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MORALITY BEFORE KNOWLEDGE

The implementation of eco-pedagogy-based learning integrated with life skills plays a crucial role in fostering both ecological awareness and personal skills

Galuh Mentari Putri[1], Asep Yudianto[2,*], Ali Mustadi[3]
[1] *Elementary School Teacher Education, Faculty of Teacher Training and Education, Universitas Pamulang, South Tangerang, Banten 15417, Indonesia;*
[2] *Elementary School Teacher Education, Faculty of Teacher Training and Education, Universitas Sultan Ageng Tirtayasa, Serang, Banten 42117, Indonesia;*
[3] *Primary Education, Faculty of Education, Universitas Negeri Yogyakarta, Sleman, Special Region of Yogyakarta 55281, Indonesia.*
*Correspondence: asep.yudianto@untirta.ac.id

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ABSTRACT

Background: This investigation examines the implementation of eco-pedagogy integrated with life skills education, aiming to strengthen students' ecological awareness and personal development. Eco-pedagogy in this context supports learners in understanding environmental issues through direct experience, while life skills education helps them develop essential competencies such as communication, responsibility, and decision-making. Together, these approaches position students not only as knowledge recipients but also as active participants in environmental learning and daily-life problem-solving. **Methods**: The study uses a qualitative approach involving observation, interviews, and documentation to obtain a comprehensive understanding of learning practices. Participants include the school principal, facilitators, staff, parents or guardians, and students. Data analysis applies the Interactive Analysis model by Miles, Saldana, and Huberman, which encompasses data condensation, data display, and conclusion drawing. This method enables systematic interpretation of the learning design, implementation, evaluation, and its overall effectiveness within the school context. **Findings**: The results show that the independent curriculum and life skills principles. Implementation is flexible and contextual, integrating daily activities such as outing classes, cooking sessions, and practical environmental projects. Assessment uses report cards, portfolios, and talent mapping to capture cognitive, affective, and psychomotor development. Although the program is supported by the foundation, school leaders, and parents or guardians, challenges persist, including limited infrastructure and varying parental understanding of eco-pedagogy concepts. **Conclusion**: The integration of eco-pedagogy with life skills education positively contributes to the development of ecological awareness, creativity, discipline, independence, and social interaction among students. Learners become more sensitive to environmental issues and more capable of solving daily problems responsibly. **Novelty/Originality**: This study provides a unique perspective on combining eco-pedagogy and life skills within the independent curriculum, offering insights for schools aiming to adopt similar innovative approaches.

KEYWORDS: ecological awareness; ecopedagogy; ecopedgagogy learning; life skills, personal skills.

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1. Introduction

Education plays an undeniably crucial role in transforming human behavior toward environmental preservation and sustainability. It functions not merely as a means of transferring knowledge but as a fundamental instrument in shaping values, attitudes, and practices that align with ecological responsibility. Personal development is inherently intertwined with educational processes that engage learners with the natural environment. Such engagement promotes a deeper sense of attachment to nature, thereby heightening individuals' awareness of the importance of protecting ecosystems and the long-term consequences of environmental degradation. In contemporary society, environmental challenges have grown increasingly severe, with microplastic pollution emerging as one of the most pressing concerns. A study by Ecoton in December 2022 revealed that microplastic contamination has infiltrated five strategic provinces in Indonesia—East Java, North Sumatra, West Sumatra, Bangka Belitung, and Central Sulawesi—with concentrations reaching up to 6.36 particles per litre (ECOTON, 2023). These findings highlight the urgent need for environmental education that bridges scientific understanding with tangible practices. Human activities such as illegal logging, improper disposal of waste, and unsustainable land use patterns continue to accelerate ecological degradation, threaten biodiversity, and disrupt the balance of ecosystems essential for human survival.

The younger generation holds a pivotal role in mitigating this ecological crisis. Their environmental awareness and everyday behaviors directly influence ecosystem health and community well-being. Improper habits, such as littering among students, result not only in aesthetic and health issues within school environments but also hinder the instructional process and overall quality of education (Maulidar et al., 2023). Therefore, fostering ecological literacy from an early age is essential for cultivating a generation capable of sustaining ecological balance, harmony, and the continuity of life on Earth. This aligns with Dunkley (2018) assertion that each generation bears responsibility for nurturing a harmonious relationship with the natural environment and acknowledging their inherent role as integral components of the Earth's ecological system.

Despite the clear urgency of environmental issues, substantial challenges persist within the education system. Many schools still lack structured and meaningful integration of environmental themes into their learning processes. Learning environments such as school gardens, vacant land areas, and surrounding natural spaces often remain underutilized as educational resources. Additionally, the linkage between local environmental issues and global phenomena is rarely emphasized, resulting in students' limited understanding of broader ecological implications. Indonesia's curriculum continues to place strong emphasis on theoretical knowledge while providing limited opportunities for practical, experiential learning. The lack of contextual, real-world application in environmental education contributes to a disconnect between knowledge and action. When ecological topics are delivered in a purely conceptual manner, students struggle to transfer understanding into practical behaviors. Strengthening ecological awareness, as emphasized by Dunkley (2018), can address this gap by equipping learners with insights into environmental dynamics, human-nature interrelationships, and ecological transformation over time.

