



Reconstruction of Nature-Based Learning from the Perspective of Holistic Education in Elementary Schools

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Abstract

The dominance of cognitively oriented instruction in elementary education has increasingly diminished students' direct engagement with the natural environment. This condition contributes to the decline of ecological awareness, social sensitivity, experiential learning opportunities, and the holistic development of children. This study aimed to reconstruct nature-based learning within the framework of holistic education at the elementary school level. Employing a qualitative approach through library research, the study analyzed various scholarly sources related to holistic education, experiential learning, ecoliteracy, and nature-based pedagogy. The findings reveal that nature-based learning strongly aligns with the principles of holistic education because it simultaneously integrates cognitive, emotional, social, spiritual, and ecological dimensions. Nature functions not merely as a learning medium, but also as a living pedagogical space that facilitates contextual, reflective, collaborative, and meaningful learning experiences. Furthermore, the reconstruction of nature-based learning contributes to strengthening character education, ecological awareness, problem-solving skills, and the implementation of differentiated instruction within the Merdeka Curriculum framework. Therefore, nature-based learning can serve as an alternative pedagogical approach for developing holistic, contextual, and sustainable elementary education.

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INTRODUCTION

The transformation of twenty-first-century education requires a paradigm shift from knowledge-transmission-oriented instruction toward learning approaches that are more contextual, humanistic, and grounded in authentic experiences. Nevertheless, educational practices in elementary schools remain largely dominated by formal academic approaches that position students merely as recipients of information. Consequently, the learning process tends to focus predominantly on cognitive achievement, while students' emotional, ecological, social, and spiritual dimensions receive insufficient attention. In this context, learning is often detached from children's everyday realities and the environments in which they grow and develop (Doddington & Hilton, 2010).

The phenomenon of children's alienation from nature has intensified alongside the expansion of digital culture and classroom-centered learning systems. Louv (2008) conceptualized this condition as *nature-deficit disorder*, referring to children's declining connection with nature, which adversely affects their physical, psychological, social, and ecological development. In line with this perspective, Dewey (1938) emphasized that education should be grounded in direct experience, enabling learners to interact actively with both social and natural environments. Therefore, learning that is disconnected from concrete experiences risks becoming mechanical and devoid of meaningful engagement.

Within the context of elementary education in Indonesia, the need for contextual learning has become increasingly relevant to the policy orientation of the Merdeka Curriculum, which emphasizes differentiated instruction, character development, creativity, and twenty-first-century competencies (Ministry of Education,



Culture, Research, and Technology, 2022). However, instructional practices are still frequently dominated by lecture-based methods, excessive reliance on textbooks, and limited utilization of the environment as a learning resource. As a result, students have fewer opportunities to construct knowledge through direct observation, exploration, experience, and reflection.

In response to these challenges, nature-based learning has emerged as an alternative pedagogical approach that positions the environment as the primary learning space. Nature-based learning does not merely use nature as instructional media; rather, it integrates ecological experiences, social interaction, and reflective activities into the process of knowledge construction (Sugito & Wulansari, 2016). From this perspective, the environment functions as a living laboratory where students engage in authentic and contextual learning experiences.

Nature-based learning is also closely associated with character development and ecological awareness among students. Aprilia and Trihantoyo (2021) argued that nature-based learning contributes to the development of environmental responsibility, discipline, accountability, and religious values among elementary school students. Moreover, direct interaction with natural environments enhances students' prosocial behavior and collaborative skills (Dewi et al., 2019). Thus, nature-based learning extends beyond academic achievement and contributes to the development of more holistic human capacities.

From the perspective of holistic education, learners are viewed as multidimensional individuals whose intellectual, emotional, social, spiritual, and ecological dimensions develop in an integrated and balanced manner (Miller, 2007). Holistic education emphasizes the interconnectedness between human beings, the environment, lived experiences, and the meaning of learning. Forbes (2003) asserted that holistic education seeks to cultivate individuals' awareness of their interconnectedness with social and ecological systems. Consequently, nature-based learning shares strong conceptual relevance with holistic education because both prioritize authentic experiences, ecological relationships, and human development as central components of education.

