ISSN : 2962-9195 E-ISSN : 2963-8992

Journal of Educational Management Research
Vol. 05 No. 03 (2026) : 2579-2589
Available online at https://serambi.org/index.php/jemr

The Influence of Memorable Nature-Based Tourism Experiences on Environmentally Responsible Behavioral Intentions: An Environmental Education Perspective

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DOI: https://doi.org/10.61987/jemr.v5i3.2118

Keywords:
Memorable Tourism Experience; Environmental Education; Responsible Behavior

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ABSTRACT

The growth of nature-based tourism raises environmental concerns if not accompanied by responsible tourist behavior. This study aims to analyze the effect of memorable nature-based tourism experiences on connectedness to nature and tourist satisfaction, and their implications for environmental awareness and environmentally responsible behavioral intentions, from an environmental education perspective. A quantitative explanatory design was employed, with data collected through a survey using questionnaires distributed to tourists selected through purposive sampling. Data were analyzed using Structural Equation Modeling (SEM). The results indicate that memorable nature-based tourism experiences have a positive and significant effect on both connectedness to nature and tourist satisfaction. Furthermore, these variables positively influence environmental awareness, which emerges as the strongest predictor of environmentally responsible behavioral intentions. These findings highlight the role of tourism experiences as a form of experiential environmental education that shapes tourists' awareness and behavior. The study implies that destination managers should integrate environmental education strategies into tourism management by designing meaningful experiences that foster learning, awareness, and pro-environmental behavior. Such an approach strengthens the role of tourism as an educational medium for sustainability.

Article History:
Received: January 2026; Revised: February 2026; Accepted: March 2026

Please cite this article in APA style as:
Nurhasanah, A., Kusumah, A. H. G. (2026). The Influence of Memorable Nature-Based Tourism Experiences on Environmentally Responsible Behavioral Intentions: An Environmental Education Perspective. *Journal of Educational Management Research, 5*(3), 2579-2589.

INTRODUCTION

Nature-based tourism has become increasingly important for society as it offers not only recreational value but also opportunities for learning and environmental awareness. In the context of global sustainability challenges, tourism is no longer viewed solely as an economic sector but also as a medium

for shaping responsible human behavior toward nature. This shift is driven by the growing need to balance tourism development with environmental preservation. Evidence shows that tourism experiences are evolving into experience-based tourism, where emotional and memorable interactions with nature significantly influence individuals' perceptions and attitudes (Wang et al., 2021; Zhu et al., 2025). From an environmental education management perspective, such experiences can function as informal learning processes that shape environmental values and awareness. Therefore, integrating educational elements into tourism experiences is crucial to ensure that tourism contributes not only to economic growth but also to long-term environmental sustainability and behavioral transformation among tourists.

The theoretical foundation of this study is grounded in several interrelated concepts. Memorable Nature-Based Tourism Experience (MNBTE) refers to tourism experiences that leave lasting impressions and influence future behavior (Sthapit et al., 2023). Connectedness to nature explains the emotional bond between individuals and the natural environment, which can foster pro-environmental attitudes (Strzelecka et al., 2023; Chen et al., 2023). Tourist satisfaction reflects the cognitive and affective evaluation of tourism experiences, influencing attitudes and behavioral intentions (Suhartanto et al., 2020). Environmental awareness represents an individual's understanding and concern for environmental issues, often shaped through learning processes (Widiati & Permatasari, 2022). From an environmental education management perspective, these variables can be understood as components of experiential learning, where knowledge, emotions, and experiences interact to influence environmentally responsible behavior (ERB) intention. Thus, this study integrates psychological and educational perspectives to explain tourist behavior.

Despite the potential of tourism as an educational medium, environmental problems remain a significant challenge in society. Various environmental issues in Indonesia, such as ecological damage due to tin mining (Irzon, 2021), deforestation leading to floods (Damiti et al., 2025), forest and land fires (Afni et al., 2022), and river pollution caused by industrial waste (Ubaidillah, 2023), highlight the low level of environmental awareness and responsibility among individuals. These problems indicate that environmental sustainability cannot rely solely on government policies but must also involve behavioral change at the individual level, including tourists. In the tourism context, irresponsible

tourist behavior can contribute to environmental degradation, especially in nature-based destinations. Therefore, understanding how to foster environmentally responsible behavior through tourism experiences becomes essential. This reinforces the importance of integrating environmental education into tourism management practices to address broader societal challenges.

Previous studies have explored the relationship between tourism experiences and environmental behavior, but most have focused on partial relationships. Research by Park et al., (2022) and Farmaki et al., (2025) shows that special interest tourism can enhance environmental awareness and responsibility. Similarly, Kim et al., (2024) found that destination environments influence tourists' emotions, while Pestana et al., (2020) demonstrated that emotions and satisfaction affect tourist behavior. These studies highlight the importance of psychological factors in shaping behavior. However, they often examine variables independently, without integrating them into a comprehensive framework. From an educational management perspective, this fragmented approach limits the understanding of how tourism experiences function as a holistic learning process that simultaneously influences cognition, emotion, and behavior.

