

Knowledge Management and Storytelling as Social Transformation Tools in Educational Tourism on the Citarum River

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INFO ARTIKEL

Diserahkan:

28/06/2025

Direvisi:

12/07/2025

Diterima

23/07/2025

Keywords:

Knowledge Management,
Storytelling,
Educational Tourism,
Citarum River,
Social Transformation,

ABSTRAK

Developing sustainable tourism necessitates innovative approaches that integrate environmental conservation, community engagement, and effective knowledge transfer. This study investigates the power of storytelling and knowledge management as catalysts for social transformation within educational tourism along Indonesia's highly polluted Citarum River. Using a mixed-methods approach, the research collected quantitative data from 79 university students via questionnaires assessing their knowledge and perceptions of the Citarum River and sustainable tourism. Qualitative data came from a content analysis of "Menjaga Citarum" (Preserving Citarum) educational materials, which wove together historical narratives, ecological facts, and local cultural values. The findings reveal that storytelling, when combined with direct environmental action and participatory learning, significantly boosts students' environmental awareness and emotional engagement. Participants showed a greater understanding of pollution issues and a stronger commitment to sustainable behavior, highlighting the importance of community-based knowledge systems. This study demonstrates how local narratives and experiential learning can foster ecological responsibility and social engagement, offering practical guidance for impactful educational tourism programs.

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1. PENDAHULUAN

The Citarum River is the longest and one of the most vital rivers in West Java, Indonesia. It serves as a critical water source for millions of residents and supports diverse sectors, including agriculture, fisheries, domestic consumption, industry, and hydroelectric power generation [1]. However, in recent decades, the river has suffered severe ecological degradation due to untreated industrial discharges, domestic waste, and agricultural runoff. This conditions threatening its sustainability and posing serious environmental hazards [2].

Several programs with the latest is Citarum Harum programs, have been initiated by the government [3]. Still, meaningful behavioral change among local communities remains elusive, largely because conventional awareness campaigns lack integration with community engagement and

experiential learning [4]. Environmental education with direct action is crucial for fostering ongoing environmentally conscious behavior and raising public awareness [5]. That study emphasized the need for community-centered and participatory methods. There is a project engaged with SatuBumi, a local environmental community in Cihampelas Village, West Bandung Regency.

The primary issue among stakeholders is the lack of innovative, integrated approaches for environmental education that foster sustainable behaviors in both youth and broader community members. To address this gap, we implemented a structured educational tourism program integrating storytelling [6] and knowledge management [7]. Storytelling interventions as educational tourism demonstrated how narratives could enhance engagement in heritage-based educational tourism [8]. The program aimed to convey ecological data, local river histories [9], and cultural values through relatable, emotionally engaging narratives [10]. Simultaneously, knowledge management practices such as collective reflection sessions and peer learning, were designed to promote active knowledge exchange among participants, echoing strategies used in coastal cleanup efforts where community learning amplified environmental action [11].

The initiative involved 79 university students in the KKN community service program, who participated in River Cleanup activities coupled with educational storytelling sessions about the Citarum River's ecological challenges. These students not only absorbed environmental concepts but also contributed narratives from their direct experiences, fostering a shared voice and sense of ownership. Activities like this include the necessary outreach to provide a better understanding of the concept of a sustainable environment [12].

The objectives of this activity are: (1) to explore innovative patterns in delivering environmental education through sustainable tourism, specifically using storytelling and active community participation; and (2) to examine how storytelling functions as a mechanism for environmental knowledge creation and dissemination. Through this intervention, we aim to support long-term ecological awareness, empower local stakeholders, and enrich sustainable community-based tourism practices. Ultimately, this engagement seeks to catalyze social transformation by enabling youth and communities to become active custodians of their environment.

2. IMPLEMENTATION METHOD

2.1 Stages of Implementation

The implementation of the program was carried out in a structured series of activities combining field-based experiential learning and classroom-based reflection (figure 1). The participants, consisting of 79 university students involved in the KKN (community service) program, gathered at the designated open field near the Citarum River in Cihampelas Village. The session was facilitated by the local environmental community, SatuBumi, which provided a comprehensive briefing on the River Cleanup procedures.