In addition, nature-based learning is closely aligned with experiential learning theory, which positions experience as the primary source of knowledge formation (Kolb, 1984). Within Piaget's constructivist framework (1970), knowledge develops through active interaction between individuals and their environments. Similarly, Vygotsky (1978) highlighted the importance of social interaction and cultural context in children's learning processes. Therefore, nature-based learning can be understood as a pedagogical approach that integrates concrete experience, social interaction, and reflective development.

Previous studies have demonstrated the positive impacts of nature-based learning on students' development. Jiwaningrum and Suryono (2014) found that nature-based instructional media significantly enhanced children's cognitive development. Sugito and Wulansari (2016) further explained that nature-based learning improves learning quality through exploratory and contextual activities. Other studies also indicate that nature-based approaches effectively enhance ecoliteracy, naturalistic intelligence, prosocial behavior, and environmental character development among students (Irawati & Solihah, 2023; Nopiana, 2025; Wulansari, 2017; Yulianti & Rigianti, 2023).

Despite these findings, most previous studies have primarily focused on the technical implementation of nature-based learning, early childhood education, or partial aspects of environmental character development. Research specifically addressing the reconstruction of nature-based learning within the framework of holistic education in elementary schools remains relatively limited. In fact, pedagogical reconstruction is necessary to ensure that nature-based learning is understood not merely as outdoor activity, but as an educational paradigm integrated with the holistic development of human beings.

Based on this background, the present study aims to reconstruct nature-based learning from the perspective of holistic education in elementary schools. This study is expected to generate a conceptual synthesis concerning the integration of nature-based learning experiences, character education, ecoliteracy, contextual learning, and twenty-first-century competencies within a more humanistic and sustainable framework of elementary education.

METHODS

This study employed a qualitative approach using a library research design. This approach was selected because the study focused on a conceptual analysis of reconstructing nature-based learning from the perspective of holistic education in elementary schools through the examination of relevant scholarly sources. Library research enabled an in-depth exploration of theories, concepts, previous research findings, and educational policies related to nature-based learning, holistic education, experiential learning, ecoliteracy, and contextual pedagogy.

The data sources consisted of both primary and secondary data. Primary data were obtained from theoretical books and scientific journal articles discussing holistic education, nature-based learning, constructivism, and contextual learning, including the works of Dewey (1938), Kolb (1984), Forbes (2003), and Miller (2007), as well as empirical studies concerning the implementation of nature-based learning in elementary education. Secondary data were derived from educational policy documents, conference proceedings, undergraduate theses, and other publications relevant to the development of the research analysis.

Data collection was conducted through documentation study by systematically reviewing relevant scientific references. The literature search focused on several major themes, including holistic education, nature-based learning, elementary education, ecoliteracy, contextual learning, experiential learning, character education, and the Merdeka Curriculum. The selected literature was evaluated based on its substantive relevance, source credibility, and alignment with the research focus.

Data analysis employed thematic analysis and conceptual synthesis techniques. The first stage involved data reduction through the identification of key concepts related to nature-based learning and holistic education. The second stage consisted of categorizing the data into themes such as learning experiences, character development, ecoliteracy, contextual learning, and student competency development. The final stage involved conceptual interpretation to identify relationships among concepts and formulate a reconstruction of nature-based learning within the framework of holistic education.

The analytical process also adopted a reflective approach grounded in experiential learning theory, which positions experience as the foundation of knowledge construction (Kolb, 1984). In addition, Dewey's (1938) principles of progressive education were used as a theoretical basis for understanding the relationship between learning experiences, the environment, and students' development. Consequently, the findings of this study are not merely descriptive but also generate a conceptual synthesis that may serve as a foundation for developing nature-based learning models in elementary schools.

RESULTS AND DISCUSSIONS

Characteristics of Nature-Based Learning in Elementary Schools

Nature-based learning is a pedagogical approach that positions the environment as the primary learning space within the educational process. In this approach, nature is not merely utilized as instructional media, but also functions as a source of experience, an object of observation, a living laboratory, and a context for constructing students' learning meanings. Learning occurs through students' direct engagement with the environment, making the learning process more contextual, exploratory, and reflective.

