



THE ABILITY-PARTICIPATION PARADOX IN GREEN TOURISM: AN SOR-BASED STUDY OF TOURIST PARTICIPATION IN HA GIANG, VIETNAM

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Abstract

Green tourism has become an important pathway for promoting sustainable destination development, yet tourists' actual participation in green tourism practices remains uneven. Existing studies have mainly explained sustainable tourist behavior through environmental awareness, attitudes, and intentions, but less attention has been paid to how external opportunities and tourists' engagement ability jointly shape participation. Drawing on the Stimulus-Organism-Response (SOR) framework, this study examines how green tourism opportunities, engagement ability, perceived green tourism, and motivation influence tourists' participation in green tourism. Data were collected from 522 domestic tourists in Ha Giang, Vietnam, an emerging mountainous destination with strong potential for green tourism development. PLS-SEM was used to assess the measurement and structural models. The findings show that perceived green tourism positively influences both motivation and participation, while motivation is the strongest direct predictor of participation. Green tourism opportunities significantly enhance motivation and participation, but do not significantly affect perceived green tourism, suggesting that opportunities mainly function as motivational and behavioral enablers rather than perception-changing stimuli. Engagement ability strongly increases perceived green tourism, but does not significantly affect motivation and has a significant negative effect on participation. This counterintuitive result suggests that more capable tourists may become more critical when green tourism practices appear inconvenient, superficial, or poorly implemented. The study contributes to green tourism literature by extending SOR theory, clarifying the perception-motivation-participation mechanism, and revealing the paradoxical role of engagement ability in emerging green destinations.

Keywords: green tourism, SOR theory, tourist behavior, engagement ability, green perception, green tourism opportunities.

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INTRODUCTION

Green tourism has become an important pathway for reducing the environmental costs of tourism while supporting more responsible forms of destination development (Ezeh & Dube, 2025; Xuan et al., 2024). As tourists increasingly encounter ecological degradation, climate-related risks, and sustainability campaigns, their participation in green tourism practices has become a central concern for both researchers and destination managers (Han et al., 2024; Vicente, 2024; Zhang et al., 2024). Recent studies show that sustainable tourist behavior is shaped by environmental concern, perceived effectiveness, green value, personal norms, motivation, and contextual opportunities ((Brian) Lin et al., 2022; Han, 2021; Li et al., 2024; Passafaro, 2020; Wut et al., 2023). However, despite this growing literature, an important question remains insufficiently explained: why do tourists who recognize the importance of green tourism not always participate in green tourism practices?

Prior research has largely examined green or pro-environmental tourist behavior through established frameworks such as the Theory of Planned Behavior (TPB), the Norm Activation Model (NAM), the Value-Attitude-Behavior (VAB) framework, and the Stimulus-Organism-Response (SOR) model (Hansen et al., 2024; He et al., 2023; Nguyen et al., 2024; Tang et al., 2022). These studies have clarified the roles of attitudes, norms, environmental awareness, and perceived behavioral control. Yet, they often underemphasize how tourists' engagement ability (AB) and available opportunities (OP) jointly shape the movement from perception and motivation to actual participation. This omission is important because tourists may support green tourism in principle but still fail to participate when green options are unclear, inconvenient, costly, weakly implemented, or disconnected from meaningful experiences (Li et al., 2024; MacInnes et al., 2022; Wut et al., 2023).

To address this gap, this study investigates tourists' participation in green tourism in Ha Giang, Vietnam, an emerging mountainous destination where natural and cultural assets create strong potential for green tourism but also raise concerns about sustainability management. Drawing on the SOR framework, the study examines how perceived green tourism (PE), motivation (MO), engagement ability (AB), and opportunities (OP) influence participation (PA) among 522 domestic tourists.

