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Reconceptualizing Environmental Education through Indigenous Knowledge: A Community-Based Pedagogical Model from Customary Forest Practices

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Abstract

This study reconceptualizes environmental education by examining customary forest governance as a community based pedagogical ecology. While environmental education is often framed within formal schooling and curriculum reform, indigenous communities have long sustained ecological knowledge through lived practice, moral guidance, and intergenerational transmission. Drawing on qualitative case study research in a customary forest community in Central Sulawesi, Indonesia, this study explores how environmental learning is embedded in everyday activities, spatial zoning practices, ritual life, institutional deliberation, and livelihood routines. Data were collected through in depth interviews, participant observation, and analysis of community narratives. The findings reveal that the forest functions not only as an ecological resource but as a formative educational landscape where ecological awareness is cultivated through participation, relational ethics, and collective accountability. Customary institutions model reflective governance, rituals reinforce moral commitment to land stewardship, and livelihood practices nurture long term ecological reasoning across generations. By interpreting customary forest practices as an integrated pedagogical system, this study expands the conceptual boundaries of environmental education beyond formal institutional settings. It argues that sustainable education must recognize indigenous pedagogical ecologies as legitimate and sophisticated forms of knowledge production and moral formation. The study contributes to ongoing debates on decolonizing environmental education and highlights the importance of community-based learning in fostering ecological consciousness.

Introduction

The rapidly increasing rate of environmental destruction has added to the pressure of education taking a transformative position in the development of ecological awareness and sustainable behavior. In policy agendas and scholarly literature, the idea of environmental education is often linked to the strategic response to climate change, loss of biodiversity and depletion of resources. Schools are supposed to produce environmentally literate citizens, who can critically reflect on their environment and make sound decisions. Nevertheless, with this growing scope of mandate, it remains common to still consider environmental education in the context of the architecture of formal schooling (Bradecki et al., 2024; Dillon & Herman, 2023). It is commonly related to curricular modules, institutional programmes and quantifiable learning outputs. Although this is a valuable undertaking, this kind of framing may hide other long-term educational processes that have remained ecologically responsible beyond the formal institution (Edo-Osagie, 2025; Iziduh et al., 2021; Zhou et al., 2025; Bankole & Lateefat, 2021).

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In numerous indigenous communities, environmental education is not presented as an independent area of research. It is embedded in normal life by being involved in livelihood activities, circles of rituals, and people governance. The education related to land and forest is taught by observation, dialogue, memory and moral teaching, which is taught progressively with time (Dickinson, 2011; Jardine, 2017). These communities do not divide learning and living, but they develop environmental consciousness via relational interaction with place. The forest cannot be viewed at the detached level, but is an inhabited space that defines perception, discipline, and moral orientation. Such practices need to be identified using a wider concept of education as an ongoing social process instead of a confined institutional action.

Indonesia is one of the places where it is possible to discuss such an extended conception of environmental education. Forest communities in the archipelago have built local governance based on local wisdom, intergenerational memory, and collective responsibility (Saputra, 2025; Aspan et al., 2025; Margono et al., 2025; Firnadi, 2025). Forests are perceived not only as a source of economic good but a pillar of identity and spirituality and community survival (Yemini et al., 2025; Roux et al., 2022; Osebor, 2024). Traditional laws govern the availability of resources, define areas of protection, and define penalties in case of any environmental infractions. However, these norms are not just organisational of resource management (Wiersema, 2008; Gunningham, 2011). They instruct younger generations in the understanding of environmental restraints and placing them into ecology. By being engaged in agricultural activities and harvesting and communal discussions, children and youth slowly begin to internalize the values of restraint, reciprocity, and stewardship.

Although these practices are educationally rich, the traditional scholarship has tended to concentrate on legal recognition, land rights and conservation policy. The studies about the customary forests often focus on the regulatory framework and administrative issues. Whereas these views are considerable, they have the disadvantage of blurring the pedagogical aspects entrenched in the traditions of rule. Scholarship in environmental-education has sought to engage with Indigenous knowledge systems of epistemology and place (Kapyrka & Dockstator, 2012; Abas et al., 2026). Nonetheless, there is a lack of empirical research which specifically investigates customary forest life as pedagogy. The role of Indigenous forms of governance as educational landscapes is also not adequately explored.

This research is a response to that requirement since it explores the implementation of environmental education in one of the traditional forest societies of Central Sulawesi. The study does not focus on the forest as a policy problem as much as on a formative landscape that fosters the development of ecological knowledge, moral responsibility, and social identity concomitantly. It looks at the role played by experiential involvement in everyday activity in shaping environmental awareness, communication of ecological limits through spatial zoning, upholding of ethical commitment through ritual life, how customary institutions model deliberative responsibility, and how livelihood practices cultivate ecological consciousness among generations. It is through these related dimensions that the study situates customary governance as a pedagogical ecology of coherence that continues to remember the environment over time.