In addressing environmental degradation, the discipline of ecology offers essential foundational knowledge for understanding and resolving ecological issues. Environmental education grounded in ecological principles fosters awareness of the intricate interdependence between humans and their environments, encouraging learners to view nature not as a resource to be exploited but as a shared habitat requiring thoughtful stewardship (Valencia, 2018). Furthermore, educational initiatives can cultivate pro-environmental attitudes by instilling sustainability values, emphasizing the consequences of human actions, and promoting environmentally responsible behavior (Suárez et al., 2023). Programs such as Adiwiyata exemplify strategic efforts to embed sustainable development principles into school culture. Through activities such as waste reduction, recycling, responsible water and energy use, and environmental conservation practices,

Adiwiyata Schools aim to develop environmentally conscious school communities in which students, teachers, and staff collectively contribute to ecological preservation.

While the Adiwiyata program provides a strong foundation, ecopedagogy offers an expanded and transformative educational approach that emphasizes not only environmental preservation but also critical awareness, social justice, and empowerment. Ecopedagogy integrates ecological concepts with practical life skills, enabling students to understand environmental issues from multiple perspectives—ecological, ethical, social, and personal. Central to ecopedagogy is the use of experiential learning strategies, including hands-on engagement with nature, project-based learning, reflective dialogues, collaborative problem-solving, and inquiry-based activities. Through these strategies, students do not merely learn about ecology theoretically; they experience, analyze, and apply ecological concepts in meaningful ways. Ecopedagogy aims to cultivate citizens who possess ecological literacy, critical thinking skills, and practical competencies to contribute actively to environmental conservation and sustainable living.

Life skills education also plays a vital role in preparing students to navigate the complexities of modern life. It equips learners with essential competencies such as communication, creative problem-solving, decision-making, self-management, and social interaction. Fitriyah & Paramitasari (2022). highlight that life skills education helps learners address everyday challenges through purposeful and structured activities that enhance their adaptability. Similarly, Yudianto et al. (2025) emphasize that life skills transcend specific contexts and are relevant across various domains, including personal relationships, academic settings, the workplace, and broader social interactions. When life skills are integrated into environmental education, students gain not only cognitive understanding but also the behavioral competencies needed to act responsibly toward the environment.

Integrated life skills ecopedagogy brings together ecological learning and life skills development into a cohesive pedagogical model. This integrated approach nurtures environmental understanding while simultaneously strengthening practical abilities such as collaboration, ethical reasoning, critical analysis, and responsible decision-making. Students learn about the interconnectedness of organisms and their environments, the consequences of ecological disruption, and the importance of sustaining ecological balance. They also practice applying this knowledge in real-life contexts, developing abilities that enable them to address environmental issues ethically and effectively. Through this integrative approach, learners cultivate ecological consciousness and personal aptitudes necessary for responding to contemporary environmental challenges and contributing to the creation of a sustainable and equitable society.

Considering the aforementioned theoretical and contextual backdrop, research on integrated life skills ecopedagogy is both timely and essential. This approach holds significant scholarly relevance as it merges ecological principles with practical life competencies, presenting a holistic framework for nurturing environmentally responsible learners. The present study aims to investigate the implementation of ecopedagogy integrated with life skills. The focus of the research is to examine its effectiveness in fostering students' ecological awareness and personal abilities in responding to environmental challenges. Findings from this study are expected to contribute valuable insights into how education can shape environmentally conscious individuals who are adequately equipped to face future ecological issues and participate actively in sustainability efforts.

2. Methods

This study employs a qualitative research method with a case study design to comprehensively investigate the implementation of ecopedagogy integrated with life skills education. The qualitative approach was selected because it enables an in-depth exploration of natural settings, participant experiences, and contextual factors that shape the learning process. The case study design allows the researcher to examine the phenomenon holistically, focusing on a specific site where the integration of ecopedagogy and life skills is

actively practiced. This design is particularly suited for capturing the complexities, dynamics, and unique characteristics of the educational practices.

The research was conducted at school in Kediri, a learning community that emphasizes environmental-based education and holistic child development. The subjects involved in this study included one school principal, three facilitators actively engaged in the learning process, one school staff member who supports program implementation, two parents or guardians who observe students' development from the home environment, and two students who participate directly in the learning activities. The involvement of diverse stakeholders allowed the researcher to obtain multiple perspectives and a richer understanding of how ecopedagogy and life skills are implemented, supported, and experienced.

Data were collected using three primary techniques such as observation, in-depth interviews, and documentation. Observations were conducted to record learning activities, environmental interactions, and the practical application of life skills within the school setting. In-depth interviews were designed to obtain detailed information about the experiences, perceptions, and roles of each participant, enabling the researcher to uncover underlying beliefs, motivations, and expectations related to the integrated learning model. Documentation was used to support and validate observational and interview data, including administrative documents, learning plans, photos, activity records, school policies, and other relevant materials.

