenomenon influenced by multiple factors. It is generally shaped by two primary categories: psychological and situational factors (Barr, 2007; Corraliza & Berenguer, 2000). Psychological factors pertain to individual perceptions of the environment, encompassing attitudes, values (both personal and general), personality traits, and religious beliefs. Situational factors encompass external circumstances influencing individuals, such as government policies, culture, media influence, infrastructure, costs, and social norms (Eom et al., 2016; Farrukh et al., 2023; Jia & Krettenauer, 2019; Rajapaksa et al., 2018; Ramayah et al., 2012; Rubaltelli et al., 2020; Wyss et al., 2022). Both factors are crucial for understanding pro-environmental behavior. Examining intrapsychological processes is essential for explaining environmental behavior, as is understanding socio-psychological factors within specific contexts (Oreg & Katz-Gerro, 2006). This study focuses on analyzing personal pro-environmental behavior through the lens of Ajzen's (1991) *Theory of Planned Behavior* (TPB).

The Theory of Planned Behavior (TPB) has become one of the most influential frameworks for explaining pro-environmental behavior (Klöckner, 2013; Morren & Grinstein, 2016; A. Y. J. Tsai & Tan, 2022). The TPB model comprises three core variables: attitudes, subjective norms, and perceived behavioral control (see Figure 1). These variables serve as key determinants of an individual's pro-environmental intentions and subsequent behaviors (Gkargkavouzi et al.,

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2019; Si et al., 2019). Intentions, in turn, are influenced by attitudes, subjective norms, and perceived behavioral control. Previous studies have shown that attitudes are significantly associated with pro-environmental behavioral intentions (Gkargkavouzi et al., 2019; Tsai & Tan, 2022).

Moreover, subjective norms significantly contribute to the strengthening of pro-environmental behavioral intentions. In this study, subjective norms refer to the perceived social pressure from individuals' immediate social circles (e.g., family and friends) to engage in environmentally friendly behavior. Empirical evidence consistently demonstrates that subjective norms from significant referents particularly family and close friends can effectively strengthen pro-environmental intentions. For instance, Correia et al. (2022) found that subjective norms positively influence students' pro-environmental behaviors in both Portugal and Indonesia, while Ketut et al. (2010) identified a clear relationship between subjective norms and pro-environmental behavioral intentions. Additional research has confirmed a significant association between subjective norms and various forms of pro-environmental intentions across different domains, including waste management and disposal practices (Esfandiar et al., 2021; Norm et al., 2023; Raghu & Rodrigues, 2022), eco-friendly product purchases (Pakpour et al., 2021), and energy conservation behaviors (Qalati et al., 2022).

Finally, perceived behavioral control constitutes a crucial determinant of pro-environmental behavioral intentions. As a fundamental component of the Theory of Planned Behavior (TPB), perceived behavioral control refers to an individual's self-assessment of their capability to perform specific actions, encompassing both their perceived ability and the ease or difficulty of executing the behavior (Ajzen, 1991). Within this framework, behavioral control specifically pertains to individuals' perceptions of their capacity and opportunity to engage in environmentally conscious actions (Klöckner, 2013). Empirical evidence demonstrates that individuals with stronger perceptions of behavioral control exhibit greater engagement in pro-environmental behaviors, including purchasing eco-friendly products and energy conservation behaviors (Pakpour et al., 2021; Qalati et al., 2022).

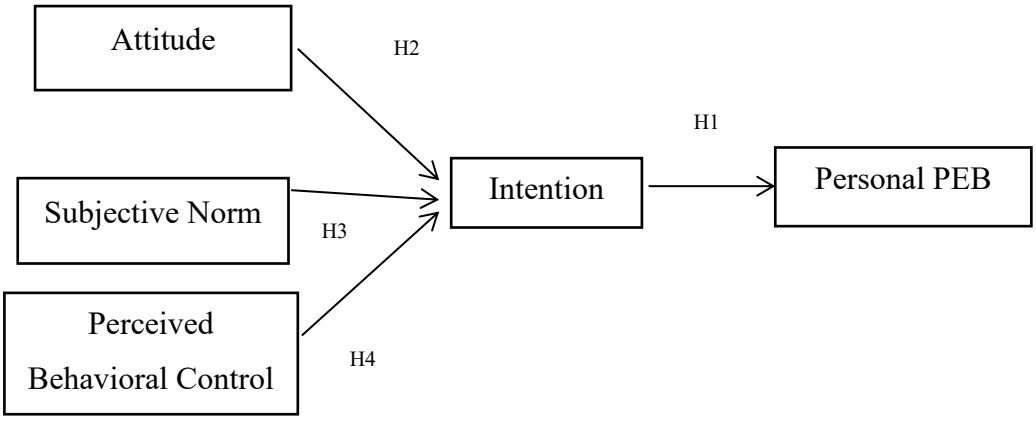

Figure 1: Model of Pro environmental Behavior Using TPB

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Research Hypotheses:
Based on the theoretical framework presented in Figure 1 (Model of Pro-Environmental Behavior using the Theory of Planned Behavior), the study proposes the following hypotheses:

H1: Intention significantly predicts personal pro-environmental behavior.
H2: Environmental attitudes are significantly associated with pro-environmental behavioral intentions.
H3: Subjective norms are significantly associated with pro-environmental behavioral intentions.
H4: Perceived behavioral control is significantly associated with pro-environmental behavioral intentions.

