Jurnal Kepariwisataan Indonesia 20 (1) (2026) 205-230
http://ejournal.kemenpar.go.id/index.php/jki
P-ISSN: 1907-9419, E-ISSN: 2685-9075, June 2026

IDENTIFYING THE DETERMINANTS OF TOURISTS' ENVIRONMENTALLY RESPONSIBLE BEHAVIOR: EXTENDING THE CAB MODEL WITH GENERATIVITY IN BROMO TENGGER SEMERU NATIONAL PARK

Novita Uki Hutami[1]*, Yulita Suryantari[2], Feti Fatimatuzzahroh[3], Imam Nur Hakim[4]

[1,2]Tourism Department, Faculty of Economics and Business, Universitas Terbuka, Indonesia
[3]Environmental Studies, Postgraduate Program, University Terbuka, Indonesia
[4]Research Centre for Economics of Industry, Services, and Trade, National Research and Innovation Agency (BRIN), Indonesia

Correspondence: novita.uki.hutami@ecampus.ut.ac.id

Article Info

Keywords:
ecotourism perceptions; environmentally responsible behavior; generativity; mountain conservation area; satisfaction

Received:
November 10, 2025
Approved:
June 8, 2026
Published:
June 29, 2026

Abstract

Tourism development in rural mountain protected areas can bring economic benefits to local communities while increasing environmental pressure on fragile ecosystems. In Bromo Tengger Semeru National Park (BTSNP), rising visitor numbers have caused environmental problems such as littering, wildfires, and vegetation disturbance. This study aims to examine how ecotourism perception, satisfaction, and generativity influence environmentally responsible behavior (ERB) among visitors in mountain conservation areas facing increasing ecological pressure. Grounded in an extended Cognitive-Affective-Behavior (CAB) framework, this study integrates generativity as a psychosocial driver of ERB. Data were collected from 287 tourists through structured questionnaires and analyzed using SEM and multi-group analysis (MGA) to examine structural relationships and intergenerational differences. The results show that generativity significantly influences ERB, emerging as the strongest predictor in the model. Ecotourism perception (EP) significantly increases tourist satisfaction but does not directly influence ERB. Satisfaction neither directly affects ERB nor mediates the relationship between EP and ERB. MGA further indicates that the relationship between generativity and ERB was significant only among Gen Y tourists, although this difference should be interpreted cautiously. These findings challenge the linear assumption of the CAB framework by showing that generativity, as a future-oriented factor, plays a more important role than cognitive and affective evaluation in shaping ERB. They also offer practical implications for promoting long-term socio-ecological management through targeted visitor engagement and strengthened governance strategies in protected mountain areas.

How to cite:
Hutami, N. U., Suryantari, Y., Hakim, I. N. (2026). Identifying The Determinants of Tourists' Environmentally Responsible Behavior: Extending The Cab Model with Generativity in Bromo Tengger Semeru National Park. *Jurnal Kepariwisataan Indonesia: Jurnal Penelitian dan Pengembangan Kepariwisataan Indonesia, 20*(1), 205-230. https://doi.org/10.47608/jki.v20i12026.205-230

INTRODUCTION

Background and Objectives

Tourism development in rural mountain protected areas has long been recognized as a double-edged sector, providing economic benefits for host communities while imposing significant environmental pressures on fragile ecosystems. Bromo Tengger Semeru National Park (BTSNP) is one of Indonesia's five super-priority destinations and a protected area. The park is closely associated with the Tengger indigenous community, whose local wisdom and community initiatives shape everyday conservation practices and interactions with park authorities (Grandis et al., 2023; Purnomo et al., 2018).

Tourist arrivals increased by more than 15 percent between 2022 and 2023 (Antara News, 2024). Meanwhile, environmental incidents such as wildfires, littering, and vegetation destruction remain a concern, including a major wildfire in 2023, reportedly caused by tourist negligence, that burned more than 500 hectares of savanna (ANTARA, 2023). These incidents underscore the need to investigate the factors that promote responsible tourist behavior and to develop appropriate strategies to support sustainable tourism development within the socio-ecological system. As tourists' environmentally responsible behavior (ERB) becomes essential for achieving sustainable ecotourism in national parks, ecotourism has emerged as a viable approach to mitigate negative impacts while fostering conservation and community well-being (Ren et al., 2021; G. Wang et al., 2023). Through interactions with nature, ecotourism may encourage tourists to adopt environmentally responsible behavior (ERB), such as reducing waste, following conservation rules, and supporting local initiatives (Chiu et al., 2014a; J. (Snow) Wu et al., 2021). Previous studies further suggest that ecotourism can encourage ERB through tourists' perceptions, values, and emotions experiences (Chiu et al., 2014a; Jiang et al., 2022; Zhao & Weng, 2024).

From a psychological perspective, environmentally responsible behavior (ERB) can be influenced by tourists' perceptions, which are shaped by evaluations of environmental quality, management, service quality, and the implementation of value (Zhao & Weng, 2024). The Cognitive-Affective-Behavior (CAB) Theory explains how cognitive appraisals trigger affective responses that, in turn, shape behavior (Tseng et al., 2024). Perceived ecotourism value and destination image may enhance ERB directly or indirectly via emotional responses such as awe and attachment (Chiu et al., 2014a; Jiang et al., 2022). These affective responses are often reflected in tourist satisfaction, which stems from cognitive evaluations and experiences. However, empirical findings remain inconsistent. Some studies suggest that satisfaction serves merely as a contextual mediator in the CAB framework rather than as a direct predictor of ERB (Bhatti & Alnasser, 2023).

Another construct is generativity, which has recently gained academic interest. This term was defined as individuals' concern and commitment to future generations (G. Wang et al., 2023). Generativity has emerged as a key psychological driver of environmentally responsible behavior (ERB). Individuals with higher levels of generativity are more likely to engage in responsible consumption, adopt eco-friendly lifestyles, and engage in environmental behavior (Afridi et al., 2021; Shiel et al., 2020), through eco-friendly lifestyles such as organic dining (Pan et al., 2022), and participate in environmental or activist behavior (Carvalho Veras et al., 2023). Previous tourism management studies

Doi: 10.47608/jki.v20i12026.205-230

have provided evidence linking generativity to sustainable consumption and energy-saving behavior; however, fewer studies have linked it to tourists' ERB within ecotourism frameworks.

Although environmentally responsible behavior has been examined in tourism studies, three important gaps remain. First, empirical evidence shows that most studies predominantly focus on coastal or geological tourism destinations, while ERB in fragile mountain ecosystems in Southeast Asia is rarely observed (Liu et al., 2021, 2022; Yan et al., 2024). Second, from a theoretical perspective, previous studies on the cognitive and affective determinants of ERB have focused mainly on destination identity, environmental awareness, altruism, emotions, and message interpretation, while generativity as a psychological construct and satisfaction are rarely integrated into ecotourism research (Chiu et al., 2014a; Guiao & Lacap, 2022; Ren et al., 2021; Tseng et al., 2024). Third, from a methodological perspective, few studies have applied robust approaches such as PLS-SEM with multi-group analysis to assess generational variations. The current research further overlooks how generational differences may influence responsible behavior, as it focuses on younger cohorts, particularly Generation Z (G. Wang et al., 2023).

Based on these gaps, this study extends the CAB framework by integrating generativity and analyzing its role in shaping tourists' environmentally responsible behavior in a protected mountain destination. Methodologically, this study contributes by applying PLS-SEM and MGA to determine whether the drivers of ERB differ across generations of mountain tourists.

Literature Review and Hypotheses Development

Cognitive-Affective-Behavior Theory

The cognitive-affective-behavior (CAB) model proposed by Lavidge and Steiner explains the process of developing cognitive evaluations, including beliefs, environmental knowledge, and particularly destination perception, which can enhance environmental sensitivity (Simanjuntak & Fitri, 2024; H. Wang et al., 2025). In this regard, cognition represents an individual's knowledge-based perception, while affective recognition is the emotional response to that information, and behavior reflects the actions resulting from these cognitive-emotional processes (Simanjuntak & Fitri, 2024). However, studies examining the relationships among perception, satisfaction, generativity, and ERB remain limited. Therefore, this study applies the C-A-B model to investigate these relationships. This study adopts the C-A-B theoretical framework, which integrates generativity, to analyze tourists' environmentally responsible behavior (ERB). In this study, generativity reflects tourists' concern for future generations and their commitment to environmental sustainability, serving as a motivational orientation rooted in Erikson's psychosocial development theory. Rather than functioning as a moderator, generativity is positioned as a direct antecedent of ERB.

Ecotourism in Bromo Tengger Semeru

Bromo Tengger Semeru National Park (BTSNP) is a rural mountain conservation landscape where ecotourism development integrates environmental conservation, community participation, and visitor management, reflecting national ecotourism principles that promote environmental awareness and education, conservation efforts, and

economic benefits for local communities (Soeroso, 2022). Ecotourism in this park offers meaningful experiences through direct interaction with natural and protected areas (Sethy & Senapati, 2023).

Previous studies indicate that post-pandemic tourism recovery in BTSNP is centered on sustainability principles, particularly controlled visitor flows, improvements to environmental infrastructure, and the reinforcement of health and safety protocols (Wiratno et al., 2024). Ecotourism activities within the park are primarily concentrated in the intensive-use zone, which showcases the park's most iconic natural attractions, including the Bromo Sand Sea, Mount Bromo Crater, and Mount Semeru Summit.

