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Integrating Local Tourism Potential into Environmental Education: A Case Study of Toya Village

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Abstract: This study examines how local tourism potential can be integrated into environmental education as a contextual and experiential learning resource for strengthening environmental literacy and pro-environmental behavior. Using a qualitative case study design, the research was conducted in Toya Village, Indonesia, a rural tourism destination characterized by ecological diversity, natural landscapes, community-based tourism practices, and socio-cultural resources. Data were collected through field observations, semi-structured interviews, document analysis, and focus group discussions involving tourism stakeholders, educators, students, village representatives, and community members. The findings show that local tourism assets, including natural ecosystems, biodiversity, local wisdom, traditional agricultural practices, and community-based tourism activities, can be transformed into meaningful environmental learning resources. These resources support place-based and experiential learning by enhancing environmental knowledge, awareness, critical thinking, environmental values, and participation in conservation-oriented activities. The study contributes to the literature by bridging environmental education and sustainable tourism, an area that remains underdeveloped in formal education frameworks, particularly in rural and developing-country contexts. It proposes a conceptual linkage between local tourism potential, environmental learning processes, learning outcomes, and pro-environmental behavioral change. The findings imply that curriculum integration, teacher capacity building, community participation, and cross-sector collaboration are essential for optimizing tourism destinations as sustainable learning environments.

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1. Introduction

Environmental degradation has become one of the most urgent sustainability challenges of the twenty-first century, particularly in rural and tourism-dependent areas where economic activities are closely connected to natural landscapes, biodiversity, water resources, and local cultural practices. Tourism can intensify environmental pressure through waste generation, land-use change, resource consumption, biodiversity disturbance, and the commodification of fragile ecosystems. However, tourism can also become a transformative platform for environmental awareness when destination experiences are designed to educate visitors and local learners about ecological processes, conservation values, and sustainable resource management. This dual character of tourism positions local destinations not only as economic assets but also

Vol. 4, No. 2 :July 2026
E-ISSN: 3024-9899
pp 92-103
Email:jmet@skillerindonesia.com

as potential learning environments for sustainability-oriented education (Ballantyne et al., 2011; Powell & Ham, 2008).

Environmental education is increasingly expected to move beyond the transmission of ecological knowledge toward the development of environmental literacy, critical thinking, ethical awareness, and action competence. A growing body of international research shows that environmental education can generate positive outcomes for conservation, environmental quality, student learning, and behavioral change when it combines knowledge acquisition with emotional engagement, social participation, and opportunities for real action (Ardoin et al., 2018; Ardoin et al., 2020; Monroe et al., 2019). Nevertheless, the effectiveness of environmental education depends strongly on how learning experiences are contextualized. Abstract classroom-based instruction may improve awareness, but it often has limited influence on sustained pro-environmental behavior if learners are not directly connected to real environmental problems and community practices (Liu & Green, 2024).

This concern is closely related to the widely discussed awareness-behavior gap in environmental education and sustainable tourism research. Many learners and tourists may possess environmental knowledge, yet they do not always translate that knowledge into responsible behavior. Studies on environmentally responsible behavior indicate that knowledge alone is rarely sufficient; behavioral change is more likely to occur when individuals develop environmental sensitivity, place attachment, perceived responsibility, and emotional connection with local ecosystems (Cheng & Wu, 2015; Ramkissoon et al., 2013; Zhang et al., 2014). Therefore, environmental learning should provide learners with opportunities to observe, feel, discuss, and act within authentic environmental settings.

Place-based and experiential learning offer a strong pedagogical foundation for addressing this challenge. Place-Based Education emphasizes the use of local environments, community knowledge, cultural heritage, and everyday ecological practices as meaningful learning contexts. Experiential learning, meanwhile, enables students to construct knowledge through direct observation, reflection, inquiry, and problem solving. In tourism contexts, these approaches are particularly relevant because destinations provide real-life learning sites where students can observe biodiversity, water systems, agricultural practices, waste management, conservation activities, and community-based tourism governance. Such learning experiences can strengthen environmental understanding while also building affective and behavioral commitments to sustainability (Sojasi Qeidari et al., 2021; Tauro et al., 2021).

