Jurnal Minds: Manajemen Ide dan Inspirasi
Vol. 12, No.1 (June) 2025: 117-136

WHAT DRIVES MILLENNIAL ECO-TRAVELERS? INVESTIGATION OF VALUE–NORM THEORY WITH DESTINATION RESPONSIBILITY AS MODERATOR

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Citation (APA 7th): Solekah, N. A., Rozi, M. F., & Mardiana, M. (2025). What Drives Millennial Eco-Travelers? Investigation of Value–Norm Theory with Destination Responsibility as Moderator. *Jurnal Minds: Manajemen Ide Dan Inspirasi*, *12*(1), 117–136. https://doi.org/10.24252/minds.v12i1.54462

Submitted: 13 January 2025
Revised: 6 June 2025
Accepted: 11 June 2025
Published: 27 June 2025

ABSTRACT: Understanding pro-environmental behavior in sustainable tourism is crucial for aligning marketing with traveler values. This study advances the behavioral discourse by applying the Value–Identity–Personal Norm (VIP) model, examining how destination social responsibility (DSR) moderates millennial travelers' green behavior in natural tourism. A sample of 202 millennials visiting ten ecotourism sites in Malang Raya was analyzed using SEM-PLS 3.0. Results show that altruistic and biospheric values significantly shape environmental self-identity, which in turn reinforces personal norms. Both green trust and DSR significantly influence pro-environmental behavior, while DSR strengthens the link between personal norms and eco-behavior. These findings reveal how perceived responsibility at the destination level activates moral obligations and trust, ultimately enhancing sustainable actions. Practically, tourism stakeholders must not only protect ecological value but also build visible, credible responsibility efforts—lest they risk eroding the very norms that drive millennial environmental stewardship.

Keywords: Altruistic Value; Biosphere Value; Environmental Self-Identity; Personal Norm; Pro-environmental behavior

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DOI: https://doi.org/10.24252/minds.v12i1.54462
ISSN-E: 2597-6990
ISSN-P: 2442-4951
http://journal.uin-alauddin.ac.id/index.php/minds
Publisher: Management Department, Universitas Islam Negeri Alauddin Makassar, Indonesia

INTRODUCTION

Lately, people have been increasingly fond of nature tourism. The beautiful atmosphere and cool air are among the main reasons for escaping from the city hustle and bustle. The government encourages the development of natural tourism. However, behind the rise of natural tourism lie changes in environmental conditions around (Ketikunpad, 2020). The Ministry of Tourism and Creative Industries has developed four priority areas for sustainable tourism development. These are sustainable management (tourism economy), long-term sustainable management (social economy), cultural sustainability (sustainable culture), and environmental aspects (sustainable development of the environment). A study by Booking.com shows that at least 55% of travelers worldwide prefer sustainable travel. Unfortunately, they are limited by knowledge and a need for sustainable tourism destinations. According to Goodwin (2016), alternative tourism activities that are responsible for environmental sustainability are often referred to as "alternative tourism", "soft tourism", "eco-tourism", "green tourism", "ethic tourism", and "responsible tourism".

The roots of pro-environmental behavior lie in environmental psychology, which aims to understand and improve human relationships with nature and make the built environment more humane (Gifford et al., 2011). The current literature review provides an overview of how consumer behavior has changed due to sustainable marketing (White et al., 2019) and what influences individual environmental behavior in the areas of economics, waste management, and disposal (Li et al., 2019), reviews have not examined pro-environmental behavior related to tourism and hospitality (Loureiro et al., 2021). Green consumption behavior is undeniably an essential component of prosocial consumption (Halder et al., 2020), ultimately benefiting the environment and society at large (Park et al., 2018).

Several theoretical references in tourism research use the Value-Belief-Norm (VBN) and Norm Activation Model (NAM) to understand how tourists engage in sustainable destination activities. The Values-Identity-Personal Norms (VIP) model is also a conceptual framework that describes the decision-making process for environmentally friendly behavior. This model focuses on an individual's biosphere values, environmental self-identity, and moral beliefs influencing pro-environmental behavior. Four types of personal values—altruistic, egoistic, hedonic, and biospheric—were identified by previous research as the strongest correlates of pro-environmental behavior (Steg et al., 2014). Biosphere and altruistic values each advocate benefits to the environment or other people. The more people espouse biosphere and altruistic values, the more likely they are to act pro-environmentally.

In contrast, egoistic and hedonic values advocate self-interest and personal comfort. The more people share these values, the more reluctant they are to act pro-environmentally because these values are not always positive. Biosphere value (BV) is a value orientation in which "people value phenomena based on their costs or benefits to the ecosystem or biosphere" (Stern & Dietz., 1994). Personal biosphere values often indirectly influence pro-environmental behavior, and a critical mediator is a self-ecological identity (Van der Werff et al., 2013). Apart from biosphere values, altruistic values have been studied starting with the work of Ates (2020). His research considered social altruistic values as a basis for attitudes and behavior towards the environment. According to this model, people act based on social altruistic values that moral imperatives may accompany. People who apply these values judge phenomena based on whether they benefit a particular human group, such as a community, an ethnic group, a country, or all of humanity. Previous research focusing on the environmental domain identified four personal values most clearly related to pro-environmental behavior: altruistic, egoistic, hedonic, and biosphere (Steg. et al., 2014). Van der Werff et al. (2013) conducted a study showing that biosphere values are related to environmental self-identity, even when measured months in advance. Wang et al. (2021) found that personal biosphere values, mainly through ecological self-identity, could predict pro-environmental behavior. Lee et al. (2021) demonstrate that tourists' biosphere values influence environmental self-identity. Konalingan et al. (2024) found that the psychological underpinnings of pro-environmental behavioral intentions are strongly strengthened by personal values, especially altruistic and biosphere values.

Ecological self-identity (Environmental identity) is the extent to which a person considers himself acting environmentally friendly. The stronger a person's ecological identity, the greater the possibility of society engaging in various pro-environmental behavioral efforts. This is because

a person's behavior is motivated to be consistent with their beliefs. Van der Werff and Steg (2016) show that stronger biosphere values lead to stronger self-identity about the environment. VIP strongly predicts participation in intelligent energy systems, and normative aspects predict interest and participation (Van der Werff & Steg, 2016). Balunde et al. (2019) found that ecological self-identity mediated the relationship between biosphere values and youth participation in waste prevention. Ajibade et al. (2021) showed that respondents with altruistic values (i.e., caring for communities, respecting diversity and gender equality, and making collaborative decisions) had a stronger ecological self-identity characterized by beliefs reflecting biocentrism, ecofeminism, eco-spirituality, or ecology.

