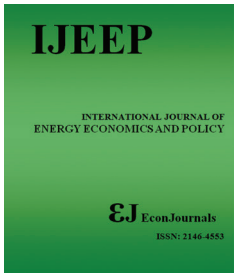

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Predicting Intention to Buy Green Electric Vehicles Using an Extended Theory of Planned Behavior Approach

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ABSTRACT

The study investigates how behavioral values, environmental attitudes, subjective norms, environmental social influence, and environmental concern impact the intention of individuals to act pro-environmentally in enhancing the explanatory potential of the existing behavioral theories. The research employed Smart-PLS to determine the measurement and structural models using data obtained on 378 respondents. The findings supported the reliability and validity of all constructs and indicated that behavioral values serve as the most relevant cause of pro-environmental intentions. The behavioral values provided additional support on the role of environment in affecting intention as well as having an indirect impact on intention via environmental attitudes, concern, social influence and subjective norms and therefore the mediating processes are important. The results can be aligned with the Theory of Planned Behavior, Value-Belief-Norm framework, and Construal Level Theory, which state that values play a central role and psychological and social processes reinforce behavior. The research makes contributions to literature through the inclusion of personal and environmental variables into a cohesive approach of explaining sustainable behavioral intentions. In practice, the findings indicate that policymakers, teachers, and institutions ought to establish interventions which can promote environmental values but at the same time promote supportive attitudes, enhance concern and take advantage of social norms and peer pressure. These multidimensional approaches are likely to work more in encouraging pro-environmental behavior in the long-term.

Keywords: Behavioral Values, Environmental Attitudes, Subjective Norms, Environmental Concern, Pro Environmental Intention
JEL Classifications: I310, O330, Z13

1. INTRODUCTION

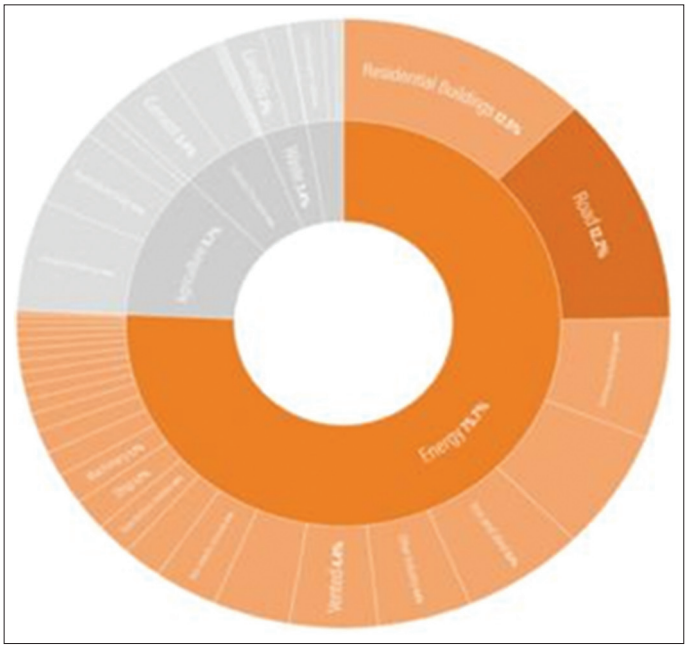
The issue of climate change is one of the most contemporary issues of the twenty-first century, which is mainly influenced by are caused by human-made greenhouse gas (GHG) emissions. As reported by the Intergovernmental Panel on Climate. Global surface temperatures have already increased by an average of 1o C above pre-industrial levels IPPC (2021) and could reach 1.5°C between 2030 and 2052. Transportation is one of the biggest sources of energy expenditure. These emissions. According to Figure 1, over 75% of the world GHG emissions come in the energy sector. Where transport alone contributes about 12% of the total CO_2 emission. This highlights the necessity of low carbon. Mobility solutions, in particular, electric vehicles (EVs) that decrease the use of fossil fuels and enhance air. Quality. In this regard, EVs are becoming regarded as the foundation of a sustainable transportation system and an essential one.

Although the adoption of EV has been increasing in a high rate in most developed economies due to the technological innovation and the incentives given by the policymakers, the developing economies like Indonesia have been slow in the uptake of EV.

The road transport industry of Indonesia is a major source of air pollution in cities and even with the policy advocacy, the EV penetration is still very low compared to the overall vehicle sales. The tax breaks, investment in the charging infrastructure, and incentives on imports are all indicators of the strategic push as the government seeks to achieve the Sustainable Development Goals (SDG 7 and 13) on affordable clean energy and climate action. Nevertheless, consumers are the ultimate decision-makers in driving socially responsible action through purchase and adoption behaviour, which determines the success of policy and market initiatives (Sadiq et al., 2025). Despite growing environmental awareness, purchase decisions and intentions of new forms of transportation adoptions are still influenced by perceived economic costs, technological uncertainties, and social perceptions (Koay and Leong, 2024). Figure 2 shows that the sales of EVs have increased globally, but the market share in Indonesia is still relatively low. This disparity between policy ambition and consumer behavior indicates the long-standing intention-action gap in which consumers with positive environmental awareness do not always become purchase intention and behavior.