Local tourism potential is therefore highly relevant to environmental education, especially in rural destinations that contain ecological diversity and socio-cultural richness. Natural landscapes, rivers, forests, agricultural systems, local wisdom, cultural heritage, and community-based tourism activities can be transformed into contextual learning resources. When these resources are systematically connected to curriculum objectives, field-based learning, project-based learning, and community participation, tourism sites can function as living laboratories for Education for Sustainable Development. This integration allows students to connect scientific concepts with local realities, understand the interdependence between people and nature, and develop practical competencies for environmental stewardship (Ballantyne et al., 2011; Powell & Ham, 2008).

Despite the growing literature on environmental education, sustainable tourism, and pro-environmental behavior, important research gaps remain. First, many environmental education studies still focus on school-based or classroom-centered interventions, with limited attention to how local tourism destinations can be structured as formal learning resources. Second, tourism studies often examine visitor behavior, destination management, or community participation, but less frequently investigate how tourism potential can be integrated into educational processes for learners. Third, research in developing-country rural contexts remains limited, even though such contexts often provide rich ecological and cultural resources that are highly suitable for place-based sustainability learning. These gaps suggest the need for studies that connect tourism potential, environmental learning processes, educational outcomes, and pro-environmental behavior within a single analytical framework.

Journal of Management, Entrepreneurship and Tourism
https://skillerindonesia.id/index.php/jmet
Vol. 4, No. 2 :July 2026
E-ISSN: 3024-9899
pp 92-103
Email:jmet@skillerindonesia.com

Toya Village provides a relevant empirical context for addressing these gaps. The village contains natural landscapes, biodiversity, agricultural practices, local wisdom, and community-based tourism activities that can support contextual environmental learning. However, this potential has not yet been systematically examined as part of a formal environmental education framework. Without structured integration into curriculum, teaching strategies, and stakeholder collaboration, local tourism resources may remain underutilized as educational assets. Therefore, examining Toya Village as a case study is important for understanding how rural tourism potential can be transformed into an experiential learning resource that strengthens environmental literacy and pro-environmental behavior among learners.

Based on this background, this study aims to analyze the local tourism potential of Toya Village and examine how it can be integrated into environmental education as a contextual and experiential learning resource. This study contributes to the literature in three ways. First, it bridges environmental education and sustainable tourism by positioning local tourism potential as a pedagogical resource rather than merely a destination asset. Second, it proposes a conceptual relationship linking tourism potential, environmental learning processes, learning outcomes, and pro-environmental behavior. Third, it offers practical implications for curriculum integration, teacher capacity development, community participation, and cross-sector collaboration in implementing sustainability-oriented education in rural tourism contexts.