Suppose a person/individual considers himself environmentally friendly. In that case, this will affect the individual's Personal Norm (PN), where PN is the internalization of values, personality, and habits as a form of a moral obligation to restrain oneself, in this case, by behaving in an environmentally friendly manner or pro-environmental behavior. Moreover, this concept underlies the model in this research. Esfandiar et al. (2019) found that pro-environmental personal norms influence the pro-environmental behavior of national park visitors. Lee et al. (2021) argue that tourists' norms will directly impact their pro-environmental behavior.

Apart from that, the research added green trust and destination social responsibility to predict the environmentally friendly behavior of easy travelers in natural tourist destinations. Trust is crucial in situations with high uncertainty and risk and a lack of information (Sparks & Browning, 2011). Once established, it reduces purchasing risks and complexities, which leads to positive behavioral outcomes. It is closely related to behavioral outcomes because behavioral intentions are formed by the willingness to accept uncertainty and risk and believe that the results will meet expectations (Martínez & Rodríguez del Bosque, 2013). Green Trust is "the willingness to rely on a product, service or brand based on beliefs or expectations derived from its credibility, goodwill and level of environmental protection capabilities" (Chen, 2010). In the context of tourism, green trust is a tourist's belief or hope that stems from the credibility, goodwill, and protective capacity of a destination's environment. Hossain et al. (2022) found that green trust influences pro-environmental behavior. Wasaya et al. (2021) argue that green beliefs significantly motivate consumers' attitudes and purchase intentions towards environmentally friendly products and ultimately help guide actual behavior

Destination Social Responsibility (DSR) is a modern construct that refers to the social responsibility efforts of a tourist destination at the corporate level (Agapito et al., 2022). DSR contributes to enhanced tourism implementation and builds tourism sustainability, where the DSR approach is related to the sustainable and responsible tourism paradigm (Mihalič, 2016), which is in line with the natural world and current socio-political challenges. According to Su & Huang (2018), destination social responsibility is a collective ideology that targets stakeholders' efforts to behave in socially responsible operations as experienced by residents. Active tourism destination social responsibility (DSR) provides a greater capacity to promote tourists' ecological behavior (Zhi et al., 2022). Likewise, Nashr et al. (2022) found that destination social responsibility increases the environmentally friendly behavior of residents around the destination.

The novelty of this research lies in the limited studies on the environmentally friendly behavior of young tourists in tourist destinations, especially natural tourist destinations, with a focus on two environmental values – altruistic and biosphere – and the addition of the moderating variable destination social responsibility to analyze whether it can strengthen pro behavior among millennial travelers.

Therefore, this research used the conceptual framework of the VIP Model to understand the environmentally friendly behavior of millennial travelers in natural tourist destinations. Educated young or millennial consumers are chosen because they are more environmentally aware, responsible, and interested in environmental issues (Connell et al., 1999). As a result, they better understand the concept and importance of a sustainable environment (Sliwka et al., 2006). Young consumers are also more receptive to new ideas (Ottman et al., 2006). IDN Research Institute data in the Indonesian Millennial Report 2022 shows that 71% of the Indonesian millennial generation feel personally responsible for reducing the impact of climate change, and 67% are willing to spend more money on more environmentally friendly products (Utomo & Heriyanto, 2022). Unsurprisingly, a holiday to Indonesia's natural wonders is the top choice for millennials (83%). This is because Indonesia has many natural wonders attractive to

tourists (Utomo & Heriyanto, 2022). Furthermore, the IDN millennial study for 2024 notes that 94% of Indonesian millennial respondents described Indonesia's natural scenery as serene and lovely, making this a popular tourism destination

According to the Ministry of Tourism and Creative Economy, sustainable tourism considers current and future economic, social, and environmental impacts and meets the needs of visitors, businesses, the environment, and local communities. This definition applies to all tourist destinations, including mass tourism and other activities. Natural tourism can be categorized into two: natural tourism based on an area's inherent potential and artificial tourism built specifically for entertainment. Malang is the second largest East Java region, with various tourist destinations. The city has received many awards for its tourism development, such as the Award from the Ministry of Tourism and Creative Economy, Third Place in the ADWI Tourist Attraction Category (Indonesian Tourism Village Award), ADWI Inspirational Tourism Village (Indonesian Tourism Village Award), and an award by the Minister Tourism and Creative Economy of the Republic of Indonesia and Head of the Tourism and Creative Economy Agency of the Republic of Indonesia in the Inspirational Independent Tourism Village Champion category, Indonesian Tourism Village Award. Therefore, Malang is a representative object of this research.

Considering the above theoretical and practical implications, this research is expected to contribute to the tourism industry, especially in understanding the environmentally friendly behavior of young travelers in natural tourist destinations to protect the sustainability of their ecosystems. To understand the behavior of young travelers in natural tourism destinations, this study employed the VIP (Value, Identity, and Personal Norm) model integrated with destination social responsibility and green trust as moderating variables. The findings of this research are expected to provide ideas for natural tourism stakeholders to continuously improve the management of their tourist destinations according to traveler expectations while considering the effects on environmental sustainability.

THEORETICAL REVIEW

The Effect of Biospheric and Altruistic Value (BAV) on Environmental Self-identity (EI).

According to Schwartz (1992), personal values are consistent, coveted, and unique objectives that direct a person's attitudes, decisions, and actions. The degree to which people prioritize and support each value varies, yet they all support all values to some degree. A person's attitudes, opinions, and actions are increasingly influenced by their values the more they are upheld and prioritized. The four personal values that are most strongly linked to pro-environmental conduct are altruistic, egoistic, hedonistic, and biosphere values, according to earlier studies that concentrated on the environmental domain (Steg. et al., 2014). Van der Werff et al. (2013) shown that even when evaluated months in advance, the biosphere's value is correlated with the environment's self-identity. Wang et al. (2021) discovered that pro-environmental conduct can be predicted by the value of a personal biosphere, primarily through the environment's self-identity. Lee et al. (2021) demonstrated how the environment's self-identity is impacted by the value of visitors' biospheres. The higher the priority of biospheric values held by individuals, the stronger the environmental self-identity that is formed. This identity then becomes an important psychological mechanism that consistently drives pro-environmental behavior. In other words, values not only directly influence attitudes but also shape self-perception that mediates actual actions towards environmental issues.