Indonesia is a particularly interesting test case due to its fast-growing middle-class, high urbanization and its environmental susceptibility. Even though there are signs of an increasing environmental awareness, most potential consumers view EVs as remote, risky, or inconvenient. According to the Indonesian Ministry of Energy and Mineral Resources, the sales of battery-electric vehicles (BEVs) increased by 130% in the first half of 2024 with 11,900 cars but hybrids continue to dominate the overall number of sales with 52,434 cars compared to 9,731 EVs. As shown in Figure 4, although the availability of EVs and the variety of models have increased, the market share is still low. This gap between awareness and adoption is not specific to Indonesia but it is an indication of the global issue of transformation of pro-environmental beliefs into sustainable consumption decisions.

Figure 1: Global Green House Gas Emissions by Sector and Use, 2021

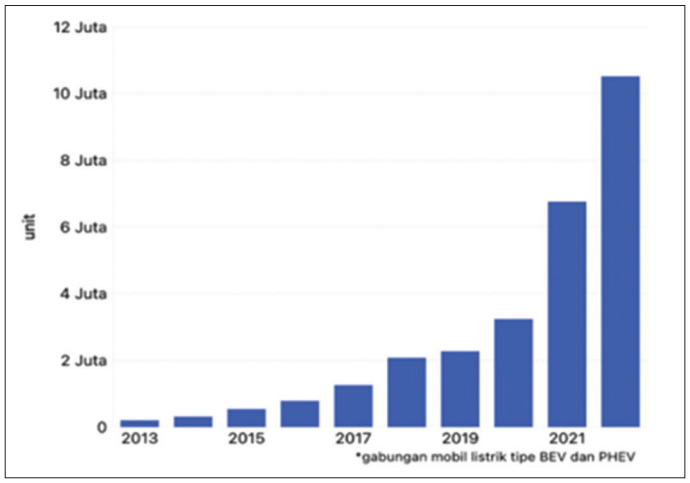


Source: https://www.wri.org/climate (2021)

This gap may be bridged by understanding psychological and normative processes that can be used to inform more practical policy, communication, and marketing strategies in order to stimulate EV uptake. Figure 3 shows top 10 best-selling electric vehicles in Indonesia during first semester of 2024, which highlight clear dominance by Chinese-manufactured models.

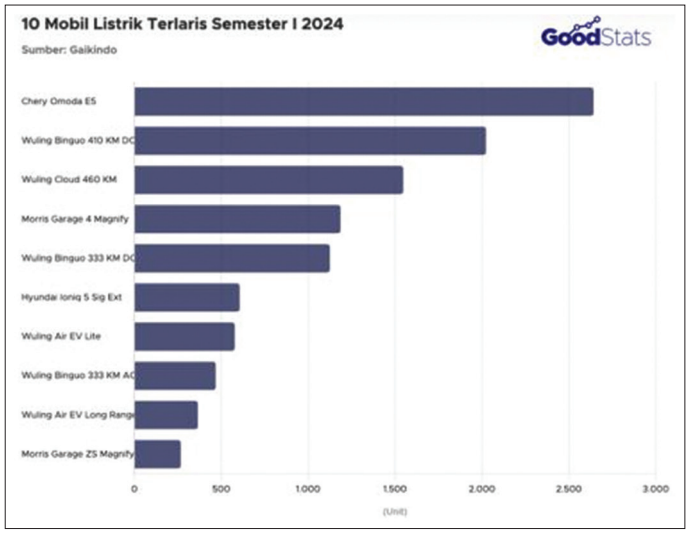
The theoretical models of consumer decision-making regarding sustainable technologies focus on rational analysis and internalized moral judgments. The Theory of Planned behavior (TPB) Ajzen (1991) is based on the assumption that attitude, subjective norms, and the perceived behavioral control (PBC) determine intention, the immediate antecedent of behavior. However, TPB may not be adequate in situations where moral or ecological outcomes are involved. Combining it with the Value-Belief-Norm (VBN) Theory Steg et al. (2014) will help to account more comprehensively the driving forces of motivation as it is possible to connect biospheric and altruistic values to moral commitments and norms that promote the environment. In addition to these, there is the Construal Level Theory (CLT) (Trope and Liberman, 2010), which describes that

Figure 2: Volume of EVs's sales



Source: https://katadata.co.id

Figure 3: 10 best-selling electric cars in semester I 2024



Source: https://datagoodstats.id

Figure 4: Sustainability development goals

Source: sdgs.bappenas.go.id

psychological distance (spatial, temporal, or social) affects the abstract or concrete thinking that people have regarding climate threats. Collectively, these structures shed light on the reasons consumers can subscribe to sustainability notions and they become resistant to EVs when the benefits seem distant, either in time or in social terms. This three-part integration (TPB VBN-CLT) provides an expanded explanation of behavior compared to any one model.

Based on these theoretical assumptions, the current research explores how environmental attitudes, subjective norms, behavioral values, and environmental concern as well as environmental social influence the intention to purchase green electric vehicles in Indonesia. The study will help to uncover the interactive effect of intrinsic values and perceived proximity of environmental problems to establish pro-environmental intention by integrating TPB, VBN, and CLT. Moral norms and concern that are likely to be consequential on attitude and intention are likely to be cultivated by biospheric values and altruistic ones. At the same time, psychological distance can mediate the intensity of the same effects: when climate change becomes a local issue (and therefore is perceived as a local issue), the moral and attitudinal drivers become stronger; when it becomes a remote issue, their effect becomes less powerful. The research is therefore value adding in that it places cognitive, normative, and emotional predictors of EV intention in the context of the emerging EV ecosystem in Indonesia. It empirically adds to the existing knowledge about sustainable consumption by connecting internal moralities to contextual perceptions, which can be used practically by policy makers, producers, and environmental educators looking to promote the uptake of green mobility.