In this respect, the article makes its contribution to the current attempts to reconsider environmental education outside formal curricular models. It indicates that sustainable education should be able to involve relational ethics, collective accountability and lived experience as core elements as opposed to peripheral issues. As a pre-emptive gesture toward Indigenous community activities, the research attempt challenges the view of environmental

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education as a culturally situated procedure that unites knowledge, morality, and livelihood in collective ecological frameworks.

Literature Review and Conceptual Framework

Environmental Education beyond Formal Schooling

The historical connection of environmental education has been associated with the development of curriculum, approaches to teaching and learning, as well as the reorganization of schools in formal schooling settings. As time has passed, there has been a growing growing concern by scholars on the sufficiency of environmental learning being restricted to the classroom-based learning. The sustainability issues are not only technical challenges that need informational solutions; the issue under consideration is the ethical judgment, awareness of relations, and a long-term orientation (Eberhardt-Toth & Wasieleski, 2013; Boiral et al., 2019). As a result, the concept of environmental education has developed over time to include community-based contexts, place-based interaction and experiential learning activities.

It is an emphasis of modern literature that substantive environmental learning is often a by-product of lived experience in specific ecological contexts. Place-based education emphasizes the need to link learners to the immediate environment, past, and cultural stories of a place to develop a more ecological awareness (Vander Ark et al., 2020; Glasson et al., 2006). This view of learning as place relations is, instead of considering the environment as the abstract content it is. The identity formation and moral responsibility is built in such situations with cognitive knowledge. This paradigm shift provokes the look at education processes outside of institutional frames but which contribute to ecological mindfulness intergenerational (Mejía-Cáceres, 2025; Walsh et al., 2021; Zhao & Zhong, 2025).

In this broadened context, it is possible to consider environmental education as a socially ingrained everyday practice. The process of learning is not limited to formal education but it is evident in engagement, witnessing and collective work. This view provides an opportunity to study the context of indigenous communities as a location of long-term environmental pedagogy.

Native Pedagogy and Relational Epistemology

The indigenous knowledge systems have their basis on the interactions that exist between the communities and their environments over the long term. These systems transcend the technical resource management plans; they include moral systems, spiritual orientations as well as social norms that regulate human relations with land and non-human life. Indigenous pedagogy, in turn, works on a relational epistemological level, according to which the knowledge can be inseparable with the sense of responsibility and belonging (Ritchie, 2013; Day & McPherson, 2026; Martin, 2017).

Relational epistemologies involve learning by facilitated participation, narration, practice, and shared discussion. The power is manifested in elders and traditional rulers whose legitimacy and authority are based on the manifested stewardship and shared trust. The knowledge is confirmed by the continuity of living and the effectiveness of the ecological system instead of the official certification (García-del-Amo et al., 2022; Ynacay-Nye et al., 2022). These qualities oppose the mainstream education theory assumptions of a knowledge-text match or institutional accreditation.

To realize indigenous pedagogy, it is imperative to note that the most important part of environmental learning is moral formation. The ecological consciousness is developed not merely by watching the workings of nature, but through rituals and stories which place human

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action in larger cycles of descent and descendants (Grim, 2011; Davy & Quilley, 2018; Sepie, 2017). In this regard, it is indigenous environmental education that is generationally interconnected in its nature, which bridges the aspects of memory, identity and ecological continuity.

Location, Territory, and Pedagogical Ecology

Pedagogical ecology offers a model through which the customary practices in the forest could be interpreted as educational. Pedagogical ecology is defined as a system of learning processes that combine space structure, social organization, morality and livelihood activities. This framework does not separate individual teaching sessions but acknowledges that learning can be maintained by a combination of mutually reinforcing dimensions.

Spatial organization is an expression of ecological meaning in place-grounded contexts. Resource restraints, conservation and boundaries are used as educational resources that are effective in perception and behavior. Rituals serve to strengthen ethical obligations whereas institutional deliberation models are models of reflective governance. The process of livelihood incorporates sustainability in economic thinking (Sepie, 2017; Goodenough, 2023; Singh & Niglio, 2026). All these dimensions together create a stratified educational context where knowledge, morality and identity are constructed together.

This approach is also consistent with the research on land-based learning and community-based education, emphasizing the fact that sustainable knowledge is developed by participating in embodied practices in particular settings. Pedagogical ecology thus provides a critical tool of analysis which incorporates learning experience, moral instruction, and civic action into a logical system.

Community Governance as Educational Practice

The traditional forms of governance have often been explored using either legal or policy analytical discourse; however, the processes of governance are also pedagogical. Values and patterns of reasoning can be communicated by the means of public deliberations, practices of conflict-resolution, and restorative sanctions thus providing younger generations with the opportunity to learn not only formal rules but also the ethical reasoning behind them (Schrage & Giacomini, 2023; Lewis, 2025). When the environmental decision-making is done publicly in the community, the youth are exposed to the collective reasoning process on the long-term impacts which helps in developing civic responsibility and ecological sensitivity. As a result, governance can be imagined as continuous curriculum of joint accountability and by seeing governance as an educational venture the analytic focus is shifted out of regulation onto formation and enforcement out of internalization.