H1a: Altruistic Value (AV) has an effect on Environmental self-identity (ESI)
H1b: Biospheric Value (BV) has an effect on Environmental self-identity (ESI).

The Effect of Environmental Self-identity (EI) on Personal Norms (PN)

According to Van der Werff et al. (2013), environmental self-identity (EI) is "the extent to which a person sees himself doing something environmentally friendly." higher biosphere values are associated with higher self-identity with regard to the environment, as demonstrated by Van der Werff and Steg (2016). involvement in smart energy systems has been found to be strongly predicted by VIPs, while interest and involvement are predicted by normative factors (Van der

Werff and Steg, 2016). According to Balunde et al. (2019), the association between biosphere values and youth involvement in trash prevention is mediated by ecological self-identity.

According to Ajibade et al. (2021), those who had altruistic values—that is, values that care for the community, respect diversity and gender equality, and make decisions together—had a stronger ecological self-identity, which is defined by beliefs that reflect ecology, biocentrism, ecofeminism, or ecospirituality. Values such as biospheric and altruistic not only influence attitudes towards the environment but also shape ecological self-identity. This identity then becomes the main mediation that explains individual involvement in pro-environmental actions, both in the form of participation in sustainable technology and real actions such as waste prevention and sustainability advocacy. Therefore, strengthening values and forming ecological identities become strategic steps in mobilizing environmentally friendly behavior sustainably.
H2: Environmental self-identity (ESI) affects Personal Norm (PN)

The Effect of Personal Norm (PN) on Pro-environmental Behavior (PEB)

Schwartz (1977) The term "personal norm" (PN) refers to a sense of moral duty to perform or abstain from a particular behavior. As a sense of moral obligation to act morally, this PN is a self-expectation based on the internalization of values, personality, and habits in specific actions in specific contexts. PN differs from the subjective norm, which emphasizes the normative influence of other significant individuals and groups. The norm activation model states that people's altruistic behavior is guided by their personal norms and is triggered by two things: Consequence awareness and responsible work To put it another way, people need to be conscious of the issues and behaviors that could affect the environment and animals in order to exercise personal responsibility (Park & Ha, 2014; Schwartz, 1977). Altruistic and biosphreric values serve as the primary guiding principles for the human standards around which the NAM model is built. Pro-environmental personal norms influence the pro-environmental conduct of national park visitors, according to Esfandiar et al. (2019). According to Lee et al. (2021), travelers' pro-environmental behavior will be directly impacted by their personal norms. Personal pro-environmental norms play a central role in encouraging pro-environmental behavior among national park visitors and tourists in general. When individuals feel morally responsible for preserving the environment, they are motivated to take concrete actions without the need to be coerced by external rules. Therefore, reinforcing personal norms through direct experiences with nature can be an effective strategy in promoting sustainable tourism.Thus, the following theory is:
H3: Pro-environmental behavior (PEB) is influenced by personal norms (PN).

The Effect of Destination Social Responsibility (DSR) on Pro-environmental Behavior (PEB)

According to Su & Huang (2018), destination social responsibility is a collective concept that focuses on interest groups' attempts to act in a way that is socially responsible as perceived by locals. Active destination social responsibility (DSR) tourism increases the ability to encourage visitors to act sustainably (Zhi et al. 2022). In a similar vein, Nashr et al. (2022) discovered that inhabitants' environmentally conscious behavior is increased by destination social responsibility. DSR has a significant influence on the formation of pro-environmental behavior, both among tourists and local communities. When a destination actively demonstrates a commitment to social responsibility, it not only builds a positive image but also creates social and psychological norms that encourage real actions for sustainability. Therefore, strengthening DSR can be an effective strategy for internalizing environmental values in the behavior of tourists and residents. Thus,
H4: Destination Social Responsibility (DSR) influences Pro-environmental Behavior (PEB)

The influence of Green Trust (GT) on Pro-environmental Behavior (PEB)

The inclusive trust model as in Mayer et al. (1995) defined trust as an individual's wish to have faith in others because they anticipate favorable results. The three components of "trustworthiness" that make up this positive anticipation are virtue, ability, and integrity. Expectations pertaining to reasons like compassion and support, the capacity to surpass expectations of competence and aptitude, and honesty to fulfill expectations in accordance with good principles are all correlated with virtue. Trust has a strong correlation with behavioral

outcomes because behavioral intentions are influenced by a readiness to take chances and deal with uncertainty (Martínez and Rodríguez del Bosque, 2013). According to earlier research, trust and behavioral outcomes are positively correlated (Sparks and Browning, 2011). "The willingness to rely on a product, service, or brand based on trust or expectations obtained from its credibility, goodness, and ability to protect the environment" is how Mayer et al. (1995) describe green trust. The capacity or vulnerability of consumers to rely on the acceptance of certain aims based on prior environmental performance, reliability, and environmental performance is known as "green trust," according to Chen (2010). According to Hossain et al. (2022), pro-environmental behavior is impacted by green trust. Green beliefs greatly influence consumer attitudes and buy intentions toward eco-friendly items, which in turn helps direct actual behavior (Wasaya et al., 2021). Green trust plays a key role in shaping pro-environmental behavior through psychological mechanisms in the form of perceptions of the reliability and integrity of the environment of an entity. This trust enhances positive attitudes and intentions towards the consumption of green products, which then leads to concrete sustainable actions. Therefore, building and maintaining green trust is an important strategy in encouraging consumers to act more pro-environmentally in their lifestyles.Thus, the following theory:
H5: Pro-environmental Behavior (PEB) is impacted by Green Trust (GT).