Policy strategies, such as zoning, health protocols, visitor quotas informed by technological innovation, and the development of village tourism led by the Tengger indigenous, have been applied to reduce ecological pressure on fragile volcanic and highland habitats, further supporting sustainable action (Mitra & Tripathy, 2025; Rahmi et al., 2024; Wiratno et al., 2024).

Ecotourism perception

Tourists' perceptions of ecotourism are a significant driver of environmentally responsible behavior (ERB). When visitors perceive an ecotourism destination as beneficial, authentic, and environmentally oriented, they are more likely to engage in responsible and reciprocal behavior (Borthakur & Kondasani, 2026; Chiu et al., 2014a, 2014b; Zhao & Weng, 2024). Within the CAB Framework, ecotourism perception reflects perceived value, encompassing cognitive appraisals of environmental quality, experiential value, and destination management, which can encourage ERB. Empirical findings also show that when tourists perceive ecotourism destinations as authentic and well managed, they are inclined to support conservation practices (Xiaoqin & Zhanhong, 2025; L. Yang et al., 2023). Therefore, the following hypotheses can be established:

H1: Ecotourism perception positively influences ERB

Satisfaction

Tourists' satisfaction is the affective response to visitors' evaluation of ecotourism experiences. Positive perceptions of ecotourism services, environmental awareness, and clear destination information influence tourists' satisfaction during tourism activities (Askar, 2023; Y. Wang et al., 2023). Satisfaction serves as an emotional mechanism linking cognitive evaluation and behavioral outcomes. Previous studies suggest that seamless, enjoyable ecotourism experiences enhance satisfaction, which can foster environmental awareness and behavioral transformation (Borthakur & Kondasani, 2026). However, few studies have examined how tourists' perceptions of ecotourism influence satisfaction or how satisfaction mediates the relationship between ecotourism perception and ERB. Thus, the following hypothesis is proposed:

H2 : Ecotourism perception exerts a positive influence on satisfaction

H3 : Satisfaction positively influences ERB

H4 : Satisfaction mediates the relationship between ecotourism perception and ERB

Doi: 10.47608/jki.v20i12026.205-230

Generativity

Generativity is conceptualized as an individual's lifelong concern for and commitment to the welfare of future generations (G. Wang et al., 2023). This concept reflects individuals' intention to create a meaningful legacy that benefits future generations and is regarded as an aspirational drive to promote a healthy lifestyle and build sustainable communities (Timilsina et al., 2019; Wells et al., 2016). Developmental studies suggest that generativity becomes more dominant in midlife, when individuals assume broader family, occupational, and community responsibilities (Zacher et al., 2012). Longitudinal evidence further shows that generative concern increases from early adulthood, peaks during midlife (approximately ages 40-60), and remains relatively stable before gradually declining later in life (Einolf, 2014; Nelson & Bergeman, 2021; Reinilä et al., 2023). Generativity also evolves throughout the lifespan, with age-related changes driven by shifting social roles, accumulated skills, and social participation. These contextual factors contribute to variation in generativity across generations (Kruse & Schmitt, 2012; Villar et al., 2024). Mentoring, volunteering, and other legacy-oriented activities that support sustainable communities can enhance generativity (Hung et al., 2024; Nonaka et al., 2023).

McAdams and de St Aubin (1992) identified several aspects of generativity, including knowledge, contribution, and responsibility, which have been widely accepted in academic discourse. In rural conservation discussions, generativity extends personal values and aligns with intergenerational stewardship through knowledge exchange and local conservation practices (Villodre et al., 2023; X. Wu & Yuan, 2023). Unlike the perception of ecotourism, which operates as situational cognitive input shaped by destination and environmental appraisals, generativity reflects an internalized human motivation that evolves across the adult lifespan (Alisat et al., 2014). This distinction justifies its role as a direct antecedent of ERB, in line with the findings of Y. Wang et al., (2023), who reported that generative concern directly predicts tourists' ERB. Reinforced by Korlat et al., (2024), the environmentally specific dimension of generativity directly motivates responsible behavior across all adult age groups without requiring the mediation of cognitive evaluation, because an internalized concern for future generations serves as a sufficient motivational driver.

Therefore, this study integrates generativity as a parallel and direct predictor within the extended CAB framework, complementing rather than replacing the cognitive-affective mechanism, particularly regarding the relationship between tourists' generativity concern and environmentally responsible behavior (ERB) at tourist destinations, with a focus on National Parks. Given the above, the following hypothesis can be proposed:

H5 : Generativity has a significant effect on ERB

Environmentally Responsible Behavior (ERB)

Environmentally responsible behavior (ERB) refers to the practices of individuals or groups that support environmental quality (Y. Wang et al., 2023). ERB can prevent or mitigate negative environmental impacts and also benefit ecosystems at tourism destinations (Cheng & Wu, 2015; J. Wu et al., 2022). ERB can be practiced by multiple stakeholders, including tourists, residents, and business operators (Qin & Hsu, 2022; J. Wang et al., 2021; J. Wu et al., 2022). In protected mountain destinations, environmentally responsible actions include proper waste management, compliance with conservation regulations, eco-friendly consumption, and encouraging other visitors to behave

responsibly (Hu et al., 2019; C. Wang et al., 2018; Y. Wang et al., 2023; Ye et al., 2022). M. Wiernik et al., (2013) explain that age differences influence ERB in professional or community life. Furthermore, age is a significant factor in understanding environmental motivations and behaviors, as individuals across age groups often exhibit varying ecological attitudes and engage in distinct sustainable practices (J. Wu et al., 2022).

Tourists can generally be categorized into older and younger age groups. Generation X and Y tend to be concerned about nature conservation (Satrya et al., 2023). Older or senior tourists are often more committed to intergenerational stewardship values and long-term environmental responsibility, reflecting increased generativity during midlife and later adulthood (Korlat et al., 2024). By contrast, younger travelers, such as Generation Z, tend to express concern for the future through social participation, self-discovery, and experiential learning, making their environmentally responsible behavior more socially and situationally influenced (G.-M. Wu et al., 2023). Furthermore, environmental studies demonstrate that older adults tend to engage in responsible behavior driven by internalized moral values, life experience, and concern for future generations (Ding & Schuett, 2020). These distinctions suggest that the influence of ecotourism perception, satisfaction, and generativity on environmentally responsible behavior may vary across generations. Thus, based on these gaps, the following hypotheses are established.

H6 : The relationship between perceived ecotourism and ERB differs across generations.

H7 : The relationship between ecotourism perception and satisfaction differs across generations.

H8 : The relationship between satisfaction and environmentally responsible behavior differs across generations.

H9 : The relationship between generativity and environmentally responsible behavior (ERB) differs across generations.

H10 : The mediating effect of satisfaction between ecotourism perception and ERB differs across generations.

In addition, generational groups are included in the analysis to capture potential intergenerational differences in the relationships among ecotourism perception, satisfaction, generativity, and ERB.

This research integrates the C-A-B theoretical framework with generativity to analyze environmentally responsible tourist behavior (ERB).

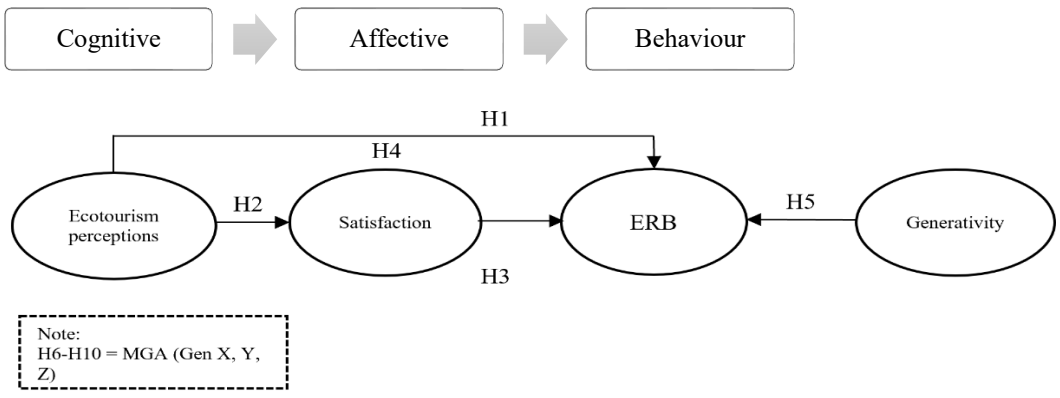

Figure 1. Proposed Research Model

Doi: 10.47608/jki.v20i12026.205-230

METHODOLOGY

Research Site

This study was conducted in Bromo Tengger Semeru National Park, designated by the government as one of five super-priority tourism destinations. It is a conservation area functioning as a protected area and biosphere reserve, located across four regencies, namely Probolinggo, Malang, Pasuruan, and Lumajang (Hadiwijoyo, 2023; Haliim, 2018; Wibowo, 2021). This destination has implemented a land conservation policy that supports ecotourism practices (Haliim, 2018).

Figure 2. Environmental Setting of Study Area in BTSNP
Source: Authors' field documentation, 2025

Data Collection

Data were collected via an online survey distributed to domestic and international visitors of BTSNP. The survey was conducted over a five-week period using a snowball sampling technique, starting with a single respondent and gradually expanding, as direct on-site access to respondents was limited (Nurdiani, 2014). Following Hair Jr et al. (2019), VIFs for full collinearity were assessed to detect potential common method bias. All VIF values were below the recommended threshold of 3.3, indicating that common method bias was not a serious concern in this study.