Literature Review and Theoretical Framework

Personal Pro-Environmental Behavior (PEB)

Pro-environmental behavior, also known as environmentally friendly, green, or sustainable behavior, is defined as behavior that consciously protects and enhances environmental sustainability (Lange & Dewitte, 2019; Tian & Liu, 2022). It encompasses a wide range of actions, such as conserving energy, using and purchasing environmentally friendly products, and managing waste. Personal pro-environment behavior refers to actions within the personal sphere that support environmental protection and sustainability, such as buying or using environmentally friendly products, engaging in environmentally responsible transportation, and practicing conservation behaviors such as saving energy, recycling, and proper waste disposal (Liao & Yang, 2022b; Mateer et al., 2022).

Attitude (A)

Attitude represents a latent psychological disposition reflecting an individual's tendency to evaluate specific objects, concepts, or behaviors along a favorable-unfavorable dimension, (Ajzen & Fishbein, 2010). Attitude is a consequential belief based on the perceived impact of performing a certain behavior (Ajzen, 1991). Attitude constitutes a formative belief system derived from perceived behavioral outcomes—individuals develop positive attitudes when they anticipate beneficial consequences and negative attitudes when they expect undesirable outcomes (Ajzen, 2005). In this study, we operationalize attitude as an individual's evaluative judgment (positive or negative) toward engaging in pro-environmental actions (Kesenheimer & Greitemeyer, 2021).

Subjective Norms (SN)

Subjective norms reflect an individual's perceived social pressure to engage in specific behaviors, shaped by the expectations of influential referent groups such as family and close friends (Ajzen, 1991). They refer to beliefs about whether or not most individuals approve or disapprove of the behavior (Ajzen & Fishbein, 2010). Subjective norms involve an individual's beliefs that significant others think they should engage in such behavior. The norms often originate from individuals who play an important role in one's life such as parents and close friends. The beliefs underlying subjective norms are called normative beliefs, which pertain to the perception that individuals behave according to other's expectations (Ajzen, 2020). In this study, subjective norms refer to social pressures perceived by individuals from the closest referents (family and friends) to engage in pro-environmentally behavior.

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Perceived Behavioral Control (PBC)

Perceived behavioral control refers to an individual's perception of their ability to perform certain behaviors, specifically the extent to which they perceive those behaviors as easy or difficult to conduct (Ajzen, 1991, 2020; Barbera & Ajzen, 2020; Bosnjak et al., 2020). It is assumed to be determined by a set of accessible control beliefs—beliefs about the presence of factors that may facilitate or hinder behavioral performance (Ajzen & Schmidt, 2020). In this study, perceived behavioral control is defined as an individual's perceived ability and opportunity to engage in pro-environmental behavior.

Theoretical Framework

The Theory of Planned Behavior (TPB) is one of the most widely used frameworks for explaining pro-environmental behavior (Chan et al., 2022; Gkargkavouzi et al., 2019; Liobikiene & Poškus, 2019; Si et al., 2019). It is an extension of Ajzen & Fishbein's reasoned action theory (1980), incorporating the construct of perceived behavioral controls. *TPB* is based on an intrinsic factor intention which is considered the primary determinant of behavior. Intention is defined as an individual's motivation or willingness to perform a particular behavior (Ajzen, 1991).According to the TPB, intentions are influenced by individual attitudes, subjective norms, and perceived behavioral control (Morren & Grinstein, 2016). Attitude is a belief of the perceived impact of performing a certain behavior (Ajzen, 1991) and reflects an individual's evaluation positive or negative evaluation of that behavior. Attitudes are shaped by beliefs about the potential costs and benefits of behaviors, and the importance of those conditions (Steg & Nordlund, 2018). Subjective norms also play a key role in shaping intentions. They refer to the influence of social expectations on an individual's behavior and reflect normative beliefs arising from perceived social pressure (Ajzen, 1991).

Method

Participants

This study involved a total of 446 respondents domiciled in Pekanbaru, Riau, Indonesia. The sample comprised 207 males and 239 females, aged between 15 and 24 years, with a mean age of 19.2 years.