Theoretical Positioning of the Research

Based on these theoretical strands, this study makes conceptualisations of customary forest governance as a pedagogical ecology. Environmental education is perceived to be a multifaceted system that includes experiential interactions, spatial boundaries creation, ritual reinforcement, institutional deliberation and livelihood management. It is the interrelation of these dimensions that enables ecological consciousness to be maintained even though it is not based on formal curricular structures. Placing traditional forest practices in this conceptual context, the study aims at expanding the limits of institutionalized environmental education, as well as to prefigure indigenous community pedagogy as both a plausible and advanced form of sustainability education. This stance allows the empirical evidence to be taken as not separate cultural practices but as part and parcel of a coherent educational system that functions within the framework of relational, moral, and intergenerational processes.

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Methods

This qualitative study was based on the fact that environmental education among the indigenous community cannot be well explained by solely regulatory analysis of environmental education or quantitative measure. It focuses on the processes of life where an ecological value is acquired, internalised, and replicated in the daily community life. Routine forest practices are not seen as systems of resource management but as pedagogical space within which moral, cultural, and ecological knowledge is being constructed continuously thus requiring a qualitative turn of mind in order to capture meanings, experiences, and the more subtle forms of intergenerational transmission that form environmental consciousness within context.

The study took a case-study approach that was set in a recognised traditional forest society in the Central Sulawesi. The location was specifically chosen because it had active traditional institutions, continued practices of forest governance and continued use of local wisdom in controlling human relationship with the natural environment. Instead of viewing it as an object to observe, the study allowed the community to breathe as a living educational environment where learning was experienced through participation, dialogue, ritual and collective labour. This design helped to work extensively on understanding the functioning of environmental education beyond the structure of formal schooling and embedded in the social relations and cultural continuity.

The gathering of data was done by semi-structured interviews, participant observation, and the review of community narratives and traditional papers, which were done in depth. Customary leaders, elders, women who were involved in forest-based economic activities, youths, and community facilitators were also interviewed. These respondents were identified purposely in order to capture the different generational and social views in the community. The interview was dialogical and not extractive and discussions were held based on questions about the introduction of ecological norms to children, the role of forest-related taboos and rituals as pedagogies, and how members of the community see their roles with regard to land and forest ecosystems. These discussions also aimed at the study to uncover not just explicit practices of teaching but also implicit moral frameworks that inform environmental behaviour.

Participant observation was used to supplement the interview data as it enabled direct observation of everyday practices within which environmental learning takes place. The researcher visited farming events, forest products harvesting, traditional meetings and ritual ceremonies to see how knowledge is demonstrated, amended, strengthened and embodied. Specific emphasis was made on the relations between the older generation and the younger ones, on the instances of teaching integrated into the labour and on the symbolic aspects of rite practices conveying the ecological ethics. Field notes recorded actions, expressions and relational dynamics, as well as captured reflective impressions that were apparent after being in the field over some time.

Along with interviews and observation, oral histories and documents held locally were considered cultural texts that retain ecological memory and normative guidance. These readings gave an idea of what customary forest rules are based on philosophically and also helped to light up the way in which the values about the environment are told, defended, and validated between generations. Instead of taking these sources as formal legal documents, they were understood as statements of a community-based educational worldview.

The process of analysis of data was interpretive thematic. The field notes and interviews transcripts were repeatedly read to determine patterns in the ecological learning, moral formation, collective regulation, and experience knowledge. Inductive coding was performed,

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which meant that the themes were identified and derived out of the data and were then connected to the larger theoretical debates in the context of environmental education and community-based pedagogy. This process of repetition between the empirical and conceptual reflection allowed the analysis of the analysis to proceed beyond the description itself to the more profound understanding of how the environmental education as a cultural practice works.

Results and Discussion

Interpretation of interviews, field notes and community stories suggests that the environmental education within the traditional forest community is deeply entrenched into the daily societal life. Ecological learning is not an institutional activity on its own; rather, it is a process of interaction, participation, and shared responsibility. The results indicate that the forest is a physical space, cultural space and pedagogical space whereby knowledge, values and practices are passed across generations. The findings are organized in five interconnected themes which explain how environmental education is put to practices, maintained and internalized in the community context.

Customary Forest as Experiential Environmental Learning Living Space.

These results indicate that environmental education among the customary forest community is developed as a result of experience and not by education. The ecological cognitions are developed by means of being involved in the daily practices, like farming, harvesting forest products, preserving water sources, and communal labor. In this environment, the forest is not a place of economic production and cultural representation; it is a molding place where the values, abilities, and duties are formed and developed. Education is ongoing and part of everyday life and the process of acquiring knowledge is through the intermittent engagement with the land and community.

