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Action-Based Learning in Environmental Education for Elementary School Students Through Ecotourism

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ABSTRACT

This study explores the implementation and impact of action-based learning in environmental education for elementary school students through ecotourism, using Organic Agro-Edu Tourism (AEWO) Mulyaharja in Bogor, Indonesia as a case study. Employing a qualitative research approach, data were collected through interviews, focus group discussions, observations, and document analysis involving students, teachers, local residents, and AEWO staff. The findings reveal that AEWO provides meaningful, hands-on learning experiences in organic agriculture, fostering emotional and cognitive connections to nature. Students gain not only agricultural knowledge but also develop greater empathy, responsibility, and appreciation for environmental sustainability. The integration of local farmers in the learning process enhances the authenticity and relevance of education, while the ecotourism setting enables place-based learning that extends beyond classroom boundaries. This research concludes that action-based learning within ecotourism frameworks significantly contributes to raising environmental awareness and shaping pro-environmental behavior among young learners.

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1. INTRODUCTION

Environmental education plays a critical role in fostering an understanding of the environment and promoting sustainable practices among individuals, particularly the youth. As the world's environmental issues grow more pressing, it becomes clear that increasing environmental literacy is essential.. This kind of education not only prepares future generations to tackle ecological challenges but also equips them with the skills necessary for being responsible citizens and fostering sustainable development (Hu & Hsin, 2023). One of the key benefits of solid environmental education is that it encourages students to act in environmentally friendly ways.

Studies show that well-designed educational programs can lead to real changes in how students interact with the environment. For example, a meta-analysis looking at the impact of environmental education on young people reveals a strong effect on their environmental behaviors, even with the challenges that come with changing habits (Wetering et al., 2022). This underscores how environmental education can go beyond just sharing knowledge and actually inspire positive actions. Plus, this learning process is enhanced by the emotional and personal aspects of education, which teachers should weave into environmental lessons to cultivate responsible citizenship (Lovren & Marušić-Jablanović, 2023).

Moreover, environmental education is a multi-faceted endeavor that links people to meaningful experiences within their environments. The educational process is not merely one of knowledge transfer, rather,

it is also an attempt at the inspiring of changed attitudes or behaviour toward nature. By using advanced technology, especially virtual and augment reality, teachers can give the students controlled environments in which the students can actively experiment with and learn about environmental issues. According to Maipas et al., (2021) meaningful learning can be secured through the use of such methods and techniques.

In schooling framework it is necessary to make the students essentially literate in the environment along with the other subjects (Hu & Hsin, 2023). When students are equipped with such literacies, their ability to confront global environmental challenges is also improved. In light of the growing recognition of sustainability throughout society, Wetering et al. (2022) states it has become increasingly important to include environmental education in the curriculum of students.

1.1 Ecotourism and Sustainable Development

In recent times, ecotourism has been defined as a type of travel which involves visiting pristine natural areas for the appreciation of nature with the intention of conserving it along with improving the quality of life for local people Choo & Halim (2022). Such definition brings out the usefulness of balanced tourism which strives to aid in the achievement of sustainable development (Tešin et al., 2020). Filimonau and Perkins argue that there is an increasing trend in the definitions provided for ecotourism which seem to differ on aspects such as responsibility, education, culture and relation to nature (Filimonau & Perkins, 2023).

Further, it is viewed as a niche form of tourism that goes alongside conservation by addressing the socio-economic needs of local people aiming at striking a balance between preservation and tourist pleasure (Lovelesh et al., 2024). Hence through its practices, this form of tourism supports the need for sustainability as well as ecological balance while promoting community welfare. Ecotourism plays a central role in environmental education by fostering a sense of responsibility toward natural systems among diverse age cohorts.

Research indicates that ecotourism functions much like play-based learning, particularly for younger visitors; this immersive experience helps to establish affirmative connections with the outdoors and cultivates a pro-environment attitude during formative early years (King et al., 2020). In addition, it functions as a vehicle for community-based educational outreach, where the locals articulate the need for environmental education as essential for sustainable development (Ruiz, 2024). Such cross-disciplinary frameworks are particularly marked by specialized places like mangrove ecosystems, which allow students to learn experientially about conservation (Afifah et al., 2024).