The target population consisted of tourists visiting the park, which recorded 368,507 visitors in 2024 (Balai Besar Taman Nasional Bromo Tengger Semeru, 2024). The minimum sample size was determined using Daniel Soper's *A-priori Sample Size Calculator*, assuming a medium effect size (0.15), 80% statistical power, and a 0.05 significance level, yielding a requirement of at least 100 respondents (Munabi & Buwembo, 2020). In total, 287 valid responses were collected, exceeding the minimum requirement and thus suitable for analysis using SEM-PLS (Hair et al., 2019).

Data Analysis

This study employed partial least squares structural equation modeling (PLS-SEM) combined with multi-group analysis (MGA). PLS-SEM was considered appropriate because the study involved a prediction-oriented model, a relatively moderate sample size, and data that may deviate from a normal distribution (Memon et al., 2017). According to Hair Jr et al. (2019), PLS-SEM is flexible in accommodating distributional assumptions

and is suitable for assessing both measurement and structural models. In this study, PLS-SEM was used to examine construct reliability and validity, direct effects, and the mediating role of satisfaction. MGA was subsequently performed to test whether the structural relationships differed across generational cohorts, particularly between Generation Y and other groups (G. Wang et al., 2023).

FINDINGS AND DISCUSSION

Descriptive Statistics

The findings indicate that among the 287 respondents who visited Bromo Tengger Semeru National Park, a significant majority were domestic tourists (99%), while only 1% were international visitors. The gender distribution was relatively balanced, with male tourists accounting for 55% and female tourists for 45%. Most respondents were aged 29–44 years, representing Generation Y (74%), followed by respondents aged 11–28 years, representing Generation Z (19%). A smaller proportion were aged 45–60 years, representing Generation X (6%), while respondents above 60 years old accounted for only 1%. Previous studies suggest that younger tourist cohorts, particularly Generation Y, are often associated with stronger interest in nature-based and ecotourism experiences (Satrya et al., 2023). Most respondents held bachelor's degrees (75%, n = 216), followed by postgraduate degree holders (14%, n = 39). Respondents categorized as high school level participants accounted for 11% (n = 31), while other educational backgrounds represented less than 1% (n = 1). This indicates that most participants have a higher education background.

Table 1. Characteristics of Respondents

Characteristic	Criteria	Number of Respondents	(%)
Gender	Male	157	55%
	Female	130	45%
Age	11 – 28 years old	54	19%
	29 – 44 years old	214	74%
	45 – 60 years old	17	6%
	above 60 years old	2	1%
Education	Postgraduate	39	14%
	Bachelor's	216	75%
	High School	31	11%
	Others	1	1%

Source: Data Processed, 2026

Measurement Model

This study used the Smart PLS-SEM software (version 3.0) to assess the reliability and validity of the measurement model using the entire sample. The findings are presented in Table 2. All item factor loadings exceed 0.7, and both Cronbach's alpha and rho_A values for the constructs are above the 0.7 threshold, consistent with the standards recommended by Hair Jr et al. (2019). Composite reliability and AVE values are above 0.7 and 0.5, respectively, indicating internal consistency (Hair Jr et al., 2019). As shown in Table 3, all constructs demonstrated good discriminant validity, as the square roots of AVE

Doi: 10.47608/jki.v20i12026.205-230

were higher than their correlations with other constructs. This confirms that each construct is distinct (G. Wang et al., 2023).

Table 2. Assessment of the measurement model

Variable	Items	Factor Loading	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Ecotourism's Perception	Ecotourism can promote natural resources and environmental conservation	0.828	0.863	0.915	0.782
	Ecotourism can increase the awareness toward how important environmental conservation between tourist and government is.	0.824			
	Ecotourism policy in BTSNP is well implemented.	0.842			
Generativity (GEN)	I like to share my knowledge and my experience about environmental conservation to others.	0.911	0.969	0.975	0.866
	I think it is important to give positive impact for the community.	0.906			
	I believe all steps have positive impacts for the environment and the community.	0.891			
	I have the responsibility for the preservation of natural conservation around me.	0.814			
	I contribute to environmental conservation to whom the future generation will remember.	0.849			
	It is important to give positive contribution to natural conservation.	0.753			
Satisfaction (S)	I am satisfied with the implementation of ecotourism in BTSNP.	0.832	0.864	0.910	0.721
	I feel pleased with the governmental roles towards the surveillance of ecological conservation in BTSNP.	0.775			

	I feel satisfied with the implementation of regulation and law supporting the conservation area in BTSNP.	0.793			
	eco-friendly tourist facilities can boost my satisfaction	0.739			
Environmentally Responsible Behaviour (ERB)	I prevent other tourists to do environmentally destructive acts.	0.816	0.883	0.945	0.895
	I choose to use eco-friendly accommodation.	0.861			

Source: Data Processed, 2026

Table 3. Results of the discriminant validity test based on Fornell-Larcker Criterion

Construct	Environmentally Responsible Behaviour	Generativity	Satisfaction	Ecotourism Perception
Environmentally Responsible Behaviour	0.813			
Generativity	0.612	0.843		
Satisfaction	0.662	0.433	0.770	
Ecotourism Perception	0.564	0.326	0.767	0.831

Source: Data Processed, 2026

Table 4. Discriminant validity evaluation based on Heterotrait-Monotrait Ratio (HTMT)

	ERB	Generativity	Ecotourism Perception	Satisfaction
ERB				
Generativity	0.838			
Ecotourism Perception	0.891	0.773		
Satisfaction	0.813	0.654	0.964	

Source: Data Processed, 2026

ERB was evaluated as tourists' observable environmental behavior in tourism activities (Chiu et al., 2014b; He et al., 2018; Stern, 2000). The construct was operationalized with nine items adapted from the literature on environmental tourist behavior. Following PLS-SEM assessment, items with cross-loadings and discriminant validity issues were removed to ensure construct distinctiveness and address HTMT concerns (Hair et al., 2022; Henseler et al., 2015). The final model retained two indicators representing the core behavioral expression of ERB in TNBTS, ensuring measurement validity and clarity within the structural model.

Furthermore, discriminant validity was assessed using the Heterotrait-Monotrait Ratio (HTMT) as a more rigorous alternative to the Fornell-Larcker criterion. As shown in Table 4, most construct pairs had HTMT values below the conservative threshold of 0.90 (Henseler et al., 2015; Roemer et al., 2021). However, the HTMT value between ecotourism perception and satisfaction slightly exceeded the threshold (0.964), indicating conceptual relatedness. Despite this high value, the bootstrap confidence intervals for the HTMT did not include 1, suggesting acceptable discriminant validity (Benitez et al., 2020; Hair Jr et al., 2017).

Doi: 10.47608/jki.v20i12026.205-230

Structural Model

The structural model was evaluated to assess the hypothesized relationships among the constructs (Hair Jr et al., 2019). The results are shown in Figure 3.

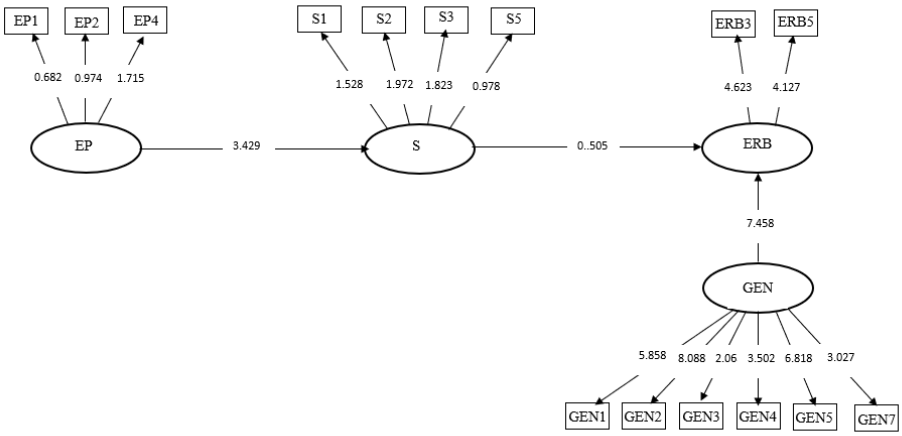

Figure 3. Final Model
Source: Data Processed, 2026

The structural model fit was evaluated using the Standardized Root Mean Square Residual (SRMR) and additional fit indicators. The SRMR of 0.104 slightly exceeded the strict threshold of 0.08. However, it remained close to the more flexible threshold of 0.10 commonly accepted in PLS-SEM studies, indicating marginal model fit (Hair Jr et al., 2017; Tedjakusuma & Kulachai, 2026). In addition, the d_ULS (1.294) and d_G (1.600) values suggested a robust model. Although the NFI was below the rigorous threshold, PLS-SEM particularly emphasizes explanatory power rather than model fit indices (Tedjakusuma & Kulachai, 2026). The R^2 for ERB was 0.330. This indicates that endogenous variables explain 33% of the variance in ERB; the remaining 67% was accounted for by other variables not included in the model or by error. In behavioral studies, an R^2 of 0.2 is considered acceptable, as human behavior is complex and influenced by numerous unmeasurable factors (Jieyao et al., 2025). Effect size (f^2) was used to assess each predictor's substantive contribution, as shown in Table 5. Ecotourism perception had a moderate effect on satisfaction ($f^2 = 0.263$), while generativity meaningfully contributed to ERB ($f^2 = 0.226$), confirming its role as an important predictor of responsible behavior. However, satisfaction had a negligible effect on ERB ($f^2 = 0.002$), suggesting its practical contribution to ERB is minimal (Cohen, 2013).

