

Connecting Children with Nature Through Play: Exploring the Implementation of Nature Play-Based Learning for Holistic Early Childhood Development

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ABSTRACT

Nature play-based learning has emerged as an educational approach that provides young children with opportunities to learn through direct experiences, exploration, and interaction with their surrounding environment. This study aims to describe the implementation of nature play in supporting holistic early childhood development, including physical-motor, cognitive, creativity, social-emotional, environmental awareness, and religious and moral values. This research employed a qualitative approach with a descriptive design. Data were collected through observations of learning activities, teacher interviews, and documentation of children's activities during nature play implementation. Data analysis was conducted through data condensation, data display, and conclusion drawing. The findings reveal that nature play was implemented through the exploration of various natural elements, including leaves, twigs, stones, soil, sand, and water as learning resources. Teachers integrated religious values through dialogues about various creations of Allah, enabling children to recognize, appreciate, and care for the environment. These activities provided meaningful learning experiences that supported children's overall development while fostering attitudes of care, responsibility, and respect toward nature. The study indicates that nature play can serve as a contextual learning strategy that strengthens children's connection with nature while promoting character development and spiritual values from an early age.

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1. INTRODUCTION

Early childhood education represents a fundamental phase in human development, as it constitutes the initial period in which various developmental domains are established and influence children's future growth. During this stage, children experience rapid development through

continuous interactions with their surrounding environments, including family, school, and community contexts. Therefore, early childhood education should not be limited to achieving early academic competencies but should focus more broadly on nurturing children's overall potential, including physical-motor development, cognitive abilities, language skills, social-

emotional competence, creativity, moral values, and children's ability to understand and respond to their surrounding environment.

In the context of contemporary early childhood education (ECE), the decreasing opportunities for children to interact directly with natural environments have become a significant challenge. Interaction with nature is recognized as an essential component of children's holistic development, encompassing cognitive, social-emotional, and physical dimensions [1]. Changes in lifestyle patterns, the rapid advancement of digital technology, and the increasing amount of time children spend indoors have limited children's opportunities for natural play experiences. Children are now more frequently engaged with digital devices than involved in direct exploration of their surrounding environments.

The phenomenon of reduced children's connection with nature is commonly referred to as nature-deficit disorder, a term introduced by Louv (2008) to describe the negative consequences of limited interaction between children and natural environments. This condition affects not only children's physical health but also their cognitive, social, and emotional development. Limited opportunities for playing in natural settings may reduce children's ability to develop concentration, creativity, imagination, and social skills [2]. Furthermore, restricted access to green spaces limits children's sensory and motor stimulation, which are essential for brain development and psychological well-being [3]. In fact, direct experiences with natural environments play an important role in supporting children's development by providing opportunities to observe, explore, manipulate objects, and construct understanding through real-life experiences.

Natural environments provide rich learning contexts for young children through sensory experiences and direct exploration. Various natural elements, such as sand, water, soil, stones, and plants, offer multisensory stimulation that supports children's holistic development [4]. In addition, outdoor play

activities contribute to the development of children's social skills, problem-solving abilities, and creativity [5]. Thus, nature functions not merely as a place for play but also as a meaningful learning resource that provides contextual educational experiences.

Activities involving the exploration of plants, playing with natural materials, and observing the surrounding environment represent meaningful learning experiences for young children. Environmental exploration in early childhood education settings strengthens children's connection with nature while introducing them to natural resources that need to be preserved [6]. Outdoor learning experiences construct children's understanding and strengthen their relationship with nature (Rohmah & Aulina, 2024), while also fostering naturalistic intelligence, including the ability to recognize plants, animals, and environmental sensitivity [7].

One of the emerging approaches in early childhood education research is nature play. Nature play refers to a play-based learning approach that utilizes natural environments and natural materials as integral components of children's learning processes [8]. This approach provides opportunities for children to actively engage in exploration, discovery, and direct experiences. Unlike conventional learning approaches that rely primarily on predetermined instructional media, nature play allows children to construct their own play experiences based on creativity, imagination, and personal exploration.

A major strength of nature play lies in its open-ended characteristics, which provide children with freedom to explore various possibilities during play. Through this approach, children can utilize natural materials according to their own ideas and imagination, such as transforming leaves into artwork, arranging stones into patterns, playing with sand, observing plant growth, or participating in environmental care activities. These experiences position children as active learners who construct knowledge through meaningful interactions with their surroundings.