The primary research instrument in this study was the researcher, consistent with qualitative research principles that require the researcher to function as a key instrument in interpreting data, adapting to field conditions, and maintaining sensitivity to context. The researcher was supported with data collection tools such as interview guides, observation guides, and documentation checklists. These instruments were designed to ensure systematic and focused data collection, covering key aspects of the study including learning design, implementation strategies, evaluation processes, supporting factors, challenges encountered during learning, and the broader implications of integrating ecopedagogy with life skills education.

Data analysis followed the interactive analysis model of Miles et al. (2014), which consists of four interrelated stages; data condensation, data display, conclusion drawing, and verification. Data condensation involved selecting, simplifying, and organizing raw data from the field to focus on relevant themes. The data display stage involved presenting organized information in narrative or visual formats to facilitate interpretation. Conclusion drawing required identifying patterns, developing explanations, and interpreting the meaning of the findings in relation to the research focus. The final stage, verification, was conducted through triangulation of data sources, member checking, and careful comparison of emerging conclusions with the collected evidence to ensure accuracy and credibility. This rigorous methodological framework allowed the researcher to explore deeply how ecopedagogy integrated with life skills is practiced, providing a comprehensive understanding of its processes, strengths, challenges, and outcomes.

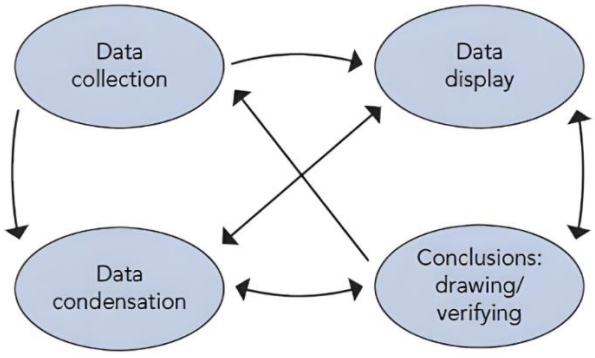

Fig. 1. Interactive data analysis
(Miles et al., 2014)

3. Results and Discussion

The integrated ecopedagogy and life skills approach implemented at this research site is grounded in the combined principles of the merdeka curriculum and the life skills curriculum. These two curricular frameworks are harmonized to create a holistic learning environment that emphasizes both academic achievement and essential life competencies. Through this integration, students experience a balance between cognitive, affective, and psychomotor development, allowing academic learning to gain real-world relevance and life skills to be strengthened with sound theoretical foundations. The learning design begins with a thorough evaluation of the annual program, which is then divided into semester plans and further derived into weekly thematic webbing. SA explained the school's instructional planning as follows,

> *"At our school we do not use formal lesson plans (Rencana Pelaksanaan Pembelajaran/RPP). Instead, we rely on webbing, which outlines learning activities aligned with the annual program (Program Tahunan/PROTA). The webbing contains themes and learning experiences that are adapted to the local context. As for life-skills competencies, they are implemented spontaneously without written notes or structured planning."* (Informant 1, SA)

The flexibility and autonomy in determining learning content were further emphasized by OC, who stated,

> *"No, we don't create lesson plans. Here, we try to ensure that facilitators are not burdened with administrative tasks. What matters is that they have many ideas, implement them, and document them. The webbing includes context-based learning and incorporates life-skills competencies, even though these are not explicitly written down, they are more implicit."* (Informant 2, OC)

This webbing replaces traditional lesson plans and enables learning to remain adaptive, flexible, and responsive to students' needs. By tailoring the life skills curriculum to students' developmental stages and focusing on competencies such as self-reliance, communication, environmental awareness, and problem-solving, the school ensures that learning activities remain meaningful, interconnected, and grounded in daily life experiences. Hands-on activities are a central component of the integrated model, providing students with direct interaction and engagement with the natural environment. Activities such as tree planting, compost processing, waste sorting, and maintaining small gardens enable students to internalize ecological values through experience. These practices strengthen the synergy between academic understanding and practical skills, shaping environmentally responsible learners who apply ecological principles in their everyday actions. The interview with OC provides a clear depiction of the sequence of learning activities implemented. OC described the process as follows,

> *"The daily implementation at this school begins with the Duha prayer, followed by the memorization of three short Qur'anic surahs and recitation exercises focusing on tajwid. After this, announcements are made for example, reminders about what students need to bring the next day or information about upcoming activities such as SBC, including the required fees and materials. Once the announcement session ends, students proceed with their assigned duties, followed by Qur'an recitation, and then transition into the learning activities. After the learning session, we continue with the midday (Zuhur) prayer."* (Informant 2, OC)

Contextual learning is emphasized as a foundation for integrating ecopedagogy with life skills education. By situating learning within natural and social settings, the school bridges the gap between abstract theory and real-life practice. Rooted in the philosophy that

students learn best with, through, and within nature, this approach creates immersive and experiential learning environments that encourage students to observe, explore, and interact with the ecological elements around them.