Measurements

This study employed several measurements based on previous studies. *Personal PEB* was measured using six items adapted from Mateer et al. (2022), with response options ranging from "always" (5) to "never" (1). An example of an item is, "*Reuse or repair items rather than throw them away,*" with a Cronbach's alpha of 0.82. The *Intention* construct consisted of three items adapted from Correia et al. (2022), such as "*I intend to participate in real action in environmental protection,*" with reliability coefficient of 0.77. The *Attitude construct* was measured using items adapted from Yang et al. (2020), including "*I find engaging in pro-environmental behavior useful,*" with a Cronbach's alpha 0.88. Subjective norms were measured using four items from Correia et al. (2022), for example, "*Many important people in my life support me in my efforts to protect the environment,"* with a reliability coefficient of 0.86. Perceived behavioral control was measured using three items adapted from Tsai & Tan (2022), such as *"I am sure that if I wanted to, I can protect the environment,"* with a Cronbach's alpha of 0.77. Responses for these constructs were rated on a six-point Likert scale ranging from "strongly agree" (6) to "strongly disagree" (1)

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Data Analysis

The first step of data analysis in this study involved correlational analysis, followed by path analysis with Jamovi. Model fit was evaluated using several criteria: *Chi-square* (χ^2, p>0.05), *Root Mean Square Error of Approximation* (RMSEA, < 0.06), and Standardized *Root Mean Square Residual* (SRMR, < 0.08). *Comparative Fit Index* (CFI, > 0.90) and *Tucker-Lewis Index* (TLI, > 0.90) (Hair et al., 2019; Kline, 2023).

Results

Table 1 displays the Pearson correlation coefficients among the five primary constructs examined in this study. All correlations were statistically significant at the $p < .001$ level, suggesting robust associations among the constructs. Intention was positively correlated with attitude ($r = .646$), subjective norm ($r = .451$), perceived behavioral control ($r = .573$), and personal pro-environmental behavior ($r = .286$). These results imply that higher levels of these psychological determinants are associated with stronger intentions to act pro-environmentally. Among the predictors, perceived behavioral control showed the strongest correlation with attitude (*r* = .736), indicating a close relationship between an individual's perceived ease or difficulty in performing a behavior and their evaluation of it. Similarly, strong associations were observed between subjective norm and attitude ($r = .597$), and between perceived behavioral control and subjective norm ($r = .618$), suggesting that social influences and perceived control are interrelated with personal attitudes. Finally, personal pro-environmental behavior was moderately correlated with all psychological constructs, with the highest being with perceived behavioral control ($r = .350$), suggesting that individuals who perceive higher control over their actions are more likely to engage in environmentally friendly behavior.

Table 1: Inter-Correlation among All Variables

Construct	1	2	3	4	5
1. Intention (I)	—				
2. Attitude (A)	.646***	—			
3. Subjective Norm (SN)	.451***	.597***	—		
4. Perceived Behavioral Control (PBC)	.573***	.736***	.618***	—	
5. Personal Pro-Environmental Behavior (PEB)	.286***	.349***	.314***	.350***	—

Note. N = 446. *p < .05. **p < .01. ***p < .001.

The model fit analysis indicates that the proposed structural model fits the data adequately. The chi-square value was statistically significant, $\chi^2(3) = 9.75$, $p = .021$, suggesting some deviation from a perfect model fit. However, due to the chi-square test's sensitivity to sample size, other fit indices provide a more reliable evaluation of model adequacy. The Comparative Fit Index (CFI) was 0.978 and the Tucker-Lewis Index (TLI) was 0.949, both exceeding the commonly accepted threshold of 0.90, indicating good model fit. The Root Mean Square Error of Approximation (RMSEA) was 0.071 with a 90% confidence interval ranging from 0.024 to 0.123, and a non-significant RMSEA *p*-value of 0.192, further supporting an acceptable model fit. The Standardized Root Mean Square Residual (SRMR) was 0.062, well below the 0.08 threshold, indicating low residual differences between the observed and predicted correlations. The model explains 63.5% of the variance in intention (95% CI: 0.578–0.686), indicating strong predictive power. For pro-environmental behavior (PEB), it explains 19.1% of the variance (95% CI: 0.129–0.260), suggesting a modest level of explanation, with other

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contributing factors. In conclusion, the structural model demonstrated an acceptable overall fit to the data, supported by multiple fit indices.