Participation in ecotourism helps locals better understand their natural resources, resulting in enhanced community awareness and more sustainable behavior (Koliouska & Andreopoulou, 2023). Hence, besides fostering economic sustainability, ecotourism serves as an important channel for outside-in environmental education. Organic Agro Edutourism (AEWO) Mulyaharja is a vibrant agritourism site situated in Mulyaharja Village, Bogor, West Java, Indonesia. Covering roughly 23 hectares at the foot of Mount Salak, the property enjoys fresh mountain air, sweeping vistas, and extensive terraced rice paddies often likened to the famous landscapes of Ubud.

AEWO's leading appeal lies in its commitment to organic farming. Since earning certification in 2015, the venue has been stewarded by local farmers and women's farmer groups, known locally as KWT, who oversee the rice fields, a hydroponic garden, and assorted vegetable plots. School groups are especially enthusiastic about the immersive farm days that let them work the soil—using everything from a water buffalo's steady pull to a modern tractor's roar—plant seeds, prepare organic compost, monitor a small biogas unit, and finally gather the golden rice.

Yet the experience does not end there. Guests are free to wander past the paddies into carefully stocked fish ponds, pause at information kiosks showing off local micro- and small-business products, taste freshly cooked Sundanese meals in the café, pedal along shaded bike paths, or spend the night as the village elders do. This mix of activities deepens learning, puts money in local pockets, and quietly promotes both climate-smart agriculture and grassroots empowerment.

Fig. 1. Rice fields of Organic Agro-Edu Tourism (AEWO) Mulyaharja

1.2 Action-Based learning

Action-based learning has emerged as a powerful pedagogical approach within environmental education, foregrounding direct, hands-on experiences that invite learners to engage with ecological principles in the most immediate and tactile of ways. When this model is woven into the fabric of educational programmes—especially those situated in ecotourism environments—it does more than clarify concepts; it forges lasting cognitive understandings and nurtures deep emotional ties to the natural world.

King and colleagues observe that playful, hands-on activities embedded within ecotouristic programmes act as a vital teaching mechanism for fostering a sense of environmental responsibility among younger learners; such strategies enable children to build enduring bonds with nature and to cultivate the pro-environmental outlook that tomorrow's conservation efforts will require (King et al. 2020). In a related argument, Türkmen argues that successful outdoor education relies not merely on well-designed content but on genuine community engagement, so that each lesson is anchored in the pressing environmental issues learners see every day (Türkmen 2023).

A vivid illustration of this principle appears in the work of Afifah and her colleagues, who demonstrate how mangrove-centered ecotourism operates as a dynamic learning space, exposing students to the complexity of coastal ecosystems and encouraging them to acquire knowledge by seeing and doing rather than by sitting in a classroom (Afifah et al. 2024). Their findings resonate with a wider body of research affirming that experiential settings typical of ecotourism spur sustainable behaviours and embolden individuals to translate knowledge into concrete environmental action (Khattak et al. 2021).

Ruiz's research highlights that integrating environmental education into ecotourism opens avenues for a wider range of viewpoints across age, cultural, and socio-economic groups. Because students come to class with such different backgrounds and interests, instructors need to stay nimble and adjust their teaching strategies on the fly. Doing so helps every learner feel included and turns information transfer into a hands-on experience they won't forget (Ruiz, 2024).

When instructors incorporate active, problem-centred activities into their lesson designs, they do much more than rehearse key dates or rehearse mathematical rules; they provide a live demonstration of the kinds of thinking and behaviour students will require in order to confront today's pressing climate and environmental crises. Such experiential classes frequently take learners beyond the confines of the classroom, igniting immediate, place-based participation in local recycling initiatives, community allotments, or citizen-science investigations.

1.3 Research Questions

Based on previous discussions, this study is designed to answer two research questions:

1. How is action-based learning related to environmental education conducted at the Organic Agro Edutourism (AEWO) Mulyaharja ?
2. What are the benefits of action-based learning at Organic Agro Edutourism (AEWO) Mulyaharja in raising environmental awareness among elementary school students?