2. LITERATURE REVIEW

Recent research supports the idea that the addition of moral/normative variables to the TPB bridges the gap in EV intention explanation. As an example, a study conducted in Spain demonstrates that moral norm is a significant predictor of attitude and PBC in estimating BEV intention, which is consistent with VBN value-to-norm activation pathways (Buhmann et al., 2024). Similar evidence on developing-country settings suggests that the combination of VBN and TPB/UTAUT would help understand how environmental concern and personal norms carry the value effects to intention (Higueras-Castillo, 2025). The role of cost-benefit beliefs and infrastructural feasibility in PBC but insistence on normative motives as a solution to elimination of the intention-behavior gap in green mobility is also highlighted by meta-analytical and broad reviews (Singh et al., 2020). Policy incentives and infrastructure development in Indonesia is gaining momentum, but behavioral barriers remain; national syntheses report on the structural push (tax/VAT relief, charging investment) and that intention remains influenced by psychosocial determinants - which is exactly where VBN-TPB integrations can be useful ("Electric vehicles fuel Indonesia's first car sales growth since June 2023". [2025]; "Indonesia issues more tax incentives for EV sales", 2024). These convergent results confirm a two-fold focus on instrumental viability and moral-normative motivation in EV adoption models.

Development of country-specific studies are actionable. Indonesia-specific studies point to mixed-method studies that suggest perceived affordability, access to charging, and confidence in after sales are limitations to intention, but social influence and environmental concern can offset these limitations (PWC, 2024; Hamidah et al., 2025). Other reviews of the EV policy developments in Indonesia also indicate ambitious production/sales projections and upstream investments (nickel-to-battery), which indicate structural preparedness with a concomitant focus on consumer-side reluctance (IISD, 2025; UN-PAGE, 2024). With supply-side innovations, the perceived control should increase with new investments in the battery and charging (e.g., Hyundai LG energy solution cell plant; charging plans of Vin Fast), which are major levers in TPB (Wijaya, 2024). All these sources claim that Indonesia has a context of a readiness paradox, whereby infrastructure and incentives are being developed at a high rate, yet intention is conditioned by attitudes, norms, concern and perceived ease-making the argument in support of an integrated TPB-VBN-CLT model, whereby proximal framing and norm activation are targeted together with practical enablement.

On the construct level, the interaction between moral and normative mechanisms and instrumental beliefs isolated in several studies. A 2025 study on rational versus normative determinants finds personal norms positively shape willingness to pay for EVs, indicating moral obligation can offset cost salience (Cabeza-Ramírez et al., 2025). India/Vietnam evidence similarly elevates moral obligation alongside attitude and social approval in predicting intention (Jaiswal et al., 2021; Tran et al., 2023). Fresh results from South/Southeast Asia show attitude remains the strongest single predictor, with social influence, price value, and environmental concern following—consistent with TPB plus moral extensions (SAGE, 2025; Leong and Koay, 2023). Indonesian UTAUT2-based work also records important roles for hedonic motivation and facilitating conditions while acknowledging the need for normative/moral enrichment to move beyond utilitarian drivers (Hidayatullah et al., 2025). Collectively, these studies endorse a serial-mediation view (values → concern/norms → attitude/PBC → intention) complemented by moderators such as policy incentives and social visibility.

Psychological distance is increasingly recognized as a boundary condition for normative influence. CLT-grounded research shows that reducing spatial/temporal distance heightens support for environmental action and strengthens norm-to-intention pathways (Jia, 2021; Miller, 2025). New econometric evidence finds that closer psychological distance boosts preferences for biodiversity-enhancing climate policies, implying that proximity framing can increase pro-environmental choices (Van Tuan et al., 2022). Communication studies report that distance-matched messages (e.g., local health co-benefits) outperform abstract appeals—precisely the kind of framing Indonesian campaigns can deploy (Corner, 2025). A large-scale review stresses that many environmentally relevant choices are hampered by behavioral barriers (status-quo bias, myopia), reinforcing the need to pair enabling policies with proximity and norm cues to convert intention into action (European Economic Review, 2024). These findings justify modelling CLT moderation on moral norm → attitude/intention links in EV adoption.

Finally, global-to-local synthesis indicates that as Indonesian infrastructure and incentives expand, perceived behavioral control should rise, but adoption will accelerate fastest when interventions also activate biospheric values and personal norms while making benefits feel here-and-now. Reviews focused on Indonesia preparedness, as well as recent news on charging and manufacturing investments, demonstrate a positive trend; however, scholarly literature reminds that the intention formation is multi-dimensional and that the application of a single theory, as opposed to combined models (TPB+VBN+CLT) and specific lenses (Deka, 2025; Pamidimukkala et al., 2025). This would be done in practice by structurally levering (tax/VAT reduction, public charging, and low-cost models) and psychologically proximate messaging and community socialization (fleet adoptions, neighborhood chargers). This combination can enhance attitude and PBC and increase personal norms and concern- just the mix your Indonesian EV experiment measures empirically in an integrated behavioral context.