Table 5. Results of the Effect Size (f^2)

Construct Relationship	f^2	Effect Size
Ecotourism Perception -> Satisfaction	0.263	Moderate
Generativity -> ERB	0.226	Moderate
Satisfaction -> ERB	0.002	Negligible

Source: Data Processed, 2026

Table 6. Predictive of Relevance (Q^2)

Construct	Q^2
ERB	0.072
Satisfaction	0.05

Source: Data Processed, 2026

Predictive relevance was assessed via blindfolding, with Q^2 values of 0.072 for ERB and 0.050 for satisfaction. Ecotourism perception and generativity exceeded zero, indicating the model has adequate predictive relevance for all endogenous constructs (Hair Jr et al., 2017). The findings are shown in Table 6. Thus, the model was empirically adequate for further hypothesis testing. To test the path coefficients and hypothesized relationships, and to compare Gen Z with other generational groups in the structural model, 5000 bootstrap subsamples were used to obtain significance levels (Hair Jr et al., 2019). The findings are shown in Tables 7 and 8.

Table 7. The results of hypothesis tests

Hypothesis	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	Sig.
H1: Ecotourism Perception → ERB	-0.019	-0.008	0.038	0.492	0.622	Not Supported
H2: Ecotourism Perception → Satisfaction	0.457	0.457	0.140	3.265	0.001	**Supported**
H3: Satisfaction → Environmentally Responsible Behaviour (ERB)	-0.041	-0.014	0.082	0.495	0.621	Not Supported
H4: Ecotourism Perception → Satisfaction → Environmentally Responsible Behaviour (ERB)	-0.019	-0.008	0.038	0.492	0.622	Not Supported
H5: Generativity → Environmentally Responsible Behaviour (ERB)	0.432	0.446	0.062	6.963	0.000	**Supported**

Source: Data Processed, 2026

According to Table 7, ecotourism perception positively affected satisfaction (β = 0.457, $p < 0.01$), and generativity positively influenced ERB (β = 0.432, $p < 0.01$), supporting **H2** and **H5**. However, ecotourism perception did not directly influence ERB (β = -0.019, $p > 0.05$), and satisfaction also had no significant effect on ERB (β = -0.041, $p > 0.05$). Therefore, **H1** and **H3** were not supported. The mediation analysis indicates that satisfaction did not mediate the relationship between perception and environmentally responsible behavior (β = -0.019, $p > 0.05$), so **H4** was rejected.

The Comparison of Inter-Generation Analysis

Multi-Group analysis (MGA) was conducted to examine differences across generations. Generation Y represented the majority of the samples, whereas Generation X and Generation Z were represented by smaller subgroups. The findings are presented in

Doi: 10.47608/jki.v20i12026.205-230

Table 8 and should be interpreted cautiously. The analysis was evaluated using PLS-SEM with bootstrapping to compare path coefficients across groups. Due to a highly unbalanced sample distribution (Gen Y 74%, Gen Z 19%, and Gen X 6%), MGA results are treated as exploratory evidence rather than definitive evidence of generational differences, given unequal statistical power across groups.

First, ecotourism perception has no direct effect on ERB for Gen X (β = 0.143, p > 0.05), Gen Y (β = -0.019, p > 0.05), and Gen Z (β = 0.185, p > 0.05). Thus, **H6** was rejected. Second, the relationship between ecotourism perception and satisfaction revealed mixed results regarding H7. Ecotourism perception significantly predicts satisfaction for Gen X (β = 0.657, p < 0.01) and Gen Z (β = 0.584, p < 0.01) but not for Gen Y (β = 0.503, p > 0.05). Therefore, **H7** was supported only in certain generational cohorts. Third, H8 was not supported across all three generations, indicating satisfaction has no influence on ERB for Gen X (β = 0.218, p > 0.05), Gen Y (β = -0.038, p > 0.05), and Gen Z (β = 0.318, p > 0.05). Thus, **H8** was rejected. Fourth, generativity had a significant direct effect on ERB, particularly among Gen Y tourists (β = 0.455, p < 0.01), representing the only significant relationship among the generational groups. In contrast, the relationship was positive but non-significant for Gen X (β = 0.616, p > 0.05) and Gen Z (β = 0.130, p > 0.05). Hence, **H9** was supported only in certain generational cohorts. Finally, the mediating effect of satisfaction between ecotourism perception and ERB was not significant across all generations: Gen X (β = 0.143, p > 0.05), Gen Y (β = -0.019, p > 0.05), and Gen Z (β = 0.185, p > 0.05). Consequently, **H10** was rejected.

Table 8. The results of the multi-group analysis across generational cohorts

Age	Hypothesis	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics	P Values	Sig.
Gen X	H6: Ecotourism Perception → ERB	0.143	0.115	0.205	0.700	0.484	Not Supported
	H7: Ecotourism Perception → Satisfaction	0.657	0.683	0.250	2.630	0.009	**Supported**
	H8: Satisfaction → ERB	0.218	0.164	0.284	0.768	0.442	Not Supported
	H9: Generativity → ERB	0.616	0.565	0.413	1.493	0.136	Not Supported
	H10: Ecotourism Perception → Satisfaction → ERB	0.143	0.115	0.205	0.700	0.484	Not Supported
Gen Y	H6: Ecotourism Perception → ERB	-0.019	-0.007	0.045	0.432	0.665	Not Supported
	H7: Ecotourism Perception → Satisfaction	0.503	0.230	0.465	1.081	0.280	Not Supported
	H8: Satisfaction → ERB	-0.038	-0.008	0.089	0.428	0.668	Not Supported
	H9: Generativity → ERB	0.455	0.472	0.076	5.778	0.000	**Supported**
	H10: Ecotourism Perception → Satisfaction → ERB	-0.019	-0.007	0.045	0.432	0.665	Not Supported
Gen Z	H6: Ecotourism Perception → ERB	0.185	0.151	0.134	1.381	0.167	Not Supported
	H7: Ecotourism Perception → Satisfaction	0.584	0.598	0.089	6.549	0.000	**Supported**

H8: Satisfaction → ERB	0.318	0.245	0.214	1.481	0.139	Not Supported
H9: Generativity → ERB	0.130	0.303	0.153	0.852	0.394	Not Supported
H10: Ecotourism Perception → Satisfaction → ERB	0.185	0.151	0.134	1.381	0.167	Not Supported

Source: Data Processed, 2026

Discussion

The findings provide partial support for the cognitive-affective-behavior (CAB) framework in explaining tourists' environmentally responsible behavior in protected mountain areas. This result challenges the linear CAB mechanism, suggesting that cognitive-affective dimensions alone are insufficient to activate environmental behavior without internalized psychosocial motivation. Before interpreting the structural relationship, discriminant validity was assessed using HTMT. The close conceptual relationship between cognitive appraisals of ecological quality and affective responses may explain the relatively high HTMT value observed between these constructs (0.964) (Borthakur & Kondasani, 2026; Tseng et al., 2024). The moderate effect ($f^2 = 0.263$) and the high HTMT value between these constructs further confirm the substantive contribution and conceptual proximity, indicating that they remain conceptually related within nature-based tourism contexts within the CAB framework.

The result of H2, the significant positive relationship between ecotourism perception and satisfaction, supports the cognitive-affective mechanism proposed by the CAB framework. Tourists who positively appraise ecological attributes at BTSNP, including visitor management systems, zoning regulations, eco-friendly facilities, and Tengger indigenous-based tourism, tend to report higher satisfaction. This finding is consistent with previous studies showing that a positive cognitive evaluation of destination attributes enhances affect and overall tourist satisfaction (Borthakur & Kondasani, 2026; Simanjuntak & Fitri, 2024; H. Wang et al., 2025). In this national park, tourists who perceive the destination as well-managed and capable of delivering the benefits of a product or service, and whose overall value experienced (pre-, during, and post-consumption) meets or surpasses initial expectations (Borthakur & Kondasani, 2026).

Nevertheless, the non-significant direct effect of ecotourism perception on ERB (H1) and the non-significant effect of satisfaction on ERB (H3), with satisfaction showing a negligible effect size ($f^2 = 0.002$), reveal that the cognitive and affective aspects of destination experience, even when positively evaluated, are not independently sufficient to activate environmentally responsible behavior (ERB). This pattern suggests that translating environmental appraisals into behavioral responses requires activating psychological drivers such as moral obligation, personal norms, motivation, or place attachment (Cheng & Wu, 2015; Jayasekara et al., 2024; Juvan & Dolnicar, 2014) or a punishment approach (Raza et al., 2024). Such compliance with regulations and awareness of punishments embedded in pre-visit destination agreements encourage rule-following behavior but do not directly translate satisfaction into voluntary ERB. The mediating role of satisfaction (H4) aligns with findings from Kaziranga National Park in India, where satisfaction did not serve as a bridge between environmental inputs and tourists' responsibility for the environment (Borthakur & Kondasani, 2026). According to their findings, satisfaction does not encourage tourists' environmentally responsible behavior, as content tourists may view

Doi: 10.47608/jki.v20i12026.205-230

destinations as already fulfilling their expectations regarding the actual performance of the product or service (Bhatti & Alnasser, 2023; Borthakur & Kondasani, 2026). Furthermore, ancillary factors such as lack of service quality, leisure facilities, and the quality of the ecotourism program can trigger ERB by adding emotional value (Zhao & Weng, 2024). This indicates that a punishment approach is insufficient to encourage ERB without internal motivation (Chiu et al., 2014a).

