

Understanding Tourists' Environmental Responsibility: Testing a Behavioral Model in the Thousand Islands from a Quality Tourism Perspective

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Abstract

Tourism destinations increasingly face environmental pressures resulting from growing visitor numbers, particularly in island destinations where ecological resources are highly vulnerable. Within the quality tourism paradigm, tourists are expected to act not only as consumers but also as responsible environmental stakeholders. This study empirically examines the relationships among place dependence, place identity, environmental knowledge, destination social responsibility (DSR), personal norms, and environmentally responsible behavior (ERB) among visitors to the Thousand Islands, Indonesia. A cross-sectional survey was conducted with 310 tourists and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings reveal that place dependence, place identity, environmental knowledge, destination social responsibility, and personal norms all positively influence ERB, with environmental knowledge emerging as the strongest predictor. The model demonstrates substantial explanatory power ($R^2 = 0.80$). Regarding moderation effects, DSR does not significantly strengthen the relationship between place dependence and ERB, while its interaction with place identity is significant but negative, suggesting that strong emotional attachment may reduce reliance on external sustainability cues. Personal norms do not significantly moderate the relationship between environmental knowledge and ERB. By integrating established constructs from place attachment, norm activation, and sustainable tourism research within a quality tourism framework, this study contributes to understanding how cognitive, emotional, and moral factors jointly shape environmentally responsible behavior among tourists. The findings offer practical implications for destination managers seeking to encourage sustainable visitor behavior through environmental education, place-based experiences, and visible sustainability initiatives.

KEYWORDS

quality tourism; environmental responsibility; eco-tourism; place attachment.

Introduction

The tourism sector stands as a major driver of Indonesia's economy, contributing significantly to foreign exchange, employment, and regional development. The Thousand Islands (Kepulauan Seribu), one of the most accessible marine tourism destinations for residents of Greater Jakarta, have experienced increasing visitor pressure alongside the growth of coastal and island tourism. Several islands, particularly Pari, Tidung, and Pramuka, face environmental challenges associated with tourism activities, including marine debris accumulation, waste-management constraints, coral reef disturbance, and pressures on ecosystem carrying capacity. Previous studies in the Thousand Islands have documented the growing impacts of tourism-related waste and environmental degradation, highlighting the vulnerability of small-island ecosystems to increasing visitor intensity (Hayati et al., 2020; Khrisnamurti, 2016). These concerns are particularly relevant in destinations where tourism growth is not always accompanied by adequate

environmental infrastructure and visitor stewardship. Recognizing such challenges, Indonesia's National Medium-Term Development Plan (RPJMN) 2025–2029 explicitly promotes quality and sustainable tourism as a strategic direction for tourism development, emphasizing environmental sustainability, community welfare, and visitor responsibility rather than merely increasing tourist arrivals (Bappenas, 2025; Ministry of Tourism of the Republic of Indonesia, 2025). Consequently, understanding the factors that encourage environmentally responsible behavior among tourists has become increasingly important for ensuring the long-term sustainability of destinations such as the Thousand Islands (Vaske & Kobrin, 2001).

In response to these challenges, the concept of quality tourism has gained increasing attention as a framework for balancing tourism development with environmental and social sustainability. Rather than emphasizing visitor numbers alone, quality tourism focuses on creating meaningful visitor experiences while maintaining the environmental, cultural, and social resources upon which destinations depend (Habibulloev et al., 2024; UN Tourism, 2024). Within this perspective, tourists are not viewed solely as consumers of tourism products and services but also as stakeholders whose behaviors can contribute to destination sustainability (Roloff, 2008). Previous studies suggest that environmentally responsible behavior among tourists can support conservation efforts, reduce negative environmental impacts, and enhance the long-term resilience of tourism destinations (Lee & Jan, 2015; Ramkissoon et al., 2013). Consequently, understanding the factors that encourage tourists to engage in environmentally responsible behavior has become an important research priority, particularly in environmentally sensitive destinations such as the Thousand Islands.

Building on this perspective, the present study examines how place dependence, place identity, environmental knowledge, destination social responsibility (DSR), and personal norms influence environmentally responsible behavior among tourists visiting the Thousand Islands. Drawing on insights from Norm Activation Theory and Value-Belief-Norm Theory, the study investigates how cognitive, emotional, and moral factors jointly contribute to pro-environmental behavior within a quality tourism context. By examining these relationships in a small-island destination, the study seeks to provide a more comprehensive understanding of the mechanisms that encourage tourists to support environmental sustainability.