3. RESEARCH METHOD

This explanatory research aims to investigate how variables relate to each other and how these variables may determine the intention to buy electric vehicles. The study uses a positivist paradigm and, therefore, a quantitative research methodology, gathering evidence through Google Forms surveys that were distributed to people who were familiar with electric cars in the Greater Jakarta (Jabodetabek) area. The sample size of 378 respondents was purposive and consisted of environmental-sensitive residents that are also active vehicle users. The partial least squares (PLS)- Structural Equation Modelling (PLS-SEM) were used to perform data analysis in SmartPLS 4.

The data analysis method used in this research paper is Variance-Based Structural Equation Modeling (SEM), namely, the Partial Least Squares (PLS) version. To process the data, the authors used PLS-Version 3.0 (Smart-PLS). PLS is an alternative to covariance-based SEM, which enables causal-predictive analysis in complicated situations with minimal theoretical specification (Ulum et al., 2014). It is developed to indicate linear interrelationships that can be optimally predictive. Whereas PLS can be used to support theoretical propositions, it is also useful in determining whether there is a relationship between latent constructs. According to World (as cited in Ulum et al. (2014), PLS is a powerful method of analysis, which does not assume multivariate normality and is much more compatible with small samples. The next section describes the chronological steps that are to be taken during the implementation of this method of analysis.

3.1. Measurement (Outer) Model Evaluation

The measurement model (also called outer model or outer relationship model) is the evaluation of the outer model that determines the construction of the infrastructure by each indicator block with the latent variables. The formula of the block with reflexive indicators may be formulated as it follows:

$$x = \Lambda! \, \xi + \varepsilon!$$

$$y = \Lambda\# \eta + \varepsilon\$$$

Where x and y denote indicators or manifestations of exogenous and endogenous latent variables x and y respectively and Λ! and Λ# denote the loading matrix describing the simple regression coefficients, which relate the latent variables to their indicators. The x and x measurements of residuals can be considered measurement errors (Ulum et al., 2014). Then the procedure of the external model testing will be the following sequence.

1) Convergent validity

Convergent validity reflects how well each measure measures its construct. Chin in Ulum et al. (2014) argues that a good validity indicator is one that has loading of more than 0.70 with moderate validity having a loading of between 0.50 and 0.60. Thus, any indicator whose loading factor is less than 0.60 will be dropped out of the model.

2) Discriminant validity

To test the discriminant validity, examine the cross-loading of an indicator and its construct. An indicator is said to be valid when its loading on the construct that it is intended to measure is the greatest among its loading on all the other constructs. This implies that the latent construct will influence the indicators within the same block more than the indicators within the other blocks. The other way of evaluating discriminant validity is by comparing the root-mean-square values of the variance extracted (AVE) of each construct to the correlations among the constructs in the model. The findings reveal whether the model has good discriminant validity. The equation of computing AVE is as follows:

$$AVE = \frac{\sum \lambda_i^2}{\sum \lambda_i^2 + \sum i \text{ var } (\varepsilon i)}$$

3) Composite reliability

The purpose of composite reliability test is to measure the reliability of a research instrument. When the value of all latent variables is characterized by both composite reliability value and Cronbachs alpha value above 0.70, then the construct is well validated. That is, the questionnaire which is to be distributed as a research instrument in the study has been reliable or consistent.

3.2. Structural Model Test (Inner) or Hypothesis Test

The conceptual framework has a development test that is referred to as the inner model test; this test analyses the relationship between exogenous variables and endogenous variables that have been described in the conceptual framework. The structural test or inner model test is performed by examining the value of R-square generated by the goodness of fit model test. The structural model test (hypothesis test) is executed in the following sequence.

1) R-square value

The result of the goodness of fit model test is the R-square value, as explained. The latter test is observable through the R-square figures of the endogenous latent variables (0.67, 0.33 and 0.19) in the structural model. Such values show that the model is good, moderate, or weak.

2) Goodness of fit model

Goodness of Fit model is performed through predictive-relevance value (Q2). Q-square value above 0 (zero) implies that the model possesses predictive relevance value.

3) Estimation of coefficients of the path

The path relationship between the two variables in the structural model should have an estimated value that is substantial. Bootstrapping can be used to attain significant values. The value can be checked to determine significant values in the hypothesis.

4. RESULTS AND DISCUSSION

4.1. Screening Question Results

Based on the survey conducted through Google Forms as shown in Table 1, it is known that 100% of respondents are aware of environmental issues.

Furthermore, the survey results presented in Table 2 also indicate that 100% of respondents are aware of the existence of electric motorcycles and electric cars.

4.2. Respondents Descriptive Results

4.2.1. Respondents characteristics based on gender

Based on the survey results shown in the Table 3 above, out of 378 respondents, 65.34% are female, while the remaining 34.66% are male. This indicates that most respondents are female.

4.2.2. Respondent characteristics based on age

Based on the Table 4 above, it is evident that respondents in the 21–30 age group are the most dominant, accounting for 75.40%. This age group shows that their interest in buying electric cars that are environmentally friendly is strong. It is not surprising, because at this age, people are usually in the early phase of economic efficiency and are likely to be highly interested in new technologies, including eco-friendly cars.

4.2.3. Respondent characteristics based on marital status

As shown in the Table 5 above, most of the respondents, who occupy 67.99%, are married. However, single respondents are also quite interested in owning green electric cars.