Exploratory learning, structured observations, and scientific inquiry enable students to engage deeply with natural phenomena, following the "learning by doing" principle. Learning materials sourced from the immediate environment—such as leaves, twigs, stones, soil, flowers, and fruits—serve as multisensory media to strengthen conceptual understanding. This approach not only enhances cognitive development but also increases curiosity, creativity, and critical thinking through direct encounters with real objects and natural processes. A distinctive aspect of this study is its emphasis on sustainable learning media grounded in ecopedagogy. Rather than using commercial or synthetic teaching aids, facilitators intentionally select natural objects to reflect ecological values and reduce environmental impact. Students are encouraged to examine patterns, conduct simple experiments, classify objects, and analyze ecological relationships using materials found in their surroundings, enabling them to internalize scientific concepts in a concrete and meaningful way.

Outing class activities serve as an essential strategy for connecting learning with students' daily lives. These outings expose students to natural ecosystems, public institutions, and community environments that provide real-world context for the ecological and social concepts learned in class. Through visits to natural reserves, landfill sites, agricultural agencies, libraries, and fire stations, students gain firsthand insights into biodiversity, waste management, sustainable farming, literacy culture, and community services. These experiences enrich their ecological literacy, strengthen their social awareness, and cultivate soft skills such as communication, empathy, collaboration, and adaptability, ultimately preparing them to become competent, environmentally conscious, and socially responsible individuals.

Based on Figure 2, the outing class activity at Radar Kediri offered students an in-depth and immersive opportunity to observe the stages of news production, beginning from the initial process of content creation to the final stage of publication. During this visit, students were able to witness the day-to-day operations of a broadcasting studio, allowing them to understand how images, video materials, and news scripts are processed before being presented to the public. By directly observing journalists and media staff at work, students gained a clearer picture of the various roles within the media industry, such as reporters, editors, camera operators, and news anchors. These authentic learning experiences broadened their perspectives about media professions, enriched their knowledge of contemporary information flow, and extended their learning environment beyond the limitations of the traditional classroom setting.

Fig. 2 Students learn about news at Radar Kediri

Another significant activity, known as city adventure, further deepened experiential learning by engaging students in the process of planning and carrying out visits to specific locations within the city (Fig. 3). In this activity, students independently identified the objectives of their visits, designed travel routes, and coordinated the logistics necessary to reach their destinations. As they moved through the city, students communicated with various members of the community, including Gojek drivers, railway staff, shopkeepers, and other local service workers. These real-world interactions not only strengthened their communication and negotiation skills but also required them to apply critical thinking, adaptability, and decision-making in unpredictable situations. Furthermore, City Adventure provided opportunities for students to practice social etiquette, enhance their confidence, and cultivate a sense of responsibility, ultimately reinforcing life skills that are essential for navigating everyday challenges in their broader social environment.

Fig. 3. City adventure Yogyakarta

Based on this study, learning extends beyond theoretical concepts through hands-on experiences supported by digital media and applications closely connected to real-world situations. This approach ensures that students do not merely receive information but actively interact with various learning tools and contexts. The instructional design incorporates modeling, questioning, collaborative learning, and structured reflection, with modeling carried out internally by members of the school community who serve as role models in demonstrating skills and attitudes. Students are encouraged to construct knowledge autonomously by drawing from their personal experiences and observations, which in turn strengthens their critical thinking disposition. Through explorative questioning, they learn to analyze situations more deeply, challenge assumptions, and participate actively in discussions that build higher-order reasoning skills.

Collaborative learning communities within the school foster an inclusive atmosphere where shared responsibility and mutual support become integral parts of the learning experience. These communities encourage students to engage in meaningful dialogue with peers, practice teamwork, and develop essential social and emotional competencies. Interaction among students also enhances their ability to communicate ideas clearly, listen attentively, and appreciate diverse perspectives. Reflective activities are systematically incorporated to help students assess how effectively they apply learning in their daily lives, evaluate their level of engagement during active learning sessions, and measure their progress in achieving learning objectives. Through consistent reflection, students deepen their understanding, recognize their strengths and areas for improvement, and cultivate a heightened sense of self-awareness that supports long-term personal growth.

Ecopedagogical learning also integrates a wide range of disciplines, with a particular emphasis on life skills education that supports students' social development, critical thinking abilities, and problem-solving competencies. This interdisciplinary approach ensures that ecological understanding is not isolated from practical, everyday skills but connected to experiential learning that is relevant and meaningful. Programs such as the SAKA Business Center (Fig. 4a), internships (Fig. 4b), and cooking classes (Fig. 4c) illustrate how ecological awareness can be intertwined with entrepreneurial activities, workplace readiness, and domestic life skills. Through these programs, students gain authentic experiences that equip them with practical abilities, strengthen their sense of responsibility, and help them appreciate the interconnectedness between ecological stewardship, personal competence, and real-world relevance.