During the briefing, participants received instructions on the types of waste prioritized for collection (such as plastic packaging, textile waste, and non-biodegradable debris), the team division structure, and a detailed explanation of the cleanup area along the Citarum Riverbanks. Safety guidelines and the proper use of tools such as gloves and collection sacks were also emphasized. Each team was assigned a specific zone and time frame for the cleanup activities.

An additional task was assigned to each group: to identify a unique or notable piece of trash and develop a storytelling narrative based on it. This task was intended to cultivate emotional engagement and encourage participants to reflect on the human and ecological implications of waste. Following the cleanup, all collected waste was sorted and weighed per group. This data served both environmental and reflective purposes, allowing students to visualize the tangible impact of their efforts.

The second phase took place in a classroom setting, where participants attended a learning session on the Citarum River, covering its historical significance, ecological condition, and the potential for sustainable tourism development in the region. This session was supported by visual materials and participatory dialogue led by members of SatuBumi. Each group then presented their storytelling narrative, creatively interpreting their chosen waste item as a symbolic artifact tied to the river's environmental story. These narratives ranged from poetic reflections to fictionalized accounts, enhancing the emotional and educational value of the activity.

The program concluded with a shared environmental commitment, where participants collectively pledged to uphold sustainable behavior and promote environmental awareness within their communities. The session ended with group documentation and a formal closing ceremony.

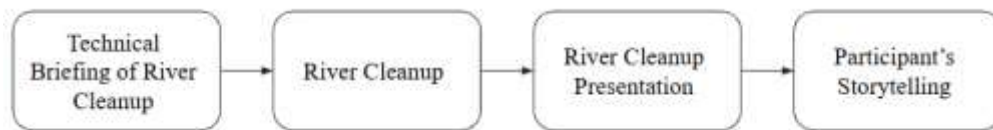


Figure 1 Flow of River Cleanup

2.2 Venue and Date of Implementation

The community engagement activity was conducted on January 11, 2025, from 08:00 AM to 12:00 PM, at Citarum River kilometer 77, located in Cihampelas Village, Cihampelas Subdistrict, West Bandung Regency, West Java, Indonesia. The cleanup activity took place along the riverbank, covering a stretch of approximately 20 to 25 meters. This specific site was selected due to its accessibility, visibility of pollution, and proximity to the local community, making it a strategic location for both environmental action and educational tourism activities. The venue served as both a learning ground and an active conservation site, allowing participants to directly engage with the environmental challenges faced by the Citarum River ecosystem.

2.3 Profile of Participant

A total of 79 university students participated in the educational tourism and river cleanup activity. In terms of gender distribution, the majority of participants were female ($n = 50$), while male participants accounted for 29 individuals. The participants were predominantly in the age range of 20–25 years ($n = 66$), with a smaller portion aged 16–19 years ($n = 13$), reflecting the target demographic of university students and young adults involved in the community service program (KKN).

The participants came from a variety of regions in West Java, with the largest group originating from Sumedang Regency ($n = 30$). This was followed by participants from Bandung City ($n = 22$), West Bandung Regency ($n = 9$), Bandung Regency ($n = 7$), and Cimahi City ($n = 5$). An additional six participants came from other areas. This diverse background contributed to a rich exchange of

perspectives during the program and highlighted the broader relevance of the environmental issues surrounding the Citarum River.

Table 1. Participant Demography

Variabel	Sub Variable	Quantity
Gender	Male	29
	Female	50
Group of Age	16-19 years	13
	20-25 years	66
Residency	Kab Sumedang	30
	Kota Bandung	22
	Kab Bandung Barat	9
	Kab Bandung	7
	Kota Cimahi	5
	Others	6

2.4 Questionnaire

To assess participants' understanding and perceptions of sustainable and educational tourism, a structured questionnaire was administered as part of the program evaluation. The questionnaire consisted of 10 statements designed to identify common misconceptions and gauge awareness related to tourism sustainability, waste management, environmental responsibility, and the role of educational tourism.

3. RESULT & DISCUSSION

This section outlines the tangible results achieved during the KKN community service program's river cleanup. Demonstrating significant environmental commitment, sixty-nine KKN participants successfully removed 242 kg of waste from the river in just 40 minutes. Their collection specifically targeted man-made refuse, including plastic, fabric, bottles, sandals, shoes, and bags, while consciously excluding natural elements like plant matter and wood, along with discarded metal and diapers (Figure 2).