This study contributes to the literature in three ways. First, it extends SOR theory by integrating both external opportunities and internal enabling ability. Second, it clarifies the mechanism through which PE, MO, OP, and AB shape PA. Third, it reveals a counterintuitive finding: AB strengthens PE but may reduce PA, suggesting that capable tourists can become more critical when green tourism practices lack credibility or accessibility.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

This study adopts the Stimulus-Organism-Response (SOR) framework to explain tourists' participation in green tourism (Qiu et al., 2023). Within this logic, green tourism opportunities (OP) represent external stimuli, tourists' perceived green tourism (PE), engagement ability (AB), and motivation (MO) represent organismic conditions, and participation (PA) is the behavioral response. The SOR model is useful because sustainable tourist behavior is rarely driven by a single factor; rather, it emerges from the interaction between environmental perception, contextual cues, motivation, ability, norms, and perceived control ((Brian) Lin et al., 2022; Han, 2021; Li et al., 2024; Tang et al., 2022; Wut et al., 2023).

Perceived green tourism (PE) refers to the extent to which tourists recognize and internalize the ecological, cultural, and social value of green tourism (Han et al., 2024; Khairy et al., 2023). Prior studies show that environmental concern, awareness, green value, perceived effectiveness, and sustainability perception are key antecedents of pro-environmental tourist behavior ((Brian) Lin et al., 2022; Han, 2021; Ibnou-Laaroussi et al., 2020; Passafaro, 2020). From the Value-Belief-Norm (VBN) perspective, tourists with stronger environmental values are more likely to develop personal responsibility toward sustainable action. Similarly, studies using the Theory of Planned Behavior (TPB) confirm that favorable attitudes and perceived green value strengthen sustainable tourism intention and behavior (Demirović Bajrami et al., 2025; Hansen et al., 2024; Nguyen et al., 2024). PE may also activate motivation because tourists are more likely to participate when green tourism is perceived as meaningful, ethical, and personally relevant (Han, 2021; Wut et al., 2023; Yaja et al., 2026). Thus, PE is both a cognitive evaluation and a motivational resource.

H1: Perceived green tourism (PE) positively influences tourists' motivation (MO) to engage in green tourism.

H2: Perceived green tourism (PE) positively influences tourists' participation (PA) in green tourism.

Engagement ability (AB) refers to tourists' perceived capacity to participate in green tourism, including knowledge, resources, confidence, time, financial capacity, and perceived ease of action (Fauzi et al., 2024; Zhang et al., 2025). AB is closely related to perceived behavioral control in TPB, which reflects whether individuals believe they have sufficient ability and resources to perform a behavior (Fauzi et al., 2024). Previous research suggests that perceived behavioral control, self-efficacy, internal environmental locus of control, and perceived effectiveness can strengthen environmental attitudes, intentions, and responsible behavior (Han, 2021; Luong, 2025; Passafaro, 2020; Xu et al., 2023).

However, recent studies also show that ability does not always translate into action. Tang et al. (2022) found that participation ability did not significantly enhance tourists' pro-environmental behavior (Tang et al., 2022), while research on the attitude-behavior gap shows that capable tourists may still fail to act when sustainable options are inconvenient, costly, unclear, or poorly implemented (Li et al., 2024; MacInnes et al., 2022; Wut et al., 2023). Nevertheless, AB is expected to enhance tourists' perception, motivation, and participation because it increases their confidence in acting sustainably.

H3: Tourists' engagement ability (AB) positively influences their motivation (MO) to engage in green tourism.

H4: Tourists' engagement ability (AB) positively influences their participation (PA) in green tourism.

H5: Tourists' engagement ability (AB) positively influences their perceived green tourism (PE).