The main empirical and theoretical contribution of this study is that generativity serves as a direct and parallel predictor of environmentally responsible behavior (ERB) within the CAB model (H5). Generative concern reflects a deeper psychosocial motivation that evolves throughout the adult lifespan (Alisat et al., 2014). H5 suggests that responsible behavior can be driven directly by internalized motivation without depending on cognitive stimuli or affective satisfaction. These findings reinforce previous studies in Xixi Wetland National Park in China, which show that generative concern encourages ERB among tourists (G. Wang et al., 2023). Tourists with stronger generative motivation may show greater concern for future generations as part of their legacy (G.-M. Wu et al., 2023). Generativity, as an internal factor, encourages voluntary environmental responsibility through interpersonal environmental intervention and environmentally conscious consumption. In the context of Bromo Tengger Semeru National Park, encouraging other tourists to engage with environmental regulations (e.g., selecting certified eco-lodges, minimizing single-use plastic during trekking, discouraging other visitors from littering, damaging protected vegetation, using jeeps, and igniting campfires outside the use zone) reflects collective orientation and helps build a positive environmental self-image. Furthermore, peer correction becomes a socially acceptable and low-cost stewardship practice, especially when tourists encounter situational constraints due to the lack of environmental infrastructure in BTSNP (Hutami et al., 2026). Nevertheless, these behavioral expressions can be strengthened by the participation of local communities that combine indigenous stewardship traditions and long-term conservation practices to support tourists' responsible behavior.

The intergenerational differences in the relationship between ecotourism perception and ERB were not significant. These intergenerational findings across H6, H8, and H10 suggest that these correlations are generated through psychological mechanisms that are relatively constant, aligning with previous studies establishing that the influence of ecotourism perception, satisfaction, and pro-environmental behavior may not consistently vary across age groups without motivational activation (Cheng & Wu, 2015; Ding & Schuett, 2020; J. Wu et al., 2022). The observed generational differences should be interpreted cautiously due to unbalanced subgroup sizes that may influence statistical power. H7; the relationship between ecotourism perception and satisfaction was significantly positive for Gen X and Gen Z, but not for Gen Y. The significant relationship pattern found in Gen Z aligns with their characterization, as their environmentally responsible behavior is socially and situationally influenced, driven by authentic experiences and environmental engagement (G.-M. Wu et al., 2023). Their satisfaction appears particularly when the ecological integrity and management quality of the destination, such as accommodation and attractions, meet their expectations (Ivasciuc et al., 2025; Liberato et al., 2019). Likewise, in Gen X, tourists represent an evaluative orientation of mature travelers, who tend to engage in responsible behavior driven by innate human values during travel experiences (F. X. Yang & Lau, 2015). While the non-

significant results for Gen Y may reflect greater heterogeneity (74%) and the use of snowball sampling, which tends to yield respondents with similar attitudes and perceptions, potentially reducing the variability of the relationship observed in the analysis.

For H9, the relationship between generativity and ERB was significant only for Gen Y, whereas it was not significant for Gen X and Gen Z. This result aligns with generative developmental studies, which explain that generativity arises during midlife, a period broadly associated with the majority of Gen Y respondents in this study (Einolf, 2014; Nelson & Bergeman, 2021). However, this finding should be interpreted cautiously, as the significance of the generativity-ERB relationship in Gen Y may be influenced by the much larger Gen Y subsample (74%) compared with Gen X (6%) and Gen Z (19%), thereby increasing statistical power (Hair Jr et al., 2017). At this stage, Gen Y reflects responsible action in community or organizational engagement, corresponding with their generative goals (Walia & Jasrotia, 2021).

The non-significant relationship between generativity and ERB among Gen Z travelers is also consistent with the developmental trajectory of generativity, which is generally lower in young adulthood (Einolf, 2014; Zacher et al., 2012). Among Gen Z travelers, generative concern is more often expressed through social participation, self-discovery, and experiential learning rather than through principled commitments (G.-M. Wu et al., 2023). However, this finding does not indicate the absence of environmental potential among Gen Z, as generativity can still be enhanced through mentoring and volunteer programs that encourage meaningful, future-oriented behavior (Hung et al., 2024; Nonaka et al., 2023; G. Wang et al., 2023).

Although Gen X showed a relatively large path coefficient, the result remained non-significant due to the small subgroup size rather than a lack of a meaningful relationship (Hair Jr et al., 2017). On the other hand, the non-significant results for H10 across generations suggest that the limitation of the CAB model is consistent across all cohorts. Overall, the intergenerational findings indicate that generational differences mainly influence the extent to which generativity activates ERB, rather than altering the CAB framework itself.

CONCLUSION

This study investigates environmentally responsible behavior among tourists at Bromo Tengger Semeru National Park using the cognitive-affective-behavior (CAB) framework. In this model, ecotourism perception and satisfaction reflect the cognitive and affective dimensions, whereas generativity serves as a parallel and direct predictor of environmentally responsible behavior (ERB), reflecting motivation for psychosocial development. This study also explores intergenerational differences. Three main conclusions are drawn from the findings: First, ecotourism perception significantly enhances tourist satisfaction, confirming the cognitive-affective mechanism of the CAB framework in rural mountain protected areas. However, neither ecotourism perception nor satisfaction directly influences ERB, and satisfaction does not mediate the relationship, indicating that positive experiences alone are insufficient to encourage responsible behavior. Second, generativity appears to be the most influential predictor of ERB in the model. Tourists with stronger generative concern tend to engage in ERB regardless of their cognitive or affective responses to the destination. This finding emphasizes the need to

Doi: 10.47608/jki.v20i12026.205-230

extend the CAB framework by integrating generativity as a psychosocial driver of ERB, with the relationship significant only among generation Y tourists. Third, generational cohorts show different relational patterns. The generativity-ERB relationship is significant only in generation Y, whereas the ecotourism perception-satisfaction relationship is significant among generation X and generation Z, reflecting distinct evaluative responses to destination quality. On the other hand, the overall CAB relationship pathway appears consistent across all cohorts, suggesting that the limited role of satisfaction in influencing ERB occurs across all cohorts rather than in specific generations. In conclusion, these findings offer important insights into the psychological and generational factors of environmentally responsible behavior in protected mountain areas.

Suggestion and Implications

Theoretical Contribution

This study contributes to tourism theory by extending the Cognitive-Affective-Behavior (CAB) Model to integrate generativity as a psychosocial predictor of ERB in rural mountain protected areas. It specifically examines how cognitive appraisals related to ecotourism and affective responses, such as satisfaction, do not necessarily lead to responsible practices, even when ecotourism is positively perceived and satisfaction is high. These findings confirm that the process linking cognition and affective response to behavior requires a psychological factor known as generativity. Generativity posits an external, intergenerational mechanism that influences behavior beyond the CAB Model. The role of generativity can foster environmental actions without passing through cognition or affect. Moreover, by integrating psychological and intergenerational perspectives, this study contributes to rural studies by explaining how sustainable conservation management depends on the intergenerational transmission of stewardship values.

Policy Recommendations

The findings indicate that ecotourism policies should integrate age-sensitive strategies to strengthen generativity across tourist segments and support rural communities' initiatives. In this context, policymakers should incorporate intergenerational stewardship principles into conservation and visitor management policies. For example, BTSNP Management could develop communication programs within a "Bromo for Future Generations" framework that emphasizes mountain ecosystems, biodiversity preservation, and natural landscapes.

Practical Implications

Responsible behavior can be encouraged through pro-environmental actions. Positive attitudes and subjective norms are shaped by individual perceptions (Raman et al., 2024). In rural protected areas, to translate ecotourism perceptions into tourist satisfaction, destination managers and policymakers should ensure that ecotourism services and infrastructure are committed to sustainability by encouraging eco-certification of local tourism businesses, providing transparent information on conservation practices, improving green services, and demonstrating long-term ecological and community well-being.

Thus, destination managers, in collaboration with local stakeholders, should prioritize implementing eco-friendly services and infrastructure, such as accessible waste disposal bins, designated recycling points, and an eco-lodge with an ambiance rooted in local wisdom. Enhancing experiential learning through age-sensitive design is also essential, and this can be achieved by training tour guides and park rangers to educate visitors through interactive conservation workshops and to monitor tourist behavior during visits. Regular monitoring of vegetation and waste is important to ensure that tourist behavior does not damage the landscape. Involving rural communities, particularly the Tengger tribes, is valuable for preserving cultural traditions and local wisdom that align with conservation objectives.

Beyond infrastructure, increasing generativity among tourists is crucial in rural protected areas, where sustainability depends on intergenerational continuity. Destination Management Organizations (DMOs) can foster tourists' future concern and environmental responsibility by using online media that visualize the long-term impacts of unsustainable behavior on future generations and by developing programs such as intergenerational learning through Tengger indigenous knowledge experiences, tree planting, eco-volunteering camps, citizen science activities, and incentives for sustainable choices.