Table 1: Environmental issue respondent screening

Response	Amount	Presentation (%)
Yes	378	100
No	0	0
Total	378	100

Table 2: Respondent screening knowledge of electric vehicles

Response	Amount	Presentation (%)
Yes	378	100
No	0	0
Total	378	100

Table 3: Respondents' descriptive based on gender

Gender	Amount	Presentation (%)
Famale	247	65.34
Male	131	34.66
Total	378	100

Table 4: Respondents' descriptive based on age

Age (years)	Amount	Presentation (%)
21–30	285	75.40
31–40	75	19.84
41–50	11	2.91
>50	7	1.85
Total	125	100

Table 5: Respondents' descriptive based on age

Status	Amount	Presentation (%)
Married	257	67.99
Not married	121	32.01
Total	378	100

This shows that the level of understanding the significance of having sustainable transportation is not only found among married people but also among singles who choose to go green in their lifestyle choices.

4.2.4. Respondent characteristics based on educational background

By the Table 6 above, the ones with a bachelor's degree are the most dominant; they comprise 47.35% of the sample. This indicates that more educated people are more likely to consider several factors, and one of them is environmental benefits and energy efficient use, when making decisions on buying eco-friendly electric cars.

4.2.5. Respondent characteristics based on monthly income

According to the data presented in table 7 the majority in the presented figures consist of respondents who had monthly expenditures lower than IDR 5 million (62.96). Interestingly, this group has quite a low spending power, yet it still shows interest in buying the environmentally friendly electric vehicles. This is an indication of an increased environmental awareness, even to the parts of the population with low purchasing power.

4.3. Data Analysis Method: Partial Least Squares (PLS)

The outer model helps examine the degree to which each indicator relates to the respective latent variable. The evaluation of the outer model in the PLS approach with Smart-PLS 4.0 is based on the following three criteria: (1) Convergent, (2) discriminant, and (3) construct validity.

The validity findings of convergent validity of the constructs used in the model are presented in Table 8. The loading of all the items exceeds the recommended value of 0.70, meaning that all the indicators are highly correlated with their respective constructs. The values of VIF are smaller than 3, and this implies that the items do not exhibit multicollinearity. Cronbachs alpha and composite reliability measures of all the constructs are >0.70 and this confirms that measurement model is internally consistent. The values of the Average Variance Extracted (AVE) are also >0.50 and it shows that the constructs account for more than half of the variance of the indicators.

Put in other words, this table proves that survey items to measure constructs such as Behavioral Values (BV), Environmental Attitude (EA), Environmental Concern (EC), Environmental Social Influence (ESI), Intention to Behave (ITB), and Subjective Norms (SN) are reliable and valid. The questions in each set are consistent in measuring their construct, and they are sufficiently capturing of the underlying concepts. This implies that the data has passed the basic test of measurement quality and forms a good basis upon which further measurements can be done in the structural model.

Figure 5 demonstrates the measurement model, which explains the relationship between the constructs and the indicators measured. Factor loadings are all sufficiently higher than the 0.70 standard, which indicates that each item is a good measure of the underlying construct. Their items are well represented by constructs like Behavioral Values (BV), Environmental Attitudes (EA), Social Norms (SN), Environmental Concern (EC), Environmental Social Influence (ESI), and Intention to Behave (ITB). The values of the explained variance (within circles) show the extent to which each construct can be explained by its predictors, where ITB has the strongest explanatory power (0.505). This indicates that BV, EA, SN, ESI, and EC together have a significant role in predicting the intention to perform the targeted behavior in individuals.

Practically, the model illustrates how the behavioral values of individuals determine their attitude to the environment, social norms, social influence, and concerns, which consequently determine the intention to act. Of these, behavioral values appear to be the most important, with a direct impact on ITB and an indirect one on the other constructs. The fact that the explanatory power of

Table 6: Respondents' descriptive based on last education

Education	Amount	Presentation (%)
SMA/Sederajat	162	42.86
D3	26	6.88
S1	179	47.35
S2	11	2.91
S3	0	0
Total	378	100

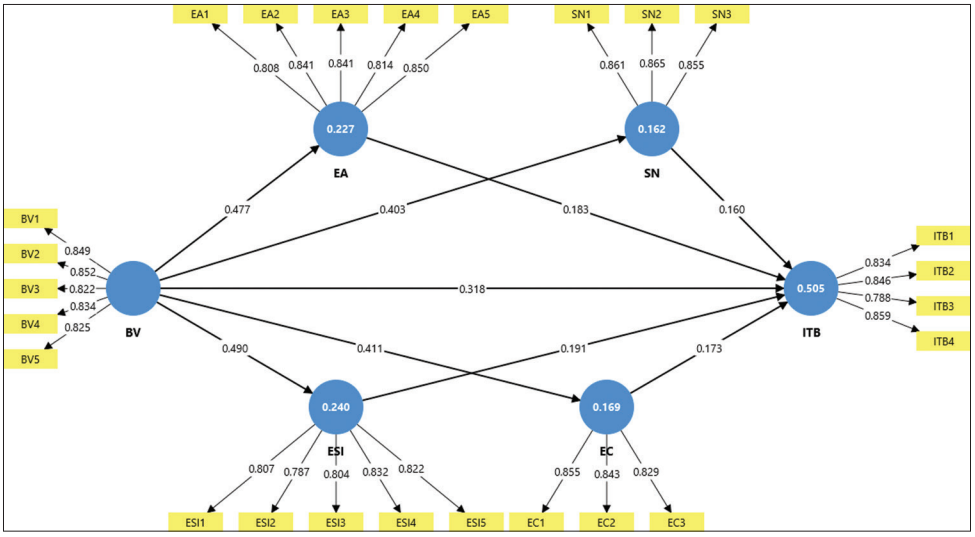
Table 7: Respondents' descriptive based on monthly income