Opportunities (OP) refer to the availability, visibility, and accessibility of green tourism products, services, infrastructure, and programs, such as eco-certified accommodation, recycling facilities, conservation activities, environmental education, green transport, and community-based tourism options (Hansen et al., 2024; Tang et al., 2022). According to the Motivation-Opportunity-Ability (MOA) perspective, behavior occurs when individuals are motivated, have opportunities to act, and possess sufficient ability (Jiao & Wang, 2025; Tang et al., 2022). In tourism, OP can reduce practical barriers, increase convenience, and turn abstract environmental concern into concrete action. Environmental communication research further shows that nature-based settings provide opportunities for place-based messages and interventions to influence tourists' perceptions and behaviors (He et al., 2023). Broader studies also emphasize that destination infrastructure, service systems, social interaction, and cultural norms shape sustainable tourist behavior (Abdullah et al., 2024; Hansen et al., 2024; Li et al., 2024). Therefore, OP may strengthen PE, stimulate MO, and directly facilitate PA.

H6: Opportunities (OP) positively influence tourists' perceived green tourism (PE).

H7: Opportunities (OP) positively influence tourists' participation (PA) in green tourism.

H8: Opportunities (OP) positively influence tourists' motivation (MO) to engage in green tourism.

Finally, motivation (MO) is expected to directly influence participation (PA). Motivation represents the internal psychological drive that initiates and sustains behavior (Han, 2021). Recent studies and meta-analyses identify motivation, personal norms, anticipated positive emotions, moral obligation, and willingness to change as strong drivers of sustainable tourist behavior ((Brian) Lin et al., 2022; Gao et al., 2023; Hansen et al., 2024; Yaja et al., 2026). MO is therefore conceptualized as the key organismic mechanism linking perception and opportunity to green tourism participation.

H9: Motivation (MO) positively influences tourists' participation (PA) in green tourism.

Based on these arguments, the proposed model positions OP as the external stimulus, PE, AB, and MO as organismic conditions, and PA as the behavioral response. The hypothesized relationships are shown in Figure 1.

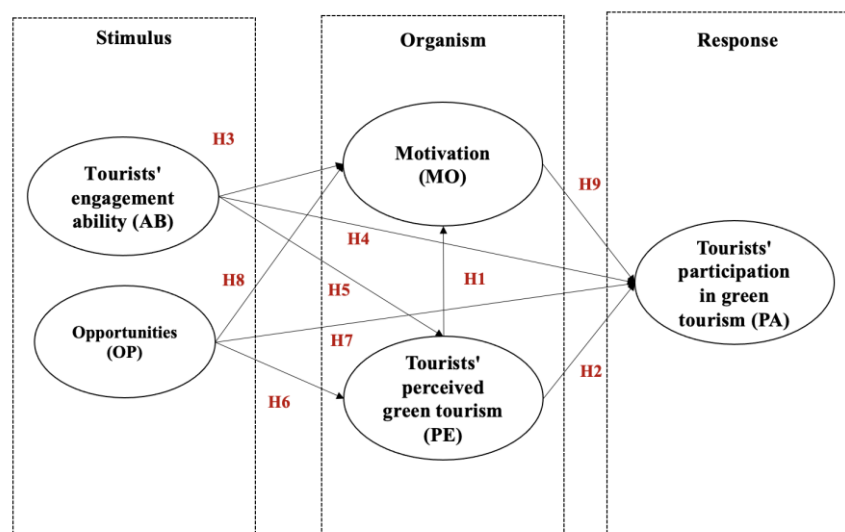


Figure 1. Proposed research model
 Source: Authors' own work.

METHOD

This study employed a quantitative research design to examine the factors influencing tourists' participation in green tourism. The proposed model investigates the relationships among green tourism opportunities (OP), engagement ability (AB), perceived green tourism (PE), motivation (MO), and

participation (PA) using Partial Least Squares Structural Equation Modeling (PLS-SEM).

Before the main survey, a preliminary study was conducted in July 2024 with 150 domestic tourists through an online questionnaire. This pilot phase helped assess the clarity, relevance, and reliability of the measurement items. Minor wording adjustments were made before the final survey.