Furthermore, although studies have emphasized the role of connectedness to nature and satisfaction, limited research has integrated these variables with memorable tourism experiences and environmental awareness in a single model. Sthapit et al., (2023) emphasized the importance of memorable experiences, while Strzelecka et al., (2023) and Chen et al., (2023) highlighted the role of nature connectedness. However, the interaction between these variables in shaping environmentally responsible behavior intention remains underexplored. This indicates a significant research gap, particularly in understanding how tourism experiences can be designed as structured environmental education processes. Addressing this gap is important because it provides a more comprehensive understanding of how behavioral change occurs and how tourism can contribute to sustainability through educational mechanisms.

Based on these considerations, this study offers a novel contribution by developing an integrative model that combines MNBTE, connectedness to nature, tourist satisfaction, and environmental awareness to explain environmentally responsible behavior intention (Obradović et al., 2022). From an environmental education management perspective, this study argues that

memorable tourism experiences act as experiential learning processes that shape environmental awareness and behavior. Therefore, this research not only addresses the existing gap in the literature but also provides practical implications for destination managers in designing tourism experiences that incorporate educational elements. By doing so, tourism can function as a strategic tool for promoting sustainability and fostering responsible environmental behavior among tourists.

RESEARCH METHODS

This study employed a quantitative approach with an explanatory research design to examine the causal relationships among memorable nature-based tourism experience (MNBTE), connectedness to nature, tourist satisfaction, and environmentally responsible behavior (ERB) intention. This design was selected to provide empirical evidence through structured measurement and statistical analysis, allowing for generalizable findings. The research was conducted in rural tourism destinations characterized by natural attractions and local cultural elements, as these settings offer rich experiential contexts that combine recreation with informal environmental learning. From an environmental education management perspective, such destinations are relevant because they function as experiential learning environments where tourists can develop awareness, values, and pro-environmental behavior through direct interaction with nature.

The population of this study consisted of tourists visiting nature-based rural destinations, with the unit of analysis being individual tourists who directly experience tourism activities, emotions, and satisfaction, as well as evaluate their behavioral intentions toward the environment. A purposive sampling technique was applied, with criteria including respondents aged at least 17 years, having visited or currently visiting a nature-based destination, and willing to complete the questionnaire. The sample size was determined based on Structural Equation Modeling (SEM) requirements, typically ranging from 5 to 10 times the number of research indicators. Data were collected through a survey method using a structured questionnaire with a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). The instrument measured four main constructs: MNBTE, connectedness to nature, tourist satisfaction, and ERB intention. Data collection was conducted both onsite and online during the tourism period to ensure responses reflected recent experiences.

The data were analyzed using Structural Equation Modeling (SEM) to examine the relationships among variables simultaneously. The analysis procedure included testing the validity and reliability of the measurement

instruments, evaluating the measurement model, and assessing the structural model to test the proposed hypotheses. SEM was chosen because of its ability to analyze complex relationships among latent variables within an integrated framework. In addition, from an environmental education management perspective, this method supports the examination of how experiential learning processes represented by tourism experiences, emotional connections, and satisfaction contribute to the development of environmental awareness and responsible behavior intentions. Thus, the analytical approach provides a comprehensive understanding of both behavioral and educational dimensions in sustainable tourism.

RESULTS AND DISCUSSION

Results

The evaluation of the measurement model (outer model) was conducted to assess the relationship between latent variables and their corresponding indicators. This stage is essential to ensure that each indicator accurately reflects the construct being measured, thereby confirming that the measurement model is valid and reliable for further analysis. From an environmental education management perspective, this step is also important because it ensures that the constructs used such as experience, awareness, and behavior are properly measured as components of an experiential learning process.