The Effect of Destination Social Responsibility (DSR) Moderation between Personal Norms (PN) on Pro-environmental Behavior (PEB)

According to Lee et al. (2021), in a tourism context, when visitors become aware of a DSR destination's activities, their normative views react to social influences, which ultimately results in their responding to their DSR messaging. Tourists' personal norms are triggered in response to perceived knowledge when they acknowledge and view site conservation activities as social and environmental duties. This results in pro-environmental conduct aimed at safeguarding and conserving the site. To put it another way, DSR can either reinforce or erode visitors' personal norms that oppose their environmentally conscious actions. Destination Social Responsibility (DSR) not only shapes tourists' perceptions of destinations but also influences the strength of the relationship between personal norms and actual actions. When DSR is high, it reinforces personal norms and encourages pro-environmental behavior. Conversely, low DSR can weaken these norms, even leading visitors to disregard their ecological responsibilities. Therefore, DSR plays a crucial role as a psychosocial moderator that determines the extent to which personal norms are converted into real actions in the context of sustainable tourism. To give a more concise picture, the framework of the research concept based on the hypothesis mentioned above is shown in the figure 1.
H6: Personal Norm (PN) is moderated against Pro-environmental Behavior (PEB) by Destination Social Responsibility (DSR)

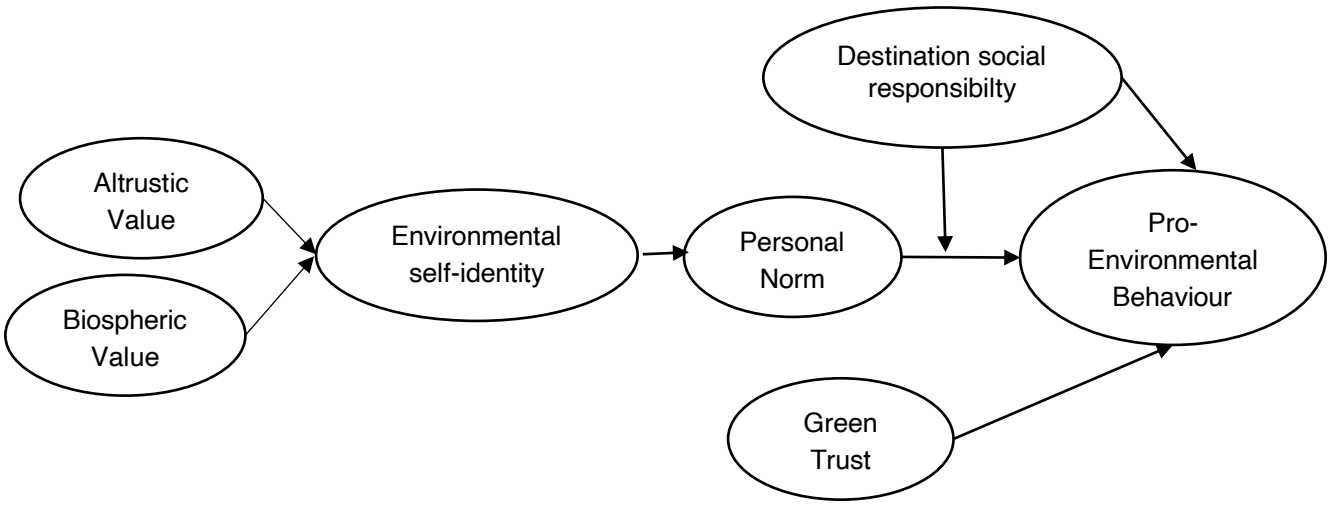

Figure 1. Conceptual Framework

RESEARCH METHOD

This study employed an explanatory quantitative design to examine the causal relationships between exogenous and endogenous constructs within the proposed structural model. Given the absence of an accessible sampling frame and the exploratory nature of the research context, a non-probability purposive sampling technique was applied. This method was selected to ensure the inclusion of information-rich respondents who met specific eligibility criteria relevant to the study objectives.

Participants were selected based on the following inclusion criteria: (1) individuals within the millennial age group (aged 15 years and above, corresponding to those born between 1981 and 1996); and (2) those who had previously visited at least one of the ten most frequently visited nature-based tourist destinations in Malang Raya, Indonesia (see Table 1). These criteria were designed to capture respondents with both the cognitive and experiential familiarity necessary to evaluate constructs such as environmental self-identity, personal norms, and pro-environmental behavior.

While purposive sampling limits the statistical generalizability of the findings, it is considered suitable for analytical generalization within theory-building and model-testing frameworks, particularly when using variance-based SEM approaches such as PLS-SEM (Hair et al., 2019). Nonetheless, potential sampling biases are acknowledged, including self-selection bias—where individuals with higher environmental awareness may be more likely to participate—and geographic bias, as the sampling was restricted to the Malang Raya region.

Data collection was conducted over a three-month period (March–May 2024), yielding a total of 202 valid responses. Following the rule of thumb suggested by Hair et al. (2019), a minimum sample size of 160 was required based on the number of estimated parameters (n = 32), assuming a minimum of five observations per parameter. The final sample exceeded this threshold, thereby satisfying requirements for model estimation and reliability in PLS-SEM.

Table 1. 10 most popular natural attractions in Malang, Indonesia

Tourism Type	Destination	Rank
Waterfall Nature Tourism	Coban Rondo	1
Waterfall Nature Tourism	Coban Rais	2
Beach Nature Tourism	Pantai Balekambang	3
Beach Nature Tourism	Pantai Teluk Asmara	4
Beach Nature Tourism	Pantai Tiga Warna	5
Nature Tourism Water sources	Mata Air Sumber Sirah	6
Mountain Nature Tourism	Bukit Nirwana	7
Mountain Nature Tourism	Bukit Teletubbies Batu	8
Beach Nature Tourism	Teluk Bidadari	9
Plantation Nature Tourism	Kebun Teh Wonosari	10

This research examined seven variables with influences that were not directly measurable. Indicators were used to measure each of the seven variables in this study. However, before measuring the seven variables, Appendix 1 provides the operational definitions of each variable.

RESULTS

Respondent Characteristic

Table 3 it shows the characteristics of the respondents from this study among 202 respondents, the majority were Female or 57.4%, aged 15-25 years or around 97%, with a monthly expenditure of under one million rupiahs, around 67.8 per cent

Table 2. Descriptions of Respondents

Characteristics of Demographics	Frequency	Percentage
Gender		
Male	86	42,6%
Female	116	57.4%
Age		
15-25 years old	196	97%
26-35 years old	6	3%
How many times do you visit natural tourist destinations per year?		
1-3 Times	127	62.9%
3-5 Times	48	23,8%
>5 Times	33	16,3%
expenses/month		
< 1.000.000	137	67.8%
1.000.000-3.000.000	67	33.2%
3.000.000-5.000.000	3	1.5%
>5.000.000	1	0.5%

Validity and Reliability Tests

The results demonstrated convergent and discriminant validity. Regarding the convergent validity, the statistical analysis indicated that the factor loadings and AVE were greater than 0.50, while the CR and Alpha exceeded 0.70, as listed in Table 3 and Figure 2.