Table 2: Hypothesis Testing Results Structural Path Estimates

Dependent	Predictor	Estimate	SE	95% CI Lower	95% CI Upper	β	*z*	*p*	*Result*
H1: PEB	I	0.9456	0.1619	0.6283	1.2630	0.437	5.84	< .001	Accepted
H2: I	A	0.2063	0.0487	0.1108	0.3020	0.490	4.23	< .001	Accepted
H3: I	SN	0.0826	0.0669	–0.0484	0.2140	0.102	1.24	.217	Rejected
H4: I	PBC	0.2556	0.0966	0.0664	0.4450	0.286	2.65	.008	Accepted

The results of the structural equation modeling reveal mixed support for the proposed hypotheses (table 2). Hypothesis 1 (H1), which posited a positive effect of intention (I) on personal pro-environmental behavior (PEB), was supported. The unstandardized estimate was 0.9456 ($p < .001$), with a standardized coefficient (β) of 0.437, indicating a moderate to strong predictive relationship. This finding aligns with the Theory of Planned Behavior (TPB), affirming that behavioral intention is a significant determinant of actual pro-environmental action. Hypothesis 2 (H2), which proposed that attitude (A) positively influences intention, was also supported. The standardized coefficient was 0.490 ($p < .001$), suggesting that individuals with more favorable attitudes toward environmental behavior are more likely to form strong intentions to act.

In contrast, Hypothesis 3 (H3), which tested the effect of subjective norm (SN) on intention, was not supported. The relationship was weak and non-significant (β = 0.102, $p = .217$), indicating that perceived social pressure does not significantly influence individuals' intentions in this context. Hypothesis 4 (H4), which predicted that perceived behavioral control (PBC) influences intention, was supported. The path was statistically significant (β = 0.286, $p = .008$), suggesting that greater perceived control over pro-environmental behavior enhances intention to perform it. Overall, three of the four hypotheses were supported, underscoring the central role of intention, attitude, and control beliefs in predicting pro-environmental behaviors.

Table 3: Indirect Effects and Confidence Intervals

Description	Estimate	SE	95% CI Lower	95% CI Upper	β	*z*	*p*
PBC → Intention → PEB	0.242	0.093	0.059	0.425	0.125	2.59	.010
SN → Intention → PEB	0.078	0.066	–0.051	0.207	0.045	1.19	.234
A → Intention → PEB	0.195	0.047	0.103	0.288	0.215	4.13	< .001

Table 3 presents the indirect effects of perceived behavioral control (PBC), subjective norm (SN), and attitude (A) on personal pro-environmental behavior (PEB) through intention (I). The indirect effect of PBC on PEB via intention (I) was statistically significant ($\beta = 0.125$, $p = .010$), indicating that individuals with greater perceived behavioral control are more likely to form intentions and subsequently engage in pro-environmental actions. In contrast, the indirect effect of subjective norm on behavior via intention was not significant ($\beta = 0.045$, $p = .234$),

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suggesting that perceived social pressure does not meaningfully influence behavior through intention in this sample.

The indirect effect of attitude on PEB via intention (I) was both strong and significant (β = 0.215, $p < .001$), highlighting the significant role of favorable attitudes in shaping intention and ultimately driving pro-environmental behavior. Overall, these findings emphasize that perceived behavioral control and personal attitude are critical pathways influencing behavior through intention. In contrast, the subjective norm does not significantly contribute to indirect effects in this context.

Discussion

The current study aims to examine the psychological determinants of personal pro-environmental behavior within the framework of the Theory of Planned Behavior (TPB). The findings provide strong support for the predictive role of intention, attitude, and perceived behavioral control (PBC), while challenging the assumed influence of subjective norms on environmental intentions. Consistent with TPB, intention emerged as a strong and significant predictor of behavior, suggesting that individuals with stronger intentions are more likely to engage in environmentally responsible actions (Arya & Chaturvedi, 2020; Heidari et al., 2018; Karimi et al., 2021). This supports the core principle of TPB that intention serves as a proximal antecedent of behavior.

Among the antecedents of intention, attitude and perceived behavioral control (PBC) had significant effects. Attitude showed the strongest influence on intention, both directly and indirectly through intention to behavior, consistent with previous studies highlighting the motivational power of positive environmental (Chan et al., 2022; Gkargkavouzi et al., 2019). PBC also significantly influenced intention and indirectly affected PEB, suggesting that perceived ease or autonomy plays a meaningful role in encouraging pro-environmental decision-making. These findings suggest that pro-environmental campaigns should promote favorable evaluations of sustainable actions and enhance individuals' perceived capacity to act.

In contrast, the subjective norm (SN) did not significantly predict intention (H3), partially contradicting the TPB assumption that social pressure influences behavioral intention. This result may reflect cultural or contextual variations. In some settings, internal motivations or personal beliefs may override perceived social expectations. Alternatively, the influence of subjective norm might be mediated by other psychological factors, such as moral obligation (Harland et al., 1999), or may be more salient in collective behavior contexts rather than in individual decision-making. Future studies could explore how perceived social norms interact with identity, values, and group belonging to influence sustainability-related intentions.

In addition to the direct structural relationships, this study examined the mediating role of intention in the relationship between the antecedent constructs (attitude, subjective norm, and perceived behavioral control) and personal pro-environmental behavior (PEB). The mediation analysis provides further insight into how internal psychological mechanisms translate into behavioral outcomes—an essential aspect of the Theory of Planned Behavior (Ajzen, 1991). The findings revealed that intention significantly mediated the relationship between attitude and PEB. This indirect effect was strong and statistically significant ($\beta = 0.215$, $p < .001$). This result aligns with previous research, suggesting that attitudes not only serve a direct

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motivational function but also exert influence indirectly through deliberate planning and intention formation (Gkargkavouzi et al., 2019; Karimi et al., 2021).