2. RESEARCH METHOD

In this study, we investigate qualitatively. Qualitative research is concerned with examining the personal meanings people give to events, life processes and how these are attached to the social world . Qualitative data enables researchers to delve into timelines, see sequential effects of events and acquire explanatory insights. High-quality qualitative in fact often is the discovery machine and it enables the authors to develop provisional ideas, test a new framework or theory (Miles and Huberman, 2014). This study used data sources from a range of data obtained by means of interviews, focus group discussion, non-participatory observations and document analysis.

Yin (1984) states that interviews should be relatively free-flowing rather than structurally controlled in case studies. In the current study, method of interviews taken in conversation were open ended question interviews. The questions were designed to find facts and eliciting the opinion of respondents on specific incidents. Non-Participatory Observation method in qualitative research is a data collection method conducted by observing the research object without direct involvement in the observed situation (Creswell, 2013). This study involved seven informants who were interviewed.

These seven informants represent teachers, elementary school students, local residents and the ecotourism managers. This research was conducted in Organic Agro-Edutourism (AEWO) Mulyaharja, Bogor City, Indonesia. The research took place from February 2024 to December 2025. This study employed data analysis techniques proposed by Miles and Huberman (2014), which include data reduction, data display, and conclusion drawing or verification. Microsoft Excel and NVivo is used to process the data. The first step in the analysis process is data reduction, which is defined as the process of selecting, focusing, simplifying, abstracting, and transforming raw data from written field notes.

The next step is data display, which refers to a structured set of information that facilitates conclusion-drawing and action-taking. The final step is conclusion drawing or verification, which involves searching for

meanings, noting regularities, patterns, explanations, possible configurations, causal flows, and propositions. Researchers then draw conclusions, which are continuously verified throughout the research process (Miles and Huberman, 2014). Ethical consideration was of paramount importance in this regard of research, so that the rights and welfare of all concerned parties were safeguarded. In advance of the research, I had gotten consent of all the informants to data collection and interview. I elaborate the research concern, the research objectives and the methods to acquire data for all the informants so as to be granted permission for doing the study.

3. RESULTS AND DISCUSSIONS

Organic Agro-Edu Tourism (AEWO) Mulyaharja serves as an important platform for environmental education, particularly by engaging students directly in organic farming through hands-on activities. The site spotlights organic rice cultivation, allowing visitors to witness the principles of sustainable agriculture in practice.

> *"At AEWO, what they emphasize is organic—organic rice fields. So everything related to organic practices, especially rice, can be found there"* (FGD, May 19, 2024).

This approach clearly illustrates AEWO's intention to weave organic agriculture into the very fabric of its tourism and pedagogical programmes. Because rice is such a vital staple across Indonesia, the lesson becomes both immediately relevant and culturally resonant for the learners. By anchoring the initiative in organic rice production, AEWO Mulyaharja familiarises young people with food systems that avoid harmful chemicals while safeguarding soil health and long-term sustainability.

Fig. 2. AEWO's staff is giving directions to the students

Beyond its role as a popular tourist spot, AEWO Mulyaharja operates as a living classroom where learners can participate in practical farming tasks woven into school excursions and broader environmental initiatives. A participant recently remarked,

> *"It can also serve as an educational space, especially because there are a lot of school events held there"* (FGD, May 19, 2024).

This comment illustrates why so many schools choose the site for lessons that centre on ecology and sustainability. The combination of untamed scenery and carefully designed teaching stations gives students a first-hand feel of their subject matter, far removed from the usual four walls of a lecture hall. Such experiences in the open air are crucial for bridging the gap between theory and practice, sharpening students' analytical abilities, and encouraging them to consider seriously what stewardship of the planet actually means. One of AEWO's unique features is its long-time cooperation with the Mulyaharja farmer community.

This partnership significantly enriches the educational programme. The curriculum outlines environmental issues. However, the farmers who actually manage the terrain generally teach the courses. It includes people whose work and customs are connected to the local landscape. As students spend time with the growers, they learn long-established techniques—how to prepare the soil, how to plow a field, and how to transplant rice seedlings. As mentioned in the interview,

> *"Those who teach how to plow the fields, dig the soil, and plant the rice are actually real local farmers from the area"* (FGD, May 19, 2024).