Table 3. Outer Model Validity and Reliability

No	Variable	Items	Loading factor	alpha	CR	AVE
1	*Altruistic Value (AV)*	AV1	0.812	0.886	0.922	0.747
		AV2	0.852			
		AV3	0.891			
		AV4	0.899			
2	*Biosphere Value (BV)*	BV1	0.888	0.936	0.954	0.840
		BV2	0.939			
		BV3	0.925			
		BV4	0.913			
3	*Environmental Self-Identity (ESI)*	ESI1	0.857	0.798	0.881	0.711
		ESI2	0.855			
		ESI3	0.817			
4	*Personal Norm (PN)*	PN1	0.885	0.903	0.932	0.775
		PN2	0.883			
		PN3	0.844			
		PN4	0.909			
5	*Destination Social Responsibility (DSR),*	DSR1	0.881	0.929	0.942	0.675
		DSR2	0.557			
		DSR3	0.822			
		DSR4	0.861			
		DSR5	0.842			
		DSR6	0.878			
		DSR7	0.905			
		DSR8	0.775			
6	*Green Trust (GT)*	GT1	0.894	0.931	0.948	0.784
		GT2	0.901			
		GT3	0.885			
		GT4	0.839			
		GT5	0.907			
7	*Pro-Environmental Behavior (PEB)*	PEB1	0.896	0.908	0.936	0.785
		PEB2	0.804			
		PEB3	0.921			
		PEB4	0.918			

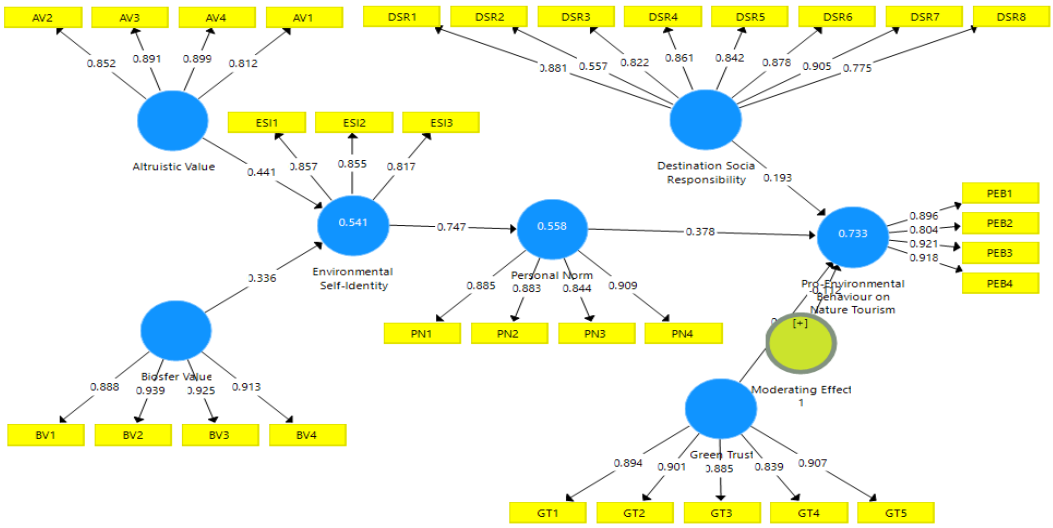

Figure 2. Measurement model assessment

The discriminant validity was also assessed and the statistical results indicated that discriminant validity was established as the Heterotrait Monotrait (HTMT) ratio did not exceed 0.90. This is demonstrated in Table 4.

Table 4. Heterotrait Monotrait (HTMT)

Constructs	AV	BV	DSR	ESI	GT	Mod. Effect 1	PN
AV							
BV	0,864						
DSR	0,789	0,825					
ESI	0,829	0,779	0,783				
GT	0,731	0,746	0,894	0,690			
Moderat. Effect 1	0,660	0,692	0,556	0,536	0,467		
PN	0,851	0,886	0,851	0,871	0,757	0,643	
PEB	0,854	0,837	0,830	0,786	0,782	0,671	0,879

The next stage involved inner model testing. At this stage, an assessment of the model fitness criteria was carried out, as well as testing the influence of each variable. The eligibility criteria for a model were evaluated based on the R-Square and Adjusted R-Square values, as demonstrated in Table 5.

Table 5. R-Square and Adjusted R-Square (Inner Model)

Variable	R^2	R^2 Adjusted	Decision
Environmental Self-Identity	0,541	0,536	Moderate
Personal Norm	0,558	0,555	Moderate
Pro-Environmental Behavior	0,733	0,728	Subtantial

Based on Table 6, the R-squared value for the Environmental Self-Identity variable was 0.541. It indicated that the Environmental Self-Identity variable was explained by altruistic value and biosphere value by 54.1%, which means in the moderate category. This shows a fairly strong relationship, and the R^2 value is close to the high range for social sciences. Personal Norm variable was describedby environmental Self-Identity of 0.558 by 55.8%, which belonged to the moderate category. The R-Square value for the Pro-Environmental Behavior variable as explained by personal norms, destination social responsibility, and green trust, was 0.733 or 73.3%, which referred to the substantial category. This means that around 73.3% of pro-environmental behavior in ecotourism is explained by a combination of Destination Social

Responsibility (DSR), Green Trust, Personal Norm, and Moderating Effect. The very high results in the context of social science and human behavior indicate that the model in this study explains the target behavior very well.

In this study, (see Table 6) the largest f^2 value is found in the path Environmental Self-Identity to Personal Norm, with an effect size of 1.260, which is categorized as a very large effect. This indicates that environmental self-identity plays a highly influential role in shaping one's personal norm related to environmental behavior. Additionally, the paths Altruistic Value to Environmental Self-Identity ($f^2 = 0.162$) and Personal Norm to Pro-environmental Behaviour ($f^2 = 0.178$) show medium effects, suggesting that personal values and internal norms are important predictors of environmentally responsible behavior in the context of nature-based tourism. Other paths such as Biospheric Value, Green Trust, and Destination Social Responsibility (DSR) exhibit small effect sizes (below 0.10). Despite their relatively smaller contributions, these variables remain statistically significant and theoretically relevant in supporting the overall model.

