

Malay Stilt House Literacy for Strengthening Environmental Education

Nadia Putri Amanda Nasution¹, Sakti Ritonga²

^{1,2}Universitas Islam Negeri Sumatera Utara, Indonesia

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ABSTRACT

This study examines the local wisdom values embedded in the architecture of Malay stilt houses as a literacy medium for environmental education. Malay stilt houses reflect cultural identity and embody sustainability principles relevant to current environmental challenges. The research employed a qualitative descriptive method, utilising in-depth interviews, field observations, and documentation. The study was conducted in AUR Village, Medan Maimun District, Medan City, with informants of traditional leaders, local educators, and residents of stilt houses who directly know these structures' cultural and environmental significance. The findings indicate that Malay stilt houses promote values such as adaptation to natural conditions, energy efficiency, vegetation preservation, and environmentally friendly building materials. These houses hold strong potential as a medium for environmental literacy, as they integrate cultural heritage, ecological awareness, and sustainable living practices. By incorporating the study of Malay stilt houses into educational activities, the younger generation can develop a sense of pride in local culture and a deeper understanding of and responsibility for environmental conservation.

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Corresponding Author:

Nadia Putri Amanda Nasution

Universitas Islam Negeri Sumatera Utara, Indonesia

Email: nadia0309213031@uinsu.ac.id

1. INTRODUCTION

Environmental degradation has become a serious challenge for both global and local communities. Climate change, pollution, and ecosystem damage are not just academic discussions but real-life issues with tangible impacts [1], [2]. In response, sustained and systematic efforts are needed to raise environmental awareness. One strategic way to address these issues is through environmental education. However, for this education to be effective, it must be contextual, linking learning materials to the realities of students' daily lives and the local cultures in which they live [3].

In this context, local wisdom emerges as a vital asset. Local wisdom is the result of long-term human adaptation to their natural environment. It reflects social norms and

ecological strategies suited to local environmental conditions [4], [5]. One prominent example of such wisdom can be found in the Malay stilt house, a traditional architectural form that reveals a deep understanding of environmental challenges faced by coastal communities. Designed to address threats such as flooding and high humidity, while maximising natural airflow and using sustainable materials, the stilt house embodies a philosophy of harmonious living with nature [6], [7].

Malay stilt houses are constructed with both ecological and cultural functions in mind. Their tall pillars help avoid flood risks and soil moisture; using locally sourced timber ensures sustainability; sloping roofs and large windows provide natural ventilation and reduce reliance on electricity [8], [9]. Their flexible structure makes them more resistant to earthquakes and strong coastal winds. These characteristics reflect that traditional communities have long practised sustainable living, even before modern environmental discourse emerged [10], [11].

Unfortunately, modernisation and changing lifestyles have distanced younger generations from this cultural heritage. Many traditional stilt houses have been replaced by modern buildings that often disregard the ecological wisdom embedded in traditional design. Additionally, educational curricula seldom include local cultural content in environmental education, resulting in a disconnect between generations and the loss of environmentally rooted knowledge [12], [13].

A renewed approach to environmental education that incorporates local culture is therefore essential. Cultural literacy—specifically through learning about Malay stilt houses—can be a powerful strategy in teaching environmental values. This form of literacy helps students recognise, understand, and reflect on ecological knowledge inherited from traditional communities. Such an approach makes learning more contextual and practical, allowing students to study theory and observe real-life examples in their environment. It also fosters pride in local identity while deepening environmental consciousness [14], [15].

Integrating Malay stilt houses into environmental education also aligns with the context-based learning model, emphasising connecting subject matter with students' real-world experiences. Culturally grounded learning is easier to grasp and more relevant to students' everyday lives. For example, students can learn about natural ventilation, energy efficiency, and sustainable materials by studying the structure of stilt houses. In this way, abstract sustainability concepts become more concrete and applicable [16], [6], [17].

Beyond education, preserving Malay stilt houses also plays a role in safeguarding Indonesia's cultural diversity. Research by Ritonga highlights that the Malay identity along the eastern coast of Sumatra developed through a long historical process of migration and assimilation. In regions such as Langkat, Deli, Batubara, and Asahan, Muslim Batak communities have adopted the Malay language and cultural practices, despite not being the original inhabitants. These groups are descendants of Malay migrants from Jambi, Palembang, the Malay Peninsula, Minangkabau, Bugis, and Java who brought Islamic-Malay culture to the region. Their presence led to significant cultural blending and identity transformation, including among local Batak populations who assimilated into the dominant Islamic-Malay identity. This rich cultural dynamic underscores Malay stilt houses' significance as cultural and ecological symbols [18], [19].

Previous studies also support the educational value of traditional houses. Rahman noted a lack of awareness among young people regarding Malay architecture's cultural and environmental significance. Wahyuni's study found that traditional houses can instil character values such as discipline, responsibility, and ecological awareness through contextual learning. Hasan highlighted the underutilisation of local cultural literacy in supporting environmental education, while Zulkarnain examined how modernisation has eroded local values, including those embedded in domestic architecture. Simanjuntak emphasised that traditional houses can be effective educational media for developing environmental consciousness rooted in local wisdom [7], [17].