The open-ended nature of nature play enables children to explore different possibilities without predetermined limitations. Natural materials such as leaves, stones, sand, and plants function as loose parts that can be manipulated, combined, and transformed in various ways according to children's creativity [9]. This process of open exploration supports children's active involvement in constructing knowledge through direct experiences, which aligns with constructivist perspectives emphasizing that children actively build their own understanding rather than passively receive knowledge from external sources. Furthermore, nature play provides opportunities for children to participate in environmental care activities, thereby fostering ecological awareness from an early age.

Although research on nature-based learning has continued to expand, previous studies have predominantly focused on specific aspects of child development, such as gross motor development through outdoor activities. For example, Annuha[10] demonstrated the effectiveness of nature-based learning in supporting early childhood motor development. However, studies that provide in-depth descriptions of how nature play is implemented as a pedagogical practice supporting children's holistic development remain limited, particularly within religious-based early childhood education institutions in Indonesia.

Initial observations revealed that outdoor play activities had become part of the learning practices at RA Nurul Ilmi, particularly within themes related to plants and the environment. Children were actively engaged in exploring natural objects such as leaves, stones, and twigs, while also interacting with their peers during learning activities. However, the implementation of nature-based learning had not yet been systematically documented as a pedagogical practice that supports children's overall development.

Based on this background, this study aims to describe the implementation of nature play in connecting children with natural

environments and to analyze its contribution to holistic early childhood development. This study is expected to contribute to the field of early childhood education, particularly regarding the importance of environmental-based learning as a contextual, meaningful, and developmentally appropriate approach. Furthermore, this research provides implications for early childhood educators to utilize surrounding environments as learning resources that not only support children's developmental competencies but also cultivate positive relationships between children and nature from an early age.

2. LITERATURE REVIEW

2.1 *Early Childhood and Holistic Development*

Early childhood represents a fundamental stage of human development, during which various abilities rapidly develop through children's experiences and interactions with their surrounding environments [11]. Therefore, early childhood education should provide learning experiences that are appropriate to children's characteristics, particularly through play, exploration, and concrete activities [12]. At this stage, children construct knowledge not only through verbal instruction but also through direct experiences that allow them to observe, experiment, and discover.

Children's development occurs holistically, meaning that each developmental domain is interconnected and cannot be separated from one another. The holistic-integrative approach in early childhood education emphasizes that cognitive, physical-motor, language, social-emotional, creativity, moral, and religious development should be stimulated in a balanced and integrated manner [13]. Uría et al. [14] further explain that holistic development requires learning environments that support children's active engagement in meaningful experiences. Therefore, early childhood learning environments should provide

opportunities for children to explore, interact, and construct understanding through authentic experiences. In this context, natural environments represent valuable learning resources because they provide real-life experiences that support children's overall development.

2.2 *Nature Play as Nature-Based Learning*

Nature play is an educational approach that utilizes natural environments as learning resources through play activities, exploration, and direct experiences [15]. This approach provides opportunities for children to interact with diverse natural elements as rich and flexible learning materials [16]. Through nature play, children engage directly with natural objects such as leaves, twigs, stones, soil, sand, water, and plants, allowing them to develop understanding through sensory experiences and active exploration.

The concept of nature-play positions the natural environment as a "third teacher" that provides authentic learning experiences that cannot be fully replicated in indoor learning settings. Natural materials offer open-ended possibilities that encourage children to create, investigate, and develop their own meanings based on their experiences. Thus, nature becomes not only a physical setting for learning but also an active component in children's knowledge construction.

Theoretically, nature play is grounded in constructivist perspectives, which emphasize that children construct knowledge through direct experiences and active interactions with their environments. In this approach, children are positioned as active learners who explore, investigate, and develop understanding through meaningful engagement with natural surroundings [17]. Learning in outdoor environments encourages children to develop initiative, curiosity, and independent thinking as they encounter real-world situations and construct knowledge from their own experiences.

2.3 *Play as a Medium for Connecting Children with Nature*

Play is an essential part of early childhood life and serves as children's primary way of learning about the world around them. As highlighted in previous studies, play is a daily activity through which children acquire knowledge, develop skills, and construct meaning from their experiences [18]. Within the nature play approach, play becomes a medium that enables children to establish meaningful connections with natural environments through direct interaction and exploration.

The use of natural materials, including leaves, stones, sand, and twigs, provides opportunities for children to engage in sensory exploration while developing their understanding of the surrounding world [19] [20]. Through these activities, children are encouraged to manipulate objects, create representations, solve simple problems, and express their ideas. Such experiences contribute not only to cognitive and physical development but also to creativity, social interaction, and emotional growth.