Monthly income (million)	Amount	Presentation (%)
<5	238	62.96
5–10	105	27.78
10–20	26	6.88
20–50	6	1.59
>50	3	0.79
Total	378	100

Table 8: Convergent validity test

Constructs	Items	Loading	VIF	Alpha	CR	AVE
BV	BV1	0.849	2.314	0.893	0.894	0.699
	BV2	0.852	2.374			
	BV3	0.822	2.128			
	BV4	0.834	2.14			
	BV5	0.825	2.054			
EA	EA1	0.808	1.987	0.888	0.891	0.691
	EA2	0.841	2.285			
	EA3	0.841	2.139			
	EA4	0.814	2.051			
	EA5	0.85	2.292			
EC	EC1	0.855	1.669	0.796	0.801	0.709
	EC2	0.843	1.7			
	EC3	0.829	1.7			
ESI	ESI1	0.807	1.935	0.869	0.871	0.657
	ESI2	0.787	1.783			
	ESI3	0.804	1.829			
	ESI4	0.832	2.11			
	ESI5	0.822	2.107			
ITB	ITB1	0.834	2.036	0.852	0.86	0.693
	ITB2	0.846	1.953			
	ITB3	0.788	1.753			
	ITB4	0.859	2.121			
SN	SN1	0.861	1.798	0.825	0.826	0.74
	SN2	0.865	1.941			
	SN3	0.855	1.863			

Figure 5: Measurement model



ITB is relatively high indicates that the model is robust enough to make us infer the predicting power of the model, which provides us with insightful evidence that the conceptual framework is well-supported when subjected to an empirical test. This supports the argument of the study that values and attitudes are very important building blocks to influence pro-environmental intentions.

Table 9 presents the results of the HTMT ratio, which evaluates the discriminant validity across the constructs. All HTMT values are less than the recommended value of 0.85, which proves that all constructs are independent and measure different ideas instead of spending too much time intertwining with other constructs. As an illustration, the relationship between Behavioral Values (BV) and Intention to Behave (ITB) have the highest HTMT value (0.722) which indicates a strong yet acceptable correlation, whereas lower values as between Environmental Concern (EC) and Environmental Social Influence (ESI) (0.195) show clear distinction. Overall, these findings support the notion that the constructs deployed in the study are valid, conceptually distinct, and can be analyzed on a structural level further.

The other discriminant validity test is the Fornell-Larcker criterion, which is presented in Table 10. The square root of the AVE of each construct is its diagonal value, and this is larger than the correlation of the construct with the other constructs, such that each construct shares more with its individual indicators than it shares with the other constructs. As an example, the square root of AVE of Behavioral Values (0.836) is higher than its correlations with EA (0.477), EC (0.411) and the rest, which are distinctly separated. In the same way, Intention to Behave (0.832) and Subjective Norms (0.860) are significantly more associated with their measures than any other constructs. These findings indicate that the constructs are unique and valid, which strengthens the fact that the measurement model has good discriminant validity and that the constructs represent distinct components of behavior and attitudes and have no significant overlap.

Table 11 documents the values of cross-loading, which also confirms the uniqueness of the constructs. All indicators score

Table 9: HTMT ratio

	BV	EA	EC	ESI	ITB	SN
BV						
EA	0.532					
EC	0.483	0.218				
ESI	0.554	0.296	0.195			
ITB	0.722	0.517	0.474	0.528		
SN	0.468	0.265	0.203	0.247	0.47	

Table 10: Fornell Larcker

	BV	EA	EC	ESI	ITB	SN
BV	0.836					
EA	0.477	0.831				
EC	0.411	0.184	0.842			
ESI	0.49	0.263	0.164	0.81		
ITB	0.635	0.454	0.396	0.457	0.832	
SN	0.403	0.23	0.167	0.21	0.4	0.86

highest on self-construct than on other constructs, which is confirmatory of the items being used to measure what they are supposed to measure. An example is that all BV items strongly load on Behavioral Values (above 0.82) and their loadings on other constructs are much less, and thus, clearly distinguished. Likewise, the Environmental Attitude (EA), Environmental Concern (EC), Environmental Social Influence (ESI), Intention to Behave (ITB), and Subjective Norms (SN) all present the strongest values in their respective constructs, and very weak connections elsewhere. Bold values reported in table 11 show factor loadings of every measurement item on its respective latent construct, which shows the strength and direction of relationship among observed indicators and constructs as they are intended to measure. In cross loading analysis, these bolded loadings are expected to be higher than all other loadings of same indicator on non-target constructs, also indicating that every item shares the greatest proportion of variance with its own construct rather than with others. with the bold values ranging from approximately 0.79 to 0.87, which exceeds the commonly accepted threshold of 0.70 and reflects strong convergent validity. At the same time, the cross-loadings on alternative constructs remain substantially lower,

providing clear evidence of discriminant validity and confirming that the measurement items are empirically distinct and free from problematic overlap. Overall, the pattern of bold loadings in Table 11 supports the adequacy, reliability, and construct validity of the measurement model, indicating that each latent variable is well represented by its observed indicators and that the constructs are conceptually and statistically distinguishable within the proposed research framework.