These studies consistently stress the importance of preserving local wisdom as reflected in traditional house architecture, particularly the Malay stilt house. Traditional houses are cultural heritage and expressions of a strong environmental philosophy, including disaster adaptation, energy efficiency, and eco-friendly materials. Moreover, cultural literacy through traditional housing is seen as an effective tool in environmental education, given its contextual and relatable nature [4], [20].

This study aims to identify the environmental values embedded in Malay stilt house architecture as a form of local wisdom and to analyse its potential as a literacy medium for environmental education among students [21], [22].

2. METHOD

This study employed a descriptive qualitative approach to describe and interpret the meaning of Malay stilt house literacy concerning environmental education. This approach was chosen because it is well-suited for exploring cultural values and local wisdom that are not measurable through quantitative methods [23], [24]. The qualitative method allowed for an in-depth exploration of the phenomenon through direct interaction with the research subjects and their environment. Data were collected through direct observation, in-depth interviews, and documentation, including photographs, written archives, and field notes. Eight informants were selected purposively, consisting of two traditional leaders, three residents of Malay stilt houses, two local educators, and one cultural preservation officer, all considered to possess relevant knowledge and direct involvement with Malay stilt houses' cultural and ecological values. The research was conducted in Education Alley, Mantri Street, AUR Village, Medan Maimun District, Medan City, North Sumatra, an area known for its well-preserved traditional Malay stilt houses. This site was selected due to its rich cultural heritage and the potential of its architecture to serve as a contextual learning resource in environmental education. Data analysis followed the interactive model proposed by Miles and Huberman, which consists of data reduction, data display, and conclusion drawing. To ensure the validity of the findings, the study applied triangulation techniques across both sources and methods. Ethical considerations were strictly observed; all informants gave informed consent, and their identities were kept confidential to protect their privacy.

3. RESULTS AND DISCUSSION

3.1 RESULTS

Aur Village, located in Medan Maimun District, Medan City, is rich in Malay cultural heritage, particularly in traditional architectural forms like Malay stilt houses. The Malay stilt houses in Aur Village symbolise the local community's cultural identity and reflect local wisdom in adapting to the environment. The houses' stilt-shaped structure protects against floods and wild animals, and maximises tropical air circulation. In addition to their practical function, these stilt houses are decorated with typical Malay carvings rich in philosophical and aesthetic meaning. Amidst the development of modern cities, the existence of Malay stilt houses in Aur Village serves as a reminder of the importance of cultural preservation as part of the education and identity of today's urban society.

Around 1943, the three people who first turned this land into a settlement were Sabaruddin, Muncak Roro, and Amirudin, followed by other Minang workers. The central point of these three people opening residential land was on Jalan Mantri, Neighbourhood III, and Jalan Kampung Aur, Neighbourhood IV. That is why Minang people dominate Kampung Aur; even from generation to generation, they continue to live in Kampung Aur. They consider Kampung Aur to be a gathering place for Minang residents. According to the story of the residents, Kampung Aur once had a poet, Khairil Anwar, and a former Prime Minister of the Republic of Indonesia, Sutan Sjahrir. This was once published in print media: "In one version of history, Khairil Anwar, who was known to be "crazy" about reading, had a neat appearance and had a wide social circle, was known to have been born in Kampung Aur, Medan City, a legendary village that is alive and throbbing in the heart of Medan City. Khairil and several other national figures, such as the former Prime Minister of the Republic of Indonesia, Sutan Sjahrir, are also said to have lived in that village.

The Malay stilt house is a cultural heritage of the Indonesian archipelago, rich in local wisdom, including values related to environmental conservation. The architecture of this house was designed with consideration for the surrounding natural conditions, such as damp soil, flooding, and wild animals. The house's elevated form, supported by wooden pillars, testifies to the community's environmental adaptation. This demonstrates that our ancestors possessed a strong ecological understanding. Literacy about the Malay stilt house can be a gateway to introducing environmental education from an early age.

Current environmental education is often theoretical and underemphasises local cultural aspects. Learning can directly link to proven local values for preserving nature using Malay stilt house literacy. For example, using natural building materials like wood, rattan, and nipah leaves fosters awareness of the importance of protecting forests and natural resources. The housebuilding process is also done through cooperation, reinforcing the values of togetherness and social concern for the environment. These values can be incorporated into the environmental education curriculum in schools.

Beyond the building materials, Malay stilt houses also feature adequate ventilation and natural lighting systems. This reduces the need for electricity and air conditioning, thus teaching energy efficiency from an early age. The pitched roof system and large windows facilitate air circulation and sunlight, an environmentally friendly adaptation. Children who

learn about this will understand the importance of environmentally friendly building design. This kind of literacy practically instils sustainability principles.

Stilt houses are often built around trees to avoid damaging existing vegetation. This reflects the philosophy of living alongside nature, not conquering it. In an educational context, this can be taught as an important environmental ethical value: humans are part of the ecosystem, not its rulers. This learning can be conveyed through folk tales, drawings of traditional houses, or small projects such as building miniature stilt houses from recycled materials. In this way, cultural literacy and ecological literacy go hand in hand.

