

INTENTION TO BE A GREEN TOURIST IN MACHU PICCHU BASED ON SOCIAL IDENTITY THEORY AND VALUE-BELIEF-NORM MODEL

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Abstract: This study investigates how environmental concern and environmental attitude influence visitors' intention to adopt green behaviors at Machu Picchu, focusing on the mediating roles of green identity, environmental commitment, and personal norms. Grounded in Social Identity Theory (SIT) and the Value-Belief-Norm (VBN) theoretical model, the research establishes an integrated framework to examine pro-environmental decision-making in an ecologically and culturally vulnerable destination. Empirical data were collected through a structured online survey administered to tourists, and the proposed structural relationships were tested using multivariate structural equation modeling techniques. The results demonstrate that environmental concern has a significant, positive effect on both environmental commitment (0.616) and personal norms (0.672). Subsequently, environmental commitment (0.472) and personal norms (0.325) emerge as significant direct drivers of tourists' intention to engage in green tourism practices during their visit. Environmental attitude also exerts a direct, significant positive effect on green tourist intention (0.133), confirming that cognitive evaluations operate alongside moral and identity-based motivators. By situating this empirical inquiry within an iconic, globally recognized sanctuary that balances intense visitor flows with strict ecological protection, the study provides valuable insights into how internalized norms and self-identification shape responsible travel choices in fragile environments. Rather than relying solely on generic informational campaigns, the empirical findings highlight that park managers, tourism operators, and local conservation authorities must actively cultivate visitors' ecological identity and appeal to their personal ethical standards. Implementing targeted digital communication strategies and pre-trip educational initiatives that activate these normative beliefs offers a practical strategy to curb negative human impacts while safeguarding vulnerable cultural and natural heritage destinations worldwide.

Keywords: environmental concern, environmental attitude, green identity, environmental commitment, personal norm, intention to be a green tourist

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INTRODUCTION

Tourism has been recognized as a source of various forms of pollution, including water (Pásková et al., 2024) and air (Qiang et al., 2024). It should be noted that all tourist destinations are different, so the most popular destinations, such as the World Wonders, receive a significant number of visitors year-round, resulting in pollution. Machu Picchu was designated a World Heritage Site by UNESCO (1983) and named one of the seven modern wonders of the world (New 7 wonders of the world, 2007); this has exponentially increased the flow of tourists, receiving around one and a half million visitors annually, which has only been temporarily interrupted during the COVID-19 pandemic and, after the pandemic passed, Machu Picchu began to receive tourists in masse, who arrive in increasing numbers every year, generating significant profits; however, one concern that worried managers was the pollution generated by mass visits, so action was needed to establish a program to minimize pollution without reducing the number of tourists visiting Machu Picchu. It is critical to explore new opportunities to mitigate climate change while promoting positive health outcomes; however, to date, no comprehensive study has quantified both the reductions in emissions and the public health impacts of these interventions. To develop a successful program to ensure the environmental sustainability of Machu Picchu, it is necessary to evaluate the constructs that explain visitors' intention to engage in green behavior. For that purpose, we have developed a

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research model to test the hypotheses. The study aims to identify the factors influencing intention to be a green tourist in Machu Picchu. The findings of this research will offer valuable practical implications for managers and the government to promote green behavior among tourists. The current article is organized as follows: Section 2 covers the theoretical framework, including a description of the variables and their interrelationships. The methodology is detailed in Section 3, with the results presented in Section 4. Finally, Section 5 discusses the study's theoretical, practical, and sustainable implications, as well as its limitations and suggestions for future research.

Social Identity Theory (SIT)

Turner et al. (1979) argues that individual identity is constructed from social group membership, through processes of social categorization, group identification, and intergroup comparison. Applied to sustainable tourism in Machu Picchu, this theory explains the intention to adopt green tourist behaviors as a result of identification with pro-environmental groups. Individuals categorize themselves as part of a green ingroup, such as tourists committed to conservation, internalizing their ecological norms and values. This identification generates positive self-esteem by aligning oneself with a collective perceived as ethical and responsible (Bergami & Bagozzi, 2000). In fragile contexts like Machu Picchu, where anthropogenic impacts threaten its integrity, the desire to be a green tourist becomes a need for identity congruence: acting as a "protector of heritage" involves choosing eco-certified operators, avoiding waste, or demanding low-impact practices, transforming group norms into concrete behaviors.

Value-Belief-Norm model

Stern (2000) describes a theoretical framework that explains pro-environmental behaviors through a hierarchical causal sequence: from personal values, through environmental beliefs, then moral norms, and finally to behavioral intention. In the context of Machu Picchu, this model clarifies how the intention to be a green tourist arises. These values generate three beliefs: the adversity belief, recognizing that overvisitation erodes trails and threatens biodiversity; the capability belief, based on the conviction that individual actions reduce impacts; and the responsibility belief, focused on feeling an ethical obligation as custodians of the Inca legacy. The conjunction of these beliefs activates personal moral norms, a sense of internal duty that can drive the adoption of green behaviors such as paying a premium for carbon-neutral tours, rejecting single-use plastics at the sanctuary, or demanding zero-waste practices from suppliers.

Integration of VBN and SIT

The integration of SIT and VBN provides a comprehensive framework for explaining pro-environmental behavioral intentions, encompassing both identity-based and cognitive-normative processes. While SIT emphasizes the role of self-concept and identification with environmentally oriented groups, VBN explains behavior through internalized moral obligations and evaluative processes such as personal norms, commitment, and attitudes. Although both perspectives have been widely applied in environmental and tourism research, their integration has often been limited to parallel or loosely connected applications. This study proposes an integrated framework in which environmental concern serves as a common antecedent, simultaneously activating two distinct yet complementary pathways. One is a cognitive-normative pathway, based on VBN, where environmental concern influences personal norms and environmental commitment, which in turn directly shape behavioral intentions. The other is an identity-based pathway, derived from SIT, in which environmental concern fosters a green identity, which subsequently influences environmental attitudes. Importantly, these two pathways are not independent; Rather, they converge through environmental attitude, which acts as an integrating point between normative and identity-based processes. In this sense, environmental attitude reflects both cognitive evaluations derived from normative considerations and identity-based interpretations of environmentally responsible behavior, ultimately influencing intention. This integrated perspective allows for a more nuanced understanding of pro-environmental behavior by demonstrating that behavioral intention arises from the interaction between internalized norms, commitment, and identity-related processes.

By explicitly modeling both pathways and their convergence, the study expands the existing literature beyond simple theoretical combination, offering a structured explanation of how different psychological mechanisms jointly shape the intention to engage in green tourism. This integration is particularly relevant in contexts characterized by high environmental and symbolic value, where both moral responsibility and identity relevance are expected to influence decision-making.