Previous studies have demonstrated that place attachment dimensions such as place identity and place dependence influence environmentally responsible behavior (Chow et al., 2019; Ramkissoon et al., 2013), while other studies emphasize the role of environmental knowledge and personal norms in shaping pro-environmental actions (Kim & Seock, 2019; Lee & Jan, 2015; Stern, 2000). Research has also explored destination social responsibility as a direct predictor of tourists' behavioral responses (Su et al., 2018). However, these streams of research have largely been examined separately. Limited attention has been given to how cognitive factors (environmental knowledge), emotional bonds (place attachment), and destination-level sustainability signals (DSR) jointly influence environmentally responsible behavior within the context of quality tourism (Moore & Scott, 2003). Addressing this gap, the present study integrates these established constructs into a single behavioral framework and examines both direct and moderating mechanisms among tourists visiting a small-island destination.

Quality Tourism and Environmentally Responsible Tourist Behavior

The sustainable tourism transition marks an emerging

tourism approach in global tourism that integrates the essential principles of sustainability such as, environmental responsibility, social accountability, and meaningful visitor experiences (Aby Dujana et al., 2025). Unlike conventional tourism, eco-travel encourages tourists not only to admire nature and culture but also to participate in environmental conservation, community engagement, and education programs that reduce tourism's ecological footprint. Its core objectives include minimizing environmental damage, increasing ecological awareness, promoting positive interactions with local communities, and fostering tourists' personal responsibility for preserving nature and cultural heritage (Choy et al., 2021). In this context, eco-travel is more than just green tourism. It redefines travel as an ethical and transformative act, turning visitors into active environmental stewards who contribute to conservation and sustainability through responsible actions and awareness (Reynolds, 2006).

When integrated with the quality tourism paradigm, the eco-travel revolution becomes a strategic model for reforming mass tourism into sustainable, high-value experiences. Quality tourism prioritizes value over volume, aiming to create destinations that are economically competitive while environmentally and socially responsible (Brown & Raymond, 2007; Papastathopoulos et al., 2020). It nurtures "quality tourists" who seek authentic, educational, and emotionally enriching experiences while respecting the environment and local cultures (Aby Dujana et al., 2025). Such tourists participate in conservation initiatives like tree planting and beach clean-ups, reduce waste, and promote cultural appreciation (Hörisch et al., 2020). Together, eco-travel and quality tourism embody a future where tourism functions not merely as an economic activity but as a powerful catalyst for conservation, cultural preservation, and global sustainability.

Proposing a Model of Tourist Behavioral Change as Environmental Stewards

Understanding tourist concern for the environment through behavioral aspects provides an essential foundation for enhancing their role as active environmental stewards. One critical factor to examine is the extent of tourists' responsibility toward the environment. The negative impacts of tourism development on environmental sustainability have been widely discussed, with irresponsible tourist behaviors identified as a key contributing factor. Therefore, antecedents shaping environmentally responsible behavior (ERB) have become a central research theme (Brown & Raymond, 2007; Han et al., 2010).

Environmentally responsible behavior can be defined as actions by tourists that avoid or minimize negative environmental impacts of tourism activities. Based on the theoretical framework of locus control, (Hörisch et al., 2020; Williams & Roggenbuck, n.d.) classify environmentally responsible behavior into six dimensions: civic actions, educational actions, physical actions, financial actions, legal actions, and persuasive actions. In tourism studies, ERB has been measured both as a general construction and as a set of specific actions. For example, (Kyle et al., 2004; Shin & Yu, 2020; White et al., 2008) assessed ERB as a general behavior, whereas (Zakiah et al., 2023; Zhang & Dong, 2020) examined ERB in specific contexts, such as waste disposal practices.

Place Attachment Theory and Environmentally Responsible Behavior

Tourism destinations, as geographic spaces that attract visitors, are effectively analyzed through the concept of place attachment, which explains the emotional and functional bonds between individuals and specific locations (Su et al., 2018). Choy et al. (2021) describes it as the system of attitudes and behaviors reflecting people's closeness to places, while (Yang et al., 2024; Zsóka et al., 2013) emphasizes that place

