

Integrating Local Wisdom in Ecopedagogy: Promoting Ecological Awareness in Society

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ARTICLE INFO

Article history

Received 4 August 2025

Revised 1 April 2026

Accepted 16 April 2026

Keywords

Bekarang Tradition
Ecological Awareness
Ecopedagogy
Local Wisdom

ABSTRACT

This study aims to examine efforts to foster ecological awareness among citizens through an ecopedagogical approach integrated with local community wisdom. The *Bekarang* tradition in South Sumatra is highlighted as an example of cultural practice that functions as a form of civic education beyond the boundaries of formal schooling. This tradition embodies values of environmental preservation, thereby contributing to the internalization of citizens' rights and responsibilities, particularly concerning the natural environment. The research employs a qualitative approach with a conceptual paper design supported by a literature review. The literature serves as a basis for exploring, examining, and synthesizing key concepts. The findings indicate that ecopedagogy, when internalized through local traditions, can serve as an effective medium for transmitting ecological values to society. Environmental education grounded in local cultural values not only strengthens ecological identity but also encourages active citizen participation in environmental protection. This research underscores the importance of synergy between education, local wisdom, and policy in shaping environmentally conscious citizens who are actively involved in sustainability efforts.

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Introduction

The natural environment is not merely a resource for human needs but also an integral part of culture [1]. However, excessive exploitation has posed serious threats to the sustainability of all living beings. Between 1950 and 2024, a total of 462 environmental cases were recorded in Indonesia [2]. This condition is closely related to the dominance of an anthropocentric perspective, which positions humans as central and superior to other living beings [3]. Such a perspective has been increasingly challenged, giving rise to ecopedagogy as an alternative approach. Historically, ecopedagogy is rooted in Paulo Freire's critical pedagogy, which emerged in the 1950s and emphasized social and political emancipation [4]. As part of critical pedagogy, ecopedagogy connects education with social justice and ecological crises [5], while fostering individual awareness of ecological impacts [6]. In this regard, education should be understood as a meaningful process of character formation [7].

Local wisdom, as a manifestation of community identity [8], represents a longstanding mechanism through which societies respond to and maintain environmental balance across generations [9]. Through local wisdom, traditional communities demonstrate values, norms, and practices aligned with sustainability principles, often framed as "think globally, act locally" [10]. Collective natural resource management grounded in environmental ethics helps maintain ecological harmony while preventing overexploitation [11]. Therefore, local wisdom functions not only as cultural heritage but also as a critical foundation for fostering contextual and sustainable ecological awareness within communities.

The accelerating pace of human-induced global climate change must be addressed through the development of forms of citizenship education that cultivate new ecological identities and political awareness, extending democratic principles beyond human communities to include the natural environment [12]. The rise of environmental awareness alongside globalization has led to cultural transformations and institutional processes that expand both the rights and responsibilities of citizens [13]. In many established democracies, demands for environmentally friendly lifestyles and environmental protection have become increasingly prominent [14]. Within this context, the concept of ecological citizenship emerges as a normative framework emphasizing how citizens ought to live in ways that minimize environmental impact [15].

Ecological citizenship constitutes a normative strand of green political theory [16]. It extends beyond viewing citizenship as merely a legal status granted by the state, positioning it instead as a moral category and social identity that shapes individual behavior in everyday life [17]. This concept emphasizes transformation, encouraging individuals to adopt sustainable lifestyles as part of their environmental responsibility [18]. It has further developed into related terminologies with overlapping meanings, such as sustainability citizenship [19],

environmental citizenship [20], and ecological citizenship [16], all of which underline the active role of citizens in ensuring environmental sustainability.