Table 6. Effect Size (f^2) Analysis

Variable	Target (Dependent Variable)	f^2 Value	Interpretation
Altruistic Value	Environmental Self-Identity	0.162	Medium
Biospheric Value	Environmental Self-Identity	0.094	Small
Destination Social Responsibility	Pro-Environmental Behavior	0.030	Small
Environmental Self-Identity	Personal Norm	1.260	Very Large
Green Trust	Pro-Environmental Behavior	0.046	Small
Moderating Effect 1	Pro-Environmental Behavior	0.099	Small to Approaching Medium
Personal Norm	Pro-Environmental Behavior	0.178	Medium

Furthermore, in accordance with the recommendations provided in recent methodological literature (Hair et al., 2022) and SmartPLS guidelines, the Standardized Root Mean Square Residual (SRMR) was employed as a global measure of model fit. The SRMR value for the saturated model was 0.061, while the estimated model yielded a value of 0.130. Although the SRMR for the estimated model slightly exceeds the commonly accepted threshold of 0.10 for good model fit, this is considered tolerable within the context of exploratory research. Given the model's complexity and the theoretical nature of the constructs, the SRMR remains within an acceptable range for variance-based SEM approaches.

Structural Equation Model Test

The results of Structural Equation Modelling confirmed the hypotheses H1, H2, H3, H5, H6, and H7, with t-values exceeding 1.96 as recommended by Hair et al. (2019). All hypotheses (H1 to H7) were statistically supported as detailed in Table 7. and Figure 2. Specifically, Altruistic Value affected Environmental self-identity (t-statistic = 5.522 > 1.96), Biospheric Value affected Environmental self-identity (t-statistic = 4.609 > 1.96), Environmental self-identity affected personal norm (t-statistic = 14.724 > 1.96), personal norm affected pro-environmental behavior (t-statistic = 4.297 >1.96), destination social responsibility affected pro-environmental behavior (t-statistic = 2.051 > 1.96), and green trust affected pro-environmental behavior (t-statistic = 2.626 > 1.96). For the moderation test, the results indicated that destination social responsibility moderated personal norms to pro-environmental behavior (t-statistic = 5.064 < 1.96).

Table 7. Inferential Findings

Hypothesis	Beta	*t*-value	*p*-value	Decision
Altruistic Value (AV) → Environmental self-identity (ESI)	0.441	5.522	0.000	Supported
Biospheric Value (BV) → Environmental self-identity (ESI)	0.336	4.609	0.000	Supported
Environmental self-identity (ESI)→ Personal Norm (PN)	0.747	14.724	0.000	Supported
Personal Norm (PN) → Pro-environmental Behavior (PEB)	0.378	4.297	0.000	Supported
Destination Social Responsibility (DSR) → Pro-environmental Behavior (PEB)	0.193	2.051	0.041	Supported
Green Trust (GT) → Pro-environmental Behavior (PEB)	0.205	2.626	0.009	Supported
Destination Social Responsibility (DSR) moderated Personal Norm (PN) → Pro-environmental Behavior (PEB)	-0.112	5.064	0.000	Supported

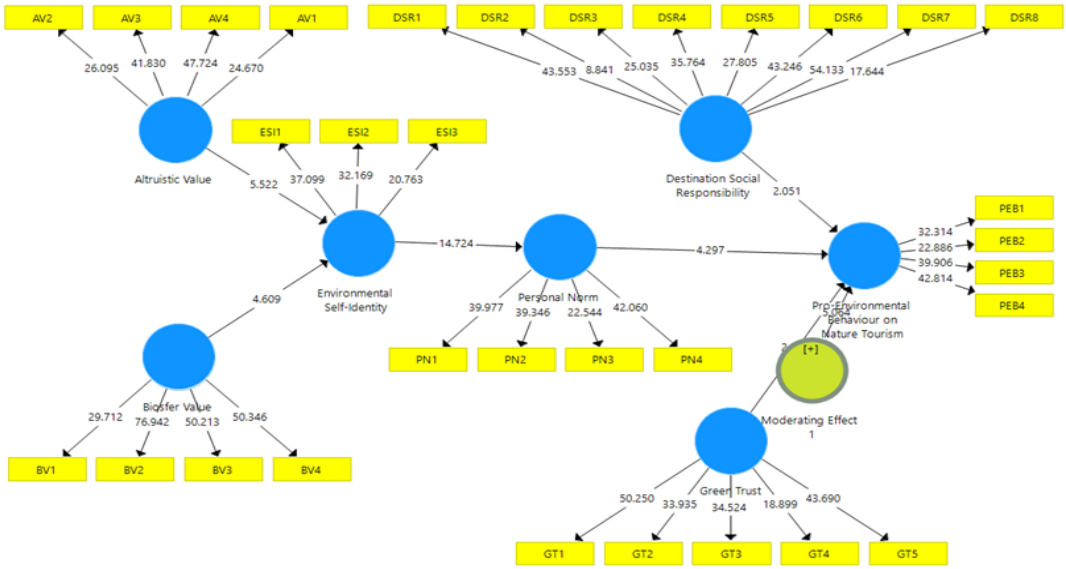

Figure 3. Structural Model Assessment

DISCUSSION

Altruistic value has a significant influence on the environmental self-identity of millennial travelers. These results mean stronger personal values of millennial travelers concerning altruism manifested by indicators of concern for other people in the community at the natural tourist destination visited (AV1). Men and women show heightened concern for environmental problems in natural tourist destinations, regardless of gender differences (AV2). This concern extends to environmental issues influenced by government policy decisions related to natural tourism destinations (AV3). Furthermore, this concern is in line with support for diversity in society (AV4). As a result, millennial travelers increasingly view themselves as environmentally conscious individuals who care about the environment and consider themselves pro-environmental when visiting natural tourism destinations. The results of this research support Wang et al. (2021) who found that personal biosphere values affect environmental self-identity, which is ultimately able to predict pro-environmental behavior. These results also align with Lee et al. (2021) that tourists' biosphere values influence environmental self-identity.