These shared activities mean that lessons extend far beyond the classroom. Students work side by side with men and women who have tended these lands for decades, so knowledge becomes a muscle memory rather than a set of abstract concepts. That experience creates a channel between the young and the old, allowing local stories and customary practices to pass from one generation to the next in hands-on, immediate ways. Meeting the farmers also instills a sense of respect for their daily toil and makes it painfully clear how much human effort lies behind the meals they take for granted. Recognising this effort is, in itself, an important step toward deeper environmental awareness and a lasting sense of gratitude.

Fig. 3. Students learn to plow the field accompanied by local farmers.

Students benefit tremendously from taking part in the environmental education program at AEWO Mulyaharja because they learn outdoors. There are no classroom walls, when they are in an open air classroom they are able to see, touch and involve themselves in nature and farming. School doesn't feel like a chore but an expedition. One teacher put it simply:

> *"I think it's very beneficial. Basically, this kind of outdoor learning has so many advantages, especially when children are directly involved in the activities"* (ES, November 21 2024, teacher).

That observation points to a truth many educators have felt for years: hands-on work in a natural setting catches students' interest in a way a traditional class room never can. When learners plant seeds, pull weeds, or circle a pond with a magnifying glass, they do much more than memorize vocabulary; they practice science with their whole bodies and senses. The impact lingers long after the visit, sparking conversations at home and gentle, lifelong habits toward conservation.

AEWO Mulyaharja aims to develop cognitive abilities through educational activities while also ensuring food value and sustainability. Students aren't merely watching but are actively engaged in each and every stage of the process of growing rice. Through this activity, students get a firsthand understanding of the food, the labor that goes behind it and how it is produced. As the teacher explained,.

> *"So we educate our children to appreciate rice more—understanding how it's planted, how the soil is prepared, and all that"* (ES, November 21, 2024, teacher).

The AEWO program teaches us to be grateful for what we have and conserve our resources. When the students experience the growing of food first-hand, they will view it as not something that is 'instant', but will rather appreciate the effort, time and collaboration with the world it took to achieve such food being created. Creating more conscious behaviours and attitudes could help foster lasting concern for the environment with this shift. Students who took part in an environmental education program at AEWO Mulyaharja expressed their gratitude for the experience and knowledge received. One student shared their experience, saying,

> *"My group was assigned to go there to plow the rice field first. After that, we were told to plant rice together with the local men, and I planted just enough rice"* (FTH, November 21, 2024, student).

This shows how pupils are engaged in real agricultural practices that make them understand the origin of food better. The direction of farmers of the local area helps students to engage with the actual implementers of sustainable agriculture. As a result of this experience, students develop a greater respect for nature and food production. Along with gaining agricultural knowledge, the environment was found to be much more relaxed and less stressful by students as compared to the classroom. The open space gave a more relaxed vibe where students felt comfortable with their surrounding and expressed freely.

> *"In the classroom, it's hard to stay calm—some kids are noisy. But outside, it feels more comfortable and we can play too"* (ZK, November 21, 2024, student).

This quote shows that being outside in the natural world will help you feel calm. It will also help you focus a lot better too! Allowing students freedom to move about helps them stay motivated. It also helps develop social and emotional skills through play-based learning activities.

Fig. 4. Students play fish-catching games.

In addition, the program instilled in students a greater appreciation for and responsibility for natural resources such as food. Students learned through experience how much hard work goes into making rice. They also understood the value of food and the need to not waste it.

"We shouldn't waste food. People have worked so hard just to produce rice for everyone" (ZK, November 21, 2024, student).

The student shows an increasing empathy to the labour of the farmers as reflected in this writing. It also shows that experiential education can impact personal values and daily behavior. When students learn by doing, they get to internalize sustainability principles meaningfully. Implementation of Action-Based Learning at AEWO Mulyaharja is a very effective learning activity on Environmental Education for elementary students. When students get directly involved in organic farming—like ploughing the rice field, planting the seeds and preparing the soil—they learn through experience no matter how much they learn something theoretical about organic farming.