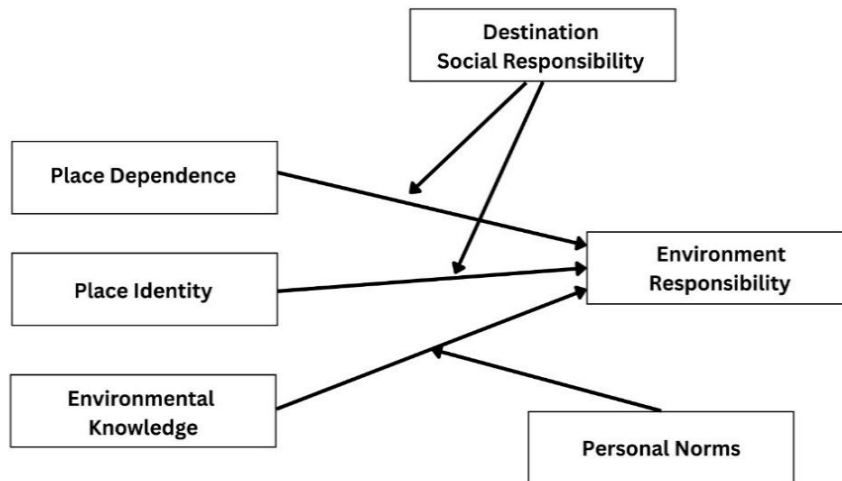


Figure 1. Conceptual Framework

evolves over time through stakeholder interaction. Although some scholars identify up to four dimensions: place identity, place dependence, place affect, and social bonding (Han et al., 2010). Other than that, tourism research commonly adopts the two-dimensional model of place identity and place dependence (Zsóka et al., 2013). Place identity captures emotional and symbolic attachment, whereas place dependence relates to the functional value of a destination in fulfilling tourist goals (Thu Tran et al., 2018). Studies reveal that tourists with strong place identity are more likely to engage in environmentally responsible behavior (ERB) (Han et al., 2017; Thu Tran et al., 2018). More recently, (Shin & Yu, 2020) expanded this framework through (Ladik et al., 2015) extended self-concept, suggesting that the self-nature relationship encompasses functional, emotional, and spiritual connections, further reinforcing the link between place attachment and environmental responsibility (Hair et al., 2019).

Environmental Knowledge and Environmentally Responsible Behavior

An additional significant antecedent of ERB is tourists' understanding of environmental conditions and the effects of human activities. Environmental knowledge establishes rational and emotional bases for responsible behavior (Sekaran, n.d.). The New Environmental Paradigm posits that individuals possessing heightened environmental awareness are more inclined to acknowledge the repercussions of their actions (Zhang & Dong, 2020). Environmental knowledge enhances cognitive awareness regarding the significance of pro-environmental behavior, thereby motivating tourists to engage in sustainable practices.

In addition to place attachment and environmental knowledge, destination social responsibility (DSR) and personal norms are expected to play important roles in shaping environmentally responsible behavior (ERB). DSR refers to destination-level initiatives and practices that demonstrate commitment to environmental protection, community well-being, and sustainable tourism development (Su et al., 2018). Previous studies suggest that visible sustainability efforts can encourage tourists to engage in pro-environmental actions by signaling shared responsibility for destination stewardship. Therefore, DSR is expected to exert a direct positive influence on ERB.

Similarly, personal norms represent individuals internalized moral obligations regarding environmental protection (Schwartz, 1977, 1992; Stern, 2000). Tourists with

stronger personal norms are more likely to behave responsibly because they perceive environmental protection as a personal duty rather than merely a situational choice. Accordingly, personal norms are expected to positively influence ERB.

Beyond their direct effects, DSR and personal norms may also function as boundary conditions that influence the strength of relationships between antecedents and ERB. Specifically, DSR may strengthen the effects of place attachment on environmentally responsible behavior by reinforcing sustainability-related cues within the destination environment. Likewise, personal norms may strengthen the relationship between environmental knowledge and ERB by increasing the likelihood that environmental awareness is translated into actual behavior.

Figure 1 presents the conceptual framework of this study, incorporating five essential constructs: place dependence, place identity, environmental knowledge, destination social responsibility, and personal norms, which serve as determinants of environmentally responsible behavior (ERB). This framework illustrates the influence of internal factors, including personal attachment, knowledge, and norms, alongside external factors such as destination social responsibility, on tourists' pro-environmental behavior.

Based on the preceding discussion, eight hypotheses are proposed. First, place dependence and place identity are expected to positively influence environmentally responsible behavior because stronger functional and emotional bonds with a destination encourage tourists to protect the places they value. Environmental knowledge is also expected to positively influence ERB by increasing awareness of environmental issues and the consequences of individual actions. Furthermore, destination social responsibility and personal norms are hypothesized to directly promote ERB by providing external sustainability cues and internal moral motivations, respectively.

In addition to these direct relationships, the model incorporates three moderating effects. Destination social responsibility is expected to strengthen the positive influence of place dependence and place identity on ERB, while personal norms are expected to strengthen the relationship between environmental knowledge and ERB. Collectively, these hypotheses provide a framework for understanding how cognitive, emotional, moral, and contextual factors interact to shape environmentally responsible behavior among tourists. The hypotheses:

H1: Place dependence positively influences environmentally responsible behavior.