The primary characteristic of nature-based learning lies in its emphasis on direct experience as the foundation of knowledge construction. Students do not simply receive information verbally; instead, they develop understanding through observation, exploration, experimentation, social interaction, and reflection on environmental phenomena. In this context, the natural environment functions as a pedagogical space that simultaneously fosters students' critical thinking skills, creativity, and ecological awareness (Hartati, 2022). Jiwaningrum and Suryono (2014) explained that nature-based learning enhances children's cognitive development through concrete experiences involving sensory and exploratory activities. Learning processes conducted directly in natural environments help students understand concepts more deeply than abstract classroom-based instruction. Therefore, empirical experience becomes a crucial component in developing elementary students' cognitive abilities.

Furthermore, nature-based learning is inherently contextual because instructional materials are closely connected to students' real-life experiences. Sugito and Wulansari (2016) emphasized that nature-based learning enables students to understand the relationship between academic concepts and the surrounding socio-ecological environment. In practice, such learning may involve gardening activities, environmental observation, ecosystem exploration, nature-based educational games, and simple conservation projects that actively engage students in the learning process.

Another important characteristic of nature-based learning is the integration of cognitive, affective, and psychomotor dimensions. Students not only learn conceptual knowledge but also develop ecological empathy, social responsibility, collaborative abilities, and problem-solving skills. In this regard, nature-based learning closely aligns with the principles of holistic education, which emphasize the comprehensive development of human potential.

Nature-based learning also creates a more flexible, active, and enjoyable learning atmosphere. Septiani (2020) argued that the management of nature-based learning provides students with more dynamic learning experiences compared to conventional instruction, which often tends to be monotonous. Direct interaction with the environment allows students to move freely, explore, discuss, and independently construct knowledge.

From the perspective of developmental psychology, this approach is consistent with Piaget's (1970) constructivist theory, which posits that knowledge develops through individuals' active interaction with their environment. Experience-rich learning environments enable students to construct cognitive structures based on authentic interactions. Therefore, nature-based learning possesses significant potential to support elementary students' cognitive and social development.

In addition, nature-based learning strengthens students' emotional connection with the environment. Repeated interaction with nature fosters ecological awareness and a sense of belonging toward the surrounding environment. Within the framework of sustainable education, such experiences provide an important foundation for cultivating environmentally responsible behavior from an early age.

Thus, nature-based learning in elementary schools is characterized by direct experience, contextual learning, environmental exploration, multidimensional child development, and the strengthening of ecological awareness. These characteristics demonstrate that nature-based learning is not merely an outdoor activity, but rather a pedagogical approach capable of reconstructing educational processes into more humanistic, reflective, and meaningful forms of learning.

Reconstruction of Holistic Education through Nature-Based Learning

Holistic education views learners as multidimensional individuals whose intellectual, emotional, social, spiritual, physical, and ecological dimensions develop through interconnected experiences. From this perspective, education is not solely directed toward academic achievement, but also toward the development of self-awareness, social relationships, ecological empathy, and meaningful life experiences. Miller (2007) argued that holistic education seeks to establish an integrated relationship between human beings, society, nature, and learning experiences, thereby preventing education from becoming fragmented within narrow disciplinary boundaries.

In elementary educational practice, conventional instructional approaches often position students as passive recipients of information. Consequently, learning becomes disconnected from students' lived experiences and provides limited opportunities for emotional and social development. Forbes (2003) stated that educational systems excessively oriented toward academic standards risk neglecting students' humanistic and ecological dimensions. Therefore, reconstructing holistic education is essential for creating learning systems that are more humanistic, contextual, and meaningful.

Nature-based learning possesses strong relevance in supporting the reconstruction of holistic education because it enables the simultaneous integration of multiple dimensions of student development. Natural environments provide learning experiences that are not only cognitive, but also emotional, social, and spiritual. Direct interaction with nature helps students understand the relationship between humans and the environment while fostering deeper ecological awareness.

Within the context of elementary education, nature-based learning enables students to learn through authentic experiences involving physical activity, observation, exploration, and reflection. This process aligns with Kolb's (1984) experiential learning theory, which conceptualizes learning as a cycle of concrete experience, reflective observation, conceptualization, and active experimentation. Consequently, students not only acquire theoretical knowledge but also develop meaningful understanding through direct experience.

Furthermore, the reconstruction of holistic education through nature-based learning reinforces child-centered educational approaches. Doddington and Hilton (2010) explained that education oriented toward children's needs and experiences creates more participatory and meaningful learning processes. Through nature-based learning, students are given opportunities to explore the environment according to their interests, curiosity, and developmental characteristics. Such an approach creates more flexible learning spaces and encourages active student engagement.