Main data were collected from 522 domestic tourists who had visited or expressed interest in green tourism activities in Ha Giang, a mountainous province in northern Vietnam known for its natural landscapes and emerging green tourism potential. Data collection took place from July to December 2024 using both online and face-to-face surveys. A convenience sampling approach was adopted. Online questionnaires were distributed through tourism-related websites and social media channels, while face-to-face surveys were administered at major tourist sites in Ha Giang.

PLS-SEM was selected because it is suitable for testing complex models, handling non-normal data, and assessing measurement and structural models simultaneously (Hair et al., 2021). Ethical procedures included informed consent, voluntary participation, anonymity, and confidentiality.

RESULTS AND DISCUSSION

Demographic characteristics of the sample

The survey results reveal several key demographic characteristics of the sample. In terms of gender, 231 participants were male, accounting for 44.3% of the sample, while 291 were female, representing 55.7%. This indicates a higher proportion of female participants in the survey.

Regarding age, the majority of participants were under 25 years old, comprising 49.6% of the sample with 259 individuals in this category. The other age groups included 16.9% aged between 25 and 34 years (88 participants), 16.1% aged between 35 and 44 years (84 participants), 14.9% aged between 45 and 54 years (78 participants), and 2.5% were 55 years or older (13 participants). Thus, younger individuals made up the largest portion of the sample.

When examining monthly income, the majority of participants, 51.7% (270 individuals), reported a monthly income of up to 10 million VND. The next largest group, 30.8% (161 participants), earned between 10 million and 18 million VND monthly, followed by 15.7% (82 participants) who earned between 18 million and 32 million VND, and 1.7% (9 participants) whose monthly income exceeded 32 million VND.

As for educational attainment, 12.3% (64 participants) had education levels below undergraduate, 49.0% (256 participants) held a undergraduate degree, and 38.7% (202 participants) had completed postgraduate. This demonstrates that a significant portion of the sample possessed at least a

university degree, with a noteworthy proportion having postgraduate qualifications.

Measurement model assessment

The measurement model was assessed in terms of indicator reliability, internal consistency reliability, convergent validity, discriminant validity, and multicollinearity. First, indicator reliability was evaluated using the outer loadings of the indicators for each construct. Following Hair et al. (2021), loadings above 0.708 indicate acceptable indicator reliability. The initial assessment showed that one item, PA8, had a loading below the recommended threshold and was therefore removed. After re-estimating the model, all remaining items exhibited satisfactory loadings, ranging from 0.731 to 0.910. This result indicates that the retained indicators adequately represent their corresponding latent constructs.

Second, internal consistency reliability was examined using Cronbach's alpha and composite reliability (CR). The values for all constructs exceeded the recommended threshold of 0.70, demonstrating satisfactory reliability. Convergent validity was then assessed through the average variance extracted (AVE). All AVE values were above the minimum threshold of 0.50, ranging from 0.642 for motivation (MO) to 0.797 for engagement ability (AB). These results confirm that the constructs achieved adequate convergent validity.

Discriminant validity was assessed using both the heterotrait-monotrait ratio (HTMT) and the Fornell-Larcker criterion. All HTMT values were below the conservative threshold of 0.85, with the highest value observed between AB and perceived green tourism (PE) (0.830). In addition, the Fornell-Larcker results showed that the square root of the AVE for each construct was greater than its correlations with other constructs. Thus, discriminant validity was established. Finally, multicollinearity was examined using variance inflation factor (VIF) values. All VIF values ranged from 1.012 to 2.663, well below the critical threshold of 5. This indicates that multicollinearity was not a serious concern in the structural model.

Structural model assessment and hypothesis testing

The results of the analysis, using a significance level of 5% and a bootstrap sample size of 10,000, show that the adjusted R^2 value is 34.3% (see Figure 2). This suggests that the model effectively captures the key factors that influence tourists' engagement in green tourism, with a significant portion of the variation in motivation, engagement ability, and participation being accounted for by the constructs involved.