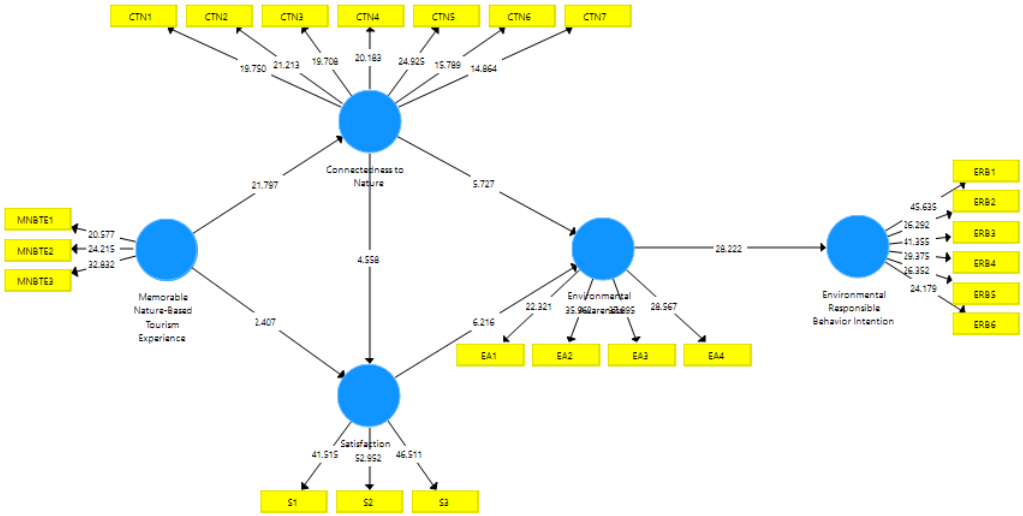

Figure 1. External Model

The figure above illustrates the outer model, showing the relationships between each latent construct and its indicators. All indicators demonstrate strong loadings on their respective constructs, indicating that they are valid measures of the underlying variables. Constructs such as Memorable Nature-

Based Tourism Experience, Connectedness to Nature, Satisfaction, Environmental Awareness, and Environmentally Responsible Behavior Intention are well represented by their indicators. This confirms that the measurement model is adequate and suitable for further analysis.

The evaluation of the structural model (inner model) was conducted to examine the strength of relationships among latent variables and the model's explanatory power.

Table 1. R-Square Results

Construct	R Square	R Square Adjusted	Interpretation
Connectedness to Nature	0,560	0,558	Moderate
Environmental Awareness	0,567	0,564	Moderate
Environmental Responsible Behavior Intention	0,634	0,633	Moderate
Satisfaction	0,446	0,441	Small

The table shows that the model has a relatively good explanatory power. The R-Square values for Connectedness to Nature, Environmental Awareness, and Environmental Responsible Behavior Intention fall within the moderate category. Meanwhile, Satisfaction has a weaker explanatory level, indicating the presence of additional influencing factors outside the model.

Table 2. F-Square Test Results

Construct	F-Square	Interpretation
Memorable Nature-Based Tourism Experience -> Connectedness to Nature	**1,272**	Large
Memorable Nature-Based Tourism Experience -> Satisfaction	0,046	Small
Connectedness to Nature -> Environmental Awareness	**0,175**	Medium
Connectedness to Nature -> Satisfaction	**0,175**	Medium
Environmental Awareness -> Environmental Responsible Behavior Intention	**1,734**	Large
Satisfaction -> Environmental Awareness	**0,280**	Medium

The results indicate varying levels of influence among variables. Memorable tourism experience has a strong effect on connectedness to nature, while its direct effect on satisfaction is relatively weak. Environmental awareness shows the strongest influence on behavioral intention.

Table 3. Q-Square Test Results

Construct	Q-Square	Interpretation
Connectedness to Nature	0,303	Medium
Environmental Awareness	0,363	Large

Environmental Responsible Behavior Intention	0,399	Large
Satisfaction	0,340	Medium

The results show that the model has good predictive relevance, particularly for Environmental Awareness and Environmental Responsible Behavior Intention.

The Goodness of Fit (GoF) result is as follows:

$GoF = \sqrt{(\text{Average AVE} \times \text{Average } R^2)}$

$GoF = \sqrt{(0.647 \times 0.634)}$

$GoF = 0.640$

This value indicates a strong model fit, suggesting that the model is suitable for explaining the relationships among variables.

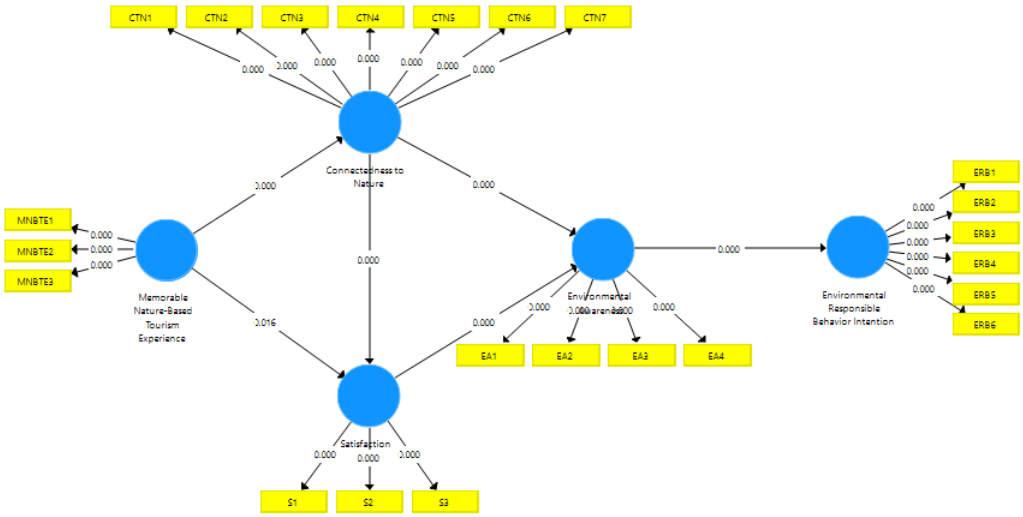

Figure 2. Final Research Model

The figure above illustrates the final structural model with path coefficients and significance values, showing that all hypothesized relationships are positive and significant.