The seniors always referred to the learning process as an accompaniment, but not as regular teaching. Children do not get separated in activities of adults so that they can be taught something on conservation, rather they learn by walking with their parents and grandparents. An elder explained this process with quiet clarity:

> *"We never gather the children to lecture them about protecting the forest. They come with us when we work. From there they see and begin to understand which places must be respected and which things can be taken."*

This observation demonstrates that environmental knowledge is passed on by the way of proximity and being a part of the same experience. The process of walking through the forest, as a group, does serve as a pedagogical experience. Sensitivity to space and morality is developed over time as children learn to follow the way in which choices are made and the way in which boundaries are respected.

Development of ecological responsibility is strengthened with the guidance that is habitual in working practice. In many respects community members tend to tie action to consequence in a tangible and immediate manner. A woman involved in collecting non timber forest products expressed this orientation in her own words:

> *"We always remind the children to take only what is necessary. If we take too much, the forest will not give again next year. They see what happens when a tree is damaged, and they learn from that."*

Her statement demonstrates that the idea of sustainability is expressed as living reality and not as an abstract concept. The forest turns out to be a source of visible evidence which forms

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moral reasoning. Children are urged to pick out tendencies of rising and falling, and in this care they form a sentiment of discipline that is based on observation.

Education is also part of learning that occurs through conversation as part of joint work. Youths in society told how they formed their conception abouts and ecological rhythms by talking as they were in the field. A young farmer recounted:

> *"My father would point at the leaves and tell me that when they change, the season is shifting. He would explain why we should wait before planting or cutting. I learned these things by being there with him.*

This witness proves that ecological literacy develops as a result of the interaction that is both explanatory and demonstrative. Narratives of historical experiences go hand in hand with the educational teachings, connecting the present practices with the shared memory. In such a manner, knowledge is not separated off identity; it is interwoven into a story of belonging.

Observations in the field also indicated that instances of correction are done with carefulness and purposes. An older person would come and persuade a child when he or she was trying to gather a larger amount of forest products than was permissible, and the reason why he or she had to be restrained. It was not about punishment but about developing an understanding. A member of the customary council expressed this perspective with conviction:

> *"It is not enough to have rules. What matters is that the younger generation feels that the forest is part of their life. When they feel that connection, they will protect it on their own."*

Such an outlook emphasizes an educational orientation based on internal change. This is done in a bid to foster a culture of attachment and responsibility that is not reliant on outer coercion. By interacting on a daily basis, telling stories and by making minor corrections, ecological awareness is built as an element of perception to both the youth and the world around them.

Based on the interview and observation evidence, it is evident that the customary forest serves as a learning environment that involves continuous learning. Learning cannot be separated and the ecological knowledge the result of experience, thought, and common life. Children and youth learn skills which are useful and in the process, they get dedicated morally to the land. The forest thus does not merely constitute a controlled landscape but also an area where ecological awareness is gradually and persistently nurtured.

Zoning Practices as Spatial Pedagogy of Ecological Limits

Along with the experiential learning based on the daily involvement, the current work proves that the traditional zoning system serves as a subtle, but a powerful tool of environmental education. The process of demarcating the forest into conservation zones, reserve zones, and limited production lands is not simply a technical process of managing the resources, but a highly internalized understanding of ecological balance and mutual existence. Such spatial demarcations are constantly passed on to the younger generations through experience, discourse of explanation, and an active involvement in making decisions regarding the community. As a result, the spatial arrangement as such takes up a pedagogical position.

Older people explained how children would be taken to special forest regions and introduced to their importance. They are putting zoning in the context of a narrative of historical experience, ecological change and community accountability instead of framing it as a strict regulatory schema. One elder explained this approach with calm deliberation:

ISSN 2721-0979 (Print), ISSN 2721-1258 (Online)

> *"In our forest there are places that we treat with special care. When we bring the children there, we explain that those trees protect the water and the animals. If we cut carelessly, the spring will dry and the animals will leave. That is why some areas must remain untouched."*

The discourse carried out by the speakers explains how spatial limits are built using relational thinking. The partition of the forest is to maintain ecological continuity and not to be bureaucratically transparent. Children are taught to be able to sense interrelations between trees, watercourses, fauna and human sustenance. As such, zoning promotes systems thinking at early stages of development. Instead of the boundaries being viewed as bans dictated by the authority, the boundaries are viewed as a demonstration of interdependence.

Zoning pedagogical aspect becomes more noticeable when communal deliberations are involved. When discussions are made with regards to the division of new land or the extension of cultivation, the elders and customary leaders define boundaries on which land can be taken and those that need to be preserved. Such deliberations are carried out in an open arena and hence, subject the younger people to how the environment considerations are involved in decision making. A member of the customary council described this dynamic thoughtfully:

> *"When someone proposes to clear land, we discuss it together. We look at the location and remember which areas are important for water and which are already used. The young people listen and learn that land is not something we use without thinking."*

Through participatory involvement in such debates, the young people will see the moral logic behind spatial control. They get to know that land usage is directly connected with collective responsibility. The paradigm of such interactions provides reflective judgment and supports the concept that the decisions made by the environmentalists influence the whole community.