- H2: Place identity positively influences environmentally responsible behavior.
 H3: Environmental knowledge positively influences environmentally responsible behavior.
 H4: Destination social responsibility positively influences environmentally responsible behavior.
 H5: Personal norms positively influence environmentally responsible behavior.
 H6: Destination social responsibility positively moderates the relationship between place dependence and environmentally responsible behavior.
 H7: Destination social responsibility positively moderates the relationship between place identity and environmentally responsible behavior.
 H8: Personal norms positively moderate the relationship between environmental knowledge and environmentally responsible behavior.

Methods

Research Design and Sampling

This study employed a quantitative cross-sectional survey design to examine the determinants of environmentally responsible behavior (ERB) among tourists visiting the Thousand Islands, Indonesia. A cross-sectional survey was considered appropriate because the study aimed to investigate relationships among psychological, cognitive, and behavioral constructs measured at a single point in time. This approach is widely used in tourism behavior research to assess tourists' perceptions, attitudes, and behavioral tendencies within a destination context (Hair et al., 2021). The research was conducted in five major tourism islands within the Thousand Islands destination, namely Pari, Untung Jawa, Tidung, Harapan, and Pramuka Islands. These islands were selected because they represent the most frequently visited tourism areas and experience environmental pressures associated with marine tourism activities.

Data were collected between May and August 2025 using a purposive sampling technique. Respondents were required to be at least 17 years old and to have visited at least one of the selected islands during the study period. These criteria ensured that participants possessed sufficient experience to evaluate environmental conditions and tourism practices within the destination. A total of 310 valid questionnaires were obtained and included in the analysis. Following Chin (1998), the sample size exceeded the minimum requirement for Partial Least Squares Structural Equation Modeling (PLS-SEM), ensuring adequate statistical power and reliable parameter estimation.

Measurement Development

The measurement instrument consisted of previously validated measures adapted from tourism and environmental behavior literature. Place dependence and place identity were adapted from Ramkissoon et al. (2013) and Thu Tran et al. (2018). Environmental knowledge was adapted from Shin & Yu (2020), destination social responsibility (DSR) from Su et al. (2018) and Thu Tran et al. (2018), and personal norms from Schwartz (1977) and Stern (2000). Environmentally responsible behavior (ERB) was measured using indicators commonly applied in sustainable tourism and pro-environmental behavior studies (Çalışkan, 2021).

All items were reviewed and adjusted to reflect the tourism and environmental context of the Thousand Islands. The questionnaire was administered in Bahasa Indonesia and measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Data Analysis

Data were analyzed using SmartPLS 4.0 following the two-

stage procedure recommended by Hair et al. (2021). The first stage involved assessing the measurement model through indicator loadings, Cronbach's alpha, composite reliability (CR), average variance extracted (AVE), and discriminant validity. The second stage involved evaluating the structural model using bootstrapping procedures to assess path coefficients, t-values, p-values, moderation effects, and the coefficient of determination (R^2).

As this study employed a cross-sectional survey design, the findings should be interpreted as evidence of association rather than causation. While the proposed model identifies significant relationships among the constructs, future longitudinal studies may provide deeper insights into how environmentally responsible behavior develops over time.

Result and Discussion

Respondent Profile

The study involved 310 respondents whose demographic characteristics reflect a balanced and diverse profile. Male participants comprised 52% of the sample, while female respondents accounted for 48%. Most respondents were young adults, with 52% aged between 24 and 35 years, followed by those aged 17–23 years (25%), 36–45 years (16%), and 46–58 years (6%). Regarding educational background, 55% of respondents were currently pursuing or had completed a bachelor's degree, while 30% had completed senior high school. A smaller proportion reported postgraduate qualifications, with 12% holding or pursuing a master's degree and 3% holding or pursuing doctoral qualifications.

In terms of travel behavior, 54% were first-time visitors to the Thousand Islands, 1% had visited twice, 32% had visited two to three times, and 13% had visited more than three times. These findings indicate that the sample consisted primarily of young and relatively well-educated tourists, with a substantial proportion of repeat visitors. Natural attractions were identified as the most preferred tourism products (57%), followed by recreational attractions (30%) and cultural attractions (14%). This finding confirms that visitors primarily associate the Thousand Islands with marine and nature-based tourism experiences.

Measurement Model

Table 1 presents the measurement model assessment results. All indicator loadings exceeded the recommended threshold of 0.70, indicating satisfactory indicator reliability. Cronbach's alpha values ranged from 0.769 to 0.925, while composite reliability values ranged from 0.852 to 0.947. Furthermore, all constructs achieved AVE values above 0.50, confirming convergent validity. These results indicate that the measurement model demonstrates satisfactory reliability and validity for subsequent structural model evaluation.