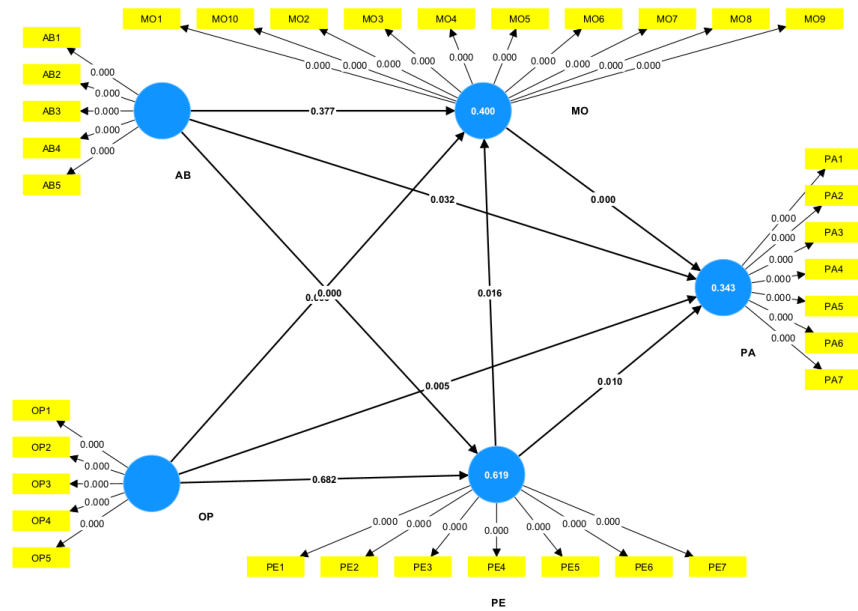


Figure 2. Empirical testing of the study's model.

Source: Authors' own work.

The following Table 1 presents the original sample values (O), sample means (M), and p-values for the hypotheses tested:

Table 1. Structural model assessment: hypotheses testing

Hypotheses	Original sample (O)	Sample mean (M)	P-values	Reference
H1 PE -> MO	0.123	0.123	0.016	Support
H2 PE -> PA	0.169	0.167	0.010	Support
H3 AB -> MO	-0.047	-0.047	0.377	Not support
H4 AB -> PA	-0.142	-0.140	0.032	Reject
H5 AB -> PE	0.787	0.785	0.000	Support
H6 OP -> PE	0.011	0.011	0.682	Not support
H7 OP -> PA	0.162	0.162	0.005	Support
H8 OP -> MO	0.622	0.620	0.000	Support
H9 MO -> PA	0.458	0.459	0.000	Support

Source: Authors' own work.

The structural model was evaluated by examining the path coefficients and their statistical significance. The results indicate that perceived green tourism (PE) had a positive and significant effect on motivation (MO) ($\beta = 0.123$, $p = 0.016$), supporting H1. PE also positively influenced participation (PA) ($\beta = 0.169$, $p = 0.010$), thereby supporting H2. These findings suggest that tourists who perceive green tourism more positively are more likely to be motivated and to participate in green tourism practices.

The results related to engagement ability (AB) were more complex. AB did not have a significant effect on MO ($\beta = -0.047$, $p = 0.377$); therefore, H3 was not supported. More notably, although the effect of AB on PA was statistically significant ($\beta = -0.142$, $p = 0.032$), the direction of the relationship was negative, contrary to the hypothesized positive effect. Thus, H4 was rejected. This result suggests that higher engagement ability does not necessarily translate into greater participation and may even be associated with lower participation in green tourism practices. However, AB had a strong positive effect on PE ($\beta = 0.787$, $p < 0.001$), supporting H5. This indicates that tourists with higher engagement ability are more likely to develop stronger perceptions of green tourism.