Similarly, the indirect effect of perceived behavioral control (PBC) on behavior via intention was also significant ($\beta = 0.125$, $p = .010$), suggesting that the belief in one's capacity to act not only enhances behavioral control directly but also strengthens motivational intention. These findings support previous research indicating that perceived autonomy and confidence in performing pro-environmental behaviors are key facilitators in the intention-behavior pathway (Qalati et al., 2022). However, the indirect effect of subjective norm on PEB through intention was non-significant ($\beta = 0.045$, $p = .234$), indicating that perceived social pressure does not influence pro-environmental behavior in this context through intention formation. One possible explanation is that personal environmental actions may be more strongly driven by internal factors (e.g., values, moral norms) than by external social approval or peer influence (Harland et al., 1999; Thøgersen & Ölander, 2006). Moreover, subjective norms may have an effect only in certain cultural or communal contexts, such as collectivist societies, where group norms are stronger determinants of behavior.

Despite the useful insights, the study has several limitations. First, the cross-sectional design limits the ability to draw causal inferences; longitudinal or experimental designs are needed to establish the temporal order between variables. Second, the exclusive use of self-reported data may introduce social desirability bias and common method variance. Third, the model focused solely on TPB variables and did not account for additional predictors such as environmental concern, moral norms, or past behavior, which could improve the model's explanatory power. Additionally, the generalizability of the findings is limited by the sample's characteristics.

Conclusion and Future Research

In summary, this study confirms the usefulness of TPB in explaining personal pro-environmental behavior. Intention—driven by favorable attitudes and perceived control—emerged as the key mechanism leading to action. The non-significant role of subjective norm highlights the need for further exploration into culturally contingent or value-based motivations for sustainable behavior. Future research should incorporate longitudinal design, broaden the scope to include psychosocial constructs such as moral obligation, environmental identity, and anticipated emotions, and examine the moderating role of culture, education, and age. Integrating TPB with other frameworks, such as the Norm Activation Model (Schwartz, 1977) or the Value-Belief-Norm theory (Stern, 2000), may offer a more comprehensive understanding of sustainability-related behavior. Ultimately, enhancing behavioral interventions requires deeper understanding not only of individual motivations but also into the contextual factors that shape environmental actions.

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DOI 10.35631/IJEPC.1060009

References

Aguilar-Luzón, M. del 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. https://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. https://doi.org/10.1016/0749-5978(91)90020-T

Ajzen, I. (2020). The theory of planned behavior: Frequently asked questions. *Human Behavior and Emerging Technologies*, *2*(4), 314–324. https://doi.org/10.1002/hbe2.195

Ajzen, I., & Fishbein, M. (2010). Predicting Changing Behavior. In *Taylor & Francis Group*. Psychology Press.

Ajzen, I., & Schmidt, P. (2020). Changing Behavior Using the Theory of Planned Behavior. In *The Handbook of Behavior Change* (pp. 17–31). Cambridge University Press. https://doi.org/10.1017/9781108677318.002

Anderson, D. J., & Krettenauer, T. (2021). Connectedness to nature and pro-environmental behaviour from early adolescence to adulthood: A comparison of urban and rural canada. *Sustainability (Switzerland)*, *13*(7). https://doi.org/10.3390/su13073655

Arya, B., & Chaturvedi, S. (2020). Extending the theory of planned behaviour to explain energy saving behaviour. *Environmental and Climate Technologies*, *24*(1), 516–528. https://doi.org/10.2478/rtuect-2020-0032

Balundė, A., Perlaviciute, G., & Truskauskaitė-Kunevičienė, I. (2020). Sustainability in Youth: Environmental Considerations in Adolescence and Their Relationship to Pro-environmental Behavior. *Frontiers in Psychology*, *11*, 5–6. https://doi.org/10.3389/fpsyg.2020.582920

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. https://doi.org/10.1016/j.jenvp.2006.12.002

Barbera, F. La, & Ajzen, I. (2020). Control interactions in the theory of planned behavior: Rethinking the role of subjective norm. *Europe's Journal of Psychology*, *16*(3), 401–417. https://doi.org/10.5964/ejop.v16i3.2056

Barr, S. (2007). Factors influencing environmental attitudes and behaviors: A U.K. case study of household waste management. In *Environment and Behavior* (Vol. 39, Issue 4). https://doi.org/10.1177/0013916505283421

Bosnjak, M., Ajzen, I., & Schmidt, P. (2020). The theory of planned behavior: Selected recent advances and applications. *Europe's Journal of Psychology*, *16*(3), 352–356. https://doi.org/10.5964/ejop.v16i3.3107