Nature-based learning is also associated with the development of multiple intelligences, particularly naturalistic intelligence. Chatib (2012) emphasized that each child possesses diverse intellectual potentials and requires varied learning experiences for optimal development. Natural environments provide rich stimuli for developing naturalistic, interpersonal, kinesthetic, and intrapersonal intelligences among elementary students. Therefore, nature-based learning supports more inclusive educational processes that appreciate students' diverse potentials.

From spiritual and emotional perspectives, nature-based learning also offers broader opportunities for reflection compared to conventional classroom instruction. Interaction with natural environments can foster gratitude, psychological well-being, empathy toward living beings, and awareness of humans' interconnectedness with the universe. Fauziah (2023) explained that holistic education positions spiritual experience and humanistic values as essential components of character formation. Thus, nature-based learning strengthens not only academic competence but also children's moral and spiritual development.

Moreover, nature-based learning encourages the development of collaborative social relationships. Learning activities conducted in open environments allow students to cooperate, discuss, share responsibilities, and solve problems collectively. Within the framework of social constructivism, Vygotsky (1978) emphasized that children's cognitive development occurs through social interaction and cultural contexts. Accordingly, nature-based learning can function as a social interaction space that enhances elementary students' communication and collaboration skills.

Widodo et al. (2024) demonstrated that environmentally based holistic education implemented in nature schools positively influences students' character development, creativity, social awareness, and ecological consciousness. These findings indicate that learning environments integrated with nature can provide more comprehensive educational experiences than fragmented conventional instruction.

Therefore, the reconstruction of holistic education through nature-based learning can be understood as an effort to integrate ecological experiences, character development, social interaction, and contextual learning into a unified educational process. This approach positions nature not merely as an object of instruction, but as an integral component in forming reflective, empathetic, and ecologically conscious individuals. In the context of elementary education, such reconstruction is essential for developing learning systems that are more relevant to children's developmental needs and future sustainability challenges.

Strengthening Character and Ecoliteracy through Nature-Based Learning

One of the most significant dimensions of nature-based learning is its contribution to character development and the enhancement of students' ecoliteracy. In elementary education, learning should not merely focus on academic achievement, but also on cultivating values, attitudes, and sustainable ecological awareness. In this regard, nature-based learning occupies a strategic position because it enables students to learn directly through interaction with their social and ecological environments.

Character development through nature-based learning emerges from authentic experiences involving observation, exploration, collaboration, responsibility, and environmental reflection. Hendriana and Jacobus (2016) argued that effective character formation requires habituation, role modeling, and contextual social

experiences. In nature-based learning, these values are not taught solely through verbal instruction, but are internalized through direct engagement in everyday learning activities.

Natural environments provide pedagogical spaces where students can understand the relationship between human actions and environmental sustainability. Activities such as maintaining environmental cleanliness, caring for plants, managing waste, and observing ecosystems foster ecological responsibility from an early age. Consequently, nature-based learning contributes to the development of reflective and practice-oriented environmental character.

Wulansari (2017) explained that nature-based learning serves as an alternative approach for developing environmental awareness because students gain direct experiences in understanding ecological balance. Such experiences cultivate ecological empathy and increase students' sensitivity toward environmental issues. In this context, environmental character is formed not through memorization, but through meaningful experiences that shape awareness and behavioral habits.

In addition to character formation, nature-based learning also enhances students' ecoliteracy. Ecoliteracy refers to the ability to understand ecological principles, human interconnectedness with nature, and responsibilities toward environmental sustainability. Nopiana (2025) emphasized that nature-based learning effectively strengthens ecoliteracy because students engage with authentic ecological conditions through direct experience.

Through nature-based learning, ecoliteracy develops through observation and interaction with environmental phenomena. Students learn about natural cycles, interdependence among living organisms, sustainable resource use, and the impacts of human activities on ecosystems. Such experiences foster a more critical and contextual ecological mindset than purely theoretical classroom instruction.

Yulianti and Rigianti (2023) further explained that nature-based learning models promote environmental responsibility among elementary school students through direct interaction with the environment. This approach helps students recognize that humans are part of interconnected ecological systems, an awareness that is essential for cultivating sustainable behavior from an early age.