Numerous global studies have highlighted the significance of traditional knowledge in sustaining environmental balance. These include the Indigenous Knowledge System (IKS) embedded in traditional windmills (Asbads) in Iran [21], the role of the “Reresik Kali” cultural practice in river conservation in East Java [22], and the local wisdom of the Tengger community in environmental preservation [23]. Furthermore, local wisdom has increasingly been integrated into various educational fields, including history education [24], social studies education [25], primary education [26], and STEAM education [27]. However, the integration of ecopedagogy, local wisdom, and ecological citizenship in Indonesia, particularly in South Sumatra remains underexplored compared to other regions such as Malaysia [28], Bolivia [29], Europe [30], and China [31]. Therefore, there is a need to develop a conceptual framework that explains how ecopedagogy grounded in local wisdom in South Sumatra can contribute to the formation of ecological citizenship. Although the general challenges related to ecological citizenship are broadly similar across countries, interpretations and implementations vary significantly due to differences in social, political, legal, and cultural contexts. Accordingly, this study aims to foster citizens’ environmental awareness through an ecopedagogical approach grounded in local wisdom, specifically the *Bekarang* tradition.

Material and Methods

This study employs a qualitative approach [32] with a conceptual paper design [33], supported by a literature review. The literature serves as a basis for exploring, examining, and synthesizing key concepts related to ecopedagogy, local wisdom, and ecological citizenship. Rather than aiming to comprehensively collect all available studies, as in a systematic review, this research adopts a selective and interpretative literature approach to support the development of a conceptual framework.

The literature sources were selected based on their relevance to the research theme through a staged selection process conducted by the researchers [34]. The initial stage involved identifying articles from academic databases such as Google Scholar and Scopus using the keywords *ecopedagogy*, *local wisdom*, and *ecological citizenship*. This was followed by a screening process based on titles and abstracts to assess their alignment with the research focus. The next stage involved a full-text review to ensure the relevance of each source to the core concepts of ecopedagogy, local wisdom, and ecological citizenship.

Data analysis was conducted using a thematic and interpretative approach, involving the identification, categorization, and synthesis of key ideas found in the literature. Emerging themes were then elaborated to construct a conceptual framework that explains the relationship between ecopedagogy, local wisdom, ecological citizenship, and community

environmental awareness. To strengthen the analysis, this conceptual framework was contextualized through a local practice, namely the *Bekarang* tradition in South Sumatra, which is examined as a medium for ecological citizenship education in everyday community life. The stages of this research are illustrated as follows:

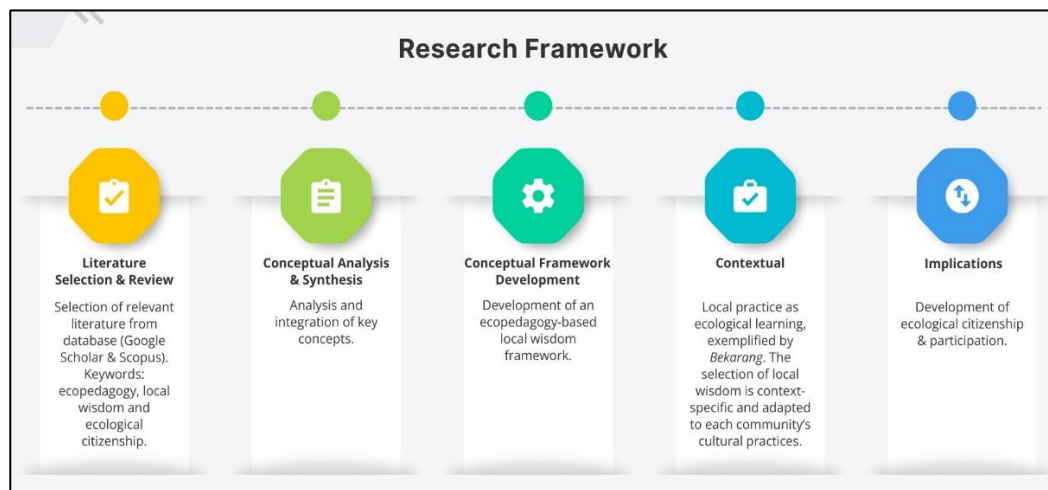


Fig. 1. Research Framework [33]

Results and Discussion

A. Selected Articles

Table 1 presents a selection of articles relevant to the research theme, identified using the keywords ecopedagogy, local wisdom, ecological citizenship, and ecological awareness. The sources consist of both international and regional journal publications retrieved from the Scopus and Google Scholar databases, covering the period 2019–2025. The inclusion of these sources reflects a diversity of perspectives and contributes to strengthening the conceptual foundation of the study.