Field observations also explain the way spatial pedagogy can be realized in the daily interactions. As they were taking a walk in the forest, one of the seniors stopped near a spring surrounded by thick vegetation. He just wrote me telling me how the trees in that place should not be cut as they withhold water during dry season. Children were staying around, asking and questioning about the possible outcomes of removing the trees. The discussion was carried out in a natural way, connecting observable landscape elements with the invisible ecological dynamics. At that moment, the border was not abstract. It was anchored in lived reality.

A young participant later reflected on how his understanding evolved over time:

> *"When I was younger, I thought the rules were just restrictions. But after working in the forest and seeing how the water depends on those trees, I began to understand why some places must be protected."*

His reflection is the manifestation of the gradual shift of obedience to understanding. The spatial rules that seem to be limiting in the beginning acquire their meaning over time by experience. In turn, the zoning system does not only help to be aware of the ecological boundaries, but it also allows valueing the rationalisms behind those boundaries.

What comes out of these results is a representation of the forest as a systematic but push-pull curriculum. The documentary effect is a space organisation, which transfers the principles of sustainability and it is reinforced by discourses of narrative, collective deliberation, and the personal observation. As time goes by, people will internalise a mental map of the forest that will combine ecological knowledge and moral obligation. The landscape as a whole is a teacher, directing perception and molding behavior through culturally-based frames that are understood, honored, and perpetuated by intergenerational means.

ISSN 2721-0979 (Print), ISSN 2721-1258 (Online)

Ritual Practices and Moral Transmission of Environmental Ethics

The results also show that the environmental education among customary forest societies is closely connected with the ritual life and ethical tradition. The ecological responsibility is no longer conveyed only by practical training or territorial control, it can be also integrated into ritual activities, seasonal traditions and collective symbolic actions which strengthen the connection of the community to the land and forest. Ritual presents the environmental values not simply as the depiction of the functional needs but as a moral obligation based on the cultural belonging.

Ritual gatherings are regularly characterized by members of the community as the time when collective memory and ecological consciousness meet. The ceremonies that consist of traditionally marking the beginning or the end of the planting or harvesting seasons give the elders a chance to remind the younger generations of the duties they have to keep the forests. During these events, narratives about ancestors, past environmental crises, and the consequences of neglect are recounted. An elder reflected on the significance of these rituals:

> *"When we gather for ceremony, we are not only giving thanks. We are reminding ourselves that the forest has sustained us for generations. If we forget that, we lose more than trees. We lose our way of life."*

This assertion shows that ritual is a channel of moral direction. Environmental protection is expressed in terms of continuity and how it defines identity instead of being a technical requirement. Humbleness and reliance on ecological systems are strengthened by the practice of thanksgiving, and shape attitudes that are not limited by immediate economic interests.

Another role that ritual prohibitions play is an educational role, namely that moral boundaries are established in regard to the use of resources. Some parts of forests have religious value and are only visited under certain conditions. These prohibitions are expressed and conveyed in the form of narratives and experiences instead of edicts and proclamations. A customary leader explained how such prohibitions influence younger members:

> *"When we tell them that a place is sacred, it is not to frighten them. It is to teach them respect. Sacred means that we must be careful and mindful. If we treat everything as ordinary, we will destroy it."*

In this framing, sacredness is a pedagogical notion that promotes humility and respect. Children are raised in the understanding that there are specific spaces where they are expected to be more responsible. This means that symbolic meaning, which goes beyond utilitarian logic, beefs up the moral aspect of environmental education.

Another way that learning takes place in a communal manner is observed during ritual occasions. In a community thanksgiving service, the elders were discussing the balance between taking and giving. The young people were good listeners and some of them later repeated the messages that were passed at the meeting. These statements indicate how ritual discourse forms interpretation and inner belief gradually. What seems like usual formality, may be transformed into accepted ecological advice. Ritual thus is a repeated site of reflection where environmental ethics are rejuvenated and re-established. A young woman shared her reflection:

> *"When the elders speak during the ceremony, they always remind us that the forest is patient but not endless. I used to think it was just tradition, but now I understand that it is advice for our future."*

Such results indicate that environmental education in the community is based on moral formation. Ecological responsibility is connected to group identity and spiritual sense through

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ritual, narrative, and ritual action. Environmental ethics cannot be separated out of cultural existence; instead, they are immanent to it. As people engage in the ritual cycles in life they internalize a sense of continuity that connects them to the ancestors and the future generations. Through this way, ritual practice is a continuing learning process that maintains ecological awareness over time.

Customary Institutions as Informal Educational Authorities

These data reveal that traditional institutions do not just control the use of forests, but they also project the moral architecture which defines the sense and behavior of environmental responsibility. The traditional councils, elders and community leaders are long-standing pedagogic individuals whose legitimacy is not necessarily based on inherited authority but also determined through their ability to make sense of ecological experience. It is through their involvement in communal life that a permanent learning environment is created where environmental norms are articulated, negotiated and reaffirmed.