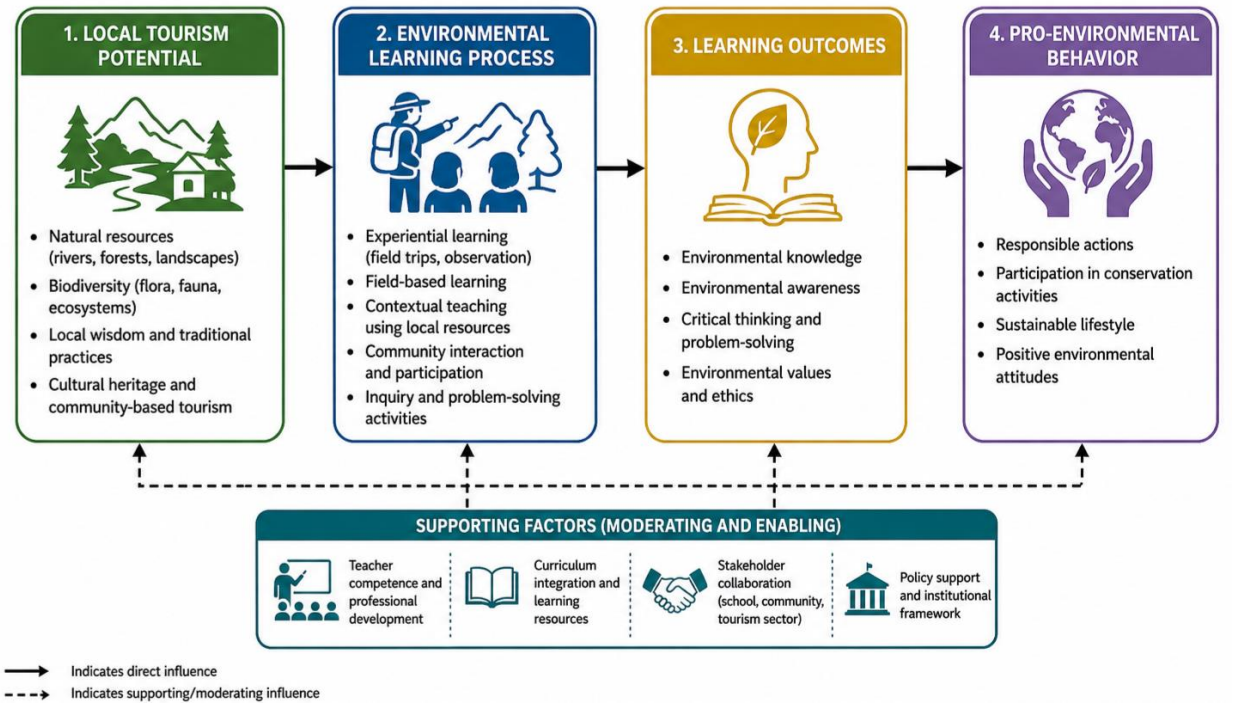

Figure 1. Conceptual Framework for Environmental Learning Based on Local Tourism Potential

Figure 1 synthesizes the conceptual logic of this study by showing how local tourism potential can be transformed into environmental learning processes, learning outcomes, and pro-environmental behavior, supported by teacher competence, curriculum integration, stakeholder collaboration, and institutional policy support.

2. Literature Review

2.1 Environmental Education and Environmental Literacy

Environmental education is widely recognized as a pedagogical approach for developing learners' knowledge, attitudes, skills, values, and participation in environmental problem solving. In high-quality

Vol. 4, No. 2 :July 2026
E-ISSN: 3024-9899
pp 92-103
Email:jmet@skillerindonesia.com

international literature, environmental education is understood not merely as the delivery of ecological information but as a transformative process that enables individuals and communities to interpret environmental issues, evaluate human-nature relationships, and undertake responsible action (Ardoin et al., 2018; Ardoin et al., 2020). This orientation is especially relevant for primary and community-based education because learners need opportunities to connect abstract environmental concepts with observable ecological and social realities. Therefore, environmental literacy should include ecological knowledge, affective concern, critical thinking, ethical responsibility, and practical behavior.

A key challenge in environmental education is the gap between environmental knowledge and actual pro-environmental behavior. Systematic reviews show that environmental education can improve knowledge and attitudes, but behavioral change is more likely when programs include locally meaningful content, active participation, problem solving, reflection, and opportunities for direct action (Ardoin et al., 2020; Monroe et al., 2019). This means that environmental education should not be designed as a purely classroom-based activity. Instead, it should be connected to real environmental contexts where learners can observe ecological processes, identify sustainability problems, and participate in conservation-oriented practices.

2.2 Place-Based and Experiential Learning

Place-Based Education provides a strong theoretical foundation for integrating local tourism potential into environmental education. It emphasizes the use of local landscapes, community knowledge, cultural practices, and socio-ecological issues as authentic learning contexts. Through place-based learning, students develop a stronger sense of belonging, environmental responsibility, and understanding of the interdependence between community life and ecological systems (Rønning et al., 2018; Sojasi Qeidari et al., 2021). In rural destinations such as Toya Village, place-based learning is particularly relevant because local ecosystems, agricultural practices, natural attractions, and community-based tourism activities can be used to explain environmental concepts in ways that are concrete and meaningful for learners.