Nature-based learning also contributes to the development of students' prosocial behavior. Dewi et al. (2019) found that nature-based learning positively influences children's cooperation, empathy, and social awareness. Open and collaborative learning environments encourage students to engage in active and reflective social interaction. Thus, nature-based learning strengthens not only ecological relationships, but also social relationships among learners.

Character strengthening through nature-based learning is also associated with the development of religious values and ecological spirituality. Aprilia and Trihantoyo (2021) argued that nature-based learning fosters religious character by encouraging students to appreciate the order of nature and recognize environmental preservation as part of human moral responsibility. Within holistic education, this spiritual dimension constitutes an important component in developing well-rounded and conscious individuals.

Moreover, nature-based learning encourages responsibility and independence among students. Learning activities involving environmental exploration, group projects, and contextual problem-solving help students develop decision-making skills, cooperation, and accountability. Consequently, nature-based learning supports character development relevant to twenty-first-century competencies.

From the perspective of sustainable education, strengthening ecoliteracy from elementary school has long-term implications for the formation of ecological culture within society. Environmental awareness cultivated from an early age may contribute to the emergence of future generations that are more critical of sustainability issues and more responsible toward environmental preservation. Therefore, nature-based learning possesses not only pedagogical value, but also social and ecological significance in fostering sustainability awareness.

In conclusion, nature-based learning contributes significantly to character strengthening and ecoliteracy development among elementary school students. This approach enables contextual, reflective, and meaningful educational experiences through direct interaction with the environment. Environmental responsibility, social empathy, accountability, and ecological awareness are developed through authentic experiences integrated into everyday learning processes.

Nature-Based Learning and the Development of Students' Problem-Solving Skills

Twenty-first-century education requires students to develop critical thinking, creativity, collaboration, and contextual problem-solving skills. In this context, nature-based learning holds strong relevance because it provides authentic learning experiences that allow students to engage directly with real-life situations in their surrounding environments. Learning activities involving environmental exploration, observation of natural phenomena, and contextual problem-solving encourage students to develop more practical and applicable problem-solving abilities.

Problem-solving skills cannot be optimally developed through instructional approaches focused solely on memorization and one-way knowledge transmission. Instead, these skills require learning experiences that position students as active participants in identifying, analyzing, and resolving problems. From the perspective of experiential learning, Kolb (1984) explained that knowledge develops through cycles of concrete experience, reflection, conceptualization, and active experimentation. Therefore, nature-based learning enables students to construct knowledge and thinking skills through direct engagement with real-world challenges.

Natural environments provide various authentic situations that can serve as contexts for developing problem-solving competencies. For instance, students may participate in activities such as identifying environmental waste, observing weather changes, managing school gardens, conserving water, or mapping simple ecosystems around the school environment. These activities require students to observe, identify problems, discuss alternatives, formulate solutions, and make collaborative decisions.

Amiliya and Dryas (2020) argued that nature-based learning effectively improves children's problem-solving skills because the learning process is grounded in authentic experiences requiring active student involvement. In such learning environments, students do not merely receive predetermined answers; rather, they learn to discover solutions through exploration and reflection on environmental conditions. Consequently, nature-based learning creates more investigative and participatory learning spaces.

Moreover, nature-based learning strengthens students' critical thinking abilities. Direct interaction with the environment encourages learners to observe causal relationships, understand ecological dynamics, and evaluate the impacts of human activities on the environment. These processes help students develop reflective and analytical mindsets essential for twenty-first-century competencies.

Within the framework of the Merdeka Curriculum, problem-solving development constitutes an important component of project-based learning and the strengthening of the Pancasila Student Profile. Ningsih and Martoni (2025) explained that project-based assessment in STEM education can foster students' problem-solving and innovation skills through contextual and collaborative learning experiences. In line with this perspective, nature-based learning can be integrated with project-based approaches to provide more meaningful and applicable learning experiences.

Nature-based learning also promotes collaboration in solving problems. Learning activities conducted in open environments enable students to work in groups, share responsibilities, exchange ideas, and collaboratively construct solutions. From the perspective of social constructivism, Vygotsky (1978) emphasized that children's cognitive development occurs through social interaction and cooperation with others. Accordingly, nature-based learning not only develops individual competencies but also strengthens students' social skills.