Discriminant Validity

Discriminant validity was assessed using cross-loadings. As shown in Table 2, all indicators loaded highest on their respective constructs compared with other constructs, indicating satisfactory discriminant validity. Therefore, the latent constructs were considered empirically distinct from one another.

Structural Model

The structural model demonstrated substantial explanatory power. Environmentally Responsible Behavior (ERB) achieved an R^2 value of 0.800 and an adjusted R^2 value of 0.794, indicating that the proposed predictors explained approximately 80% of the variance in ERB.

Table 1. Measurement Model Assessment

No	Item		Loading Factor	Mean	SD	Cronbach's Alpha	CR	AVE
Destination Social Responsibility						0.908	0.932	0.732
1	Tourism stakeholders on this island have made their best efforts to protect the environment.	DSR1	0.838	0.836	0.033			
2	Tourism stakeholders on this island have made their best efforts to improve the quality of the local community.	DSR2	0.874	0.874	0.027			
3	Tourism stakeholders on this island treat tourists, residents, and all stakeholders fairly.	DSR3	0.878	0.877	0.041			
4	Tourism revenues on this island are managed effectively and responsibly.	DSR4	0.862	0.862	0.024			
5	Tourism stakeholders on this island comply with ethical standards and fulfill their responsibilities appropriately.	DSR5	0.825	0.823	0.041			
Environmental Knowledge						0.769	0.852	0.591
1	I am aware that tourism activities may threaten environmental sustainability on this island.	ENV1	0.748	0.747	0.043			
2	I have knowledge about how to protect environmental sustainability in tourism destinations.	ENV2	0.735	0.736	0.040			
3	I am aware that waste can threaten the tourism environment on this island.	ENV3	0.794	0.790	0.041			
4	I am aware that environmental pollution on this island may negatively affect the future sustainability of tourism.	ENV4	0.795	0.792	0.036			
Personal Norms						0.861	0.905	0.706
1	I feel responsible for reducing my environmental impact.	PN1	0.813	0.813	0.037			
2	I should minimize environmental impacts when traveling.	PN2	0.854	0.853	0.028			
3	As a tourist, I feel morally responsible for reducing environmental impacts.	PN3	0.830	0.829	0.031			
4	I would feel guilty if my actions negatively affected the environment while traveling.	PN4	0.862	0.862	0.023			
Place Identification						0.925	0.947	0.816
1	Visiting this island has deep personal meaning for me.	PI1	0.908	0.908	0.017			
2	I feel that I am part of tourism activities on this island.	PI2	0.912	0.912	0.022			

No	Item		Loading Factor	Mean	SD	Cronbach's Alpha	CR	AVE
3	I feel a sense of ownership toward tourism on this island.	PI3	0.878	0.878	0.025			
4	I have a special emotional attachment to tourism on this island.	PI4	0.915	0.915	0.019			
Place Dependence						0.919	0.942	0.804
1	I prefer participating in tourism activities in the Thousand Islands over those in other destinations.	PD1	0.883	0.884	0.017			
2	I gain greater satisfaction from visiting the Thousand Islands than from visiting other destinations.	PD2	0.913	0.913	0.018			
3	I feel more attached to destinations in the Thousand Islands than to other tourism destinations.	PD3	0.900	0.899	0.019			
4	The tourism attractions in the Thousand Islands cannot be replaced by other destinations.	PD4	0.890	0.889	0.017			
Environmental Responsible Behaviour						0.902	0.928	0.722
1	I would take the initiative to prevent environmental damage in tourism destinations that I visit, particularly in the Thousand Islands.	ERB1	0.826	0.826	0.033			
2	I would discuss environmental protection with my travel companions in relation to environmental conservation in the Thousand Islands.	ERB2	0.906	0.906	0.018			
3	I would seek knowledge about environmental protection in tourism areas, particularly in the context of small-island tourism.	ERB3	0.909	0.909	0.015			
4	I would remind my travel companions not to damage the environment when visiting tourism destinations.	ERB4	0.733	0.732	0.041			
5	I would actively participate in environmental protection activities organized by local communities.	ERB5	0.862	0.862	0.027			

Table 2. Cross-Loading Matrix

	DSR	ENV	ERB	PD	PI	PN
DSR1	0.838	0.565	0.570	0.571	0.552	0.477
DSR2	0.874	0.625	0.645	0.594	0.542	0.520
DSR3	0.878	0.603	0.646	0.586	0.599	0.555
DSR4	0.862	0.588	0.628	0.582	0.563	0.512
DSR5	0.825	0.566	0.638	0.610	0.597	0.509
ENV1	0.545	0.748	0.575	0.598	0.570	0.492
ENV2	0.549	0.735	0.620	0.623	0.644	0.580
ENV3	0.533	0.794	0.533	0.399	0.406	0.573
ENV4	0.487	0.795	0.574	0.421	0.409	0.585