Experiential learning strengthens this process by positioning students as active participants rather than passive recipients of information. In environmental education and tourism contexts, direct experiences such as field observation, guided interpretation, biodiversity exploration, community interaction, and conservation activities can improve learning outcomes because they combine cognitive, affective, and behavioral dimensions (Ballantyne et al., 2011; Powell & Ham, 2008). Such experiences help learners move beyond memorizing environmental facts toward understanding environmental problems through lived, situated, and reflective engagement.

2.3 Local Tourism Potential as an Environmental Learning Resource

Local tourism potential includes natural landscapes, biodiversity, water resources, agricultural systems, cultural heritage, local wisdom, and community-based practices that can be transformed into learning resources. In the context of environmental education, these resources are valuable because they provide authentic examples of ecological processes, human-environment interaction, conservation challenges, and sustainable livelihoods. Tourism destinations can therefore serve as outdoor laboratories where students learn through observation, inquiry, interpretation, and problem solving.

The integration of tourism potential into environmental education also supports sustainable tourism development. Well-designed tourism interpretation and environmental learning can increase knowledge, strengthen supportive attitudes toward conservation, and encourage responsible behavior (Powell & Ham, 2008). Similarly, research on wildlife tourism shows that learning experiences can produce short- and long-term effects on environmental understanding and behavioral intentions when visitors are emotionally engaged and encouraged to reflect on conservation messages (Ballantyne et al., 2011). These findings imply that Toya Village tourism resources can be positioned not only as attractions but also as pedagogical assets for sustainability education.

2.4 Pro-Environmental Behavior in Tourism and Education Contexts

Pro-environmental behavior refers to individual or collective actions intended to minimize environmental harm or contribute positively to environmental quality. In tourism contexts, pro-environmental

Vol. 4, No. 2 :July 2026
E-ISSN: 3024-9899
pp 92-103
Email:jmet@skillerindonesia.com

behavior is influenced by environmental knowledge, environmental sensitivity, values, place attachment, perceived responsibility, and quality of interpretation (Cheng & Wu, 2015; Zhang et al., 2014). Studies also show that place attachment is an important predictor of pro-environmental behavior because individuals who feel emotionally connected to a place are more likely to protect it (Ramkissoon et al., 2013). This is highly relevant for rural tourism-based learning, where students can develop emotional and cultural connections with local environments through direct interaction with natural and community resources.

For school-aged learners, pro-environmental behavior is more likely to develop when environmental education combines knowledge, affective engagement, social influence, and opportunities for action. Recent reviews of children's pro-environmental behavior indicate that contact with nature, family and community norms, perceived self-efficacy, and environmental attitudes play important roles in shaping sustainable actions (Liu & Green, 2024). Therefore, tourism-based environmental education should provide learners with opportunities to observe environmental problems, discuss local solutions, interact with community actors, and participate in conservation practices.

2.5 Conceptual Relationship among Tourism Potential, Learning Processes, and Behavioral Outcomes

Based on the reviewed literature, local tourism potential can be conceptualized as an input that provides authentic environmental content and socio-cultural context. The learning process occurs through place-based, experiential, inquiry-based, and community-connected activities. These processes are expected to produce learning outcomes such as environmental knowledge, awareness, critical thinking, environmental values, and ethical responsibility. Over time, these outcomes can contribute to pro-environmental behavior, including conservation participation, responsible use of natural resources, sustainable lifestyle orientation, and willingness to protect local environments.

This conceptual relationship strengthens the novelty of the present study. Rather than treating tourism and environmental education as separate fields, this study positions local tourism potential as a bridge between sustainability learning and community-based environmental action. Accordingly, Toya Village is examined as a living learning environment where tourism assets, community knowledge, and formal education can be integrated to support environmental literacy and pro-environmental behavior.

3. Research Method

This study employed a qualitative case study design to explore how local tourism potential in Toya Village can be transformed into an environmental learning resource. A case study approach was considered appropriate because the research sought to obtain an in-depth understanding of a bounded socio-ecological and educational context, including the interaction between tourism resources, community practices, and learning processes (Bowen, 2009; Tauro et al., 2021). Toya Village was selected because it represents a rural tourism destination with ecological diversity, natural landscapes, socio-cultural resources, and community-based tourism activities that are relevant to environmental education and sustainability learning.