Chan, K. H., Chong, L. L., & Ng, T. H. (2022). Integrating extended theory of planned behaviour and norm activation model to examine the effects of environmental practices among Malaysian companies. *Journal of Entrepreneurship in Emerging Economies*, *14*(5), 851–873. https://doi.org/10.1108/JEEE-08-2021-0317

Corraliza, J. A., & Berenguer, J. (2000). Environmental values, beliefs, and actions: A situational approach. *Environment and Behavior*, *32*(6), 832–848. https://doi.org/10.1177/00139160021972829

Correia, E., Sousa, S., Viseu, C., & Leite, J. (2022). Using the theory of planned behavior to understand the students' pro-environmental behavior: a case-study in a Portuguese HEI.

International Journal of Education, Psychology and Counseling
IJEPC
EISSN : 0128-164X
Volume 10 Issue 60 (October 2025) PP. 140-153
DOI 10.35631/IJEPC.1060009

International Journal of Sustainability in Higher Education, *23*(5), 1070–1089. https://doi.org/10.1108/IJSHE-05-2021-0201

Dąbrowski, L. S., Środa-Murawska, S., Smoliński, P., & Biegańska, J. (2022). Rural–Urban Divide: Generation Z and Pro-Environmental Behaviour. *Sustainability (Switzerland)*, *14*(23), 16111. https://doi.org/10.3390/su142316111

Eom, K., Kim, H. S., Sherman, D. K., & Ishii, K. (2016). Cultural Variability in the Link Between Environmental Concern and Support for Environmental Action. *Psychological Science*, *27*(10), 1331–1339. https://doi.org/10.1177/0956797616660078

Esfandiar, K., Dowling, R., Pearce, J., & Goh, E. (2021). What a load of rubbish! The efficacy of theory of planned behaviour and norm activation model in predicting visitors' binning behaviour in national parks. *Journal of Hospitality and Tourism Management*, *46*(November 2020), 304–315. https://doi.org/10.1016/j.jhtm.2021.01.001

Farrukh, M., Raza, A., Mansoor, A., Khan, M. S., & Lee, J. W. C. (2023). Trends and patterns in pro-environmental behaviour research: a bibliometric review and research agenda. *Benchmarking*, *30*(3), 681–696. https://doi.org/10.1108/BIJ-10-2020-0521

Fenitra, R. M., Laila, N., Premananto, G. C., Abbas, A., & Sedera, R. M. H. (2023). Explaining littering prevention among park visitors using the Theory of Planned Behavior and Norm Activation Model. *International Journal of Geoheritage and Parks*, *11*(1), 39–53. https://doi.org/10.1016/j.ijgeop.2022.11.002

Gkargkavouzi, A., Halkos, G., & Matsiori, S. (2019). Environmental behavior in a private-sphere context: Integrating theories of planned behavior and value belief norm, self-identity and habit. *Resources, Conservation and Recycling*, *148*(January), 145–156. https://doi.org/10.1016/j.resconrec.2019.01.039

Gustafson, A., Pace, A., Singh, S., & Goldberg, M. H. (2022). What do people say is the most important reason to protect nature? An analysis of pro-environmental motives across 11 countries. *Journal of Environmental Psychology*, *80*, 101762. https://doi.org/10.1016/j.jenvp.2022.101762

Hair, J. ., Black, W., Babin, B., & Anderson, R. (2019). *Multivariate Data Analysis* (8th ed.). Cengage Learning.

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. https://doi.org/10.1111/j.1559-1816.1999.tb00123.x

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

Ibáñez-Rueda, N., Guillén-Royo, M., & Guardiola, J. (2020). Pro-environmental behavior, connectedness to nature, and wellbeing dimensions among granada students. *Sustainability (Switzerland)*, *12*(21), 1–16. https://doi.org/10.3390/su12219171

Jia, F., & Krettenauer, T. (2019). Editorial: Environmental Engagement and Cultural Value: Global Perspectives for Protecting the Natural World. *Frontiers in Psychology*, *10*(3), 141–157. https://doi.org/10.3389/fpsyg.2019.02853

Karimi, S., Liobikienė, G., Saadi, H., & Sepahvand, F. (2021). The influence of media usage on iranian students' pro-envi-ronmental behaviors: An application of the extended theory of planned behavior. *Sustainability (Switzerland)*, *13*(15). https://doi.org/10.3390/su13158299

International Journal of Education, Psychology and Counseling
IJEPC
EISSN : 0128-164X
Volume 10 Issue 60 (October 2025) PP. 140-153
DOI 10.35631/IJEPC.1060009
Kesenheimer, J. S., & Greitemeyer, T. (2021). Going green (And not being just more pro-social): Do attitude and personality specifically influence pro-environmental behavior? *Sustainability (Switzerland)*, *13*(6). https://doi.org/10.3390/su13063560

Kline, R. B. (2023). *Principles and Practice of Structural Equation Modeling* (Fifth). The Guilford Press.