	DSR	ENV	ERB	PD	PI	PN
ERB1	0.595	0.666	0.826	0.685	0.719	0.690
ERB2	0.634	0.641	0.906	0.725	0.752	0.679
ERB3	0.671	0.662	0.909	0.764	0.766	0.672
ERB4	0.595	0.590	0.733	0.504	0.523	0.490
ERB5	0.618	0.639	0.862	0.704	0.701	0.621
PD1	0.644	0.630	0.716	0.883	0.679	0.589
PD2	0.650	0.634	0.745	0.913	0.744	0.661
PD3	0.562	0.568	0.727	0.900	0.775	0.612
PD4	0.611	0.573	0.690	0.890	0.692	0.597
PI1	0.656	0.656	0.747	0.735	0.908	0.713
PI2	0.541	0.550	0.704	0.737	0.912	0.652
PI3	0.596	0.580	0.739	0.711	0.878	0.678
PI4	0.615	0.621	0.773	0.732	0.915	0.701
PN1	0.516	0.571	0.613	0.557	0.636	0.813
PN2	0.540	0.631	0.623	0.622	0.639	0.854
PN3	0.413	0.553	0.582	0.544	0.610	0.830
PN4	0.547	0.679	0.684	0.581	0.665	0.862

Table 3. R-Square

Variabel	R Square	R Square Adjusted
Environmental Responsible Behaviour	0.800	0.794

Table 3 presents the results of hypothesis testing. Among the eight hypotheses proposed, six were supported and two were not supported. Place dependence, place identity, environmental knowledge, destination social responsibility, and personal norms were found to have significant positive effects on environmentally responsible behavior. Among the moderating relationships, only the interaction between destination social responsibility and place identity was statistically significant. The remaining moderation effects were not supported.

According to Table 4, interpretation of H1–H5 (direct effects) indicates that all paths are positive and statistically significant ($p < .05$). PD and PI indicate that both functional attachment and emotional identification with place increase ERB. Environmental knowledge shows the strongest statistical support, reinforcing the role of cognition in fostering responsible actions. DSR's positive effect suggests that visible destination initiatives encourage pro-environmental behaviors among tourists. PN confirms that internal moral obligations translate into consistent ERB.

Moreover, interpretation of H6–H8 (interaction effects): the PD-based moderation of DSR on ERB (H6) is not significant ($p = .066$). The moderation of PI on the DSR → ERB link (H7) is significant but negative ($O = -0.148$), implying that for tourists with very strong place identity, the incremental effect of DSR cues on ERB diminishes, possibly because their internalized attachment already drives ERB regardless of external destination initiatives. The PN × ENV interaction (H8) is non-significant, indicating largely independent contributions from personal norms and environmental knowledge rather than a synergistic effect.

Furthermore, the results highlight the roles of place attachment, norm activation, and environmentally responsible behavior (ERB) in explaining tourists' concern for environmental stewardship as a driver of a quality-tourism-based eco-travel revolution. Of the eight hypotheses tested, six were supported and two were not. The model shows that place dependence ($\beta = 0.263$, $p = 0.002$) and place identity ($\beta = 0.241$, $p = 0.001$) exert significant positive effects on ERB. These findings align with Lee & Jan (2015), who reported direct positive effects of place dependence and place identity on pro-environmental behavioral change. Functionally, place dependence reflects how well a destination enables goal

attainment, while emotionally, place identity captures symbolic bonds with the place. High-quality products and services at the destination cultivate satisfaction (Athula Gnanapala, 2015), which in turn can strengthen dependence and overtime consolidate identity. In marketing terms, place identity parallels loyalty to an effective, commitment-laden relationship with an object (Huete Alcocer & López Ruiz, 2020).

Environmental knowledge shows a significant positive effect on ERB ($\beta = 0.207$, $p < 0.001$), supporting H3. Destination social responsibility (DSR): direct and moderating roles (H4, H6–H7). DSR has a significant direct effect on ERB ($\beta = 0.164$, $p = 0.001$), indicating that clear, visible destination-level initiatives such as waste management, conservation, and ethical governance encourage tourists to act responsibly (Leha et al., 2021). As a moderator, however, DSR did not strengthen the PD of ERB link ($p = 0.066$; H6 not supported).

Interestingly, DSR negatively moderates the PI → ERB relationship ($\beta = -0.148$, $p = 0.013$; H7 supported, negative). A plausible interpretation is a ceiling effect: when place identity is already strong, external DSR signals add little incremental motivation. ERB is already internally driven by identity, making additional destination cues less influential. While personal norms have a significant direct positive effect on ERB ($\beta = 0.141$, $p = 0.019$; H5 supported), their moderating effect on the ENV → ERB link is not significant ($p = 0.143$; H8 not supported).