Figure 2 River Cleanup (left) Waste Sorting (Right)

After the river cleanup, participants engaged in a comprehensive one-hour material presentation, followed by an interactive question-and-answer session. The presentation highlighted the historical significance of the Citarum River, a vital water source in West Java and once the world's most polluted river in 2018, now undergoing recovery efforts. Key topics included the environmental mission of Satubumi, which focuses on environmental education and waste management using permaculture and Islamic values, encouraging families to participate in ecological preservation. The historical context of the Citarum River was also a significant part of the material, explaining its name origin from the plant of Tarum and its close ties to the ancient Tarumanegara Kingdom, where Tarum was a valuable export used by nobility, including the Chinese Empire.

Furthermore, the session explored the various tourism potentials along the Citarum, including nature tourism at Situ Cisanti [13], historical and cultural tourism [14], environmental education tourism [15], culinary tourism [16], water tourism [17], and creative economy tourism [18]. The current state of the Citarum was discussed, addressing issues such as domestic and industrial waste disposal, and showcasing initiatives program by community and SatuBumi's "River Cleanup" as part of broader efforts to restore the river's cleanliness and promote sustainable tourism. Emphasizing the broader impact of pollution, the presentation included a compelling visual of a sea turtle affected by plastic, underscoring the importance of responsible waste disposal.



Figure 3 The presentation highlighted the tourism potential of the Citarum River

Within the river cleanup presentation, each group was allocated five minutes to present a storytelling session, focusing on a piece of trash they had collected. Participants were invited to share their experiences, stories, and perspectives on waste. This can serve as knowledge and inspiration for others to adopt a pro-environmental attitude. In this context, waste becomes a medium for learning that prioritizes community-based education [19].

Following the activities, participants completed a questionnaire designed to gather feedback on both the river cleanup operation and the presented materials. The analysis of responses to the ten-item questionnaire, which aimed to assess participants' understanding of sustainable and educational tourism concepts, revealed a high overall level of awareness. The mean score was 9.15 out of a possible 10, indicating that most participants demonstrated a strong grasp of the key principles covered, such as the importance of integrating environmental protection with community welfare and

the misconceptions about the limitations of educational tourism.

When grouped by total scores, 44 participants (56%) achieved a perfect score of 10, correctly identifying all statements. An additional 28 participants (35%) scored between 8 and 9, reflecting generally accurate comprehension with only minor misconceptions. Only 7 participants (9%) scored in the 0–7 range, suggesting limited understanding or the persistence of several misconceptions.

These findings suggest that the storytelling-based educational tourism intervention was effective in reinforcing accurate knowledge and challenging common myths related to sustainable and educational tourism. The high distribution of top scores also supports the idea that experiential and narrative-based approaches may serve as impactful tools in community-based environmental education.

Table 2. Participant's Scoring Data

Items	Sub Items	Nominal
Mean of Score		9.15
<i>Contribution</i>	Score 0-7	7 persons
	Score 8-9	28 persons
	Score 10	44 persons

4. CONCLUSION

This community-based initiative demonstrates the transformative potential of integrating storytelling and knowledge management within educational tourism as a tool for community empowerment and sustainable development. Through a collaborative program with the SatuBumi environmental community, university students participated in a River Cleanup activity that blended ecological action with reflective narrative practices, fostering deeper environmental awareness and social responsibility. Aligned with the principles of participatory action research and service learning, this initiative highlights how academic-community partnerships can generate meaningful learning experiences while addressing real-world environmental challenges. The high levels of participant engagement and knowledge retention indicate that storytelling is not only effective for knowledge dissemination but also instrumental in shifting attitudes and behaviors toward sustainability. The authors recommend this approach for River Cleanup programs on other areas of Citarum watershed. This program offers a replicable model for community engagement that bridges theory and practice, strengthens local capacity, and contributes to education for sustainable development rooted in local values and collaborative action.

ACKNOWLEDGMENT

The authors thanks Universitas Padjadjaran's Graduate School, especially the Master's Program in Sustainable Tourism, for academic support and guidance. Special acknowledgment also goes to the SatuBumi community for their crucial collaboration in the river cleanup educational tourism program, which was vital to the study's success.

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