Variables: Environmental attitude

It constitutes relatively stable psychological assessments that integrate knowledge and beliefs. Specifically, it is based on an understanding of climate change or biodiversity loss, emotional responses to the environment, and the willingness to act in favor of sustainability, such as reducing resource consumption or supporting green policies. These attitudes represent learned predispositions that guide perception, information processing, and response to environmental stimuli (Baierl et al., 2022). As a construct, they predict pro-environmental intentions and behaviors through normative activation mechanisms, where greater ecological awareness and emotional commitment generate motivation to adopt sustainable practices.

Environmental concern

Environmental concern is a psychological construct that reflects an individual's perceived level of concern, empathy, and responsibility regarding ecological degradation, based on knowledge of the topic and the emotions it evokes. Thus, it can identify concern about the consequences of climate change (Osman et al., 2023) and biodiversity loss, and assess the severity of

the current environmental problem and its future consequences. Unlike environmental attitudes, this concept focuses specifically on the emotional and moral intensity associated with ecological crises, contributing to the activation of personal norms.

Green identity

It reflects the extent to which an individual defines themselves as committed to environmental protection and integrates ecological values into their self-concept (Becerra et al., 2023). This identity arises from the internalization of pro-environmental norms as part of their self-image, generating congruence between ecological beliefs and everyday actions. Green identity involves self-attribution of roles in caring for the planet, which motivates behaviors such as recycling or buying recyclable products (Corral-Verdugo et al., 2021).

Environmental commitment reflects an individual's persistent dedication to ecological protection (Paillé & Valéau, 2020), manifested through the allocation of personal resources, such as time and money, to sustain long-term pro-environmental actions, even in the face of obstacles or costs. Environmental commitment implies a connection to environmental causes, with green identity and internalized moral norms serving as drivers of adherence. Its measurement captures the willingness to sacrifice comfort and predicts behavior.

Personal norm are internalized moral obligations that drive specific behaviors, arising from the incorporation of ethical values into an individual's self-concept. These norms operate through a sense of intrinsic duty, activated when the individual perceives that their actions can prevent harm or promote well-being (Schwartz, 1977). In the pro-environmental context, they manifest as self-imposed commitments, generating autonomous motivation to act consistent with ethical principles (Ullah et al., 2024). Their activation involves awareness of consequences, the attribution of responsibility, and a sense of obligation. As a key predictor in the Value-Belief-Norm model (Stern, 2000), it can explain high-cost behaviors and link action to self-integrity.

Intention to be a green tourist

It is a motivational state that reflects an individual's conscious, planned disposition to adopt sustainable behaviors during tourism activities and serves as a proximal precursor to concrete actions (Nowacki et al., 2023). It manifests itself through anticipated commitments such as selecting eco-certified accommodations, prioritizing low-carbon transportation, reducing on-site waste, recycling as much as possible during the visit, and supporting local economies.

Effects between variables

Effect of environmental concern on environmental commitment

Environmental concern acts as the main predictor of environmental commitment, based on the idea that consistent attitudes tend to translate into consistent behaviors. When the seriousness of environmental problems is internalized, and a moral or emotional responsibility is felt, one experiences tension that one seeks to alleviate through action. This commitment manifests itself in a spectrum of behaviors: from low-cost private actions, such as recycling, to public participation and willingness to accept green policies. One piece of evidence of this effect, although not exactly in the field of green tourism, includes Cao et al. (2024), who reported a sample of 403 participants in China ($\beta = 0.707$; $p < 0.001$),

H1: Environmental concern has a positive and significant effect on environmental commitment

Effect of environmental concern on personal norms

Environmental concern acts as an internal alarm that, when activated, generates a clear awareness of the negative consequences of one's actions on the environment. This awareness drives a sense of personal responsibility, making the individual feel causally involved in the problem and therefore morally obligated to be part of the solution. The personal norm becomes the direct driving force that leads the person to adopt specific behaviors, such as reducing consumption, recycling, or choosing sustainable alternatives, not because of external imposition, but because of a self-generated ethical commitment. Previous research has shown this effect, including Dong et al. (2024), with 347 participants in China ($\beta = 0.233$; $p < 0.001$), and Waris & Mohd Suki (2024), with 340 customers in Pakistan ($\beta = 0.263$; $p < 0.001$).

H2: Environmental concern has a positive and significant effect on personal norms

Effect of environmental concern on green identity

The effect of environmental concern on green self-identity is a psychological process in the adoption of sustainable behaviors. Environmental concern serves as a cognitive and affective precursor, representing awareness of ecological problems; when internalized, it becomes part of the individual's self-perception, forming a central component of their identity. The person no longer acts ecologically in isolation but begins to see themselves as an ecologically minded person; by observing their own actions consistent with their values, the individual infers and consolidates this ecological identity. An established green identity is a much more powerful and consistent predictor of future pro-environmental behaviors than mere concern, since action derives from "who I am" rather than just "what I think". Some evidence has shown this effect, as reported by Ahmed et al. (2025) with 440 participants in Egypt ($\beta = 0.327$; $p < 0.001$).

H3: Environmental concern has a positive and significant effect on green identity

Effect of environmental concern on environmental attitude

Environmental concern exerts its effect on environmental attitude by serving as an activation and consolidation mechanism. Concern serves as an emotional and cognitive trigger that sensitizes the individual, increasing perceived

urgency and the personal importance attributed to ecological problems. This emotional activation induces a reevaluation of beliefs and values, leading to a cognitive restructuring in which environmental protection is integrated as a priority into the individual's attitude system. This process transforms an abstract stance into a personal conviction, making the attitude a more reliable predictor of pro-environmental behavior, as it ceases to be a passive opinion and becomes a motivated position. Some evidence has shown this effect, as Wang et al. (2020) with 552 participants in China ($\beta = 0.355$; $p < 0.001$), Leclercq-Machado et al. (2022) with 396 participants in Peru ($\beta = 0.154$; $p < 0.05$), Mugiarti et al. (2022) with 219 respondents in Indonesia ($\beta = 0.14$; $p < 0.05$) and Suhartanto et al. (2025) with 234 Muslim tourists in Indonesia ($\beta = 0.166$; $p < 0.05$).