Biosphere value has a significant influence on the environmental self-identity of millennial travelers when visiting natural tourist destinations. The results of this research show that the personal values of millennial travelers are manifested by respecting nature, harmonizing with other species on earth (BV1), maintaining unity with nature by adapting to nature (BV2), protecting the environment by conserving nature (BV3), and protecting resources and nature by preventing pollution, which collectively impact the values of millennial tourists. Their appearance as people who care about the environment is essential as is their role as environmentally conscious individuals during visits to natural tourist attractions, which enhances their self-perceptions as pro-environmental. These results support the research of Lee et al. (2021), who found that biospheric value influences environmentally friendly attitudes, a finding also supported by Wang et al. (2021). In addition, people with strong biosphere values tend to make decisions that enhance the quality of the biosphere and engage in actions to mitigate environmental problems (Lindenberg & Steg, 2013). However, it is important to note that although the influence of biospheric value on environmental self-identity was statistically significant, the effect size was relatively small ($f^2 = 0.094$). This suggests that while millennials recognize the intrinsic worth of nature, this recognition may not be the primary force shaping their self-concept as environmentally responsible individuals. This could reflect the broader social context in which millennials form their environmental identities. For instance, tourism-based environmental education or curated destination narratives may not be sufficiently impactful to deeply embed biospheric values into tourists' self-perceptions. Alternatively, millennials' environmental identities may be shaped more strongly by social media discourses and global environmental campaigns than by direct destination experiences. Such dynamics are consistent with prior research emphasizing the growing role of digital platforms and sociocultural influences in environmental awareness and identity formation among younger generations (Bennett, Wells, & Rank, 2014; Moser, 2016). These insights provide a more nuanced understanding of how biospheric values function within the complex landscape of contemporary pro-environmental behavior.

Environmental self-identity significantly influences the personal norms of millennial travelers in natural tourism destinations. The results of this research show that the extent to which millennial travelers see themselves as doing something environmentally friendly, for example appearing to care about the environment constitutes an essential part of their lives (ESI1). These travelers perceive themselves as environmentally conscious individuals during tourism activities (ESI2) and consider themselves pro-environment, which influences their norms. The norms manifest as a moral obligation to protect the environment of the natural tourist destinations they visit (PN1), guilt for failing to act pro-environmentally at natural tourist destinations (PN2), and pride for acting pro-environmentally when visiting natural tourist destinations (PN3). They feel morally compelled to act pro-environmentally according to their principles when visiting these destinations (PN4). The study results are in line with Ajibade et al. (2021) and Balunde et al. (2019) who found that ecological self-identity influences youth participation in waste prevention, and individuals with a good environmental self-identity tend to develop stronger personal norms.

Personal norms significantly influence millennial travelers' pro-environmental behavior when visiting natural tourist destinations. This study suggests that moral obligation compels respondents to engage in pro-environmental behaviors, such as adhering to regulations that prevent environmental damage, encouraging partners to protect natural environments, and avoiding disturbances to flora and fauna in tourist destinations. The results of this study support Esfandiar et al. (2019) who found that individual pro-environmental norms influence the pro-environmental behavior of national park visitors. Likewise, Lee et al. (2021) demonstrated that individual pro-environmental norms influence tourists' pro-environmental behavior.

Destination social responsibility which is manifested in millennial travelers' perceptions of the natural tourist destinations they visit has environmental awareness in its operations (DSR1), reduces consumption of natural resources (DSR2), communicates to its customers about its environmental practices (DSR3), cares about respecting and protecting the natural environment (DSR4), treating tourism destination stakeholders well (DSR5), having concern with improving the general welfare of the community (DSR6), providing experiences for tourists through meaningful relationships with local communities and understanding of local culture (DSR7) and helping to solve problems social media (DSR8) has a significant effect on the pro-environment behavior of millennial travelers. This influence manifests in a pro-environmental attitude, including compliance with regulations to prevent environmental damage, persuading partners to protect the environment, and avoiding disturbances to the flora and fauna in natural tourist destinations. The results of this study

support the research findings (Zhi et al., 2022). Similarly, Nashr et al. (2022) found that destination social responsibility increases the environmentally friendly behavior of residents around the destination.

Green trust has a significant influence on the pro-environmental behavior of millennial travelers. The results of this research show that the green trust of respondents in this study, which is manifested by believing in the environmental commitment of natural tourism destinations and the environmental performance of the natural tourism destinations they visit, is generally reliable. This trust significantly shapes the pro-environmental behavior of millennial travelers. The results of this study support Hossain et al. (2022) found that green beliefs impact pro-environmental behavior. Likewise, Wasaya et al. (2021) found that green beliefs drive buyers' attitudes and desires toward environmentally friendly products. Ultimately, green beliefs help guide actual behavior.

Destination Social Responsibility (DSR) moderates the relationship between personal norms and pro-environmental behavior among millennial travelers visiting natural tourist destinations. The interpretation, it was clarified that DSR has a positive direct effect on pro-environmental behavior ($\beta = 0.193$). However, its interaction with personal norm (Moderating Effect 1) was found to be negative and statistically significant ($\beta = -0.112$; $t = 4.868$). This indicates that as perceptions of DSR increase, the influence of personal moral norms on pro-environmental behavior tends to weaken. This negative moderating effect may stem from millennial travelers' perceptions that stakeholders managing these destinations have not yet fully succeeded in reducing natural resource consumption or effectively addressing social problems. In other words, while DSR efforts may be visible, they might not be perceived as sufficiently authentic or effective, which can lead to a diffusion of responsibility and undermine internalized personal norms. More broadly, this finding may reflect a psychological shift in perceived responsibility. Specifically, when individuals observe strong institutional engagement in environmental and social efforts, they may be less motivated to act based on their own personal norms. Institutional responsibility may serve as a substitute for individual responsibility, potentially undermining intrinsic motivation for pro-environmental behavior. This phenomenon can be interpreted through theoretical lenses such as the moral licensing effect, where prior virtuous behavior—either by oneself or an institution—reduces subsequent moral actions (Merritt, Effron, & Monin, 2010). It also aligns with the concept of responsibility diffusion, which suggests that individuals are less likely to act when responsibility is perceived to be shared or assumed by others (Darley & Latané, 1968). This nuanced understanding highlights the paradoxical nature of the negative moderation effect and underscores the importance of carefully framing DSR initiatives to support, rather than supplant, personal environmental responsibility. These results contrast with Lee et al. (2021), who suggested DSR can both strengthen and weaken tourists' pro-environmental norms, but they extend the literature by confirming the moderating role of destination social responsibility on pro-environmental behavior, which was not fully established in prior studies. Furthermore, this finding supports Solekah et al. (2023), who demonstrated that destination attributes, including social responsibility, can moderate environmentally sustainable behavior among tourists.