Table 1. Identity of Selected Paper Based on Title

Code	Title	Author	Journal	Year
A1	Ritual, ecology, and climate change: An ethnoecological study of agricultural communities in East Java [35]	Agus Danugroho et al	Social Sciences & Humanities Open	2025
A2	Ecocultural practices in East Java, Indonesia: A hermeneutic phenomenological study on "Reresik Kali" as local wisdom for river conservation [22]	Abdulkadir Rahardjanto et al	Social Sciences & Humanities Open	2025
A3	<i>Civic Ecology</i> dalam Pendidikan Kewarganegaraan: Penguatan Kesadaran Ekologis melalui Konservasi Hutan Pulau Timor [36]	María Paulina et al	Jurnal Civicatio	2025
A4	Attitude in ecological evaluations of college English textbooks in China [37]	Lihua Wang & Azlin Zaiti Zainal	Linguistics and Education	2024

Code	Title	Author	Journal	Year
A5	Sustainability agendas and communication design pedagogy in HE [38]	Thomas Ellis & Vic Newton	International Journal of Sustainability in Higher Education	2024
A6	Effects of School-based Environmental Clubs: Fostering Environmental Awareness and Strengthening Eco-citizen Behaviors Among Students [39]	Houmam Lotfi & Ibourk Aomar	Journal of Law & Sustainable Development	2023
A7	Membentuk Kewarganegaraan Ekologis melalui Pendidikan Lingkungan berbasis Kegiatan Masyarakat [40]	Edwin Nurdiansyah & Kokom Komalasari	Jurnal Pendidikan Lingkungan & Pembangunan Berkelanjutan	2023
A8	Climate activism, environmental justice, and ecopedagogy—a collaboration project between FFF activists and teacher candidates in Austria [41]	Matthias Kowasch	Journal of Political Ecology	2023
A9	Development of student ecological intelligence through the implementation of ecopedagogy [42]	Akhmad Fauzi et al.	Atlantis Press	2022
A10	Teaching sustainability as complex systems approach: a sustainable development goals workshop [43]	Jana M. Weber et al.	International Journal of Sustainability in Higher Education	2021
A11	Tinjauan Historis <i>Bekarang</i> : Warisan Budaya untuk Alam di Kecamatan Kikim Timur, Kabupaten Lahat [44]	Aulia Novemy Dhita et al.	Journal of Indonesian History	2020

Based on Table 1, the reviewed literature indicates that studies on ecopedagogy, local wisdom, and ecological citizenship have developed in an interdisciplinary manner across educational and socio-cultural contexts. In general, these studies highlight the role of local wisdom as a source of ecological knowledge, the importance of participatory pedagogical approaches in fostering environmental awareness, and the expansion of citizenship toward ecological responsibility. The diversity of contexts, both local and global, suggests that the development of ecopedagogy requires a contextual approach grounded in cultural values, thereby providing a basis for constructing a more integrated conceptual framework that links these three dimensions.

Table 2. Identity of Selected Paper Based on Findings and Limitations

Code	Main Findings	Limitations
A1	• Agricultural rituals function as a form of local ecological knowledge. • Ritual practices serve as cultural responses to climate variability.	• The localized focus limits its relevance for broader ecopedagogical applications.