This trend supports the notion that the measurement model is shown to have good discriminant validity. Simply put, the questions of the survey do not overlap between constructs, and each group of items is distinctly connected with a concept that the items are supposed to measure. These results give an assurance that the measurement model is sound and that the constructs can be utilized in the following analysis to test structural path.

Table 12 shows the path analysis results, including the direct and indirect correlations between constructs. The results indicate that Behavioral Values (BV) have a significant impact on all mediating constructs, such as Environmental Attitude (EA), Environmental Concern (EC), Environmental Social Influence (ESI) and Subjective Norms (SN) with strong path coefficients of 0.403 to 0.490. Intention to Behave (ITB) is also positively affected directly by BV (0.318, $P < 0.001$), which supports its key role in influencing behavior intentions. Some mediators, including EA, EC, ESI and SN, also play a major role in ITB, but with less significant coefficients (0.160 to 0.191). This means that values do have a direct effect on intentions as well as an indirect effect through attitudes, concerns, social influences, and norms.

The indirect effects also support the significance of BV in forecasting ITB. As an illustration, the mediated paths by ESI (0.093), EA (0.087), EC (0.071), and SN (0.065) are all significant, indicating that these mediators share a portion of the effect of values on behavioral intentions. Combined, these findings validate a strong structural model whereby behavioral values are the basis of both direct and indirect influences on intention. This brings out the fact that values not only influence the choices they make, but also relate with their attitudes, social background, and interests to enhance better behavioral intentions thus providing a holistic picture of how values are converted to action.

The structural model as shown in Figure 6 shows the relationship among the constructs and how they are related to the prediction of Intention to Behave (ITB). Behavioral Values (BV) are found to be the most powerful constructing impacting both directly and indirectly. BV has both a direct effect on ITB (0.318) and a strong effect on mediators, including Environmental Attitude (0.477), Environmental Concern (0.411), Environmental Social Influence (0.490) and Subjective Norms (0.403). In turn, these mediators positively impinge on ITB, albeit with lower coefficients (between 0.160 and 0.191). The values of the explained variance (R2) further indicate that the explanatory power of ITB is the greatest (0.505) that is, more than half of the variation in behavioral intentions is explained by the model.

This structural model proves that values become the basis of pro-environmental intentions, and attitudes, concerns, social influence, and norms are reinforcing pathways to organize and strengthen this impact. The comparatively high explanatory power of ITB validates that the framework has been able to understand the

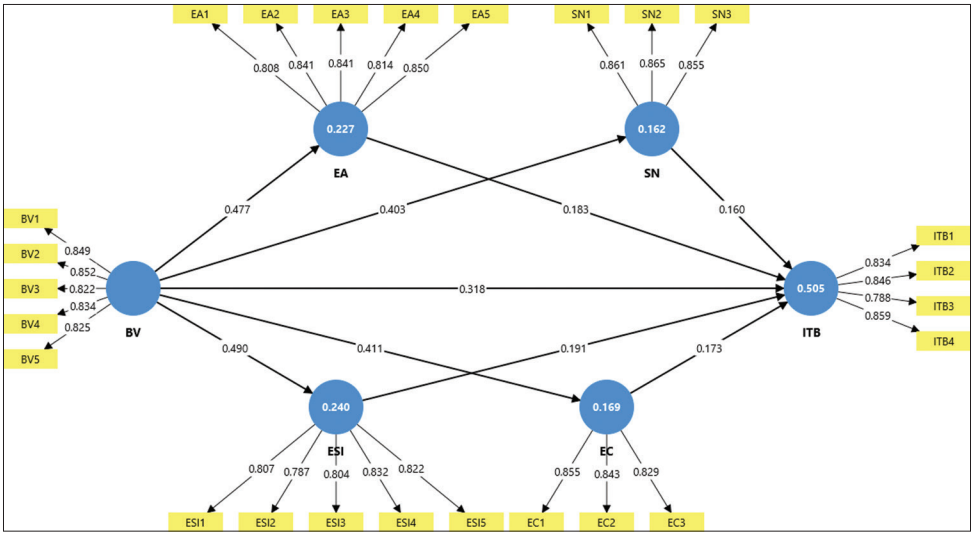
Table 11: Cross loadings

	BV	EA	EC	ESI	ITB	SN
BV1	**0.849**	0.384	0.384	0.402	0.558	0.347
BV2	**0.852**	0.419	0.310	0.404	0.539	0.324
BV3	**0.822**	0.339	0.337	0.375	0.484	0.329
BV4	**0.834**	0.423	0.343	0.452	0.522	0.348
BV5	**0.825**	0.424	0.342	0.412	0.547	0.335
EA1	0.352	**0.808**	0.152	0.234	0.369	0.177
EA2	0.403	**0.841**	0.147	0.178	0.348	0.199
EA3	0.428	**0.841**	0.202	0.268	0.422	0.225
EA4	0.368	**0.814**	0.108	0.195	0.344	0.172
EA5	0.421	**0.850**	0.148	0.211	0.395	0.178
EC1	0.384	0.143	**0.855**	0.129	0.352	0.175
EC2	0.364	0.149	**0.843**	0.164	0.310	0.118
EC3	0.282	0.177	**0.829**	0.121	0.338	0.125
ESI1	0.376	0.185	0.131	**0.807**	0.360	0.132
ESI2	0.389	0.229	0.128	**0.787**	0.364	0.243
ESI3	0.430	0.196	0.174	**0.804**	0.386	0.159
ESI4	0.415	0.254	0.123	**0.832**	0.393	0.162
ESI5	0.369	0.197	0.103	**0.822**	0.343	0.154
ITB1	0.492	0.394	0.288	0.376	**0.834**	0.279
ITB2	0.556	0.371	0.371	0.432	**0.846**	0.405
ITB3	0.461	0.318	0.266	0.350	**0.788**	0.274
ITB4	0.59	0.421	0.378	0.359	**0.859**	0.355
SN1	0.365	0.245	0.166	0.206	0.36	**0.861**
SN2	0.336	0.178	0.118	0.169	0.336	**0.865**
SN3	0.337	0.166	0.145	0.164	0.334	**0.855**