Environmental education often takes place on a group discussion where collective resolutions on the way land is used, the time of harvest or how to adapt to the change in the environment are debated. Such meetings are not limited to formal leaders but, the younger members watch keenly and internalize the decision that is made as well as the process that led to that decision. Power in this kind of environment is not imposed directly but is executed by way of exposition.. An elder articulated this responsibility with careful emphasis:

> *"When we speak about the forest in meetings, we are not only deciding what to do. We are teaching how to think. The young people must hear why we choose one path and avoid another."*

This claim throws light on an important aspect of informal education in the institution. It is a formative process of reasoning. Young people get to know that environmental control requires contemplation, tolerance, and long-term awareness. They note how the memory of the past lack or ecological disturbance enlightens current trepidation. They learn through the habit of ecological foresight by exposure to such deliberations many times.

There is also institutional authority through restorative reaction to environmental violation. When a member of the community ignores established rules, the alternative will be organized in the form of a group discussion. The objective is to reestablish balance rather than to assert dominance. A customary leader explained the philosophy behind this approach:

> *"If someone harms the forest, we gather and speak with them. We remind them that what they do affects everyone. The goal is not punishment alone. The goal is awareness."*

The character of this orientation is a pedagogical adherence to moral understanding. The sanctions are put in context as the times of group introspection where the greater outcome of personal actions would be illuminated. In this way, ecological norms are restructured and internalised instead of being followed in a mechanised manner. The awareness focus builds self-control based on collective comprehension.

Field observations also testify that customary institutions are repositories of ecological memory. The elders often give stories of why an excessive use or carelessness has caused a decrease in harvests or environmental strain in the past. Such stories are not memory lapses; they are cautionary tales that are embedded in the institutional discourse. A younger community member reflected on the influence of these stories:

ISSN 2721-0979 (Print), ISSN 2721-1258 (Online)

"When the elders talk about the time when the river became smaller because too many trees were cut, it makes us think carefully. It is not just history. It feels like a warning for us."

Historical memory takes the role of an educational resource through such narratives that determine current behaviour. Formal meetings are a way to transform an experience of collective into a morality. Young people get to understand that environmental security is a matter of vigilance and leadership involves taking the risk to restrain short-term benefits in the name of long term survival.

Regulatory enforcement is therefore not the only domain of the authority of customary institutions. It develops a common moral horizon on which the environmental decisions are placed. Leadership is practiced as service and not leadership. Re-enactment of deliberation, correction, and narrative is slowly formed such that the members of the community understand their connection with the forest. The norms of the environment are incorporated into the structure of the collective identity.

With time, such an institutional pedagogy leads to a long-term ecological consciousness. People are not subjected to rules as restrictions of the collective care but as manifested expressions. The forest is also ruled by dialogue and memory and this rule is a continuous learning process. The environmental awareness is therefore maintained by customary institutions not in any formal curriculum but through lived authority, ethical example and participatory engagement that ties generations together in a sense of joint duty of ecological sustainability.

Livelihood Practices and the Formation of Intergenerational Ecological Consciousness

The empirical evidence suggests that the practices of livelihood in customary forest communities are not isolated in provision of environmental education. The organization of economic activity is structured in such a way that it can maintain daily subsistence and at the same time enhance ecological restraint. The community members mainly depend on non timber forest products, small scale agro forestry and also rotational farming which help in the regeneration of forests. These economic trends are not just technical adjustment, they are daily teachings on sustainability, teaching the younger generations how much livelihood security depends on ecological stability.

Community interviews always show that there is a realization that over exploitation threatens income and survival of the community. A middle aged farmer described this relationship with quiet conviction:

"If we cut too much or harvest without thinking, we may gain something today but lose everything tomorrow. The forest feeds us, but only if we are patient with it."

The narratives of the actors represent a moral economy, which is the basis of every choice of livelihood. Ecological foresight cannot be used without economic rationale. Such an orientation is instilled in the younger members not by some abstract lectures but by active participation in harvesting patterns and planting processes. Young people follow the way the older generation makes decisions concerning the extraction times of resin, zones where land should rest, and places where not to extract resin. The repetitive involvement creates the relation between sustainability and stability, and between stewardship and care.

Participants who were young were able to state that the experience of working with older generations transformed their perception of wealth and responsibility. One young woman involved in agroforestry explained:

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"When I help my parents in the garden, they always remind me that we are borrowing the land from our children. At first I did not understand what that meant. Now I see that if we damage the soil, we are taking from the future."

This reflection shows that intergenerational imagination is mediated by the practice of livelihood. Land leasing is used to place the current activity in a larger time frame. Children and young people start to feel that their work is not just a necessity of an economy but they are involved in some time process which is far beyond their personal life periods.

As can be seen, field observations also indicate that livelihood activities produce informal forums where the limits of the environment are discussed. When harvesting, the elders provide an explanation on why only specific trees should be tapped as opposed to others. In discussing crop rotation, they associate soil fertility and the long term productivity. These explanations are practical and based on what can be observed; with time young members learn a way of thinking which combines hard work, control and persistence.