Data were collected through field observations, semi-structured interviews, documentation analysis, and focus group discussions. Observations were conducted to identify natural, ecological, and socio-cultural features of tourism sites that could be used as learning resources. Semi-structured interviews with village officials, tourism stakeholders, teachers, students, and community members were used to explore participants' perceptions of tourism potential and its educational relevance. Documentation analysis examined tourism development plans, curriculum materials, and village reports, while focus group discussions were used to validate emerging themes and encourage collaborative reflection among participants.

The data were analyzed using thematic analysis through coding, categorization, theme development, and interpretive synthesis. The analysis focused on identifying how local tourism resources could be mapped into environmental learning values, learning processes, educational outcomes, and pro-environmental behavior. This approach enabled the study to move beyond simple description and develop a conceptual understanding of how tourism-based learning can support environmental education.

Journal of Management, Entrepreneurship and Tourism
https://skillerindonesia.id/index.php/jmet
Vol. 4, No. 2 :July 2026
E-ISSN: 3024-9899
pp 92-103
Email:jmet@skillerindonesia.com

Trustworthiness was ensured through methodological triangulation, source triangulation, member checking, peer debriefing, and thick description. Ethical considerations were observed by obtaining informed consent, protecting participant confidentiality, and using the data only for academic purposes. These procedures strengthened the credibility, dependability, and transferability of the qualitative findings.

Overall, the methodological design integrates perspectives from environmental education, place-based learning, experiential learning, and sustainable tourism. This integration allows the study to examine not only what tourism resources exist in Toya Village, but also how these resources can be educationally structured to foster environmental literacy and pro-environmental behavior.

4. Results and Discussion

4.1 Results

The findings indicate that Toya Village has substantial potential to serve as a contextual environmental learning resource. The results are organized into four interrelated themes: local tourism potential, environmental learning values, pro-environmental behavior, and educational integration.

First, Toya Village is characterized by diverse natural and socio-cultural resources that can support experiential environmental learning. Field observations identified natural landscapes, river and forest areas, biodiversity, agricultural systems, and community-based tourism activities. These resources provide authentic contexts for learning about ecosystems, conservation practices, sustainable resource management, and the relationship between community livelihoods and environmental protection.

Second, the tourism resources of Toya Village contain strong environmental learning values. Students can observe ecological phenomena directly, including water resource management, land-use patterns, biodiversity conservation, and community practices related to sustainable livelihoods. Interaction with local communities also allows learners to understand environmental ethics, local wisdom, and collective responsibility for natural resource protection.

Third, local tourism resources can be integrated into formal environmental education through field-based learning, project-based learning, contextual teaching, inquiry activities, and community-based assignments. Teachers and stakeholders emphasized that such learning experiences can increase student motivation, engagement, critical thinking, and willingness to participate in environmental conservation activities.

Overall, the findings show that Toya Village offers a contextually rich learning environment in which tourism potential can be transformed into educational experiences. This transformation strengthens environmental knowledge, awareness, values, and behavior while simultaneously supporting sustainable local tourism development.

4.2 Discussion

The findings demonstrate that Toya Village can function as an environmental learning environment when its tourism resources are systematically connected to curriculum objectives and learning activities. This result supports the principles of Place-Based Education, which emphasize that local environments can serve as authentic contexts for developing environmental awareness, community identity, and ecological responsibility. The present study extends this perspective by showing how specific tourism elements--natural landscapes, biodiversity, local wisdom, agricultural practices, and community-based tourism activities--can be translated into structured environmental learning resources.

From a theoretical perspective, the findings support experiential learning theory, which argues that meaningful knowledge is constructed through direct experience, reflection, conceptualization, and action. In Toya Village, field-based activities enable students to observe real environmental conditions, interact with local actors, and connect classroom concepts with practical sustainability issues. This confirms the view that environmental education becomes more effective when learning is active, contextual, and emotionally engaging (Ardoin et al., 2020; Ballantyne et al., 2011).