The Malay language used to name parts of a house also contains natural philosophy and symbolism. For example, the term "lantai kolong" refers to an empty and multi-functional space, such as storing crops or sheltering livestock. This demonstrates efficient and environmentally friendly use of space. By learning these terms, students learn new vocabulary and inherent conservation values. This adds a new dimension to language and cultural learning.

Environmental literacy activities based on Malay stilt houses can include direct observation of traditional villages. Students can be invited to explore the house's structure, note the function of each part, and discuss how the house contributes to environmental sustainability. This activity builds knowledge and fosters empathy and awareness of the importance of preserving culture and nature. With this thematic approach, environmental education becomes more contextual and enjoyable. Students also learn to appreciate their local identity.

Through literacy on Malay stilt houses, the values of responsibility, simplicity, and sustainability become more evident. These houses are built without altering the land contour, maintaining groundwater quality, and minimising environmental impact. This philosophy can be used as an example in learning projects that emphasise the principles of sustainable development. Amidst the rise of environmentally unfriendly modern development, this local wisdom offers a concrete solution. The lessons learned can be applied in the daily lives of the younger generation.

Young people can write short stories about life in eco-friendly stilt houses or create artwork based on traditional architecture. Literacy extends beyond reading and writing to visual and practical skills. This is highly effective in strengthening interdisciplinary learning. This culture-based education helps shape students' character, embracing environmental stewardship and respecting their ancestors' heritage.

Overall, Malay stilt house literacy is not just an introduction to traditional architecture, but also an effective medium for environmental education. Students are encouraged to think critically about the relationship between humans and nature by exploring the stilt houses' ecological and cultural values. This is particularly relevant amidst the challenges of climate change and the global environmental crisis. Local wisdom serves as a bridge between the past and a sustainable future. Therefore, this literacy must be actively developed and integrated into our educational curriculum.

3.2 DISCUSSION

The discussion on Malay stilt house literacy in Kampung Aur as a medium for environmental education reveals the significant potential of local wisdom to be integrated into modern educational systems. These stilt houses are not merely dwellings, but living representations of how traditional communities adapted to their environment while preserving cultural identity. Their architectural design—elevated on wooden stilts, made of natural materials, and adorned with symbolic carvings—embodies a deep ecological awareness that aligns with sustainable living principles.

This insight is consistent with the findings of Sulasmi, who emphasised the importance of incorporating local wisdom into environmental education to support sustainable development. Their research highlights how ecological values embedded in traditional practices enhance students' understanding of environmental preservation. In the case of the Malay stilt house, using organic materials like wood, rattan, and nipah leaves fosters an early appreciation for forest and resource conservation, while the minimal alteration to land contours reflects a strong ecological ethic [15].

Furthermore, the idea of using traditional houses as educational media is reinforced by the research of those who found that cultural heritage can serve as an effective interdisciplinary learning tool. In Kampung Aur, the stilt houses promote environmental literacy and offer avenues to explore history, literature, and local art. The presence of historical figures such as poet Chairil Anwar and former Prime Minister Sutan Sjahrir, who are said to have lived in Kampung Aur, adds a rich narrative layer to the learning experience. This cultural grounding enhances students' connection to their identity while fostering respect for the past [25].

In line with this, Rahmawati explored how traditional architecture cultivates ecological intelligence by emphasising buildings' function, form, and social values. The Malay stilt houses of Kampung Aur reflect this integration, with their natural ventilation systems, elevated structures, and communal construction processes that emphasise cooperation and shared responsibility. These characteristics promote values such as simplicity, togetherness, and sustainability—important components of character education that can be reinforced through local culture [26].

Thus, Malay stilt house literacy introduces students to traditional architectural forms and deepens their understanding of the interrelationship between humans and nature. The support from these three previous studies strengthens the argument that local culture-based approaches are both relevant and practical, particularly in addressing the ongoing climate crisis and the growing disconnection from cultural roots in urban settings. Integrating cultural and environmental literacy into school curricula offers a meaningful way to educate young generations, equipping them with ecological awareness while nurturing their cultural identity and sense of responsibility for the planet.

4. CONCLUSION

Literacy The Malay stilt house reflects the local wisdom of the Malay people who live in harmony with their natural surroundings. Therefore, literacy based on the Malay stilt house is worthy of being part of a contextual and local wisdom-based environmental

education strategy. The study's findings on Malay stilt house literacy for environmental education suggest that the architecture of the Malay stilt house contains environmental educational values. Iteration literacy Environmental education through Malay stilt houses, namely adaptation to nature, energy efficiency, vegetation preservation, and environmentally friendly building materials. Malay stilt houses have great potential as a literacy medium for environmental education because they combine elements of culture, ecology, and sustainability practices easily understood by the younger generation. Understanding Malay stilt houses in learning activities, the younger generation recognises local cultural identity and develops awareness and responsibility for environmental preservation.

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