Therefore, the economic life as it is, is already organized in the manner of an ecological lesson. The forest is treated in a sense of survival collaboration, other than an extracting medium. This orientation defines identity and practice. Young people are brought up by observing an example of prosperity that is characterized by moderation and not amassing. They base their definition of success on the health of the land and water.

The ecological consciousness becomes integrated into everyday life through a prolonged involvement in livelihood activities. The sense of responsibility towards the forest is not a feeling that one is forced to abide by but as a precondition to the general wellbeing. These traditions maintain the continuity of environmental education, the continuity of environmental education is not an isolated event, but a staple of the work, annual cycles, and collective work which bind generational, human generations together.

Livelihood activity is capped as a nexus in which knowledge, morality and economic reasoning bring about convergent points. The communal strategy of livelihood strengthens a sustainable ethos of caretaking that spans over time. The consciousness of ecological generations is not born either through schooling or teaching but through the rigorous exercise of life within the limits of something general, which is always re-created.

Rethinking Environmental Education through Indigenous Pedagogical Ecologies

The results of the current research also require a reassessment of the manner in which environmental education is theorized in the current academic community. Instead of assuming education as an organized intervention provided by schools or formal programs, the evidence offered below shows that there is an inherent pedagogical system installed in the traditional forest life. The process of environmental learning is carried out through involvement, ethical instruction, spatial consciousness, and economical practice. These results when interpreted in the context of the new studies help in a better explanation of how the context of indigenous communities pushes the limits of environmental education as an academic discipline.

Recent research on the place-based education provides a timely entry point into this discussion. Yemini, Engel, and Ben Simon insist on the place-based education as being transformative when students learn to work with place as a living component of identity, moral obligation, and not as a blank upon which they practice activity (Yemini et al., 2025). The existing research is very close to this point of view. The traditional forest is not only a place of learning; it also participates in shaping the structures and meaning-making of learning. Ecological knowledge comes about through personal sensory experience with land and water, through the witnessing

ISSN 2721-0979 (Print), ISSN 2721-1258 (Online)

of the seasonal change, and through observing the result of overuse. In this respect, the forest is a kind of formative agent, which is part of the schooling process itself.

This interpretation is further solidified in land-based learning scholarship. Datta and colleagues show that Woodland Cree communities practice land-based education to develop environmental literacy by maintaining the relational process with the land and the elders (Datta et al., 2025). Their conclusions underline that it is impossible to separate ecological learning and cultural continuity and collective identity. The current study echoes this observation as it demonstrates how using a guided approach to engage in farming, reap the harvest, and deliberate together will produce a similar type of relational literacy. The learning is not dissociated with belonging; it is located in a common past and in a common future.

Over the past years, the decolonisation of environmental education has become a topical theme. Ajaps argues that decolonisation pedagogy needs structural transformation in decolonising the framing, validation, and practice of environmental knowledge in the education system (Ajaps, 2026). This argument goes beyond the inclusion of indigenous content and enters into reconfiguration of the authority of epistemology. The traditional institutions as witnessed in this case study represent an ideal such reconfiguration. The legitimisation of knowledge with regard to forest management occurs based on lived experience, intergenerational memory and moral accountability as opposed to formal accreditation. Power is based on proven stewardship and not the rank of position.

Similar is Shabalala who further asserts that indigenous knowledge systems have to be integrated into environmental education at an early stage to achieve epistemic justice and sustainable practice (Shabalala, 2025). The results here add to that assertion by showing that integration does not necessarily have to be instigated by institutional bodies. In the Indians, there are coherent and traditional environmental pedagogies practised without any external curricula. To this end, formal education can be the task of identifying and studying these systems instead of trying to build them on the outside.

Philosophical insights about indigenous environmental education also shine some light on the ethical aspect that is apparent in the results. Poelina stresses that indigenous philosophy places environmental responsibility in relational ethics that bond people, land and ancestors (Poelina et al., 2023). The ritual practices reported by this study are an example of such relational ethics. Rituals and religious taboos are not only a form of reinforcing tradition; it is a way of developing humility and long-term orientation. Green living turns into a matter of character and religious wholeness instead of a regulation necessity.

The issue of knowledge transfer between generations has become a new object of academic interest. According to Malapane, storytelling, ritual practice, and communal labor are identified as the main processes that promote the survival of indigenous knowledge systems, and the author warns that these processes are subject to social change (Malapane, 2024). The current paper verifies the central role of these mechanisms and their educational advancement. The intergenerational communication that takes place in the communal gathering and practice of livelihoods promotes reflective judgments and not blind imitations. Young people are not only taught what to do, but they are also shown how decisions on ecology are reasoned out.