H4: Environmental concern has a positive and significant effect on environmental attitude

Effect of environmental commitment on intention to be a green tourist

Commitment functions as an internalized value that activates key cognitive and normative processes (Confente & Scarpi, 2020) and serves as a perceptual filter, leading individuals to pay more attention to sustainability information and evaluate tourism options from that perspective, perceiving ecological benefits as more valuable. It generates a moral obligation, where acting in a non-green manner would create cognitive dissonance with their self-image, so green intentions emerge to restore coherence and avoid guilt; Commitment motivates and facilitates the formation of intentions by aligning identity with planned behavior (Chi & Phuong, 2021), reducing attitudinal barriers and amplifying the subjective importance of choosing sustainable options. Some evidence has shown this effect, such as Karatepe et al. (2022) with 179 participants in Turkey and South Korea ($\beta = 0.180$; $p < 0.05$), but other studies did not show this effect, such as Hou & Wu (2020) with 161 participants in Hong Kong ($\beta = 0.141$; $p > 0.05$).

H5: Environmental commitment has a positive and significant effect on intention to be a green tourist

Effect of personal norm on intention to be a green tourist

The effect of personal norms on the intention to be a green tourist is explained by internalized moral self-regulation. Unlike social norms, which are external pressures, a personal norm is a self-imposed ethical standard that defines what one considers right for oneself and directly drives behavioral intention, becoming active when the individual realizes that their tourism actions may have negative consequences for the environment. Once activated, this norm generates a moral commitment and a sense of obligation that drives the formation of a firm intention to act in a manner consistent with those values. Previous research shown this effect such as D'Arco et al. (2025) with 785 participants in Italy ($\beta = 0.497$; $p < 0.05$) and Wang et al. (2023) with 373 participants in China ($\beta = 0.233$; $p < 0.05$); but other studies did not showed this effect as Fauzi et al. (2022) with 170 tourists in Malaysia ($\beta = 0.075$; $p > 0.05$).

H6: Personal norm has a positive and significant effect on intention to be a green tourist

Effect of green identity on environmental attitude

The effect is explained by how an individual, through their daily actions and choices, progressively internalizes the role of someone committed to the environment until this quality becomes fundamentally integrated into their self-concept (Baierl & Bogner, 2023). This identity acts as a permanent cognitive filter that almost automatically evaluates the coherence of every thought, intention, and behavior with that self-image; the key to the mechanism lies in the psychological need to eliminate cognitive dissonance. Any attitude that conflicts with the green identity generates an internal tension that the individual seeks to resolve. The environmental attitude ceases to be an isolated opinion and becomes a core value, which in turn reinforces identity and creates a positive feedback loop that perpetuates and deepens commitment, leading to pro-environmental behavior that emerges naturally and consistently as an authentic expression of who one is. Some evidence has shown this effect, such as Gule & Maduku (2017) with 300 respondents in South Africa ($\beta = 0.233$; $p < 0.01$), Teeroovengadam (2018) with 512 tourists in Mauritius ($\beta = 0.595$; $p < 0.01$) and Ortega-Rodríguez et al. (2024) with 120 tourists in Spain ($\beta = 0.170$; $p < 0.05$).

H7: Green identity has a positive and significant effect on environmental attitude

Effect of environmental attitude on intention to be a green tourist

A robust attitude toward sustainability reconfigures an individual's evaluative framework, transforming the choice of eco-friendly services from a simple alternative into a tangible expression of personal identity. This self-concept process acts as a heuristic filter, in which sustainable options are perceived as coherent and therefore intrinsically rewarding. This attitude activates an internal moral imperative. The experiences an ethical obligation to act consistently with their convictions, where failure to do so would generate cognitive dissonance. Intention thus emerges as the construct that bridges this attitude-norm with concrete action. Attitude is clearly linked to intention in general terms, which requires that it be proven in the context of environmental sustainability. Previous research has shown this effect, such as Van Huy et al. (2023) with 600 respondents in Vietnam ($\beta = 0.415$; $p < 0.001$), Gulzar et al. (2024) with 435 responses ($\beta = 0.150$; $p < 0.01$), and Patwary et al. (2021) with 393 tourists in Malaysia ($\beta = 0.270$; $p < 0.001$).

H8: Environmental attitude has a positive and significant effect on intention to be a green tourist

Mediation: To move beyond direct effects, a mediation analysis is necessary to confirm if certain variables act as intermediaries. This analysis will test specific hypotheses based on the model's proposed indirect effects (H9-14).

MATERIALS AND METHODS

Design: The study adopts a quantitative correlational design to investigate the proposed research model. This approach facilitates the analysis of numerical data to identify patterns and explore significant relationships between variables without

manipulation. Specifically, it is used to assess the impact of environmental concern on green tourism intention, as mediated by environmental commitment, personal norm, green identity, and environmental attitude.

Instrument

A 5-point Likert scale questionnaire was used for data collection (1 = Strongly Disagree, 5 = Strongly Agree). The questionnaire states the study's objective; that participation is voluntary, free and anonymous; and that it will be used exclusively for research purposes. Participants were asked if they received the information about the objective.

All those who answered "yes" to all three questions were considered study participants. The instrument consisted of 24 items: Four items proposed by authors for environmental attitude, four items adapted from Torabi et al. (2025) for environmental concern, two items adapted from Ding & Jiang (2025) and three items adapted from Tang et al. (2022) for green self-identity, three items adapted from Torabi et al. (2025) for personal norm, four items adapted from Torabi et al. (2025) for environmental commitment, and four items proposed by the authors for intention to be a green tourist. Although most constructs in this study were measured using established scales from prior literature, some items related to environmental attitude and intention to be a green tourist were developed by the authors due to the need to capture context-specific aspects of green tourism that are not fully addressed in existing measurement instruments.

Widely used measures of attitude and behavioral intention are typically formulated in general consumer or environmental behavior contexts and may not adequately reflect the behavioral dimensions associated with environmentally responsible tourism. Given the unique characteristics of green tourism, especially in environmentally sensitive and symbolically significant destinations, contextual adaptation was necessary to ensure conceptual relevance.

The initial version of the questionnaire was validated by experts, and the pilot study also demonstrated that validity and reliability were met. The final part requests demographic information (Appendix).

Data collection

The research included participants aged 18 years or older who had successfully completed the informed consent form. The questionnaire was applied online using WhatsApp. The use of WhatsApp as a data collection channel was carefully considered due to its widespread adoption and accessibility in the study context. In Peru, WhatsApp is one of the most widely used communication platforms, making it an effective tool for reaching a diverse pool of participants in a timely and cost-efficient manner. The survey was distributed through WhatsApp using a non-probabilistic sampling approach, specifically convenience and voluntary participation. Participants were invited to take part in the study via a survey link shared in personal networks and group chats. It was used SurveyMonkey to collect the questionnaire. The initial collection phase reached 301 responses. After that, a rigorous data-cleaning process was done, which involved verifying each participant's consent status, confirming their residential location, and reviewing the logical consistency of their answers. Only the responses that showed attentiveness and coherence were retained. The selection process refined the dataset to 269 fully qualified responses, forming the final sample for subsequent data analysis, resulting in an 89.4% valid response rate.