Journal of Management, Entrepreneurship and Tourism
https://skillerindonesia.id/index.php/jmet
Vol. 4, No. 2 :July 2026
E-ISSN: 3024-9899
pp 92-103
Email:jmet@skillerindonesia.com

In terms of environmental behavior, the study shows that tourism-based learning can support the development of pro-environmental attitudes and behavioral intentions. Direct contact with nature and community practices helps students develop emotional attachment to place, a sense of responsibility, and motivation to participate in conservation. This finding is consistent with tourism and environmental psychology studies showing that place attachment, environmental sensitivity, and meaningful destination experiences are important predictors of environmentally responsible behavior (Cheng & Wu, 2015; Ramkissoon et al., 2013; Zhang et al., 2014).

Furthermore, the findings reinforce the relevance of Education for Sustainable Development because tourism sites provide practical platforms for interdisciplinary and action-oriented learning. Students can learn science, social studies, citizenship, culture, and local economy through real sustainability problems in their community. This type of learning is important because sustainability education requires not only knowledge acquisition but also systems thinking, ethical reasoning, collaboration, and problem solving.

Importantly, this study addresses a critical gap in the literature by integrating local tourism potential with formal environmental education. Previous studies often discuss environmental education and sustainable tourism separately; however, the present study demonstrates that tourism resources can be used as structured pedagogical assets. This integration provides a stronger foundation for developing locally relevant environmental education models in rural and developing-country contexts.

Several challenges were also identified, including limited curriculum integration, insufficient teacher training in the use of local resources, and weak collaboration between schools, communities, tourism actors, and local government. These challenges indicate that the integration of tourism and environmental education requires institutional support, teacher capacity development, learning modules, and sustainable partnerships. Without these enabling conditions, tourism-based learning may remain incidental rather than systematic.

Overall, this study contributes to the literature on environmental education and sustainable tourism by showing that rural tourism destinations can serve as effective place-based learning environments. The integration of local tourism into education not only strengthens environmental literacy but also promotes sustainable behavior and community-based destination development.

Table 1. Thematic Analysis of Local Tourism Potential, Environmental Learning Values, Pro-Environmental Behavior, and Educational Integration

Initial Codes	Categories	Themes
Natural landscape (rivers, forests)	Environmental resources	Tourism Potential
Biodiversity (flora and fauna)	Ecological features	Tourism Potential
Traditional farming practices	Local wisdom	Tourism Potential
Community-based tourism activities	Socio-cultural interaction	Tourism Potential
Observation of ecosystems	Experiential learning	Environmental Learning Values
Understanding conservation practices	Environmental knowledge	Environmental Learning Values
Student engagement in field activities	Active learning	Environmental Learning Values
Interaction with local community	Social learning	Environmental Learning Values
Increased environmental awareness	Cognitive outcome	Pro-Environmental Behavior
Positive environmental attitudes	Affective outcome	Pro-Environmental Behavior
Participation in conservation activities	Behavioral outcome	Pro-Environmental Behavior
Motivation to protect environment	Behavioral intention	Pro-Environmental Behavior
Integration into lesson plans	Curriculum alignment	Educational Integration
Use of field-based learning	Teaching strategy	Educational Integration
Collaboration with community	Stakeholder involvement	Educational Integration

Vol. 4, No. 2 :July 2026
E-ISSN: 3024-9899
pp 92-103
Email:jmet@skillerindonesia.com

Table 1 presents the results of the thematic analysis derived from coding, categorization, and theme development. The findings are organized into four major themes: tourism potential, environmental learning values, pro-environmental behavior, and educational integration.

The theme of tourism potential shows that Toya Village contains diverse natural and socio-cultural resources, including rivers, forests, biodiversity, traditional farming practices, and community-based tourism activities. These resources indicate that tourism assets are not only economically valuable but also educationally meaningful.

The theme of environmental learning values highlights the educational potential embedded in local tourism resources. Activities such as ecosystem observation, conservation learning, field-based engagement, and interaction with local communities illustrate how environmental education can be strengthened through experiential and social learning.

The theme of pro-environmental behavior reveals positive learning outcomes, including increased environmental awareness, positive attitudes, participation in conservation activities, and motivation to protect the environment. These outcomes suggest that contextual learning grounded in local tourism experiences can help bridge the gap between environmental knowledge and environmental action.