Fig. 4. (a) SAKA business center; (b) internship; (c) cooking class

As illustrated in the figure below, the SAKA Business Center (SBC) serves as one of the flagship programs that shapes students' entrepreneurial spirit by providing direct exposure to business practices and cultivating a strong sense of responsibility. Through SBC, students are actively involved in experiential learning that allows them to understand economic processes not merely as theoretical concepts but as lived activities. They participate in real transactions, manage simple financial records, collaborate in product development, and engage in marketing strategies within the school environment. This hands-on approach enables learners to internalize economic concepts more effectively, fostering initiative and confidence. Internships and cooking classes further complement this experience by offering learners opportunities to acquire practical working skills—ranging from kitchen management, teamwork, and food preparation to customer interaction—thus strengthening both their vocational competencies and real-life readiness. Additionally, product sales conducted outside the school, such as during Car Free Day events, provide valuable social experiences. Students interact with the broader community, practice communication skills, and build self-confidence, while simultaneously promoting this program and demonstrating the school's commitment to environmentally aware entrepreneurship.

Assessment at this study is designed to be comprehensive and holistic, ensuring that every aspect of student growth is documented and nurtured. The assessment framework encompasses the domains of attitude, skills, and knowledge, which are evaluated consistently throughout daily learning activities. Both learners and facilitators undergo continuous assessment focused on progress, character formation, and learning effectiveness. The learner assessment system is grounded in four major pillars—spiritual, leadership, entrepreneurship, and science—providing a structured perspective on each learner's development. To support this, the school utilizes various assessment documents including portfolios, report cards, and talent mapping. Portfolios serve as evidence of learning experiences and skill accumulation, while report cards present descriptive predicates reflecting achievement in subject content areas. Talent mapping plays a crucial role in identifying each student's potential and strengths, enabling educators to personalize learning strategies and align them with individual interests and capabilities.

Support and barriers in implementing eco-pedagogy-based learning highlight the importance of collaboration between all educational stakeholders. Facilitators play an essential role, demonstrating high commitment through ongoing training, involvement in curriculum development, and consistent communication with parents. The school also organizes annual appreciation activities that reinforce the value of collective support and celebrate both academic and non-academic achievements. Parents contribute significantly by participating in school programs, attending meetings, and supporting learners' activities at home. However, several challenges remain and require strategic attention. Limited learning media sometimes restricts the depth of exploration students can undertake. The presence of children with special needs also necessitates differentiated instructional strategies that not all facilitators may be fully prepared for. Furthermore, varying levels of parental understanding about eco-pedagogical concepts and the school's educational approach can lead to differences in expectations. To overcome these barriers, open communication, shared understanding, and continuous alignment between school and home are essential to ensure the smooth implementation of eco-pedagogical learning.

The implications of eco-pedagogy-based learning integrated with life skills can be observed in both ecological awareness and the personal skill development of learners. Students are trained to build environmental consciousness, but they still require peer reminders and collective monitoring to reinforce environmentally responsible behavior. This communal approach helps them strengthen their understanding of ecosystem interdependence, environmental sensitivity, responsibility, and cooperation. It also nurtures empathy within their social environment, helping them realize that humans are interconnected with and inseparable from nature. Alongside ecological awareness, the program significantly enhances life skills such as creativity, discipline, independence, and problem-solving. Students learn to communicate effectively, work collaboratively, and navigate social situations with maturity. These competencies not only support their academic journey but also equip them with the essential attributes required for community life, preparing them to become responsible and environmentally conscious citizens in the future.

The curriculum design at this study utilizes both the Independent Curriculum and the Life Skills Curriculum as the foundation of its educational implementation. The Independent Curriculum places students at the center of the learning process, emphasizing the principle of student-centered learning, which highlights learners as active agents capable of developing their own potential through meaningful and engaging learning experiences. This concept aligns with the idea that learning should provide abundant opportunities and challenges for students to cultivate creativity, innovation, collaboration, and independence in various learning contexts (Muslimin et al., 2023). In the practical implementation of the Merdeka Curriculum, school leaders, especially principals and teachers, must continuously strengthen their professional competence by acquiring new knowledge and adapting to curriculum demands. During the planning stages, teachers still refer to teaching modules issued by the Ministry of Education while integrating essential components such as the Pancasila Student Profile Strengthening Project (P5), which functions as a core element for character education in contemporary learning (Ardianti & Amalia, 2022). The Independent Curriculum advocates the principles of Merdeka Belajar, which aims to enhance graduates' competencies—both soft skills and hard skills—so that students are better prepared and more relevant to the demands of modern times characterized by rapid development and global competitiveness (Yasmansyah & Sesmiarni, 2022).

In addition to this curriculum framework, the integration of the Life Skills Curriculum plays an equally vital role in forming future leaders who excel academically and possess strong personalities, capable of contributing to national development. Learning planning thus acts as a critical guide for facilitators, enabling them to implement structured, efficient, and goal-oriented learning activities (Pardede & Dewi, 2021). Information derived from both curricula becomes the foundation for facilitators in preparing syllabi, lesson plans, and learning experiences aligned with student development. Therefore, the role of facilitators is crucial in achieving educational goals, particularly those aimed at holistic development

encompassing cognitive, affective, and psychomotor aspects (Fatmawati, 2021). Without strong facilitator readiness—conceptually, pedagogically, and practically—the intended outcomes of the curriculum cannot be fully realized.