Data analysis

The analysis was performed using SmartPLS 4.1.1.4 (PLS-SEM). Reliability was assessed using Cronbach's alpha, and convergent validity was assessed using the AVE (≥ 0.5). Discriminant validity was assessed using the HTMT, with values < 0.9 . Common method bias was examined using VIF values (≤ 5). Model fit was assessed using R^2 and predictive ability using Q^2 . Hypotheses were tested using bootstrapping (10,000 resamples).

Ethical statement

This observational study did not involve the manipulation of variables that could have affected the participants' physical or psychological integrity. To ensure ethical compliance, several steps were followed. All participants were provided with an informed consent statement at the beginning of the questionnaire. This statement clearly explained the purpose of the study, the voluntary nature of participation, and the confidentiality of the data. Participants were informed that their responses would be used only for research aims and that no personally identifiable information would be collected. Participants were required to explicitly confirm that they had understood the study information and that they agreed to participate voluntarily. Only those respondents who provided affirmative consent to both conditions were allowed to proceed with the questionnaire and were included in the final sample. These procedures ensure transparency and demonstrate adherence to ethical research standards.

RESULTS

Demographic data

Of the 269 participants, 157 (58.37%) were men, 110 (40.89%) were women, and 2 (0.74%) preferred not to say. The age of the participants ranged from 18 to 77 years, with a mean of 46.58 years (SD: 14.64). Table 1 shows the demographic characteristics. The reliability and validity values were above the minimum expected (Hair et al., 2019), indicating that they contribute significantly to explaining each variable (Table 2). Two items in the measurement model presented factor loadings of 0.693 and 0.684, which are slightly below the commonly suggested threshold of 0.70.

However, these values are still considered acceptable in exploratory and behavioral research contexts, particularly when the overall construct reliability and validity are satisfactory. All constructs demonstrated adequate composite

reliability and average variance extracted (AVE), indicating that the measurement model retains sufficient convergent validity. Furthermore, the removal of these items did not lead to a meaningful improvement in the reliability or validity indicators. Therefore, these items were retained because their loadings remain within an acceptable range and do not adversely affect the model's overall quality or interpretability.

Table 1. Demographic characteristics

Characteristics	Sex		
	Male	Female	Prefer not to say
Age			
18 – 25	15	16	0
26 – 35	18	25	0
36 – 50	36	30	2
More than 50	88	39	0
Education level			
Secondary school completed	10	16	0
Student of institute / university	27	27	1
Institute / university studies completed	64	44	0
Postgraduate studies completed	56	23	1
Minimum Monthly Wage (MMW)			
Less than 1 MMW	14	26	1
Between 1 and 2 MMW	23	30	1
Between 2 and 3 MMW	9	18	0
Between 3 and 4 MMW	16	12	0
More than 4 MMW	95	24	0

Table 2. Reliability and validity

Environmental attitude	Factorial loading	Reliability and validity
If I could travel to Machu Picchu this year...		
I would change my habits to avoid environmental pollution.	0.693	Alpha: 0.753
I would respect its environmental regulations.	0.836	CR: 0.775
I would feel guilty if I damaged its environment.	0.808	AVE: 0.575
I would support sustainable policies, even if it increased the price.	0.684	
Environmental concern		
I am concerned about the environmental degradation of Machu Picchu.	0.855	Alpha: 0.872
I am concerned about the possible loss of native species in Machu Picchu.	0.841	CR: 0.873
I am disturbed by the idea of pollution in Machu Picchu.	0.872	AVE: 0.722
I am distressed by the possible water shortage that Machu Picchu could face.	0.830	
Green identity		
I consider myself an eco-friendly traveler	0.692	Alpha: 0.882
Traveling to Machu Picchu and enjoying the benefits of nature would make me feel like an eco-friendly traveler	0.731	CR: 0.906
Acting in an environmentally friendly way is an important part of my personality	0.869	AVE: 0.682
I am an environmentally friendly person	0.898	
I consider myself an environmentally friendly person	0.913	
Personal norm		
I feel morally obligated to act responsibly during tourist visits to environmentally sensitive sites.	0.835	Alpha: 0.745
I consider environmental protection during tourist visits as my personal responsibility.	0.872	CR: 0.773
I feel bad about damaging the environment during tourist visits.	0.727	AVE: 0.662
Environmental commitment		
Environmental protection should be prioritized over tourism growth.	0.849	Alpha: 0.804
I am willing to buy a pro-environmental brand product, even if it costs more.	0.713	CR: 0.829
I am willing to forgo actions harmful to the environment.	0.831	AVE: 0.630
We must take proactive responsibility for environmental protection.	0.872	
Intention to be a green tourist		
I plan to follow environmental and cultural guidelines in the places I visit.	0.836	Alpha: 0.876
I intend to reduce my negative impact when visiting new destinations.	0.857	CR: 0.877
I will avoid actions that could harm the environment or culture of the places I travel to.	0.881	AVE: 0.730
I want to minimize any harm my visit may cause to the places I choose to explore.	0.842	

VIF was employed to calculate the common method bias (CMB). The absence of CMB was confirmed when inner model VIF values were no more than 3.3 (Kock, 2017); outer model VIF values were also less than 3.3, indicating the absence of multicollinearity. The HTMT values were less than 0.9 (Hair et al., 2019) (Table 3). To evaluate the significance of the effects, the bootstrapping technique was used. The p-values were less than 0.05, indicating significant effects (10000 iterations) (Table 4). Effect sizes (f^2) by path were assessed according to Cohen (2013), revealing small, medium and large effects that make an essential contribution to the model. Also, it shows the mediation effects of the model; also, the effects were significant ($p < 0.05$). The R^2 of the variables was calculated, along with RMSE, MAE, and Q^2 . The values were greater than zero, indicating good predictive relevance (Table 5).