Klöckner, C. A. (2013). A comprehensive model of the psychology of environmental behaviour-A meta-analysis. *Global Environmental Change*, *23*(5), 1028–1038. https://doi.org/10.1016/j.gloenvcha.2013.05.014

Lange, F., & Dewitte, S. (2019). Measuring pro-environmental behavior: Review and recommendations. *Journal of Environmental Psychology*, *63*(October 2018), 92–100. https://doi.org/10.1016/j.jenvp.2019.04.009

Liao, Y., & Yang, W. (2022a). The determinants of different types of private-sphere pro-environmental behaviour: an integrating framework. *Environment, Development and Sustainability*, *24*(6), 8566–8592. https://doi.org/10.1007/s10668-021-01800-7

Liao, Y., & Yang, W. (2022b). The determinants of different types of private-sphere pro-environmental behaviour: an integrating framework. *Environment, Development and Sustainability*, *24*(6), 8566–8592. https://doi.org/10.1007/s10668-021-01800-7

Liobikiene, G., & Poškus, M. S. (2019). The importance of environmental knowledge for private and public sphere pro-environmental behavior: Modifying the Value-Belief-Norm theory. *Sustainability (Switzerland)*, *11*(12). https://doi.org/10.3390/su10023324

Liu, Y., & Li, X. (2021). Pro-Environmental Behavior Predicted by Media Exposure, SNS Involvement, and Cognitive and Normative Factors. *Environmental Communication*, *15*(7), 954–968. https://doi.org/10.1080/17524032.2021.1922479

Mateer, T. J., Melton, T. N., Miller, Z. D., Lawhon, B., Agans, J. P., & Taff, B. D. (2022). A multi-dimensional measure of proenvironmental behavior for use across populations with varying levels of environmental involvement in the United States. *PLoS ONE*, *17*(10 October), 1–22. https://doi.org/10.1371/journal.pone.0274083

Miller, L. B., Rice, R. E., Gustafson, A., & Goldberg, M. H. (2022). Relationships Among Environmental Attitudes, Environmental Efficacy, and Pro-Environmental Behaviors Across and Within 11 Countries. *Environment and Behavior*, *54*(7–8), 1063–1096. https://doi.org/10.1177/00139165221131002

Morren, M., & Grinstein, A. (2016). Explaining environmental behavior across borders: A meta-analysis. *Journal of Environmental Psychology*, *47*(November 2021), 91–106. https://doi.org/10.1016/j.jenvp.2016.05.003

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. https://doi.org/10.1177/0013916505286012

Pakpour, A. H., Lin, C. K., Safdari, M., Lin, C. Y., Chen, S. H., & Hamilton, K. (2021). Using an integrated social cognition model to explain green purchasing behavior among adolescents. *International Journal of Environmental Research and Public Health*, *18*(23). https://doi.org/10.3390/ijerph182312663

Qalati, S. A., Qureshi, N. A., Ostic, D., & Sulaiman, M. A. B. A. (2022). An extension of the theory of planned behavior to understand factors influencing Pakistani households' energy-saving intentions and behavior: a mediated–moderated model. *Energy Efficiency*, *15*(6), 1–21. https://doi.org/10.1007/s12053-022-10050-z

Raghu, S. J., & Rodrigues, L. L. R. (2022). Solid waste management behavior among the student community: integrating environmental knowledge and situational factors into the theories of planned behavior and value belief norm. *Journal of Environmental*

International Journal of Education, Psychology and Counseling
IJEPC
EISSN : 0128-164X
Volume 10 Issue 60 (October 2025) PP. 140-153
DOI 10.35631/IJEPC.1060009

Planning and Management, *65*(10), 1842–1874. https://doi.org/10.1080/09640568.2021.1949969

Rajapaksa, D., Islam, M., & Managi, S. (2018). Pro-environmental behavior: The role of public perception in infrastructure and the social factors for sustainable development. *Sustainability (Switzerland)*, *10*(4). https://doi.org/10.3390/su10040937

Ramayah, T., Lee, J. W. C., & Lim, S. (2012). Sustaining the environment through recycling: An empirical study. *Journal of Environmental Management*, *102*, 141–147. https://doi.org/10.1016/j.jenvman.2012.02.025

Riemer, M., Voorhees, C., Dittmer, L., Alisat, S., Alam, N., Sayal, R., Bidisha, S. H., De Souza, A., Lynes, J., Metternich, A., Mugagga, F., & Schweizer-Ries, P. (2016). The Youth Leading Environmental Change Project: A Mixed-Method Longitudinal Study across Six Countries. *Ecopsychology*, *8*(3), 174–187. https://doi.org/10.1089/eco.2016.0025