Engagement in a continuous renewal process is essential for creating rich learning experiences that enhance the learning journey of students. Learning activities in this context involve a combination of cognitive and physical actions through which individuals acquire knowledge, refine skills, and develop personal growth (Prastika et al., 2023; Yudianto et al., 2024). One approach that receives significant appreciation is flexible learning, a model that provides students with the freedom to determine their learning pace, utilize various learning resources, and respond effectively to individual learning styles (Wisnujati et al., 2021). The importance of contextualized learning becomes increasingly evident when these methods are combined and implemented holistically. Contextual learning elements include modeling, questioning, collaborative learning communities, and reflection, which collectively create meaningful learning environments. Through collaboration within student groups, learners are encouraged to build arguments, share perspectives, and develop deeper understandings based on their existing knowledge and experiences (Darmawati & Mustadi, 2023). Embedding educational concepts within cultural and environmental contexts enables learners to connect lessons more directly with real-life situations, thereby reinforcing the relevance and significance of their learning (Harokah et al., 2024).

Out-of-class activities also play a strategic role in broadening learners' knowledge and strengthening learning experiences beyond classroom boundaries (Adela et al., 2024). These activities encompass four primary areas: school grounds, school environments, field trips, industrial visits, and camping programs (Putri et al., 2023). The student-centered approach becomes highly visible across these methods, as teaching and learning are constantly directed toward facilitating student autonomy, encouraging learners to acquire knowledge and develop skills independently (Sulaswari et al., 2023). Learning outside the classroom supports various developmental dimensions—physical, academic, personal, and social—creating a balanced educational experience (Putri et al., 2023).

Involving learners in direct, contextualized experiences significantly enhances the relevance and comprehension of real-world concepts (Meutiawati, 2023). Contextual learning theory highlights that learning by doing encompasses more than simply receiving information from facilitators; students must also actively engage, explore, and make autonomous decisions to understand and apply knowledge in daily contexts (Robani et al., 2021; Sari et al., 2024). This experiential approach provides meaningful experiences that deepen conceptual understanding while simultaneously cultivating practical skills that are essential for students' future social lives (Afriani, 2018). Life skills are integrated naturally into programs such as the SAKA Business Center (SBC), internships, cooking classes, and product sales outside the school, offering students opportunities to acquire independent knowledge and develop a broad range of competencies (Lestari et al., 2022). These competencies are increasingly relevant in modern society, where individuals are required to be characterized, cultured, globally competitive, competent, emotionally intelligent, productive, creative, and innovative (Novita et al., 2022). These skills encompass the ability to recognize problems, take initiative, make decisions independently, and solve tasks responsibly without relying on external assistance (Liao et al., 2022; Yang & Lin, 2024). Moreover, mental preparation and global skills must be emphasized to help individuals interact effectively with diverse cultures and navigate various life challenges (OECD, 2018).

Learning evaluation is multifaceted, incorporating daily reflection activities, authentic assessment (psychomotor, affective, and cognitive), and documentation through report cards, portfolios, and talent mapping. Learning reflection is conducted by both facilitators and students to comprehensively review learning processes, including planning, implementation, and outcomes (Ismayanti et al., 2020). Reflective activities at the end of learning are beneficial in improving critical thinking skills, boosting confidence, and encouraging active participation during group discussions (Ismayanti et al., 2020). Collaborative discussions emerge naturally because of diverse knowledge and experience

among learners, with each student contributing information gathered from reading, listening, observing, or personal experiences (Darmawati & Mustadi, 2023). Psychomotor learning outcomes manifest as students' ability to perform action-based skills, which are the continuation of cognitive and affective development (Indriyani et al., 2023). Another essential form of assessment is the portfolio, which documents students' learning experiences and serves as valuable material for comprehensive evaluation (Nurgiyantoro, 2018).

At this study, portfolios serve as platforms showcasing sustainability-based projects and student achievements across cognitive, affective, and psychomotor domains. This assessment model is highly suitable for encouraging learners to produce concrete, factual, and contextual work (Mahardika, 2018; Nurgiyantoro, 2018). The authenticity of student-produced work strengthens its function as a reliable source of performance assessment and supports class-based evaluation processes (Nurgiyantoro, 2018). Talent mapping acts as a systematic effort to identify students' talents and potential, enabling the formulation of individualized development plans (Atmia, 2023; Silvia & Adji, 2018). Talent mapping includes multiple stages, such as identifying interests based on enjoyment levels, observing natural aptitude through performance during activities, and determining appropriate learning styles to support skill development (Silvia & Adji, 2018).