Table 3. Discriminant validity (Heterotrait-Monotrait Ratio) (ENV-ATT: Environmental attitude; ENV-COMM: Environmental commitment; GSI: Green self-identity; INTENT: Intention to be a green tourist; PM: Personal norm; ENV-CONC: Environmental concern)

	ENV-ATT	ENV-COMM	ENV-CONC	GSI	INTENT	PM
ENV-ATT						
ENV-COMM	0.675					
ENV-CONC	0.810	0.728				
GSI	0.618	0.780	0.713			
INTENT	0.695	0.878	0.723	0.735		
PM	0.774	0.823	0.814	0.883	0.872	

Table 4. Test of hypotheses (ENV-ATT: Environmental attitude; ENV-COMM: Environmental commitment; GI: Green identity; INTENT: Intention to be a green tourist; PM: Personal norm; ENV-CONC: Environmental concern)

Direct effects	β	T Statistics	p-values	f^2	Decision
H1: Environmental concern $\rightarrow$ Environmental commitment	0.616	10.149	0.000	0.612 (large)	Accepted
H2: Environmental concern $\rightarrow$ Personal norm	0.672	11.978	0.000	0.823 (large)	Accepted
H3: Environmental concern $\rightarrow$ Green identity	0.640	7.784	0.000	0.692 (large)	Accepted
H4: Environmental concern $\rightarrow$ Environmental attitude	0.551	6.744	0.000	0.333 (medium)	Accepted
H5: Environmental commitment $\rightarrow$ Intention to be a green tourist	0.472	7.709	0.000	0.361 (medium)	Accepted
H6: Personal norm $\rightarrow$ Intention to be a green tourist	0.325	4.748	0.000	0.152 (small)	Accepted
H7: Green identity $\rightarrow$ Environmental attitude	0.179	2.249	0.025	0.035 (small)	Accepted
H8: Environmental attitude $\rightarrow$ Intention to be a green tourist	0.133	2.041	0.041	0.032 (small)	Accepted
Indirect effects	β	T Statistics	p-values		Decision
H9: ENV-CONC $\rightarrow$ PN $\rightarrow$ INTENT	0.218	4.544	0.000		Accepted
H10: ENV-CONC $\rightarrow$ ENV-COMM $\rightarrow$ INTENT	0.290	6.295	0.000		Accepted
H11: ENV-CONC $\rightarrow$ ENV-ATT $\rightarrow$ INTENT	0.073	2.018	0.044		Accepted
H12: ENV-CONC $\rightarrow$ GI $\rightarrow$ ENV-ATT	0.115	2.006	0.045		Accepted
H13: GI $\rightarrow$ ENV-ATT $\rightarrow$ INTENT	0.024	1.240	0.215		No accepted
H14: ENV-CONC $\rightarrow$ GI $\rightarrow$ ENV-ATT $\rightarrow$ INTENT	0.015	1.154	0.248		No accepted

Table 5. Values of R^2 - Q^2 - RMSE - MAE

Variables	R^2	R^2 adjusted	Q^2	RMSE	MAE
Environmental attitude	0.462	0.458	0.430	0.779	0.526
Environmental commitment	0.380	0.377	0.365	0.813	0.619
Green identity	0.409	0.407	0.390	0.799	0.615
Intention to be a green tourist	0.663	0.659	0.388	0.808	0.639
Personal norm	0.452	0.450	0.441	0.764	0.578

The R^2 values for Environmental attitude (0.462), Environmental commitment (0.380), Green identity (0.409), Intention to be a green tourist (0.663), and personal norm (0.452) have medium and large effects. PLS-Predict with 10-fold cross-validation was employed to analyze out-of-sample predictive ability. All endogenous indicators presented positive $Q^2_{predict}$, confirming predictive relevance. The RMSE and MAE values indicate a good level of accuracy in the model's predictions.

The research model tested is shown in Figure 1.

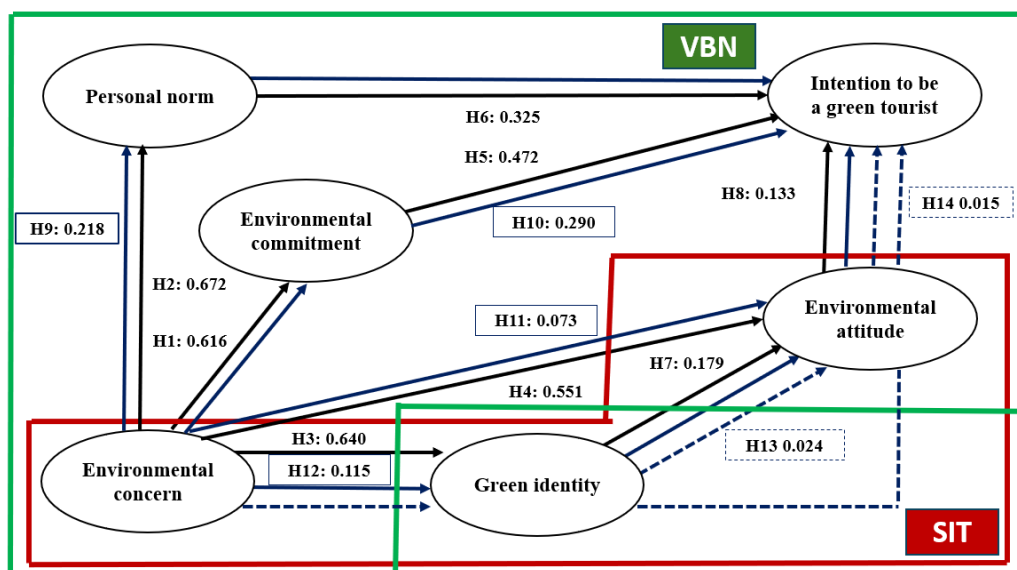


Figure 1. Research model tested

DISCUSSION

The results confirm that environmental concern (ENV-CONC) is a key antecedent in the formation of the intention to be a green tourist, acting primarily through mediating mechanisms. Support for hypotheses H1-H8 and H9-H12 demonstrates the relevance of variables such as environmental commitment (ENV-COMM), personal norm (PN), and green identity (GSI) in this process. Environmental attitude (ENV-ATT), although presenting a moderate direct effect, plays an essential role as a mediating variable. The non-significant results for H13 and H14 indicate that, although green identity has a significant effect on environmental attitude, this relationship does not translate into behavioral intention through a sequential mediation process. In other words, the indirect effect of green identity on intention via environmental attitude is not statistically supported. This finding suggests that identity-based processes may operate differently from normative-cognitive mechanisms in shaping green tourism intention. While green identity helps shape individuals' evaluations of environmentally responsible behavior, its influence appears to be more indirect and limited compared with the stronger, more direct effects observed in the normative pathway. One possible explanation is that, in the context of green tourism, internalized norms and commitment play a more decisive role in driving behavioral intention than identity alone.

Although individuals may perceive themselves as environmentally oriented, this self-perception may not translate into concrete behavioral intentions unless it is reinforced by moral obligations or a sense of responsibility. Additionally, the lack of support for these indirect effects reinforces the asymmetric nature of the proposed model, in which the normative pathway exhibits stronger explanatory power, whereas the identity-based pathway operates in a more complementary and indirect manner. The model demonstrated predictive and explanatory robustness, with a significant R^2 for intention (0.663) and no methodological bias. These findings highlight the need to design tourism strategies that simultaneously appeal to tourists' environmental awareness, ecological identity, and moral duty.