Rather than focusing solely on marketing, DMOs should also serve as a coordinating governance platform. DMOs should manage visitor flows, allocate conservation funding transparently, and support equitable benefit-sharing mechanisms with rural communities. The existing online ticketing platform (bromotenggersemeru.com) could be expanded into a digital Destination Management System (DMS) to coordinate stakeholder activities under DMOs, promote environmental literacy, manage visitor analytics, and channel tourism revenue into ecological restoration and rural community development. Moreover, integrating a carbon footprint calculator into the existing online booking system can help raise tourists' awareness of the environmental impact of their travel choices, encouraging more responsible behavior by converting carbon emissions into tree-planting donations.

Sustainable visitor experiences should connect future-oriented environmental concerns with cultural traditions and smart technologies. For example, virtual tours and 360° videos can present interpretive information about BTSNP's natural environment and ecological resources. Digital platforms and social media can also share success stories and local initiatives (e.g., viral campaigns for cleanup or tree planting), especially to engage younger generations, including Gen Z.

Limitations of the Study and Future Research

This study has limitations that should be noted. First, the imbalance in generational distribution, with most respondents being Gen Y, combined with the use of online snowball sampling, may have introduced both statistical and representational limitations. The smaller groups, particularly Gen X, had reduced statistical power, while the sampling approach may have introduced bias due to similarities in respondents' social networks, limiting the statistical comparability, generalizability, and external validity of the findings. Future studies should apply stratified or quota sampling with a priori power analysis to ensure balanced subgroup representation and improve representativeness.

Second, the cross-sectional model limits the ability to capture behavioral changes over time. Longitudinal studies are encouraged to investigate how generativity and ERB

Doi: 10.47608/jki.v20i12026.205-230

develop across life stages and tourism experiences. Third, the relatively high HTMT value between ecotourism perception and satisfaction indicates potential construct overlap, suggesting the need for indicator refinement and confirmatory factor analysis in future research to improve discriminant validity. Fourth, the SRMR value of 0.104 slightly exceeded the recommended strict threshold, indicating marginal model fit. Future research should improve model specification and validate the framework using alternative samples and tourism settings.

Beyond methodological refinements, future studies should also develop theoretically grounded hypotheses about intergenerational differences in generativity across cohorts. Moreover, alternative mediators, such as emotional value, destination attachment, and environmental concern, should be explored to better explain the influence of ecotourism perception on ERB when satisfaction is insufficient as a mediator. Finally, investigating generativity as a mediating or moderating variable within the extended CAB Model across broader ecotourism contexts, including coastal, marine, and community-based tourism or halal tourism, is also encouraged.

ACKNOWLEDGEMENT

The authors gratefully acknowledge Balai Besar Taman Nasional Bromo Tengger Semeru for granting permission to conduct research within the park. This research was financially supported by Universitas Terbuka, which provided the necessary funding for the project. All individuals acknowledged have consented to be mentioned in this publication.

REFERENCES

Afridi, S. A., Khan, W., Haider, M., Shahjehan, A., & Afsar, B. (2021). Generativity and Green Purchasing Behavior: Moderating Role of Man-Nature Orientation and Perceived Behavioral Control. *Sage Open*, *11*(4), 344–357. https://doi.org/10.1177/21582440211054480

Alisat, S., Norris, J. E., Pratt, M. W., Matsuba, M. K., & McAdams, D. P. (2014). Caring for the Earth: Generativity as a Mediator for the Prediction of Environmental Narratives from Identity Among Activists and Nonactivists. *Identity*, *14*(3), 177–194. https://doi.org/10.1080/15283488.2014.921172

ANTARA. (2023, September 15). Kerusakan akibat karhutla di kawasan Bromo capai 504 hektare. *Suara Surabaya*. https://www.suarasurabaya.net/kelanakota/2023/kerusakan-akibat-karhutla-di-kawasan-bromo-capai-504-hektare/

Antara News. (2024, February 5). Kunjungan wisatawan ke Bromo pada 2023 capai 368.507 orang. https://www.antaranews.com/berita/3930348/kunjungan-wisatawan-ke-bromo-pada-2023-capai-368507-orang

Askar, H. (2023). *Penilaian Status Keberlanjutan Ekowisata Mangrove (Studi Kasus Ekowisata Mangrove Idaman Desa Balang Baru Kecamatan Tarowang Kabupaten Jeneponto)*. Universitas Hasanuddin.

Benitez, J., Henseler, J., Castillo, A., & Schuberth, F. (2020). How to perform and report an impactful analysis using partial least squares: Guidelines for confirmatory and explanatory IS research. *Information & Management*, *57*(2), 103168. https://doi.org/10.1016/j.im.2019.05.003

Bhatti, M. A., & Alnasser, E. M. (2023). *An investigation into the factors of tourists' environmentally responsible behaviour*. https://doi.org/https://hdl.handle.net/10355/98577

Borthakur, M., & Kondasani, R. K. R. (2026). Responsible tourist behavior in ecotourism: the roles

of value, satisfaction and intention. *Leisure/Loisir*, *50*(2), 413–436. https://doi.org/10.1080/14927713.2024.2410177

Carvalho Veras, J., Freitas da Costa, M., de Oliveira Campos, P., & Brito da Silva, G. (2023). Generativity, environmental activism, and pride: Antecedents of intention to buy organic food. *Journal of Cleaner Production*, *418*, 138114. https://doi.org/10.1016/j.jclepro.2023.138114

Cheng, T.-M., & Wu, H. C. (2015). How do environmental knowledge, environmental sensitivity, and place attachment affect environmentally responsible behavior? An integrated approach for sustainable island tourism. *Journal of Sustainable Tourism*, *23*(4), 557–576. https://doi.org/10.1080/09669582.2014.965177

Chiu, Y.-T. H., Lee, W.-I., & Chen, T.-H. (2014a). Environmentally responsible behavior in ecotourism: Antecedents and implications. *Tourism Management*, *40*, 321–329. https://doi.org/10.1016/j.tourman.2013.06.013

Chiu, Y.-T. H., Lee, W.-I., & Chen, T.-H. (2014b). Environmentally Responsible Behavior in Ecotourism: Exploring the Role of Destination Image and Value Perception. *Asia Pacific Journal of Tourism Research*, *19*(8), 876–889. https://doi.org/10.1080/10941665.2013.818048

Cohen, J. (2013). *Statistical Power Analysis for the Behavioral Sciences*. Routledge. https://doi.org/10.4324/9780203771587

Ding, C., & Schuett, M. A. (2020). Predicting the Commitment of Volunteers' Environmental Stewardship: Does Generativity Play a Role? *Sustainability*, *12*(17), 6802. https://doi.org/10.3390/su12176802

Einolf, C. J. (2014). Stability and change in generative concern: Evidence from a longitudinal survey. *Journal of Research in Personality*, *51*, 54–61. https://doi.org/10.1016/j.jrp.2014.04.003

Grandis, D., Hadi, N., & Meiji, N. H. P. (2023). Peran Taman Nasional Bromo Tengger Semeru (TNBTS) Resort Wonokitri dalam pengelolaan ekowisata Edelweiss Park Desa Wonokitri Kecamatan Tosari Kabupaten Pasuruan. *Jurnal Integrasi Dan Harmoni Inovatif Ilmu-Ilmu Sosial (JIHI3S)*, *3*(5), 549–558. https://doi.org/10.17977/um063v3i5p549-558

Guiao, B. G. M., & Lacap, J. P. G. (2022). Effects of Environmental Sustainability Awareness and Altruism on Green Purchase Intention and Brand Evangelism. *Asian Journal of Business Research*, *12*(3). https://doi.org/10.14707/ajbr.220134

Hadiwijoyo, E. (2023). Pola Kebakaran Hutan di Areal Konservasi Studi Kasus di Taman Nasional Bromo Tengger Semeru. *Journal of Tropical Silviculture*, *14*(02), 114–118. https://doi.org/10.29244/j-siltrop.14.02.114-118

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2022). *A Primer on partial least squares structural equation modeling (PLS-SEM): 3rd Ed.* Sage Publications Sage CA: Thousand Oaks, CA.

Hair Jr, J. F., Black, W. C., Barr y J. Babin, & Rolph E. Anderson. (2019). *Multivariate Data Analysis: 8th Edition*. Cengage Learning EMEA.

Hair Jr, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2017). *A primer on partial least squares structural equation modeling (PLS-SEM)*. Sage publications.