Regarding opportunities (OP), the effect of OP on PE was positive but not statistically significant ($\beta = 0.011$, $p = 0.682$), meaning that H6 was not supported. In contrast, OP had a positive and significant effect on PA ($\beta = 0.162$, $p = 0.005$), supporting H7. OP also exerted a strong positive effect on MO ($\beta = 0.622$, $p < 0.001$), supporting H8. These findings show that green tourism opportunities mainly operate by strengthening tourists' motivation and directly encouraging participation, rather than by changing their perceptions of green tourism.

Finally, MO had a positive and significant effect on PA ($\beta = 0.458$, $p < 0.001$), supporting H9. This confirms that motivation is a central psychological driver of tourists' participation in green tourism. Overall, six hypotheses were supported (H1, H2, H5, H7, H8, and H9), two hypotheses were not supported due to non-significant effects (H3 and H6), and one hypothesis was rejected because the significant effect was opposite to the expected direction (H4).

DISCUSSION

The findings offer a more differentiated explanation of tourists' participation in green tourism by showing that participation is shaped by the combined effects of perception, motivation, opportunity, and engagement ability rather than by environmental awareness alone. First, perceived green tourism (PE) positively influenced both motivation (MO) and participation (PA). This result confirms that tourists who recognize the ecological and social value of green tourism are more likely to develop internal motivation and translate this perception into actual

participation. It is consistent with prior research showing that environmental concern, awareness, green value, and perceived effectiveness are central predictors of sustainable tourist behavior ((Brian) Lin et al., 2022; Demirović Bajrami et al., 2025; Han, 2021; Li et al., 2024; Passafaro, 2020). More importantly, this finding supports the view that PE is not merely a cognitive judgment; it functions as an organismic appraisal that activates behavioral readiness.

Second, motivation emerged as the strongest direct predictor of participation. This finding reinforces the importance of motivational activation in green tourism behavior. It aligns with studies showing that motivation, personal norms, anticipated positive emotion, moral responsibility, and willingness to change are powerful drivers of pro-environmental action ((Brian) Lin et al., 2022; Gao et al., 2023; Hansen et al., 2024; Yaja et al., 2026). Within the Stimulus-Organism-Response (SOR) framework, MO serves as the key internal mechanism through which tourists convert environmental perception and external opportunities into green tourism participation.

Third, opportunities (OP) significantly influenced both MO and PA, but did not significantly affect PE. This suggests that green tourism opportunities operate mainly as behavioral enablers and motivational triggers, not as perception-changing stimuli. Green facilities, eco-friendly services, conservation activities, and environmental programs may make participation easier and more attractive, but they do not automatically reshape tourists' deeper understanding of green tourism. This finding extends previous work on environmental communication and opportunity-based interventions by showing that opportunities require interpretation, credibility, and emotional relevance to influence perception (He et al., 2023; Jiao & Wang, 2025; Tang et al., 2022; Wut et al., 2023).

The most novel finding concerns engagement ability (AB). AB strongly increased PE, but did not significantly affect MO and had a significant negative effect on PA. This result challenges the common assumption that greater ability necessarily leads to stronger participation. One explanation is that more capable tourists may also be more critical: they may recognize the importance of green tourism but become less willing to participate when green practices appear inconvenient, symbolic, costly, poorly organized, or inconsistent with genuine sustainability. This interpretation resonates with research on the attitude-behavior gap, perceived behavioral control, eco-paralysis, and the limits of ability-based explanations in sustainable tourism (Li et al., 2024; MacInnes et al., 2022; Tang et al., 2022; Wut et al., 2023).

Theoretical contributions

This study makes three theoretical contributions to green tourism and sustainable tourist behavior research. First, it extends the Stimulus-Organism-Response (SOR) framework by showing that green tourism participation is shaped by both external enabling conditions and internal psychological mechanisms. In this model, opportunities (OP) operate as external stimuli, while perceived green tourism (PE), motivation (MO), and engagement ability (AB) function as organismic conditions that shape participation (PA). This structure advances prior SOR-based studies by moving beyond a simple stimulus-attitude-behavior logic and demonstrating that tourists' green participation depends on how opportunities activate motivation and how internal capacities shape perception.