The present study's findings generally align with the existing literature, though differences in effect sizes are attributable to contextual and methodological variations. Regarding the effect of environmental concern on environmental commitment ($\beta = 0.616$), the outcome was less than what was found by Cao et al. (2024) ($\beta = 0.707$). The effect of environmental concern on personal norm found in the current study (0.672) is higher than reported by Dong et al. (2024) ($\beta = 0.233$) and Waris & Mohd Suki (2024) ($\beta = 0.263$). Then, the effect of environmental concern on green identity reported ($\beta = 0.640$) is higher than reported by Ahmed et al. (2025) ($\beta = 0.327$). Also, the effect of environmental concern on environmental attitude ($\beta = 0.551$) reported in this research exceeds what was reported by Wang et al. (2020) ($\beta = 0.355$), Leclercq-Machado et al. (2022) ($\beta = 0.154$), Mugiarti et al. (2022) ($\beta = 0.14$) and Suhartanto et al. (2025) ($\beta = 0.166$).

In relation to the effect of environmental commitment on intention to be a green tourist, Karatepe et al. (2022) ($\beta = 0.180$) reported a lower value than that reported in the present study (0.472).

The current study ($\beta = 0.325$) showed that the effect of personal norm on intention to be a green tourist was less than reported by D'Arco et al. (2025) ($\beta = 0.497$) but more than found by Wang et al. (2023) ($\beta = 0.233$). The effect of green identity on environmental attitude reported in the current study was less than Gule & Maduku (2017) ($\beta = 0.233$) and Teeroovengadam (2018) ($\beta = 0.595$) but more than Ortega-Rodríguez et al. (2024) ($\beta = 0.170$). Finally, the effect of environmental attitude on intention to be a green tourist (0.133) was less than reported by but more than found by Van Huy et al. (2023) ($\beta = 0.415$), Gulzar et al. (2024) ($\beta = 0.150$), and Patwary et al. (2021) ($\beta = 0.270$).

This study makes significant theoretical contributions by successfully integrating the Social Identity Theory (SIT) and the Value-Belief-Norm (VBN) model into a unified framework to explain the intention to be a green tourist in a high-value heritage context. It empirically validates that environmental concern is a powerful cognitive-affective precursor that activates a sequential chain of mediators—environmental commitment, personal norm, green identity, and environmental attitude—ultimately leading to behavioral intention. The findings deepen the understanding of the psychological mechanisms behind sustainable tourism, highlighting that moral obligation (personal norm) and self-concept (green identity) are more proximal and powerful drivers than attitude alone. The high explanatory power ($R^2 = 0.663$ for intention) confirms the robustness of this integrated model. Furthermore, the study provides novel insights by demonstrating that green identity influences intention primarily through indirect pathways, rather than directly, suggesting a complex interplay where identity shapes attitudes and norms which collectively drive behavior. This advances knowledge beyond traditional models that often treat these constructs in isolation.

The findings offer actionable insights for managers and policymakers at Machu Picchu and similar fragile destinations. To foster green tourist behavior, strategies should move beyond raising general environmental awareness to actively appeal to tourists' self-identity and moral obligations. Marketing campaigns should be designed to segment tourists based on their environmental values and identity, crafting messages that reinforce their role as "heritage protectors" and highlight the tangible impact of their sustainable choices. For instance, certifications or badges for green behaviors can leverage social identity by making pro-environmental actions visible and status-enhancing. Destination managers should also collaborate with tour operators and hotels to embed sustainable choices into the core tourist experience, making them the easy and default option (e.g., eliminating single-use plastics, offering carbon-neutral tour packages). Training staff to communicate the conservation mission effectively can further activate personal norms. Creating a strong green identity and commitment among visitors can create a cycle of positive behavior that ensures long-term conservation without sacrificing visitor numbers.

CONCLUSION

This study demonstrates that the intention to be a green tourist at a world heritage site like Machu Picchu is driven by a complex interplay of psychological factors, primarily driven by environmental concern. The research confirms the

efficacy of integrating the Value-Belief-Norm model and Social Identity Theory, revealing that concern activates a network of mediating variables, namely environmental commitment, personal moral norms, green self-identity, and environmental attitude, which collectively form a powerful impetus for behavioral intention. The model's high predictive power underscores that tourists are not merely influenced by attitudes but are profoundly motivated by a desire for internal consistency with a pro-environmental self-image and a sense of ethical duty.

The key conclusion is that fostering green tourism requires strategies that transcend information campaigns. It necessitates interventions designed to cultivate a strong green identity and activate deep-seated personal norms. For management, this means creating experiences and communication that allow tourists to embody the role of a responsible traveler, making sustainability an integral and rewarding part of their identity and visit.

While the study is context-specific, its theoretical framework offers a replicable model for understanding sustainable behavior in other fragile destinations. Ultimately, by acknowledging and targeting these deeper psychological mechanisms, stakeholders can more effectively promote the active conservation of iconic sites, ensuring their preservation for future generations while maintaining their economic viability.

LIMITATIONS AND FUTURE STUDIES

The study's limitations include its being a correlational study rather than a focus group or in-depth interview that would allow us to understand the reasons for tourists' willingness to be green tourists. Future studies should combine research designs and replicate the model in diverse cultural and tourism contexts to enhance external validity.

The cross-sectional design captures intention at a single point in time; longitudinal research is needed to track how these psychological constructs evolve and translate into actual behavior over the course of a trip or across multiple visits. We acknowledge that the sample, characterized by a higher proportion of male participants, adults and a predominance of individuals with higher incomes and postgraduate degrees, may not fully represent the general tourist population of Machu Picchu. However, we wish to clarify that this profile reflects a relevant segment of tourists, particularly those more likely to undertake high-cost trips, such as a visit to Machu Picchu.

Therefore, rather than seeking total representativeness, this study offers insights into a specific and significant segment of tourists who are likely to influence or adopt ecotourism behaviors.

The model explained a substantial portion of variance in intention, but other potential mediators or moderators, such as perceived behavioral control, barriers to sustainable behavior, or cultural values, were not included. Future research could incorporate these elements to gain a more comprehensive understanding.

Appendix

Environmental attitude: If I could travel to Machu Picchu this year...

1. I would change my habits to avoid environmental pollution.
2. I would respect its environmental regulations.
3. I would feel guilty if I damaged its environment.
4. I would support sustainable policies, even if it increased the price.

Environmental concern

5. I am concerned about the environmental degradation of Machu Picchu.
6. I am concerned about the possible loss of native species in Machu Picchu.
7. I am disturbed by the idea of pollution in Machu Picchu.
8. I am distressed by the possible water shortage that Machu Picchu could face.