The findings demonstrate that place dependence and place identity are significant predictors of environmentally responsible behavior among tourists visiting the Thousand Islands. Consistent with Place Attachment Theory, tourists who develop stronger functional and emotional bonds with a destination are more likely to engage in behaviors that support environmental protection and sustainability. These findings support previous studies identifying place attachment as an important antecedent of pro-environmental behavior in tourism settings (Chow et al., 2019; Ramkissoon et al., 2013).

Environmental knowledge was also found to positively influence environmentally responsible behavior. This finding supports previous research suggesting that individuals who possess greater awareness of environmental issues are more likely to recognize the consequences of their actions and adopt environmentally responsible practices (Kollmuss & Agyeman, 2002; Lee & Jan, 2015). The result indicates that environmental education remains an important strategy for promoting sustainable tourist behavior.

Destination social responsibility (DSR) demonstrated a significant direct effect on environmentally responsible behavior. This suggests that visible sustainability initiatives, environmental programs, and responsible destination management practices encourage tourists to behave more

Table 4. Hypothesis Testing Results

Hypotheses	Statement	Original sample (O)	T statistics (O/STDEV)	P values	Conclusion
1	Place Dependence (PD) → Environmental Responsible Behaviour (ERB)	0.263	3.072	0.002	Supported
2	Place Identity (PI) → Environmental Responsible Behaviour (ERB)	0.241	3.270	0.001	Supported
3	Environmental Knowledge (ENV) → Environmental Responsible Behaviour (ERB)	0.207	3.620	0.000	Supported
4	Destination Social Responsibility (DSR) → Environmental Responsible Behaviour (ERB)	0.164	3.398	0.001	Supported
5	Personal Norms → Environmental Responsible Behaviour (ERB)	0.141	2.356	0.019	Supported
6	DSR x PD → ERB	0.098	1.836	0.066	Not Supported
7	DSR x PI → ERB	-0.148	2.479	0.013	Supported
8	PN x ENV → ERB	0.046	1.466	0.143	Not Supported

responsibly. The finding supports previous studies emphasizing the role of destination-level sustainability efforts in shaping visitor attitudes and behaviors (Su et al., 2018).

However, DSR did not significantly moderate the relationship between place dependence and environmentally responsible behavior. This finding suggests that functional attachment alone may not be sufficient for destination-level sustainability initiatives to exert additional influence on tourist behavior. In contrast, DSR significantly and negatively moderates the relationship between place identity and environmentally responsible behavior. One possible explanation is a ceiling effect, whereby tourists with strong emotional attachment already possess high levels of environmental responsibility, reducing the incremental influence of external sustainability cues.

Personal norms were found to have a significant positive effect on environmentally responsible behavior, indicating that moral obligations remain an important determinant of sustainable tourist actions. However, personal norms did not significantly moderate the relationship between environmental knowledge and environmentally responsible behavior. This finding suggests that environmental knowledge and moral obligation contribute independently rather than interactively to responsible behavior.

The results highlight the roles of place attachment, norm activation, and environmentally responsible behavior (ERB) in explaining tourists' concern for environmental stewardship as a driver of a quality-tourism-based eco-travel revolution. Of the eight hypotheses tested, six were supported and two were not. The model shows that place dependence and place identity exert significant positive effects on ERB. These findings align with Lee & Jan (2015), who reported direct positive effects of place dependence and place identity on pro-environmental behavioral change. Functionally, place dependence reflects how well a destination enables goal attainment, while emotionally, place identity captures symbolic bonds with the place. High-quality products and services at the destination cultivate satisfaction (Akbara et al., 2021; Dewi & Ginting, 2022), which in turn can strengthen dependence and overtime consolidate identity. In terms of marketing, place identity parallels loyalty to an effective, commitment-laden relationship with an object (Zins, 2001).

The evidence supports the argument that quality tourism through superior services, authentic nature-based experiences, and meaningful local interactions can nurture environmental responsibility. In the Thousand Islands context, educating visitors about conservation such as reef protection, mangrove care, and waste reduction, and inviting them as partners rather than passive consumers can heighten awareness and translate into concrete actions such as tree

planting or beach clean-ups.

Environmental knowledge shows a significant positive effect on ERB. Knowledge covering environmental conditions, ecological issues, and human impacts (Kollmuss & Agyeman, 2002) underpins environmental awareness and responsible decision-making. In tourism, better-informed visitors are more sensitive to conservation issues and to the consequences of their actions (Chung & Koo, 2015). However, knowledge alone may not guarantee action (Aby Dujana et al., 2025; Zsóka et al., 2013) complementary drivers are often needed. In the Thousand Islands, quality-tourism programming can cultivate quality tourists who respect nature and culture and actively seek, apply, and share sustainable practices.