In addition, natural environments provide more flexible and dynamic learning spaces compared to conventional classrooms. Students are given opportunities to experiment directly and confront authentic challenges that require independent decision-making. Such conditions help students develop self-confidence, willingness to take initiative, and adaptability to diverse learning situations.

Nature-based learning is also closely related to the development of students' creativity in addressing problems. Experience-rich environments encourage students to explore multiple alternative solutions based on actual conditions. As a result, learning processes become less linear and mechanical, and more open to idea exploration and innovation.

Furthermore, the development of problem-solving skills through nature-based learning has important implications for fostering students who are adaptive to future social and ecological changes. Students are not

only trained to understand academic concepts, but also to respond critically, reflectively, and collaboratively to real-life challenges. Within the framework of sustainable education, such competencies constitute essential foundations for developing future generations that are responsive to environmental and social issues.

Therefore, nature-based learning contributes significantly to the development of elementary students' problem-solving skills. Through authentic learning experiences, environmental exploration, and collaborative activities, students are provided with opportunities to cultivate critical, creative, and reflective thinking in contextual ways. This approach demonstrates that the natural environment functions not merely as instructional media, but as a pedagogical space that supports the holistic development of twenty-first-century competencies.

The Relevance of Nature-Based Learning to the Merdeka Curriculum

The Merdeka Curriculum emphasizes student-centered, contextual, flexible, and competency-oriented learning approaches aligned with twenty-first-century educational demands. Within this paradigm, education is no longer directed solely toward academic achievement, but also toward strengthening character, creativity, collaboration, and critical thinking skills. Consequently, nature-based learning demonstrates strong relevance to the educational transformation promoted by the Merdeka Curriculum, as both approaches position authentic learning experiences as the foundation of the learning process.

The Ministry of Education, Culture, Research, and Technology (2022) explained that the Merdeka Curriculum was designed to provide more flexible learning spaces that accommodate students' needs, potentials, and characteristics. In this context, nature-based learning functions as a pedagogical approach that supports differentiated instruction because natural environments provide diverse learning experiences and enable students to learn through direct exploration.

Nature-based learning is also aligned with the contextual learning principles emphasized in the Merdeka Curriculum. Learning materials are not treated as abstract concepts detached from students' lives, but are instead connected to the social and ecological realities surrounding them. Activities such as environmental observation, exploration of local ecosystems, school gardening, and simple conservation projects allow students to understand concepts through concrete experiences relevant to daily life.

From a child-centered educational perspective, Doddington and Hilton (2010) argued that effective learning processes must accommodate students' individual needs, experiences, and developmental characteristics. Nature-based learning provides opportunities for students to learn according to their interests, curiosity, and learning styles. Therefore, this approach supports more inclusive and participatory learning environments as emphasized within the Merdeka Curriculum.

Furthermore, nature-based learning is closely associated with the implementation of the *Projek Penguatan Profil Pelajar Pancasila* (P5). Within the Merdeka Curriculum framework, P5 is intended to strengthen students' character through contextual and collaborative project-based learning. Themes such as sustainable lifestyles, local wisdom, and environmental preservation are highly compatible with nature-based learning approaches.

Through learning activities conducted in natural environments, students can directly develop values such as cooperation, responsibility, creativity, and environmental awareness. These experiences help students recognize that learning does not occur exclusively within classroom settings, but also through interaction with social and ecological environments. Accordingly, nature-based learning can function as an effective strategy for implementing the Pancasila Student Profile in more practical and meaningful ways.

In the context of twenty-first-century competency development, nature-based learning also strengthens critical thinking, communication, collaboration, and creativity. Learning activities involving observation, exploration, and contextual problem-solving enable students to develop reflective and adaptive capacities in responding to environmental changes. In line with this perspective, the Merdeka Curriculum positions competency development as an integral component of experiential and practice-oriented learning.

Nature-based learning additionally supports the implementation of authentic assessment within the Merdeka Curriculum. Assessment is not limited to written examinations, but also includes observation of activities, project performance, reflective practices, and students' participation throughout the learning process. In this

regard, natural environments provide learning spaces that enable teachers to assess students' cognitive, affective, and psychomotor development more comprehensively.

Moreover, nature-based learning can reduce the dominance of textbook-centered and classroom-bound instruction. Open and contextual learning environments create more active, flexible, and enjoyable learning experiences, which are essential for enhancing students' motivation and engagement.