Haliim, W. (2018). Dinamika Implementasi Kebijakan Konservasi Lahan Taman Nasional Bromo Tengger Semeru. *Jurnal Borneo Administrator*, *14*(1), 53–68. https://doi.org/10.24258/jba.v14i1.327

He, X., Hu, D., Swanson, S. R., Su, L., & Chen, X. (2018). Destination perceptions, relationship quality, and tourist environmentally responsible behavior. *Tourism Management Perspectives*, *28*, 93–104. https://doi.org/10.1016/j.tmp.2018.08.001

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of*

Doi: 10.47608/jki.v20i12026.205-230

Marketing Science, *43*(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8

Hu, H., Zhang, J., Wang, C., Yu, P., & Chu, G. (2019). What influences tourists' intention to participate in the Zero Litter Initiative in mountainous tourism areas: A case study of Huangshan National Park, China. *Science of The Total Environment*, *657*, 1127–1137. https://doi.org/10.1016/j.scitotenv.2018.12.114

Hung, N., Chen, Y.-C., Choy Yung, R. M. P., Kwan, M. S. M., To, A. K. Y., Fung, E. S. M., & Chan, C. L. W. (2024). Generativity in Later-Life: The Interplay Between Retirement Status and Human, Social, and Financial Capital. *Journal of Gerontological Social Work*, *67*(1), 35–54. https://doi.org/10.1080/01634372.2023.2212730

Hutami, N. U., Faisyal, F., Humaera, R., & Hantanty, I. N. T. (2026). From Sunrise Seekers to Village Experience Seekers: A Two Step Clustering Segmentation in Bromo Tengger Semeru National Park. *Tamasya : Jurnal Pariwisata Indonesia*, *3*(1), 20–37. https://doi.org/10.62383/tamasya.v3i1.983

Ivasciuc, I.-S., Sequeira, A., Brown, L., Ispas, A., & Peyré, O. (2025). Digital Natives on the Move: Cross-Cultural Insights into Generation Z's Travel Preferences. *Sustainability*, *17*(14), 6601. https://doi.org/10.3390/su17146601

Jayasekara, K. D. D. S., Rajapaksa, D., & Gunawardena, U. A. D. P. (2024). Impacts of Environmental Knowledge, Motives, and Behavior on Ecotourism. *Sustainability*, *16*(11), 4724. https://doi.org/10.3390/su16114724

Jiang, J., Gao, B. W., & Su, X. (2022). Antecedents of Tourists' Environmentally Responsible Behavior: The Perspective of Awe. *Frontiers in Psychology*, *13*, 619815. https://doi.org/10.3389/fpsyg.2022.619815

Jieyao, Z., Kumar, J., & Rasoolimanesh, S. M. (2025). Pro-environmental behavioural intention towards ecotourism: integration of the theory of planned behaviour and theory of interpersonal behaviour. *Journal of Ecotourism*, 1–38. https://doi.org/10.1080/14724049.2025.2509648

Juvan, E., & Dolnicar, S. (2014). The attitude–behaviour gap in sustainable tourism. *Annals of Tourism Research*, *48*, 76–95. https://doi.org/10.1016/j.annals.2014.05.012

Korlat, S., Ristl, C., & Nikitin, J. (2024). Generativity across adulthood: how nature exposure and future time perspective shape motivation for social and ecological engagement. *Australian Journal of Psychology*, *76*(1), 2428306. https://doi.org/10.1080/00049530.2024.2428306

Kruse, A., & Schmitt, E. (2012). Generativity as a Route to Active Ageing. *Current Gerontology and Geriatrics Research*, *2012*, 1–9. https://doi.org/10.1155/2012/647650

Liberato, P., Aires, C., Liberato, D., & Rocha, Á. (2019). *Generation Z and the Technology Use During a Trip* (pp. 77–90). https://doi.org/10.1007/978-3-030-16181-1_8

Liu, J., Li, J., Jang, S. S., & Zhao, Y. (2022). Understanding tourists' environmentally responsible behavior at coastal tourism destinations. *Marine Policy*, *143*, 105178.

Liu, J., Zhao, Y., & Jang, S. (2021). Understanding beach tourists' environmentally responsible behaviors: An extended value-attitude-behavior model. *Journal of Travel & Tourism Marketing*, *38*(7), 696–709.

M. Wiernik, B., S. Ones, D., & Dilchert, S. (2013). Age and environmental sustainability: a meta-analysis. *Journal of Managerial Psychology*, *28*(7/8), 826–856. https://doi.org/10.1108/JMP-07-2013-0221

Memon, M. A., Ting, H., Ramayah, T., Chuah, F., & Cheah, J.-H. (2017). A Review f The Methodological Misconceptions and Guidelines Related to The Application of Structural Equation Modeling: A Malaysian Scenario. *Journal of Applied Structural Equation Modeling*, *1*(1), i–xiii. https://doi.org/10.47263/JASEM.1(1)01

Mitra, A., & Tripathy, A. (2025). Balancing Mountain Tourism, Cultural Heritage, and Environmental Stability. In M. Valeri, A. Singh, P. K. Tyagi, & A. K. Haghi (Eds.), *Balancing Mountain Tourism, Cultural Heritage, and Environmental Stability*. IGI Global.

https://doi.org/10.4018/979-8-3693-8764-1

Munabi, I. G., & Buwembo, W. (2020). Partial Least Squares Structural Equation Path Modelling Determined Predictors of Students Reported Human Cadaver Dissection Activity. *Forensic Medicine and Anatomy Research*, *08*(02), 18–37. https://doi.org/10.4236/fmar.2020.82003

Nelson, N. A., & Bergeman, C. S. (2021). Development of Generative Concern Across Mid- to Later Life. *The Gerontologist*, *61*(3), 430–438. https://doi.org/10.1093/geront/gnaa115

Nonaka, K., Murayama, H., Murayama, Y., Murayama, S., Kuraoka, M., Nemoto, Y., Kobayashi, E., & Fujiwara, Y. (2023). The Impact of Generativity on Maintaining Higher-Level Functional Capacity of Older Adults: A Longitudinal Study in Japan. *International Journal of Environmental Research and Public Health*, *20*(11), 6015. https://doi.org/10.3390/ijerph20116015

Nurdiani, N. (2014). Teknik Sampling Snowball dalam Penelitian Lapangan. *ComTech: Computer, Mathematics and Engineering Applications*, *5*(2), 1110. https://doi.org/10.21512/comtech.v5i2.2427

Pan, Y., Luo, J. M., & Xu, J. (2022). How generativity affects organic dining intention: Case study of Shanghai. *Frontiers in Psychology*, *13*, 1012550. https://doi.org/10.3389/fpsyg.2022.1012550

Purnomo, P., Oktaviani, A. I., & Nugroho, I. (2018). The Sacred Site: The Conservation Based on The Local People in Tengger Community and Its Potential as Ecotourism Activities. *Journal of Socioeconomics and Development*, *1*(1). https://doi.org/10.31328/jsed.v1i1.517

Qin, Q., & Hsu, C. H. C. (2022). Urban travelers' pro-environmental behaviors: Composition and role of pro-environmental contextual force. *Tourism Management*, *92*, 104561. https://doi.org/10.1016/j.tourman.2022.104561

Rahmi, N. S., Darmanto, Alfianti, D., Pradita, H. A., Akhiroh, P., & Salamah, S. N. (2024). Tourism resilience post pandemic social, economic and health risks in Bromo Tengger Semeru National Park: Structural model approach. *AIP Conference Proceedings*, *3047*(1), 020001. https://doi.org/10.1063/5.0195352

Raman, R., Das, P., Mandal, S., Vijayan, V., AR, A., & Nedungadi, P. (2024). The impact of Gen Z's pro-environmental behavior on sustainable development goals through tree planting. *Sustainable Futures*, *8*, 100251. https://doi.org/10.1016/j.sftr.2024.100251

Raza, S. A., Khan, K. A., & Qamar, B. (2024). Understanding the influence of environmental triggers on tourists' pro-environmental behaviors in the Pakistan's tourism industry. *Journal of Tourism Futures*, *10*(1), 38–67. https://doi.org/10.1108/JTF-12-2021-0269

Reinilä, E., Saajanaho, M., Fadjukoff, P., Törmäkangas, T., & Kokko, K. (2023). The Development of Generativity in Middle Adulthood and the Beginning of Late Adulthood: A Longitudinal Study from Age 42 to 61. *Journal of Adult Development*, *30*(3), 291–304. https://doi.org/10.1007/s10804-022-09436-1

Ren, L., Li, J., Li, C., & Dang, P. (2021). Can ecotourism contribute to ecosystem? Evidence from local residents' ecological behaviors. *Science of The Total Environment*, *757*, 143814. https://doi.org/10.1016/j.scitotenv.2020.143814

Roemer, E., Schuberth, F., & Henseler, J. (2021). HTMT2–an improved criterion for assessing discriminant validity in structural equation modeling. *Industrial Management & Data Systems*, *121*(12), 2637–2650. https://doi.org/10.1108/IMDS-02-2021-0082

Satrya, I. D. G., Kaihatu, T. S., & Budidharmanto, L. P. (2023). Millennial Experience Traveling to Ecotourism. *Ilomata International Journal of Social Science*, *4*(2), 303–312. https://doi.org/10.52728/ijss.v4i2.750

Sethy, M. K., & Senapati, A. K. (2023). Perceptions towards ecotourism practice and the willingness to pay: Evidence from Chilika coastal wetland ecosystem, Odisha. *International Journal of Geoheritage and Parks*, *11*(3), 497–513. https://doi.org/10.1016/j.ijgeop.2023.08.001

Shiel, C., Paço, A. do, & Alves, H. (2020). Generativity, sustainable development and green

Doi: 10.47608/jki.v20i12026.205-230

consumer behaviour. *Journal of Cleaner Production*, *245*, 118865. https://doi.org/0.1016/j.jclepro.2019.118865