Destination social responsibility (DSR): direct and moderating roles (H4, H6–H7). DSR has a significant direct effect on ERB, indicating that clear, visible destination-level initiatives such as waste management, conservation, and ethical governance encourage tourists to act responsibly (Wiweka et al., 2017). As a moderator, however, DSR did not strengthen the relationship between PD and ERB link. From a stakeholder-theory lens (Freeman, 2015), this may indicate that in multi-actor destinations like the Thousand Islands, DSR signals are uneven or insufficiently salient to interact with functional attachment. Field accounts suggest gaps in concrete programs such as plastic and organic waste systems, marine and mangrove conservation, and eco-certification, and limited activation of local stakeholders, leaving communities passive rather than empowered.

Interestingly, DSR negatively moderates the relationship between PI and ERB. A plausible interpretation is a ceiling effect: when place identity is already strong, external DSR signals add little incremental motivation. ERB is already internally driven by identity, making additional destination cues less influential.

While personal norms have a significant direct positive effect on ERB, their moderating effect on the ENV and ERB link is not significant. Thus, personal norms and knowledge appear to contribute independently rather than interactively. This contrasts with some prior claims (Dewi & Ginting, 2022) that strong personal norms catalyze knowledge into behavior. In the Thousand Islands context, building personal norms may require targeted norm-activation strategies such as making consequences salient, prompting moral obligations, and creating social expectations that translate knowledge into consistent action, for example visible commitments, public pledges, or feedback on impact (Han et al., 2010; Schwartz, 1992; Stern, 2000).

According to the discussion, several priorities emerge from a managerial perspective. First, in the short term, destination managers should strengthen environmental education through

eco-guides and pre-trip communication. Second, medium-term strategies should focus on improving visible DSR programs such as waste management systems and conservation initiatives. Third, in the long term, destinations should foster deeper place attachment and personal norms through immersive and participatory tourism experiences.

The findings contribute to the theoretical development of environmentally responsible behavior by demonstrating that quality tourism can serve as an integrative framework linking cognitive (environmental knowledge), emotional (place attachment), and moral (personal norms) drivers. Rather than operating independently, these factors collectively shape how tourists interpret their role within a destination. This supports the argument that transforming tourists into environmental stewards requires not only awareness but also emotional engagement and moral commitment, reinforced by destination-level practices.

Conclusion

This study examined the determinants of environmentally responsible behavior (ERB) among tourists visiting the Thousand Islands, Indonesia. The findings indicate that place dependence, place identity, environmental knowledge, destination social responsibility (DSR), and personal norms are significant predictors of ERB. The proposed model demonstrated substantial explanatory power ($R^2 = 0.800$), suggesting that cognitive, emotional, and moral factors collectively contribute to explaining tourists' environmentally responsible behavior. Among the predictors, environmental knowledge emerged as one of the strongest factors associated with ERB, highlighting the importance of environmental awareness in shaping responsible tourist behavior.

The findings also revealed that moderation effects were more limited than expected. While destination social

responsibility significantly moderates the relationship between place identity and ERB, the interaction was negative, suggesting that the influence of external sustainability initiatives may diminish when tourists already possess strong emotional attachment to the destination. The remaining moderation effects were not statistically significant.

Other than that, this research contributes to the environmentally responsible behavior literature by integrating place attachment, environmental knowledge, destination social responsibility, and personal norms within a quality tourism perspective. The findings suggest that environmentally responsible behavior is associated with a combination of cognitive, emotional, and moral factors rather than a single determinant. In addition, the study extends previous tourism research by demonstrating the relevance of both individual-level and destination-level factors in explaining tourists' pro-environmental behavior within a small-island tourism context.

From a practical perspective, the findings suggest that destination managers and tourism stakeholders should strengthen environmental education programs, support initiatives that foster tourists' emotional connection with destinations, and maintain visible sustainability practices. These efforts may help encourage environmentally responsible behavior among visitors and support the implementation of quality tourism principles in environmentally sensitive destinations such as the Thousand Islands.

Several limitations should be acknowledged. First, this study employed a cross-sectional survey design; therefore, the findings should be interpreted as evidence of association rather than causation. Second, the study focused exclusively on tourists visiting the Thousand Islands, which may limit the generalizability of the findings to other tourism settings. Future studies are encouraged to apply longitudinal designs, compare multiple destinations, and incorporate qualitative approaches to gain a deeper understanding of how environmentally responsible behavior develops across different tourism contexts.

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