Table 4. Hypothesis Testing Results

Construct	Path Coefficients	T-Statistics	P Values
Connectedness to Nature -> Environmental Awareness	0,372	5,727	**0,000**
Connectedness to Nature -> Satisfaction	0,469	4,558	**0,000**
Environmental Awareness -> Environmental Responsible Behavior Intention	0,796	28,222	**0,000**
Memorable Nature-Based Tourism Experience -> Connectedness to Nature	0,748	21,797	**0,000**
Memorable Nature-Based Tourism Experience -	0,239	2,407	**0,016**

Construct	Path Coefficients	T-Statistics	P Values
> Satisfaction			
Satisfaction -> Environmental Awareness	0,457	6,216	**0,000**

The results indicate that all relationships are positive and statistically significant. The strongest effect is observed between Environmental Awareness and Environmentally Responsible Behavior Intention.

Discussion

The findings of this study highlight the important role of memorable nature-based tourism experiences as a foundation for shaping tourists' psychological and behavioral outcomes. The strong effect of MNBTE on connectedness to nature indicates that meaningful and emotionally engaging experiences significantly enhance individuals' emotional bonds with the natural environment. From an environmental education management perspective, this finding supports the concept of experiential learning, where direct interaction with nature becomes a powerful medium for fostering environmental values and attitudes.

Furthermore, the results show that connectedness to nature significantly influences both satisfaction and environmental awareness. This suggests that emotional attachment to nature not only enhances the quality of tourist experiences but also contributes to the development of environmental consciousness. In educational terms, this reflects a learning process in which affective engagement plays a crucial role in shaping cognitive awareness. Therefore, tourism experiences can be interpreted as informal educational processes that integrate emotional and cognitive dimensions.

The significant influence of satisfaction on environmental awareness further strengthens the argument that positive experiences can lead to deeper reflection and appreciation of environmental values. Tourists who feel satisfied with their experiences are more likely to develop a sense of responsibility toward preserving the environment. This aligns with environmental education principles, where positive learning experiences enhance awareness and long-term behavioral change.

The most notable finding is the strong effect of environmental awareness on environmentally responsible behavior intention. This confirms that awareness is the key determinant of pro-environmental behavior. From a management perspective, this implies that tourism destinations should prioritize strategies that enhance environmental awareness through educational interventions, such as interpretive programs, guided tours, and informational media.

Overall, the results demonstrate that tourism experiences function as a structured experiential learning process that influences behavior through a sequence of experience, emotional connection, satisfaction, and awareness. This study contributes to environmental education management by emphasizing the importance of designing tourism experiences that integrate educational elements. By doing so, tourism can serve not only as a recreational activity but also as a strategic tool for promoting sustainable behavior and environmental responsibility.

CONCLUSION

The findings of this study demonstrate that memorable nature-based tourism experiences play a fundamental role in shaping tourists' psychological responses and environmental behavior. The key insight is that meaningful and engaging tourism experiences not only enhance emotional connectedness to nature and satisfaction but also indirectly foster environmental awareness, which emerges as the strongest determinant of environmentally responsible behavior intention. This indicates a sequential mechanism in which experience leads to emotional attachment and satisfaction, which in turn strengthens awareness and ultimately drives responsible behavior. From an environmental education management perspective, this study highlights that tourism can function as an effective form of experiential learning, where well-designed experiences contribute to both cognitive and behavioral transformation. Thus, the main lesson derived from this research is that sustainable tourism development should prioritize the creation of meaningful experiences that integrate educational values to promote pro-environmental behavior.

This study contributes to the academic literature by offering an integrative model that links tourism experience, emotional connection, satisfaction, awareness, and behavioral intention within a single framework, thereby enriching both sustainable tourism and environmental education management perspectives. However, this study is limited by its reliance on cross-sectional data and a specific sample context, which may restrict the generalizability of the findings. Future research is recommended to employ longitudinal designs to capture behavioral changes over time and to include additional variables such as environmental knowledge, place attachment, or educational interventions as mediating or moderating factors. Expanding the research context across different types of destinations would also provide a more comprehensive understanding of how experiential learning in tourism influences environmentally responsible behavior.

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