CONCLUSION AND FURTHER STUDY

Altruistic values significantly influence environmental self-identity, which means that personal values or guiding principles for protecting society increase the self-identity of millennial travelers willing to engage in environmentally friendly activities when visiting natural tourist destinations. Biospheric Value has a significant influence on environmental self-identity, which means that a stronger value orientation toward the ecosystem or biosphere enhances millennial travelers' self-identity and their inclination to act environmentally friendly at natural tourist destinations. Environmental self-identity significantly affects personal norms, meaning that when millennial travelers see themselves doing environmentally friendly actions, this increases their moral obligation to refrain from harming and to protect the environment at natural tourist destinations. Personal norms significantly influence pro-environmental behavior, meaning that a stronger sense of moral obligation among millennial travelers leads to more significant efforts to reduce or minimize environmental damage at the natural tourist destinations they visit. Destination social responsibility significantly influences pro-environmental behavior, indicating that stakeholders' efforts to protect and enhance social and environmental benefits at natural

tourism destinations influence visitors' pro-environmental behavior. Green trust significantly influences pro-environmental behavior, suggesting that millennial travelers' trust in the credibility and environmental protection efforts of natural tourist destinations drives their pro-environmental behavior. Destination social responsibility negatively moderates the relationship between personal norms and pro-environmental behavior, indicating that stakeholders' activities may weaken millennial travelers' moral obligation to reduce or minimize environmental damage due to the perception of millennial travelers that natural tourism destination stakeholders have not fully reduced resource consumption and adequately solved social problems.

The research findings can help in designing more effective tourism policies. For example, destinations can implement more appropriate incentives or sanctions to encourage pro-environmental behavior among visitors. Tourism destinations can use the results of this research as a basis for developing education and awareness programs for tourists. This may include education about the environmental impact of tourism activities and ways to reduce their ecological footprint. Further, this research can encourage cooperation among stakeholders in the tourism industry, including government, tourism businesses, and local communities. Such collaboration is necessary to implement the required changes to achieve sustainability in tourism. Future research should explore additional factors that could moderate the relationship between personal norms and pro-environmental behavior or the impact of specific DSR initiatives on tourist behavior.

ETHICAL DISCLOSURE

All participants provided written informed consent prior to participation. They were informed about the study's purpose, their voluntary participation, the right to withdraw at any time, and the confidentiality of their responses."

CONFLICT OF INTERESTS

LPPM Maulana Malik Ibrahim State Islamic University Malang funded this research by a research contract number 1083A/LP2M/TL.00/02/2024. The authors declare no conflict of interest.

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Appendix 1. Operational Definition and Measurement of Research Variables

No	Variable	Operational Definition	Item	Scale and Source
1	Altruistic Value	Altruistic values have been considered as part of a personal value system or overall guiding principle that drives a person to help others or society as a whole (Konalingam et al 2024).	• Concern for others in the community (AV1) • Gender equality (AV2) • Decision-making based on Collaboration (AV3) • Support for diversity in Society (AV4	1-5 Scale Adipaje *et al.* (2021)
2	Biospheric Value	Biosphere value theory, or value orientation, in which "people assess phenomena based on costs or benefits to the ecosystem or biosphere" (Stern & Dietz, 1994)	• Respect nature: harmony with other species on earth (BV1) • Unity with nature: adapting to nature (BV2) • Protecting the environment: preserving nature (BV3) • Prevent pollution: protect natural resources (BV4)	1-5 Scale Lee et al. (2021)
3	Environmental self-identity	The extent to which a person sees himself doing something environmentally friendly (Van der Werff et al., 2013)	• Appearing to care about the environment is an important part of my life (ESI1) • I am an environmentally conscious person in tourism activities (ESI2) • I consider myself a pro-environmental person (ESI3)	1-5 Scale Van der Werff & Steg, (2021)
4	Personal Norm	Schwartz, (1977) Personal Norm (PN) is a feeling of moral obligation to carry	• I feel morally obliged to protect the environment of the natural tourist	1-5 Scale Van der Werff & Steg, (2021)

No	Variable	Operational Definition	Item	Scale and Source
		out or refrain from certain actions	destinations I visit (PN1) • I will feel guilty if I do not act pro-environmentally when visiting natural tourist destinations (PN2) • I will feel proud if I act pro-environmentally when visiting natural tourist destinations (PN3) • According to my own principles, I feel that I must act pro-environmentally when visiting natural tourist destinations (PN4)	
5	Destination Social Responsibility	Su & Swanson (2017) defines DSR as stakeholder activities that protect and enhance the social and environmental benefits of an entire location in addition to the economic benefits of individual organizations	I think of the natural tourism destination organization that I visited • Including having environmental awareness in its operations (DSR1) • reduce consumption of natural resources (DSR2) • communicate to its customers about its environmental practices (DSR3) • concerned with respecting and protecting the natural environment (DSR4) • treat their stakeholders well (DSR5) • Concerned with improving the general welfare of society (DSR6) • provide experiences for tourists through meaningful relationships with local communities and an understanding of local culture (DSR7) • actively participates in initiatives to address social issues	1-5 Scale Su et al. (2018) dan Lee et al. (2021)

No	Variable	Operational Definition	Item	Scale and Source
			in the local community (DSR8)	
6	Green Trust	Mayer et al. (1995) defines green trust as "the willingness to rely on a product, service or brand based on trust or hope derived from its credibility, goodness and ability to protect the environment	• feel that the environmental commitment of the natural tourist destinations visited generally reliable (GT1) • feel that the environmental performance of the natural tourism destinations visited generally reliable (GT2) • feel that the environmental arguments of the natural tourist destinations visited generally credible (GT3) • feel that the environmental awareness of the natural tourist destinations visited met expectations (GT4) • feel that the natural tourism destinations visited keep their promises and commitments to environmental protection	1-5 Scale Chauhan & Goyal (2024)
7	Pro-environmental Behavior in Natural Tourim	Human behavior or actions in reducing or minimizing environmental damage and improving the environment related to energy-saving behavior, mobility and transportation, preventing the occurrence of rubbish/waste, recycling waste, responsible consumption, as	• comply with relevant regulations to not damage the environment of the natural tourist destinations I visit (PEB1) • trying to convince partners to protect the natural environment in the natural tourist destinations I visited (PEB2) • try not to disturb the flora (plants or plants) in the natural tourist	1-5 Scale Van der Werff & Steg, (2016)

No	Variable	Operational Definition	Item	Scale and Source
		well as environmental conservation activities in natural tourist destinations (Steg&Vleg, 2009)	destinations visited (PEB3) • try not to disturb the fauna in the natural tourist destinations visited (PEB4)	