Rubaltelli, E., Tedaldi, E., Orabona, N., & Scrimin, S. (2020). Environmental and psychological variables influencing reactions to the COVID-19 outbreak. *British Journal of Health Psychology*, *25*(4), 1020–1038. https://doi.org/10.1111/bjhp.12473

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

Si, H., Shi, J. G., Tang, D., Wen, S., Miao, W., & Duan, K. (2019). Application of the theory of planned behavior in environmental science: a comprehensive bibliometric analysis. *International Journal of Environmental Research and Public Health*, *16*(15). https://doi.org/10.3390/ijerph16152788

Singh, P., Sahadev, S., Oates, C. J., & Alevizou, P. (2020). Pro-environmental behavior in families: A reverse socialization perspective. *Journal of Business Research*, *115*(April), 110–121. https://doi.org/10.1016/j.jbusres.2020.04.047

Soares, J., Miguel, I., Venâncio, C., Lopes, I., & Oliveira, M. (2021). Public views on plastic pollution: Knowledge, perceived impacts, and pro-environmental behaviours. *Journal of Hazardous Materials*, *412*, 125227. https://doi.org/10.1016/j.jhazmat.2021.125227

Steg, L., & Nordlund, A. (2018). Theories to explain environmental behaviour. In L. Steg & J. I. M. de Groot (Eds.), *Environmental Psychology: An Introduction* (Second, pp. 217–227). John Wiley & Sons Ltd. https://doi.org/10.1002/9781119241072.ch22

Steg, L., & Vlek, C. (2009). Encouraging pro-environmental behaviour: An integrative review and research agenda. *Journal of Environmental Psychology*, *29*(3), 309–317. https://doi.org/10.1016/j.jenvp.2008.10.004

Stern, P. C. (2000). Toward a coherent theory of environmentally significant behaviour. *Journal of Social Issues*, *56*(3), 407–424.

Suryandari N.K.D, Suprapti N.W.S, & Sukaatmadja I.P.G. (2016). Aplikasi Theory of Planned Behavior dalam Menjelasan Perilaku Ekologis Generasi di Kota Denpasar. *Jurnal Manajemen, Strategi Bisnis Dan Kewirausahaan*, *10*(1), 31–41.

Thøgersen, J., & Ölander, F. (2006). The dynamic interaction of personal norms and environment-friendly buying behavior: A panel study. *Journal of Applied Social Psychology*, *36*(7), 1758–1780. https://doi.org/10.1111/j.0021-9029.2006.00080.x

Tian, H., & Liu, X. (2022). Pro-Environmental Behavior Research: Theoretical Progress and Future Directions. *International Journal of Environmental Research and Public Health*, *19*(11). https://doi.org/10.3390/ijerph19116721

Tsai, A. Y. J., & Tan, A. Y. K. (2022). The Expanded Theory of Planned Behavior in the Context of Environmental Protection Behaviors for Undergraduates: Roles of Moral

International Journal of Education, Psychology and Counseling
IJEPC
EISSN : 0128-164X
Volume 10 Issue 60 (October 2025) PP. 140-153
DOI 10.35631/IJEPC.1060009

Norms and University Class Standings. *International Journal of Environmental Research and Public Health*, *19*(15). https://doi.org/10.3390/ijerph19159256

Tsai, C. C., Li, X., & Wu, W. N. (2021). Explaining citizens' pro-environmental behaviours in public and private spheres: The mediating role of willingness to sacrifice for the environment. *Australian Journal of Public Administration*, *80*(3), 510–538. https://doi.org/10.1111/1467-8500.12504

Venhoeven, L. A., Bolderdijk, J. W., & Steg, L. (2020). Why going green feels good. *Journal of Environmental Psychology*, *71*(January), 101492. https://doi.org/10.1016/j.jenvp.2020.101492

Vinet, L., & Zhedanov, A. (2011). A "missing" family of classical orthogonal polynomials. In *Journal of Physics A: Mathematical and Theoretical* (Vol. 44, Issue 8). https://doi.org/10.1088/1751-8113/44/8/085201

Wyss, A. M., Knoch, D., & Berger, S. (2022). When and how pro-environmental attitudes turn into behavior: The role of costs, benefits, and self-control. *Journal of Environmental Psychology*, *79*, 101748. https://doi.org/10.1016/j.jenvp.2021.101748

Yang, X., Chen, L., Wei, L., & Su, Q. (2020). *Personal and media factors related to citizens' pro-environmental behavioral intention against haze in China: A moderating analysis of TPB*. International Journal of Environmental Research and Public Health. https://doi.org/10.3390/ijerph17072314

Zannakis, M., Molander, S., & Johansson, L. O. (2019). On the relationship between pro-environmental behavior, experienced monetary costs, and psychological gains. *Sustainability (Switzerland)*, *11*(19). https://doi.org/10.3390/su11195467