Second, the study contributes to the literature by distinguishing between perception, motivation, ability, opportunity, and participation rather than treating green behavior as a direct consequence of environmental awareness. The results show that PE directly enhances both MO and PA, while MO remains the strongest immediate predictor of PA. This finding clarifies the internal mechanism of green tourism participation: tourists are more likely to participate when green tourism is cognitively recognized as valuable and affectively transformed into motivation. Thus, the study reinforces the need to examine not only what tourists know or perceive, but also how such perceptions become motivationally meaningful.

Third, the most distinctive contribution lies in the counterintuitive role of AB. Although AB strongly increases PE, it does not significantly enhance MO and even negatively affects PA. This finding challenges the conventional assumption that greater ability automatically leads to greater sustainable behavior. Instead, AB may make tourists more evaluative and critical. Tourists with higher ability may better recognize the importance of green tourism, but they may also be more sensitive to weak infrastructure, symbolic green practices, inconvenience, cost, or poor implementation. The study therefore introduces a more nuanced interpretation of ability: ability can strengthen green perception without necessarily producing participation when destination-level conditions are insufficient.

Practical implications

The findings provide several implications for destination managers, tourism businesses, and local authorities. First, green tourism development should not rely only on awareness campaigns. Since MO is the strongest driver of PA, destinations need to design experiences that make green tourism personally meaningful, emotionally engaging, and easy to join. Environmental interpretation, local storytelling, guided conservation activities, and visible feedback on tourists' contributions can transform green tourism from a moral message into a motivating experience.

Second, OP should be treated as a practical lever for participation. The significant effects of OP on MO and PA suggest that tourists are more likely to participate when green options are visible, accessible, and well integrated into the trip. In destinations such as Ha Giang, this may include eco-certified homestays, community-based tours, waste-reduction systems, refill stations, low-impact transport, conservation fees with transparent use, and local product purchasing channels. However, because OP does not significantly affect PE, green facilities should be accompanied by clear interpretation. Tourists need to understand why these practices matter, not merely encounter them as available services.

Third, the negative AB → PA relationship has important managerial implications. More capable tourists may become disappointed if green tourism practices are superficial or inconvenient. Therefore, destinations should avoid symbolic or poorly executed green programs. Instead, they should provide credible information, transparent environmental standards, reliable service quality, and meaningful participation pathways. For knowledgeable tourists, authenticity and trust are crucial. Green tourism must be designed not only to attract participation, but also to withstand critical evaluation.

Limitations and future research

This study has several limitations. First, the data were collected from domestic tourists in Ha Giang, a mountainous destination in Vietnam. Although this context is highly relevant for green tourism, future studies should test the model in other destinations, such as coastal, island, urban, or heritage sites, to assess its generalizability. Second, the study used cross-sectional survey data, which limits causal inference. Longitudinal or experimental designs could better explain how perception, motivation, ability, and opportunity evolve before, during, and after the trip. Third, participation was measured through self-reported responses, which may be affected by social desirability or intention-behavior gaps. Future research should combine surveys with observational data, behavioral tracking, or field experiments. Future studies should also examine the boundary conditions of AB. The negative effect found in this study suggests that ability may interact with perceived authenticity, greenwashing skepticism, service quality, trust, cost, or convenience. Testing these moderators would clarify when ability promotes participation and when it produces critical disengagement.

CONCLUSION

This study shows that tourists' participation in green tourism is not driven by awareness alone. Participation emerges through the interaction between perception, motivation, opportunities, and ability. The findings confirm the central role of motivation, highlight the enabling power of opportunities, and reveal the paradoxical role of engagement ability. In emerging green destinations,

capable tourists may perceive green tourism more strongly but participate less when destination practices fail to meet their expectations. Green tourism therefore requires more than green messages. It requires credible, accessible, and meaningful systems that allow tourists to act on what they know and value.

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