Code	Main Findings	Limitations
	Ongoing modernization threatens the continuity of these traditions and their knowledge systems.	The qualitative approach does not fully capture how local wisdom shapes ecological citizenship.
A2	- The study highlights the role of local practices and knowledge systems in shaping community responses to environmental and social challenges. - It shows that community-based approaches contribute to sustainability through culturally embedded values and practices. - The findings emphasize the importance of integrating local knowledge into broader development or policy frameworks.	- The study's context-specific focus limits its applicability to broader ecopedagogical or societal settings. - It does not explicitly address how local knowledge can be translated into educational (ecopedagogical) practices.
A3	- Civic ecology can strengthen ecological awareness through forest conservation-based citizenship education. - Local wisdom and multi-stakeholder collaboration are key to fostering ecological responsibility. - Environmental education expands citizenship from political participation to ecological responsibility.	- The study relies on descriptive qualitative data without empirical classroom implementation. - Structural constraints (curriculum, teacher capacity) limit practical application in education. - The tension between economic needs and environmental goals is acknowledged but not deeply resolved.
A4	- The study demonstrates that environmental governance is strengthened through the integration of local knowledge and institutional frameworks. - Community participation plays a crucial role in achieving sustainable environmental outcomes. - The findings highlight the need for collaborative approaches between local actors and formal governance systems.	- The study is context-specific, limiting its transferability to other socio-ecological settings. - It does not fully explore how local knowledge can be operationalized in educational or ecopedagogical (ecological english textbook). - Limited empirical measurement reduces the ability to assess long-term impacts on ecological citizenship.
A5	- Students show interest in sustainability but lack clear understanding of how to apply it in communication design practice. - Effective integration of sustainability requires institutional and curriculum-level support, not just individual initiative. - Sustainability needs to be embedded across all stages of the design process, not treated as an add-on.	- The study is based on a small workshop sample, limiting broader generalization. - It focuses on higher education design students, reducing relevance to wider societal or community contexts. - The findings emphasize perception and reflection rather than measuring actual behavioral or pedagogical outcomes.

Code	Main Findings	Limitations
A6	• Law plays a central role in advancing sustainable development through regulation, enforcement, and justice principles. • Effective governance requires alignment between legal frameworks and sustainability goals (environmental, social, economic). • Sustainable development depends on institutional capacity and multi-actor collaboration supported by legal systems.	• The study is largely normative, with limited empirical evidence on real-world implementation. • It does not address how legal frameworks translate into educational or ecopedagogical practices. • The analysis remains at the policy level, with limited attention to community-based or local knowledge perspectives.
A7	• Community-based environmental education effectively fosters ecological awareness and responsibility. • Active participation in community activities strengthens ecological citizenship values. • Ecological citizenship is formed through experiential and socially embedded learning processes.	• The study relies on qualitative description without measuring learning outcomes empirically. • It focuses on community context, with limited linkage to formal ecopedagogical frameworks. • The absence of critical analysis (e.g., power, gender, or structural issues) limits deeper interpretation.
A8	• Climate activism fosters ecological citizenship through youth engagement, democratic participation, and inquiry-based learning. • Ecopedagogy integrates social justice, environmental justice, and decolonial perspectives in shaping planetary awareness. • Educational collaboration enhances critical thinking, civic responsibility, and socio-ecological transformation.	• The case study is context-specific (Austria), limiting relevance to different socio-cultural settings. • The focus on activism does not fully translate into structured ecopedagogical models for formal education. • The study emphasizes student perspectives, with limited analysis of long-term educational or societal impact.
A9	• The implementation of ecopedagogy effectively improves students' ecological intelligence and environmental awareness. • Experiential and action-based learning (e.g., waste management, recycling) fosters responsible environmental behavior. • Ecopedagogy in civic education helps students position themselves as environmentally responsible citizens.	• The study is limited to a single classroom context, reducing broader applicability. • Short-term classroom action research does not capture long-term behavioral change. • The focus on school-based practice lacks integration with wider socio-cultural or local wisdom contexts.
A10	• Sustainability issues are best understood as complex systems requiring interdisciplinary and systems thinking. • Network science helps students analyze interconnections, trade-offs, and synergies among SDGs.	• The study focuses on a single workshop case, limiting broader pedagogical generalization. • The approach relies on one analytical tool (network science), which may not capture the full complexity of sustainability issues.