Support for implementing eco-pedagogy integrated with life skills emerges from leadership training for facilitators, parental involvement, and principal leadership. These supports are inseparable from the principal's role as an educational leader responsible for mobilizing school resources—facilitators, learners, parents, and community stakeholders—to achieve educational objectives (Sahruddin, 2022). Principal support ensures smooth program execution and strengthens school-wide collaboration (Pranoto & JN, 2021). Effective principals inspire their staff to adopt new strategies, break free from repetitive routines, and pursue continuous improvement in teaching and learning activities (Aisyah et al., 2023).

However, several barriers still exist and must be addressed to enhance educational quality. One significant barrier is limited infrastructure, which may affect the comfort and effectiveness of teaching–learning activities. Infrastructure plays a critical role in ensuring adequate school services and learning facilities (Pranoto & JN, 2021). Quality textbooks are also essential for supporting students in achieving cognitive, affective, and psychomotor competencies (Ghufroni et al., 2020). Textbooks differ from reference books in that they are designed to present simplified yet focused information aligned with learning objectives, although sometimes lacking scientific depth (Susanto et al., 2023). Effective textbook design and usage guidelines must be understood clearly by students to ensure alignment with competency development (Pradipta & Kurniawan, 2021). Ideally, textbooks should be dynamic and adaptive to evolving educational needs (Susanto et al., 2023). In inclusive settings, parents must be actively involved in their children's educational development (Damsy et al., 2020). Parental engagement—particularly through volunteering at schools—is therefore crucial in strengthening inclusion and supporting students' holistic development (Nopiyanti & Husin, 2021).

Learners' ecological awareness encompasses a variety of attitudes and behaviors, including the ability to remind peers about environmental responsibilities, demonstrate environmental understanding, show sensitivity toward ecological issues, act responsibly, engage in cooperative efforts, and cultivate social empathy. This form of awareness emerges from the recognition that the environment holds a vital, inseparable, and sustaining role in human life, as noted by Mahaswa et al. (2021). When learners begin to internalize this understanding, it triggers a transformation in how they perceive their surroundings, encouraging them to see environmental preservation as an essential component of daily living rather than an external obligation. Such awareness marks a significant shift in environmental understanding that has the potential to foster meaningful, positive changes in behavior related to ecological care and long-term sustainability, aligning with the perspective of (Sulastri et al., 2019).

The ecological awareness is reflected in students' daily actions and attitudes, which include acknowledging the importance of environmental balance, understanding the consequences of human activities, adopting environmentally friendly lifestyles, actively engaging in ecological programs, and expressing creativity through recycling initiatives. These behaviors indicate that students are gradually integrating ecological values into their personal habits and decision-making processes. The school emphasizes that developing ecological awareness cannot rely solely on theoretical explanations; instead, it requires the simultaneous application of both social and ecological approaches, as suggested by (Sulastri et al., 2019). This integrated approach ensures that students not only acquire knowledge about environmental issues but also learn how to interact with others in ways that support collective ecological responsibility.

Students' environmental understanding is further strengthened through hands-on, practical learning experiences designed to place them in direct contact with nature. Activities that encourage students to observe natural processes, analyze environmental conditions, and appreciate the interconnectedness of ecosystems provide meaningful opportunities for them to deepen their ecological perspectives. According to Lullulangi et al. (2020), such experiential learning helps learners move beyond abstract concepts, enabling them to develop genuine appreciation and concern for the environment. By engaging directly with their surroundings, students build emotional and cognitive connections that support long-term ecological awareness and inspire more responsible environmental behavior in their daily lives.

The integration of eco-pedagogy with life skills education positively contributes to a wide range of student competencies, including self-awareness, responsibility, creativity, discipline, independence, problem-solving, and effective social interaction. Students gradually develop self-awareness as they learn to recognize their strengths, limitations, personal interests, and internal values, as highlighted by (Carden et al., 2022). This increased awareness is reflected in observable behaviors, such as students consistently bringing reusable bottles from home as a form of personal responsibility, adhering to school rules as an expression of discipline, and engaging in creative recycling projects that demonstrate their ability to transform waste into useful or artistic products. These habits show that the integration of ecological understanding with daily routines enables learners to internalize environmentally conscious behaviors that align with the school's vision of sustainable education.

In addition to shaping individual character, the integration of eco-pedagogy enhances essential life skills, particularly communication, problem-solving, and decision-making. These skills are crucial for helping students navigate and respond to everyday challenges in thoughtful and constructive ways, as emphasized by Miswari et al. (2020). Communication skills, for instance, require the ability to convey ideas clearly through both verbal and non-verbal channels while considering cultural expectations and situational contexts, aligning with the definition provided by WHO (1997). Within the school environment, students practice these abilities through group discussions, collaborative projects, and experiential learning activities that require them to articulate opinions, negotiate roles, and listen to others. The strengthened decision-making and problem-solving competencies that emerge from these practices prepare students not only for academic tasks but also for interpersonal interactions and community engagement.

Through these integrated learning experiences, students become better equipped to face real-world challenges with confidence and adaptability. The combination of ecological insight and practical skill-building nurtures learners who can participate productively in various social settings, contribute meaningfully to environmental preservation efforts, and function as responsible citizens in their communities. By fostering both environmental literacy and everyday competencies, eco-pedagogy integrated with life skills education ensures that students develop holistically—cognitively, socially, and ethically—so that they are capable of responding effectively to contemporary issues while supporting long-term sustainability.