The theme of educational integration emphasizes the need to systematically incorporate tourism potential into formal education through curriculum alignment, field-based learning strategies, and collaboration with local communities and stakeholders. This finding confirms that successful implementation requires both pedagogical innovation and institutional support.

Overall, the table illustrates a structured relationship among local tourism potential, learning processes, educational outcomes, and behavioral transformation. These findings provide empirical support for the proposed conceptual model, which positions local tourism as a strategic resource for enhancing environmental education and promoting sustainable behavior.

5. Conclusion

This study concludes that Toya Village has strong potential to be integrated into environmental education as a contextual and experiential learning resource. Local tourism elements, including natural resources, biodiversity, local wisdom, agricultural practices, and community-based tourism activities, can be systematically transformed into meaningful learning experiences that strengthen students' environmental knowledge, awareness, critical thinking, values, and environmental responsibility.

The study also shows that tourism-based learning contributes to the development of pro-environmental behavior, including responsible action, conservation participation, and positive environmental attitudes. These findings support the relevance of place-based and experiential learning in addressing the gap between environmental knowledge and actual behavior.

Theoretically, this study contributes by bridging environmental education and sustainable tourism through a conceptual model linking tourism potential, environmental learning processes, learning outcomes, and behavioral change. Practically, the findings provide guidance for schools, teachers, village governments, and tourism stakeholders in using local tourism as a sustainability learning resource.

In practical terms, the findings highlight the need for curriculum integration, teacher capacity building, learning module development, and collaboration among educational institutions, local communities, tourism actors, and government agencies. Such collaboration is essential to ensure that tourism-based learning is implemented systematically and sustainably.

Future research should test the proposed model using quantitative or mixed-method approaches, involve larger samples, and compare different tourism destinations and educational contexts. Such research would strengthen the generalizability of the model and provide more robust evidence on the role of local tourism in environmental education and pro-environmental behavior development.

Vol. 4, No. 2 :July 2026
E-ISSN: 3024-9899
pp 92-103
Email:jmet@skillerindonesia.com

Recommendations

Based on the findings of this study, several recommendations are proposed to enhance the integration of local tourism potential into environmental education. First, educational institutions are encouraged to incorporate local tourism resources into the formal curriculum through contextual and experiential learning approaches. This can be achieved by designing field-based learning activities, project-based learning, and interdisciplinary modules that connect environmental concepts with real-world contexts.

Second, teachers should be provided with continuous professional development to strengthen their competence in implementing Place-Based Education and experiential learning strategies. Training programs should focus on developing innovative teaching methods that utilize local environments as learning resources and promote student engagement.

Third, collaboration between schools, local communities, and tourism stakeholders needs to be strengthened. Such partnerships can facilitate access to tourism sites, provide authentic learning experiences, and ensure the sustainability of educational programs. In this regard, local governments and policymakers are expected to support the integration of tourism and education through policy frameworks and funding initiatives aligned with Education for Sustainable Development.

Finally, future research is recommended to further validate and expand the proposed conceptual model by employing quantitative or mixed-method approaches. Comparative studies across different tourism destinations and educational contexts would also be valuable in examining the generalizability of the findings.

Data Availability

The data supporting the findings of this study are not publicly available due to ethical considerations and the confidentiality of participants involved in interviews, field observations, documentation analysis, and focus group discussions. However, relevant anonymized data may be made available by the corresponding author upon reasonable request, subject to institutional approval and compliance with research ethics principles.

Declaration of the Use of Artificial Intelligence (AI)

The authors declare that artificial intelligence-based tools were used only to support language refinement, grammar checking, and academic editing during the preparation of this manuscript. The AI tool was not used to generate research data, conduct data analysis, interpret findings, or make scientific conclusions. All intellectual content, methodological decisions, analysis, interpretation, and final arguments remain the sole responsibility of the authors. The authors have reviewed, verified, and approved the final version of the manuscript.

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Vol. 4, No. 2 :July 2026
E-ISSN: 3024-9899
pp 92-103
Email:jmet@skillerindonesia.com

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Vol. 4, No. 2 :July 2026
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