Green identity

9. I consider myself an eco-friendly traveler
10. Traveling to Machu Picchu and enjoying the benefits of nature would make me feel like an eco-friendly traveler
11. Acting in an environmentally friendly way is an important part of my personality
12. I am an environmentally friendly person
13. I consider myself an environmentally friendly person

Personal norm

14. I feel morally obligated to act responsibly during tourist visits to environmentally sensitive sites.
15. I consider environmental protection during tourist visits as my personal responsibility.
16. I feel bad about damaging the environment during tourist visits.

Environmental commitment

17. Environmental protection should be prioritized over tourism growth.
18. I am willing to buy a pro-environmental brand product, even if it costs more.
19. I am willing to forgo actions harmful to the environment.
20. We must take proactive responsibility for environmental protection.

Intention to be a green tourist

21. I plan to follow environmental and cultural guidelines in the places I visit.
22. I intend to reduce my negative impact when visiting new destinations.
23. I will avoid actions that could harm the environment or culture of the places I travel to.
24. I want to minimize any harm my visit may cause to the places I choose to explore.

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REFERENCES

- Ahmed, H. A. M., Abdelghani, A. A. A., Fayyad, S., & Rashwan, K. A. (2025). From Commitment to Action: The Mediating Effect of Environmental Identity in Green Buying, with Eco-Conscious Behavior as a Moderator. *Administrative Sciences*, 15(8), 303. <https://doi.org/10.3390/admsci15080303>
- Baierl, T. M., & Bogner, F. X. (2023). How Should We Teach Nature Protection? Self-Determination and Environmental Attitudes. *Education Sciences*, 13(4), 353. <https://doi.org/10.3390/educsci13040353>
- Baierl, T. M., Kaiser, F. G., & Bogner, F. X. (2022). The supportive role of environmental attitude for learning about environmental issues. *Journal of Environmental Psychology*, 81, 101799. <https://doi.org/10.1016/j.jenvp.2022.101799>
- Becerra, E. P., Carrete, L., & Arroyo, P. (2023). A study of the antecedents and effects of green self-identity on green behavioral intentions of young adults. *Journal of Business Research*, 155, 113380. <https://doi.org/10.1016/j.jbusres.2022.113380>
- Bergami, M., & Bagozzi, R. P. (2000). Self-categorization, affective commitment and group self-esteem as distinct aspects of social identity in the organization. *British Journal of Social Psychology*, 39(4), 555-577. <https://doi.org/10.1348/014466600164633>
- Cao, S., Xu, P., Qalati, S. A., & Wu, K. (2024). Impact of Employee Environmental Concerns on Sustainable Practices: Investigating Organizational Commitment and Job Satisfaction. *Sustainability*, 16(13), 5823. <https://doi.org/10.3390/su16135823>
- Chi, N. T. K., & Phuong, V. H. (2021). Studying tourist intention on city tourism: the role of travel motivation. *International Journal of Tourism Cities*, 8(2), 497-512. <https://doi.org/10.1108/IJTC-03-2021-0042>
- Cohen, J. (2013). *Statistical power analysis for the behavioral sciences*. Routledge, New York.
- Confente, I., & Scarpi, D. (2020). Achieving Environmentally Responsible Behavior for Tourists and Residents: A Norm Activation Theory Perspective. *Journal of Travel Research*, 60(6), 1196-1212. <https://doi.org/10.1177/0047287520938875>
- Corral-Verdugo, V., Pato, C., & Torres-Soto, N. (2021). Testing a tridimensional model of sustainable behavior: self-care, caring for others, and caring for the planet. *Environment, Development and Sustainability*, 23(9), 12867-12882. <https://doi.org/10.1007/s10668-020-01189-9>
- D'Arco, M., Marino, V., & Resciniti, R. (2025). Exploring the pro-environmental behavioral intention of Generation Z in the tourism context: the role of injunctive social norms and personal norms. *Journal of Sustainable Tourism*, 33(6), 1100-1121. <https://doi.org/10.1080/09669582.2023.2171049>
- Ding, L., & Jiang, C. (2025). The impact of rural tourism destination attractiveness on tourists' environmentally responsible behavioral intentions: the mediating role of green self-identity. *Journal of Global Responsibility*, 16(1), 1-21. <https://doi.org/10.1108/JGR-03-2023-0046>
- Dong, Z., He, C., Hu, T., & Jiang, T. (2024). Integrating values, ascribed responsibility and environmental concern to predict customers' intention to visit green hotels: the mediating role of personal norm. *Frontiers in Psychology*, 14. <https://doi.org/10.3389/fpsyg.2023.1340491>
- Fauzi, M. A., Hanafiah, M. H., & Kunjuraman, V. (2022). Tourists' intention to visit green hotels: building on the theory of planned behaviour and the value-belief-norm theory. *Journal of Tourism Futures*, 10(2), 255-276. <https://doi.org/10.1108/JTF-01-2022-0008>
- Gule, P. T., & Maduku, D. K. (2017). *Explaining consumer attitude towards purchasing green products: The role of knowledge, self-identity, and utility*. READINGS BOOK.
- Gulzar, Y., Eksili, N., Koksall, K., Celik Caylak, P., Mir, M. S., & Soomro, A. B. (2024). Who Is Buying Green Products? The Roles of Sustainability Consciousness, Environmental Attitude, and Ecotourism Experience in Green Purchasing Intention at Tourism Destinations. *Sustainability*, 16(18), 7875. <https://doi.org/10.3390/su16187875>
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2-24. <https://doi.org/10.1108/EBR-11-2018-0203>
- Hou, H., & Wu, H. (2020). Tourists' perceptions of green building design and their intention of staying in green hotel. *Tourism and Hospitality Research*, 21(1), 115-128. <https://doi.org/10.1177/1467358420963379>
- Karatepe, T., Oztüren, A., Karatepe, O. M., Uner, M. M., & Kim, T. T. (2022). Management commitment to the ecological environment, green work engagement and their effects on hotel employees' green work outcomes. *International Journal of Contemporary Hospitality Management*, 34(8), 3084-3112. <https://doi.org/10.1108/IJCHM-10-2021-1242>