Code	Main Findings	Limitations
	Workshop-based, problem-oriented learning enhances critical thinking and collaborative understanding of sustainability challenges.	Evaluation is mainly qualitative, lacking robust measurement of long-term learning outcomes.
A11	- Ecopedagogy that is internalized through local cultural practices, such as the <i>Bekarang</i> tradition, serves as an effective contextual learning medium for instilling environmental values. - local wisdom functions as a bridge between ecological knowledge and social practice, as it embodies integrative values that encompass cultural, spiritual, and environmental dimensions. - Education grounded in local cultural values can serve as a transformative strategy to support sustainable.	The study focuses primarily on a single local wisdom practice, namely the <i>bekarang</i> tradition in South Sumatra, which limits the generalizability of the findings to other cultural contexts with different characteristics.

Based on Table 2, most studies highlight the role of local wisdom, participation, and experiential learning in fostering ecological awareness and responsibility. However, they remain largely context-specific and lack clear integration into structured ecopedagogical frameworks and measurable outcomes. This indicates a gap in linking local practices with systematic approaches to developing ecological citizenship. Furthermore, based on the literature review and local practices, this study identifies key findings related to the implementation of ecopedagogy grounded in local wisdom in shaping ecological citizenship.

B. Ecopedagogy Based on Local Wisdom as a Foundation for Ecological Awareness

Local wisdom refers to a set of values, norms, and cultural practices transmitted across generations, shaped through a long interaction between humans and their environment. It represents ecological knowledge that has been inherited over time [45]. The integration of local wisdom and ecopedagogy has the potential to foster environmental morals and ethics, often conceptualized as ecological citizenship [46]. Local wisdom holds significant potential as a medium for ecopedagogy, an educational approach that emphasizes ecological awareness, environmental justice, and ethical relationships between humans and nature. Through local wisdom, students not only acquire environmental knowledge cognitively but also develop critical and affective awareness of the importance of maintaining ecological balance [47]. The incorporation of local wisdom into ecopedagogical practices enables more contextual and meaningful learning processes. Values such as mutual cooperation, customary restrictions on resource exploitation, and traditional environmental management practices provide relevant learning resources closely connected to students lived experiences. This aligns with Fakhruddin’s findings [45], which highlight that local wisdom functions both as a behavioral

guide and as a social control mechanism in preserving environmental sustainability. In this sense, local wisdom serves not merely as an object of study but as a medium for value transformation in shaping environmentally responsible behavior.

Amid the pressures of modernization, the existence of local wisdom faces various challenges, including the weakening of cultural practices and a shift toward individualistic orientations [48]. This condition is further reinforced by research findings [49], indicating that collective values such as mutual cooperation are gradually declining due to modernization. In a similar vein, globalization, digital media expansion, and shifting social values have influenced communication patterns, lifestyles, and cultural expressions [35]. These dynamics gradually displace communal values [36] and weaken individuals' sense of cultural belonging [37]. Therefore, local wisdom, when integrated through ecopedagogy, plays a strategic role in shaping a generation that not only possesses environmental literacy [50] but also demonstrates ethical awareness and social responsibility in maintaining environmental sustainability [11]. This effort requires active engagement from multiple stakeholders, as emphasized by Wibowo et al. [52], who argue that building environmental awareness must involve education, community participation, and institutional support to achieve comprehensive ecological sustainability.

Ecopedagogy positions environmental issues as a central entry point for achieving social and ecological sustainability [52]. It functions as a critical educational approach that fosters students' understanding of the relationship between humans and nature, while encouraging the internalization of ecological values across cognitive, affective, and psychomotor domains [53]. Local wisdom strengthens this foundation by embedding integrative values that connect humans, nature, and culture, thereby supporting the formation of ecological citizenship who are aware, responsible, and environmentally conscious. Environmental preservation constitutes both a right and an obligation of citizens [54]. As key actors in shaping environmentally responsible societies, governments are expected to play a more active role through policy interventions [55]. Through ecological citizenship, broader global environmental awareness can be fostered [56], emphasizing responsibility toward the environment as a shared living space [57].