4. Conclusions

Eco-pedagogical learning integrated with life skills encompasses several key aspects that are implemented in a structured yet flexible manner. Firstly, this approach includes a comprehensive and systematic learning design that begins with the preparation of annual and semester programs. These programs are developed based on an in-depth analysis of learners' needs, characteristics, and developmental stages. Facilitators also consider learners' interests, talents, and individual differences to ensure that the curriculum is not only relevant but also meaningful for each student. Such planning allows learning experiences to be tailored to real-life contexts, thereby helping students acquire essential competencies that align with the goals of holistic education.

Secondly, the implementation of learning is carried out through flexible, contextual, and experiential strategies. Life skills activities are integrated directly into daily lessons and school routines so that students can practice and internalize skills naturally. Activities such as outing classes, field explorations, entrepreneurship through the SAKA Business Center, and cooking sessions serve as hands-on learning opportunities where students apply knowledge in authentic settings. This integration strengthens students' ability to connect classroom concepts with daily life while nurturing independence, collaboration, and critical thinking.

Thirdly, the evaluation process in this learning model emphasizes daily reflection activities and authentic assessments. Reflection enables learners to think critically about what they have learned, how they have participated, and what improvements they need to make. Evaluations also cover psychomotor, affective, and cognitive dimensions, ensuring that students' development is assessed comprehensively. Tools such as portfolios, performance tasks, and observations help facilitators document learning progress more accurately by capturing real evidence of student engagement and skill development.

Fourthly, the implementation of eco-pedagogical learning does not occur without challenges. Limited infrastructure, varying levels of parental understanding of educational concepts, and the need for continuous facilitator development are some of the barriers encountered. However, the strong support provided by the foundation, parents or guardians, and the school principal plays a significant role in overcoming these challenges. Collaborative efforts, open communication, and shared educational vision contribute to maintaining the continuity and effectiveness of this learning approach.

Fifthly, the outcomes of eco-pedagogical learning integrated with life skills are evident in students' heightened ecological awareness and their improved personal abilities. Learners become more sensitive to environmental issues, develop responsibility toward nature, and demonstrate behaviors that reflect ecological consciousness. At the same time, essential life skills—such as creativity, discipline, problem-solving, cooperation, and effective social interaction—are strengthened through repeated practice in various learning contexts. These outcomes suggest that the learning model not only shapes students academically but also supports their character formation and readiness for real-world challenges.

Consequently, the eco-pedagogical learning approach integrated with life skills has a significant positive impact on the development of students' ecological awareness and personal competencies. This approach positions learners as active agents capable of understanding, caring for, and contributing to their environment. In light of its potential, future research should focus on developing more structured models, practical implementation guides, or replicable frameworks that can support the adoption of similar eco-pedagogical and life skills–based approaches in other educational institutions.

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Author Contribution

G.M.P. conducted the data collection, performed the analysis, and prepared the initial draft of the manuscript. A.Y. supervised the research process, provided methodological guidance, and carried out the critical revision as well as the final approval of the manuscript. A.M. contributed to developing the conceptual framework, validating the research instruments, and improving the overall structure and clarity of the manuscript. All authors have read and approved the final version of this work.

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Not available.

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The data supporting the findings of this study are available from the corresponding author upon reasonable request. No publicly archived datasets were generated or analyzed in this research. Certain data cannot be shared openly due to privacy and ethical considerations involving participant information.

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Biographies of Authors

Galuh Mentari Putri, Elementary School Teacher Education, Faculty of Teacher Training and Education, Universitas Pamulang, South Tangerang, Banten 15417, Indonesia.

- Email: dosen03285@unpam.ac.id
- ORCID: https://orcid.org/0009-0005-7472-1892
- Web of Science ResearcherID: OQJ-4710-2025
- Scopus Author ID: N/A
- Homepage: https://scholar.google.com/citations?user=2UFxwucAAAAJ&hl=id

Asep Yudianto, Elementary School Teacher Education, Faculty of Teacher Training and Education, Universitas Sultan Ageng Tirtayasa, Serang, Banten 42117, Indonesia.

- Email: asep.yudianto@untirta.ac.id
- ORCID: https://orcid.org/0000-0002-7960-9892
- Web of Science ResearcherID: KBQ-7254-2024
- Scopus Author ID: N/A
- Homepage: https://www.researchgate.net/profile/Asep-Yudianto

Ali Mustadi, Primary Education, Faculty of Education, Universitas Negeri Yogyakarta, Sleman, Special Region of Yogyakarta 55281, Indonesia.

- Email: ali_mustadi@uny.ac.id
- ORCID: https://orcid.org/0000-0002-7620-4582
- Web of Science ResearcherID: AAR-2242-2020
- Scopus Author ID: 5988428
- Homepage: https://scholar.google.com/citations?user=dq4z5iAAAAAJ&hl=id