Table 12: Path analysis

	Original sample	Sample mean	Standard deviation	T statistics	P values
BV -> EA	0.477	0.478	0.043	11.168	0.000
BV -> EC	0.411	0.412	0.041	9.947	0.000
BV -> ESI	0.490	0.491	0.039	12.649	0.000
BV -> ITB	0.318	0.317	0.055	5.794	0.000
BV -> SN	0.403	0.404	0.043	9.352	0.000
EA -> ITB	0.183	0.183	0.042	4.346	0.000
EC -> ITB	0.173	0.174	0.039	4.468	0.000
ESI -> ITB	0.191	0.192	0.044	4.338	0.000
SN -> ITB	0.160	0.161	0.038	4.200	0.000
BV -> ESI -> ITB	0.093	0.094	0.023	4.021	0.000
BV -> EC -> ITB	0.071	0.072	0.017	4.147	0.000
BV -> EA -> ITB	0.087	0.088	0.023	3.824	0.000
BV -> SN -> ITB	0.065	0.065	0.017	3.823	0.000

Figure 6: Structural model



complexity of translating values into action. Practically, the model implies that by increasing the environmental values in people, it is not only the behavioral intentions that will be directly influenced but also indirectly reinforced by changes in attitudes, norms, and social contexts.

4.4. Discussion

This structural model demonstrates that values are the foundations of pro-environmental intentions, and attitudes, concerns, social influence, and norms are reinforcing channels to structure and strengthen the influence. The relatively large explanatory capability of ITB confirms that the framework has been in a position to comprehend the intricacy of converting values to action. In practical terms, this model suggests that once the level of environmental values among people is raised, the intentions of behavioral intentions will not only be directly altered by the shift in attitudes, norms, and social settings but indirectly supported by the modification of the latter. pro-environmental values, they are more likely to internalize favorable attitudes and align their behavior's with social expectations, which in turn translates into stronger intentions to act sustainably.

The direct and positive effect of environmental attitudes and concern on intention is consistent with previous research findings which emphasize the evaluative and emotional aspects of sustainability. Previous research Bamberg and Möser (2007); Dunlap (2002) has pointed out that those who hold a positive attitude towards environmental protection, and have more serious thoughts towards ecological risks, tend to be more likely to engage in sustainable behavior. Equally, the effect of social processes, including social influence of the environment and the subjective norms, demonstrates the significance of interpersonal and societal backgrounds. The findings are consistent with the past Hornsey et al. (2016); Kaiser et al. (2013) which indicate that social pressures, peer expectations, and the shared sense of self-identity can greatly reinforce the pro-environmental commitments of individuals.

The mediation effects seen in the model are also useful to show that values alone are not enough but must be converted into attitudes, concerns and social structures to create meaningful behavioral intentions. This knowledge is familiar with Construal Level Theory Trope and Liberman (2010), according to which abstract value needs proximal mechanisms to determine concrete action. This research presents the convergence of internal motives and external environments to produce sustainable behavior results as both social and psychological constructs are integrated with values.

In general, the results add new insights into the theoretical knowledge of pro-environmental behavior by revealing the interaction of values, attitudes, and social factors. In practice, they also indicate the significance of multidimensional changes that promote environmental ideals, positive attitudes, heightened awareness, and reinforced social norms to achieve long-term engagements towards sustainable practices.

5. CONCLUSION

This paper examines how behavioral values, environmental attitudes, subjective norms, environmental social influence, and environmental concern affect intention to act pro-environmentally with the mediating effects of these psychological and social constructs highlighted in extending established behavioral frameworks. Although past studies have focused on individual predictors of sustainable behavior, little consideration has been on the combined influence of values, attitudes, and social mechanisms in the formation of pro-environmental intentions. The current research fills such a gap by providing empirical data on direct and indirect mechanisms by which behavioral values influence intentions, and that values work best when supported by attitudes, concerns, social influence and normative pressures.

The results indicate that environmental values must be developed along with supportive social norms and the concern regarding environmental issues and positive attitudes should be stimulated to develop sustainable intentions by policymakers, educators, and organizations. With the help of individual and contextual determinants, the way to encourage pro-environmental behaviors can be more effective and long-lasting. This research paper will be

able to add to the wider literature by establishing that the role of behavioral values is core drivers although their complete potential has only been achieved when they are anchored in an enabling psychological and social context. This model can be extended to different cultural settings in future research, and it can also be extended to explore other variables like environmental knowledge and institutional support to understand sustainable behavior more.

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