- Kock, N. (2017). *Common Method Bias: A full collinearity assessment method for PLS-SEM*. In H. Latan & R. Noonan (Eds.), *Partial Least Squares Path Modeling: Basic Concepts, Methodological Issues and Applications* 245-257. Springer International Publishing.
- Leclercq-Machado, L., Alvarez-Risco, A., Gómez-Prado, R., Cuya-Velásquez, B. B., Esquerre-Botton, S., Morales-Ríos, F., Almanza-Cruz, C., Castillo-Benancio, S., Anderson-Seminario, M. D., Del-Aguila-Arcenales, S., & Yáñez, J. A. (2022). Sustainable Fashion and Consumption Patterns in Peru: An Environmental-Attitude-Intention-Behavior Analysis. *Sustainability*, 14(16), 9965. <https://doi.org/10.3390/su14169965>
- Mugiarti, M., Adawiyah, W. R., & Rahab, R. (2022). Green hotel visit intention and the role of ecological concern among young tourists in Indonesia: a planned behavior paradigm. *Tourism: An International Interdisciplinary Journal*, 70(2), 243-257. <https://doi.org/10.37741/t.70.2.6>
- New 7 wonders of the world. (2007). *Machu Picchu*. Retrieved 17/04/2025 from <https://world.new7wonders.com/wonders/machu-picchu-1460-1470-peru/>
- Nowacki, M., Kowalczyk-Anioł, J., & Chawla, Y. (2023). Gen Z's Attitude towards Green Image Destinations, Green Tourism and Behavioural Intention Regarding Green Holiday Destination Choice: A Study in Poland and India. *Sustainability*, 15(10), 7860. <https://doi.org/10.3390/su15107860>
- Ortega-Rodríguez, C., Vena-Oya, J., Barreal, J., & Józefowicz, B. (2024). How to finance sustainable tourism: Factors influencing the attitude and willingness to pay green taxes among university students. *Green Finance*, 6(4), 649.
- Osman, A. I., Chen, L., Yang, M., Msigwa, G., Farghali, M., Fawzy, S., Rooney, D. W., & Yap, P.-S. (2023). Cost, environmental impact, and resilience of renewable energy under a changing climate: a review. *Environmental Chemistry Letters*, 21(2), 741-764. <https://doi.org/10.1007/s10311-022-01532-8>
- Paillé, P., & Valéau, P. (2020). "I Don't Owe You, But I Am Committed": Does Felt Obligation Matter on the Effect of Green Training on Employee Environmental Commitment? *Organization & Environment*, 34(1), 123-144. <https://doi.org/10.1177/1086026620921453>
- Pásková, M., Štekerová, K., Zanker, M., Lasisi, T. T., & Zelenka, J. (2024). Water pollution generated by tourism: Review of system dynamics models. *Heliyon*, 10(1), e23824. <https://doi.org/10.1016/j.heliyon.2023.e23824>
- Patwary, A. K., Omar, H., & Tahir, S. (2021). The impact of perceived environmental responsibility on tourists' intention to visit green hotel: the mediating role of attitude. *Geo Journal of Tourism and Geosites*, 34(1), 9-13. <https://doi.org/10.30892/gtg.34101-612>
- Qiang, M., Yueting, W., Yongliang, Y., & Shen, M. (2024). How air pollution affects tourism revenue: evidence from China. *Current Issues in Tourism*, 27(24), 4757-4771. <https://doi.org/10.1080/13683500.2023.2298350>
- Schwartz, S. H. (1977). Normative Influences on Altruism. *Advances in Experimental Social Psychology*, 10, 221-279. [https://doi.org/10.1016/S0065-2601\(08\)60358-5](https://doi.org/10.1016/S0065-2601(08)60358-5)
- Stern, P. C. (2000). New Environmental Theories: Toward a Coherent Theory of Environmentally Significant Behavior. *Journal of Social Issues*, 56(3), 407-424. <https://doi.org/10.1111/0022-4537.00175>
- Suhartanto, D., Dean, D., Amin, H., & Seperi, Y. (2025). Faith, ecology and leisure: understanding young Muslim tourists' attitudes towards mangrove ecotourism. *Journal of Islamic Marketing*, 16(11), 3240-3256. <https://doi.org/10.1108/JIMA-01-2025-0026>
- Tang, H., Ma, Y., & Ren, J. (2022). Influencing factors and mechanism of tourists' pro-environmental behavior – Empirical analysis of the CAC-MOA integration model. *Frontiers in Psychology*, 13 - 2022. <https://doi.org/10.3389/fpsyg.2022.1060404>
- Teeroovengadum, V. (2018). Environmental identity and ecotourism behaviours: examination of the direct and indirect effects. *Tourism Review*, 74(2), 280-292. <https://doi.org/10.1108/TR-11-2017-0190>
- Torabi, Z. A., Hall, C. M., Azamiou, N., & Borzu, G. (2025). Environmental Concerns and Water Conservation Behavior in Desert Tourism: Applying the Extended Norm Activation Theory for Gen Z Tourists. *Sustainability*, 17(6), 2474. <https://doi.org/10.3390/su17062474>
- Turner, J. C., Brown, R. J., & Tajfel, H. (1979). Social comparison and group interest in ingroup favouritism. *European Journal of Social Psychology*, 9(2), 187-204. <https://doi.org/10.1002/ejsp.2420090207>
- Ullah, S., Lyu, B., Ahmad, T., Sami, A., & Kukreti, M. (2024). A mediated moderation model of eco-guilt, personal and social norms and religiosity triggering pro-environmental behavior in tourists. *Current Psychology*, 43(8), 6830-6839. <https://doi.org/10.1007/s12144-023-04894-6>
- UNESCO. (1983). *Historic Sanctuary of Machu Picchu*. Retrieved 17/04/2025 from <https://whc.unesco.org/es/list/274>
- Van Huy, L., Nguyen, H. T. T., Hoang Long, P., Quyen Phu Thi, P., & Pham, N. T. (2023). Going green: predicting tourists' intentions to stay at eco-friendly hotels – the roles of green attitude and environmental concern. *Journal of Hospitality and Tourism Insights*, 7(5), 2723-2741. <https://doi.org/10.1108/JHTI-05-2023-0355>
- Wang, B., Li, J., Sun, A., Wang, Y., & Wu, D. (2020). Residents' Green Purchasing Intentions in a Developing-Country Context: Integrating PLS-SEM and MGA Methods. *Sustainability*, 12(1), 30. <https://doi.org/10.3390/su12010030>
- Wang, C. P., Zhang, Q., Wong, P. P. W., & Wang, L. (2023). Consumers' green purchase intention to visit green hotels: A value-belief-norm theory perspective. *Frontiers in Psychology*, 14. <https://doi.org/10.3389/fpsyg.2023.1139116>
- Waris, I., & Mohd Suki, N. (2024). Predicting sustainable tourism: examining customers' intention to visit green hotels using an extended norm activation model. *Management of Environmental Quality: An International Journal*, 36(1), 228-248. <https://doi.org/10.1108/MEQ-05-2024-0211>