Nevertheless, the implementation of nature-based learning within the Merdeka Curriculum still faces several challenges. Some schools experience limitations in utilizing the environment as a learning resource due to inadequate facilities, persistent conventional teaching paradigms, and insufficient teacher readiness in designing experiential learning activities. Therefore, strengthening teachers' pedagogical capacities is necessary to ensure the systematic and sustainable integration of environmental learning into educational practices.

In addition, institutional support from schools plays a crucial role in implementing nature-based learning. Schools need to cultivate learning cultures that encourage environmental exploration, project-based learning, and collaborative activities beyond the classroom. In this way, nature-based learning becomes not merely incidental activity, but an integrated component of the overall educational system.

Therefore, nature-based learning demonstrates strong relevance to the principles and developmental direction of the Merdeka Curriculum. This approach supports differentiated instruction, the strengthening of the Pancasila Student Profile, authentic assessment, and the development of twenty-first-century competencies through contextual and meaningful learning experiences. In the context of elementary education, integrating nature-based learning with the Merdeka Curriculum may become an important strategy for fostering more humanistic, adaptive, and sustainable educational processes.

Conceptual Model for Reconstructing Nature-Based Learning from the Perspective of Holistic Education

The reconstruction of nature-based learning from the perspective of holistic education positions the environment as a multidimensional pedagogical space integrating learning experiences, character development, ecological awareness, social interaction, and cultural contexts within a unified educational system. Nature-based learning is therefore understood not merely as outdoor activity, but as a pedagogical paradigm that promotes contextual, reflective, and humanistic learning experiences.

This conceptual model was developed through a synthesis of holistic education, experiential learning, constructivism, and contextual learning theories. Holistic education emphasizes the interconnectedness of intellectual, emotional, social, spiritual, and ecological dimensions within the educational process (Miller, 2007). Within this framework, direct experience becomes the core of learning because knowledge develops through students' active interaction with their environment (Dewey, 1938; Kolb, 1984).

Beyond ecological dimensions, this model also integrates socio-cultural perspectives as essential components of the learning process. Vygotsky (1978) argued that children's cognitive development occurs through social interaction and cultural mediation. Accordingly, nature-based learning should be connected to students' lived realities through the integration of values, traditions, and local knowledge as contextual learning resources.

Suryadmaja et al. (2025) explained that local culture contains symbolic meanings that shape how communities understand the environment and social realities. In educational contexts, these cultural values can be integrated through the exploration of local traditions, community ecological practices, and community-based project learning. Such an approach enables students to understand the interconnectedness between scientific knowledge, local culture, and environmental sustainability while simultaneously strengthening their social and ecological identities.

The reconstructed model of nature-based learning consists of six major components: (1) ecological experiences through environmental observation and exploration; (2) reflective learning to develop critical understanding; (3) social interaction and collaboration in learning activities; (4) contextual and local cultural exploration as learning resources; (5) character strengthening and ecological spirituality; and (6) the development of ecoliteracy and problem-solving skills.

Through this model, students are positioned as active subjects who construct knowledge through empirical experiences and engagement with their socio-ecological environments. Consequently, nature-based learning

demonstrates significant relevance for developing more humanistic, contextual, and sustainable elementary education while fostering reflective, adaptive, and ecologically conscious learners.

CONCLUSION

The reconstruction of nature-based learning from the perspective of holistic education demonstrates that elementary education should be directed toward the holistic development of learners through the integration of cognitive, emotional, social, spiritual, and ecological dimensions. Nature-based learning provides contextual and meaningful learning experiences through direct interaction with the environment.

This study reveals that natural environments function as pedagogical spaces that support character development, ecoliteracy, problem-solving abilities, and students' social collaboration. The approach is also highly relevant to the implementation of the Merdeka Curriculum because it supports differentiated learning, project-based learning, authentic assessment, and the strengthening of the Pancasila Student Profile.

The reconstructed conceptual model positions ecological experiences, reflective learning, social interaction, local cultural exploration, and character development as the primary components of nature-based learning. Therefore, nature-based learning should not be viewed merely as outdoor activity, but rather as a pedagogical paradigm capable of fostering more humanistic, contextual, and sustainable elementary education. Consequently, schools and teachers need to develop learning practices that more actively utilize the environment as an integrative and reflective learning space.

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