C. Promoting Ecological Awareness in Society through the *Bekarang* Tradition

One form of local wisdom in South Sumatra that reflects efforts to preserve river ecosystems is the *Bekarang* tradition. *Bekarang* refers to a communal fishing practice conducted at specific times using traditional methods [44]. Fish are captured either manually by hand or through collective techniques using simple tools made from woven branches, which are drawn together toward the riverbank. Another method involves the use of *tuba*, a natural plant-based substance derived from tree bark that temporarily stuns fish. The bark is crushed,

mixed with water, and dispersed into a confined section of the river, allowing fish to float to the surface for easy collection. This process typically involves small groups of participants and is carried out within controlled spatial limits [58]. Importantly, *Bekarang* is not practiced in an exploitative manner. The community adheres to unwritten norms, such as selectively harvesting larger fish while allowing smaller ones to survive and reproduce. The catch is then distributed among community members or managed through social mechanisms such as shared sales or auctions, reflecting values of equity and collective responsibility [44].

The *Bekarang* tradition illustrates a harmonious relationship between humans and the environment [49] and demonstrates a collective ecological awareness in maintaining river ecosystem balance [22]. This practice embodies the principle of sustainable resource use [59] and aligns with broader environmental ethics education [36]. Beyond its ecological function, *Bekarang* serves as a socio-cultural mechanism that reinforces environmental values within the community. It represents not only a conservation-oriented practice consistent with ecological sustainability principles but also an effective medium for cultivating ecological awareness through lived cultural experience.

The role of the community remains central to environmental sustainability, as demonstrated by prior studies [49], indicating that environmental conservation is inseparable from active public participation. Engagement in collective practices strengthens ecological citizenship values [40] and contributes to broader socio-ecological transformation [41]. Nevertheless, challenges in fostering ecological awareness persist. Previous studies [51] identify key obstacles, including limited public understanding of watershed ecosystems, economic pressures that prioritize short-term needs, and weak local leadership in promoting sustainable environmental practices. The implementation of ecopedagogy grounded in local wisdom, such as the *Bekarang* tradition in South Sumatra, enables learners to position themselves as environmentally responsible citizens [42]. Previous studies also indicate that ecopedagogical approaches, particularly those involving workshop-based and problem-oriented learning, are effective in enhancing critical thinking skills and fostering collaborative understanding of sustainability challenges [43]. Therefore, strengthening community-based ecopedagogy rooted in local wisdom is essential to foster sustainable ecological awareness.

Conclusion

Environmental preservation must become a shared responsibility among all stakeholders, as the current state of environmental degradation is alarming and poses serious threats to human life. Efforts to protect the environment can be pursued through education—not only within the formal education system but also through non-formal and informal learning contexts. Within the framework of ecopedagogy, classroom learning is not confined to textbooks or formal curricula, but can be expanded to include real-life environmental issues

from the students' surrounding contexts. In this model, teachers and students engage in dialogical learning about local ecological events, fostering critical awareness and a deeper understanding of environmental conservation among learners. Ecological citizenship emerges as an extension of conventional notions of citizenship, emphasizing that environmental concerns are integral to the rights and duties of every citizen. In this view, individuals are not only entitled to a healthy environment but are also morally and civically obligated to participate in its preservation. As environmental issues have become global in scale, citizens must respond with tangible and proactive engagement. The values embedded in local wisdom also play a vital role in shaping ecological citizenship. These traditional values offer guidance for harmonious living with nature and serve as ethical foundations for sustainable behavior. By integrating such values into educational experiences, individuals are encouraged to develop a sense of environmental responsibility grounded in cultural identity and local ecological knowledge.

Conflict of Interest

The authors should declare that there is no conflict of interest.

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