Simanjuntak, M., & Fitri, I. (2024). Green Consumption: Behavior of Young Indonesian Consumers — Role of Environmental Knowledge, Responsibility, and Attitudes. *Pertanika Journal of Social Sciences and Humanities*, *32*(3), 1141–1164. https://doi.org/10.47836/pjssh.32.3.16

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

Soeroso, A. (2022). *Ekowisata*. Tangerang Selatan: Universitas Terbuka, ISBN:978-623-312-134-7

Tedjakusuma, A. P., & Kulachai, W. (2026). ChatGPT as a Real-Time Travel Companion: During-Trip Support and Tourist Satisfaction. *Tourism and Hospitality*, *7*(1), 20. https://doi.org/10.3390/tourhosp7010020

Timilsina, R. R., Kotani, K., & Kamijo, Y. (2019). Generativity and social value orientation between rural and urban societies in a developing country. *Futures*, *105*, 124–132. https://doi.org/10.1016/j.futures.2018.09.003

Tseng, Y.-H., Ku, C.-M., Huang, W.-S., Huang, C.-C., Wu, H. C., & Hsieh, C.-M. (2024). Determinants of Forest Recreation Visitors' Environmentally Responsible Behavior: The Moderating Role of Family Structure. *Forests*, *15*(11), 1840. https://doi.org/10.3390/f15111840

Villar, F., Lawford, H. L., & Pratt, M. W. (Eds.). (2024). *The Development of Generativity across Adulthood*. Oxford University PressOxford. https://doi.org/10.1093/9780191966309.001.0001

Villodre, M., Arnaiz-Schmitz, C., & Schmitz, M. F. (2023). Landscape conservation in the natural-rural interface. A social-ecological approach in Natural Parks of Andalusia (Spain). *Landscape Ecology*, *38*(12), 3517–3535. https://doi.org/10.1007/s10980-023-01699-7

Walia, S. K., & Jasrotia, A. (2021). Imminent future of Millennial generations. In *Millennials, Spirituality and Tourism* (pp. 268–275). Routledge. https://doi.org/10.4324/9781003170631-20

Wang, C., Zhang, J., Yu, P., & Hu, H. (2018). The theory of planned behavior as a model for understanding tourists' responsible environmental behaviors: The moderating role of environmental interpretations. *Journal of Cleaner Production*, *194*, 425–434. https://doi.org/10.1016/j.jclepro.2018.05.171

Wang, G., Yao, Y., Ren, L., Zhang, S., & Zhu, M. (2023). Examining the role of generativity on tourists' environmentally responsible behavior: An inter-generational comparison. *Journal of Hospitality and Tourism Management*, *57*, 303–314. https://doi.org/10.1016/j.jhtm.2023.10.008

Wang, H., Tong, Y., & Zeng, H. (2025). Driving tourists' pro-environmental behaviour through heritage interpretation messages. *Npj Heritage Science*, *13*(1), 182. https://doi.org/10.1038/s40494-025-01731-w

Wang, J., Wang, S., Wang, H., Zhang, Z., & Ru, X. (2021). Examining when and how perceived sustainability-related climate influences pro-environmental behaviors of tourism destination residents in China. *Journal of Hospitality and Tourism Management*, *48*, 357–367. https://doi.org/10.1016/j.jhtm.2021.07.008

Wang, Y., Zhao, R., Yan, Z., Wang, M., Pan, Y., & Wu, R. (2023). A comparative study of environmental responsibility behavior in ecotourism from the perceptions of residents and tourists: A case of Qilian Mountains National Park in China. *PLOS ONE*, *18*(2), e0281119. https://doi.org/10.1371/journal.pone.0281119

Wells, V. K., Taheri, B., Gregory-Smith, D., & Manika, D. (2016). The role of generativity and attitudes on employees home and workplace water and energy saving behaviours. *Tourism Management*, *56*, 63–74. https://doi.org/10.1016/j.tourman.2016.03.027

Wibowo, J. M. (2021). Competitiveness of Sustainable Ecotourism at The Bromo Tengger Semeru National Park. *Jurnal Penelitian Sosial Dan Ekonomi Kehutanan*, *18*(1), 45–62. https://doi.org/10.20886/jpsek.2021.18.1.45-62

Wiratno, Hutahayan, B., & Fernandes, A. A. R. (2024). Enhancing Sustainable Build Environments through Ecotourism Villages in Mount Bromo Tengger Semeru National Park, Indonesia. In *Rethinking Pathways to a Sustainable Built Environment* (pp. 361–378). Routledge. https://doi.org/10.1201/9781003317890-22

Wu, G.-M., Chen, S.-R., & Xu, Y.-H. (2023). Generativity and inheritance: understanding Generation Z's intention to participate in cultural heritage tourism. *Journal of Heritage Tourism*, *18*(4), 465–482. https://doi.org/10.1080/1743873X.2023.2178927

Wu, J. (Snow), Font, X., & Liu, J. (2021). Tourists' Pro-environmental Behaviors: Moral Obligation or Disengagement? *Journal of Travel Research*, *60*(4), 735–748. https://doi.org/10.1177/0047287520910787

Wu, J., Wu, H. C., Hsieh, C.-M., & Ramkissoon, H. (2022). Face consciousness, personal norms, and environmentally responsible behavior of Chinese tourists: Evidence from a lake tourism site. *Journal of Hospitality and Tourism Management*, *50*, 148–158. https://doi.org/10.1016/j.jhtm.2022.01.010

Wu, X., & Yuan, Z. (2023). Understanding the socio-cultural resilience of rural areas through the intergenerational relationship in transitional China: Case studies from Guangdong. *Journal of Rural Studies*, *97*, 303–313. https://doi.org/10.1016/j.jrurstud.2022.12.001

Xiaoqin, W., & Zhanhong, C. (2025). Influence of Ecotourism Experience on Tourists' Environmentally Responsible Behavior: A Case Study of Luya Mountain Scenic Area. *Journal of Resources and Ecology*, *16*(2), 558–568. https://doi.org/10.5814/j.issn.1674-764x.2025.02.023

Yan, Y., Wang, X., Tse, S., & Wang, L. (2024). Connecting Environmental Perception, Awe, Face Consciousness, and Environmentally Responsible Behaviors: A Mediated-Moderated Analysis. *Behavioral Sciences*, *14*(7), 540. https://doi.org/10.3390/bs14070540

Yang, F. X., & Lau, V. M. C. (2015). "LuXurY" hotel loyalty – a comparison of Chinese Gen X and Y tourists to Macau. *International Journal of Contemporary Hospitality Management*, *27*(7), 1685–1706. https://doi.org/10.1108/IJCHM-06-2014-0275

Yang, L., Hu, X., Lee, H. M., & Zhang, Y. (2023). The Impacts of Ecotourists' Perceived Authenticity and Perceived Values on Their Behaviors: Evidence from Huangshan World Natural and Cultural Heritage Site. *Sustainability*, *15*(2), 1551. https://doi.org/10.3390/su15021551

Ye, W., Li, Z., & Xu, Y. (2022). Transmission of environmentally responsible behavior between tourist destination employees and tourists: The role of moral elevation and environmental knowledge. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.1027736

Zacher, H., SCHMITT, A., & GIELNIK, M. M. (2012). Stepping into my shoes: generativity as a mediator of the relationship between business owners' age and family succession. *Ageing and Society*, *32*(4), 673–696. https://doi.org/10.1017/S0144686X11000547

Zhao, J., & Weng, L. (2024). The Impact of Tourists' Perceived Value on Environmentally Responsible Behavior in an Urban Forest Park: The Mediating Effects of Satisfaction and Subjective Well-Being. *Forests*, *15*(10), 1730. https://doi.org/10.3390/f15101730

Doi: 10.47608/jki.v20i12026.205-230

AUTHOR PROFILE

Novita Uki Hutami, S.Pd., M.M
https://orcid.org/0009-0008-2999-0278. She is a tourism lecturer and researcher at Universitas Terbuka, Indonesia. Holding a Master's Degree in Management, the main research interests include ecotourism, rural tourism, tourist's behavior, community-based halal tourism, and women's empowerment.
Email: novita.uki.hutami@ecampus.ut.ac.id

Yulita Suryantari, M.M
https://orcid.org/0009-0003-7246-7590. She is a lecturer and researcher in tourism studies at Universitas Terbuka, Indonesia with a Master's Degree of Management. Research interests focus on wellness & sustainable tourism, hospitality & tourism management, inclusive tourism, community-based & environmental tourism.
Email: yulitasuryantari@ecampus.ut.ac.id

Imam Nur Hakim, S.Sn., M.M
https://orcid.org/0000-0001-5230-5015. He is a researcher at Research Centre for Economics of Industry, Services, and Trade, National Research and Innovation Agency (BRIN), Indonesia. He holds a Master's degree in Management, with research interests focusing on tourism management, tourism communication and marketing, and tourist behavior.
Email: imam.nur.hakim@brin.go.id

Dr. Feti Fatimatuzzahroh, S.S., M.IL
https://orcid.org/0000-0003-2345-0955. She is a lecturer and researcher at Universitas Terbuka, Indonesia with a doctorate degree in environmental science, whose research interests include community development, mangrove rehabilitation, and community-based mangrove management.
Email: feti.fatimatuzzahroh@ecampus.ut.ac.id

Jurnal Kepariwisataan Indonesia
Volume 20 Issue 1 2026 page 189-214

Doi: 10.47608/jki.v20i12026.205-230