The assimilation between the indigenous knowledge and the scientific knowledge is both the opportunity and tense. Latip, Hernani, and Kadarohman note that the meaningful integration cannot be achieved without the acknowledgment of indigenous knowledge as the system that had been formed as a result of the extended contact with the environment (Latip et al., 2025). Ijatuyi, Lamm, and Yessoufou also state that the processes of integration should not imply the

ISSN 2721-0979 (Print), ISSN 2721-1258 (Online)

degradation of indigenous knowledge to anecdotal levels in scientific systems (Ijatuyi et al., 2025). This warning is emphasized by the results of this research. The institutional deliberations and customary zoning practices represent forms of ecological reasoning, which are systematic and tested historically. Any attempt to build such practices into formal curricula cannot go against the relational and ethical basis of them but must abstract them into oversimplified case formulations.

Another issue that requires attention in this discussion is research ethics and methodology. The values-based relational science model suggested by David Chavez and others is based on principles of respect, reciprocity, and indigenous rights (David Chavez et al., 2024). This orientation is consistent with the present study as it treats community narratives and institutional processes as the co-constructed knowledge instead of data to be extracted. This methodological position supports the idea that communities have to be involved as intellectual collaborators in environmental education research.

Another appropriate lens is partnership models of environmental governance. Gordon and others show that the incorporation of indigenous ecological knowledge into land control in the form of collaborative partnership allows increasing environmental justice and reinforcing the communal sovereignty (Gordon et al., 2023). The traditional deliberative procedures used in the present research indicate that governance is pedagogical in nature. Collective reasoning helps young members to acquire civic responsibility and ecological foresight. It then becomes a curriculum of governance in democratic environmental practice.

The use of livelihood practice as a medium of education also adds more to the theoretical landscape. Bardsley show that education can change the perspective of sustainability in forest management by developing the opportunities and responsibility (Bardsley, 2026). This understanding is furthered by the current findings which indicate that even livelihood routines create ecological consciousness. The long-term thinking is incorporated in economic life through agroforestry cycles, harvesting restraint, and soil management practices. This is because environmental sustainability is not a competing value, rather it is felt to be the prerequisite of economic continuity.

There are applied models that are trying to reconcile indigenous ecological knowledge and the systematic design of education, including the ecopedagogy framework, created by Swaradesy et al. (Swaradesy et al., 2025). The factual data herein provided relates to the possibility of taking such models a step further by better attention to the lived pedagogical architecture of customary communities. Integration of ritual reinforcement, institutional deliberation, space boundary formation, and the livelihood discipline has shown multilayered ecology of education beyond the classroom adaptation.

Together, all these academic discussions help to understand the importance of the findings of the study. The customary forest community environmental education is functioning as a system integrating to develop experiential knowledge, moral continuity, civic responsibility and intergenerational continuity. Instead of regarding the practice of indigenous people as a supplementary aspect of formal education, the data points to the fact that these communities possess long-standing pedagogical values that can be utilized to guide the overall educational change. The identification of this fact dismantles the overriding views of the location of education and the people who have a right to impart sustainability.

Conclusion

This research shows that environmental education is a consistent and ongoing system of pedagogy based on the daily activities of customary forest communities. Experiencing,

ISSN 2721-0979 (Print), ISSN 2721-1258 (Online)

creating space, cementing ritual, deliberating on institutions, and practising livelihood are all methods applied in nurturing ecological knowledge. Education is experiential and moral in nature instead of being delivered in form of a school. The forest is created not merely as an ecological resource but as a constructive educational environment in which the inter-generational ecological responsibility is fulfilled. Such results reformulate the simplistic ideas of environmental education that identify learning with in-the-classroom presentation and instead emphasize the learning richness of the community based ecological practice. The interpretation of customary governance as pedagogy makes the study a part of the larger work to rethink environmental education using indigenous epistemologies. It implies that sustainable education should not see relational knowledge, collective accountability, and intergenerational continuity as minor issues but instead as central views. To have a significant encounter with indigenous pedagogical ecologies, we must shift to higher symbolic inclusion to an actual epistemic presence. Thus, environmental education will be re-imagined as an embodied moral practice, which links identity, livelihood and ecological stewardship in a common horizon of sustainability.

Acknowledgments

The results imply that the policy of environmental education, as well as practice, needs to cease regarding customary communities as auxiliary sources of cultural content and perceiving them as pedagogical systems in their own right. Educational institutions may become more active in respecting indigenous communities by studying the experienced, relational, and intergenerational ways of ecological knowledge. Curriculum development and teacher preparation programs must include critical action in the way of indigenous pedagogical ecologies, not by isolating discrete elements of local wisdom, but by gaining an understanding of how environmental responsibility is developed by practice, moral argument and group discourse. Mutual relationships between the educational government and the customary institutions must be based on reciprocity and respect. The indigenous knowledge holders have to maintain control over their practices when they are reflected through the system of formal education. More studies are required to understand how traditional learning about the environment interacts with formal education in transforming social environments, especially among the younger generations. These attempts will help in creating more culturally based and ethically attentive approaches to environmental education that respects the two elements, sustainability and epistemic diversity.

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