As highlighted in student and teacher interviews, these activities help develop emotional and cognitive links with nature. King et al. (2020) stresses that a hands-on learning using play-based methods in ecotourism settings fosters a child's emotional bonding with nature which is important to develop pro-environmental behaviour. AEWO's context, combining ecotourism and education, fits well into this framework as it is an environment where ecological concepts are internalised through action and play. Furthermore, AEWO Mulyaharja's work with local farmers to lead educational activities improves the students' connection to community and environment.

This reference further supports Türkmen's (2023) claim, which holds that outdoor environmental education based in the local culture and issue system of the community would help foster conservation values. Moreover, such education would make learning more locally relevant. A student reflected, "*We shouldn't waste food. Individuals attempted to cultivate rice just for everybody*" (ZK, November 21, 2024) shows tax emergence of humanisation and awareness of environmental responsibility. The AEWO's program draws on to Afifah et al. (2024) whose findings show places with educational ecotourism such as mangrove forest may become dynamic ecosystems classroom that cultivate appreciation and care for nature through direct experience.

AEWO Mulyaharja fosters environmental literacy and an ethical attitude toward nature through the engagement of students in real-life agricultural settings. According to Ruiz (2024), education based on ecotourism should be flexible and allow all kinds of learners to take part in ecological actions. AEWO is an example of how ecotourism-based action learning can develop environmental values among young people. Integration of action-based learning at AEWO Mulyaharja ecotourism proved to have a significant contribution in increasing environmental awareness of elementary school students.

Schoolchildren have the opportunity to be involved in environmental practices – plowing rice fields, planting, composting, learning from visiting local farmers – all hands-on learning experiences. This engagement encourages cognitive and affective bonding with the natural world, allowing children to understand the significance of sustainability as an experienced reality, rather than a sedentary phenomenon. Choo and Halim (2022) describes ecotourism as "responsible travel to natural areas in order to appreciate and to conserve nature, as well as endorsing local communities," which could be seen to incarnate AEWO's strategy.

As described by Filimonau and Perkins (2023), contemporary ecotourism combines the context of responsibility, culture, and education, which implies AEWO as being a good place for environmental learning as a result of ecotourism that is embedded in community-based and nature focused activities. Indeed, AEWO′s model of development is well in line with ecotourism general objectives as it links conservation and community empowerment. The students not only learn about how rice grows in sustainable harmony with nature, but they

also gain an insight into the effort and local knowledge characteristics of food production, which also leads to an increase in respect for the environment, and the people who depend on it.

This is in accordance with Lovelesh et al. (2024) that ecotourism should strike between nature preservation and the economic and social claims of local people. Working with local farmers and getting dirt under their finger nails hammers home the realization for students that environmental issues and cultural heritage are inseparable. As Tešin et al. (2020) highlight, protection of the natural and cultural resources is one of the cornerstones of sustainable development. Thus AEWO Mulyaharja is not just a place of ecotourism, rather it is a space for environmental education that transforms, that provides children a sense of the environment that is based on action, empathy, and local/global knowledge.

4. CONCLUSIONS

In conclusion, this research provides an insight on how action-based learning which is attached to environmental education can be implemented in ecotourism settings to address RQ1 as shown with the case of AEWO Mulyaharja. On the other hand, this combination of natural scenes, and learning by doing agricultural practices and working with local farmers shows that learning in a natural environment produces ecological comprehension and a sense of place. It showed us how action-based learnings can help to promote environmental education towards students in places such as AEWO Mulyaharja, further more, this method help students to experience environmental knowledge outside the textbook and to be memorable.

In addition, the positive outcomes seen in the learning activities of AEWO have provided further basis for RQ2. Students gain a greater appreciation of nature, empathy for those whose livelihoods depend on close interactions with nature, and an understanding of sustainability in their day to day lives. Such results suggest that action-based learning not only teaches but also changes the way students think about and treat the environment. A similar positive impact on environmental behavior could therefore be achieved through action-oriented programs (as evidenced by AEWO) with elementary school students at Mulyaharja

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