Furthermore, playing in natural environments supports the development of children's social-emotional competencies, character, and moral values. Through collaborative play, children learn to share, cooperate, negotiate, take responsibility, and respect their environment. Riyanto et al. [21] explain that outdoor environments provide rich contexts for social-emotional development because the freedom of movement allows children to initiate, maintain, and regulate social interactions according to their needs. In addition, natural environments encourage imaginative play and foster positive relationships among peers [22]. Therefore, play-based interactions with nature become an important pathway for strengthening children's connection with the environment while supporting their holistic development.

3. METHODS

This study employed a descriptive qualitative approach to gain an in-depth understanding of the implementation of nature play as a nature-based learning approach in supporting early childhood development. A qualitative approach was selected because the study focused on understanding the learning process, children's interactions with natural environments, teachers' strategies in facilitating play activities, and children's learning experiences within authentic contexts without manipulating the research setting.

The study was conducted at RA Nurul Ilmi, Pemalang Regency, Indonesia. The research participants consisted of the school principal, a Grade B classroom teacher, and children involved in nature play activities. The research focused on how nature-based learning was designed and implemented, how children engaged in environmental exploration, and how these activities contributed to children's holistic development. The focus was aligned with the research objectives, which examined the implementation of nature play and the supporting and inhibiting factors influencing its practice in early childhood education settings.

Data were collected through observation, interviews, and documentation. Observations were conducted to identify children's activities during nature play, their interactions with natural materials, and the teacher's role in creating meaningful nature-based learning experiences. Interviews with teachers were conducted to obtain information regarding lesson planning, implementation processes, and evaluation of nature play activities. Documentation data included photographs of learning activities, learning records, and children's work produced during the learning process.

Data analysis followed the interactive model proposed by Miles, Huberman, and Saldaña [23], consisting of data condensation, data display, and conclusion drawing and verification. Data credibility was ensured

through source triangulation by comparing information obtained from observations, interviews, and documentation. Through this methodological process, the study aimed to describe nature play as a pedagogical practice that supports not only children's physical development but also creativity, independence, social competence, environmental awareness, and positive relationships with nature.

4. RESULTS AND DISCUSSION

4.1 Result

This study reveals the implementation of *nature play* as a nature-based learning approach that supports holistic early childhood development. Based on observations, interviews, and documentation of learning activities at RA Nurul Ilmi, the findings indicate that *nature play* was implemented through play activities utilizing the surrounding environment as a learning resource. The learning process was not merely oriented toward achieving specific competencies but provided meaningful experiences involving multiple developmental domains, including physical-motor, cognitive, creativity, social-emotional, independence, environmental awareness, and religious and moral values. These findings demonstrate that natural environments can serve as pedagogical spaces that provide contextual and meaningful learning experiences for young children.

The implementation of *nature play* at RA Nurul Ilmi began with activities aimed at strengthening religious values through the introduction of various forms of Allah's creations found in children's surroundings. Before engaging in exploration activities, the teacher initiated discussions about natural objects that would be used during play activities. The teacher provided stimulating questions, such as "*Who created the leaves?*", "*Who created the twigs?*", and "*Who created the water?*". These questions encouraged children to understand that natural

objects in their environment are parts of Allah's creations.

Through these dialogues, children not only learned about the concrete characteristics of natural objects but also began to develop a basic understanding of spirituality through direct experiences. Children learned that plants, water, soil, stones, and other natural elements are not merely objects for play but are creations of Allah that should be recognized, appreciated, and preserved. This initial activity became an important component in integrating nature-based learning with religious and moral education.

Following the introduction of religious values, children were given

opportunities to explore various natural materials available in the school environment. Children interacted directly with leaves, twigs, stones, soil, sand, water, and other environmental objects through activities such as collecting, observing, touching, classifying, arranging, and transforming natural materials into simple creative works.

The findings show that exploration activities involving natural materials provided opportunities for children to develop movement coordination, creativity, simple problem-solving abilities, and confidence in completing learning activities.



Figure 1. Children's Exploration Activities Using Natural Materials in Nature Play Learning

Figure 1 illustrates children's direct interaction with natural materials as learning resources. Children did not merely acquire information through teacher explanations but constructed knowledge through firsthand experiences. Through these activities, children learned to identify the shapes, textures, sizes, and characteristics of various natural objects. They also developed early thinking skills, such as comparing, classifying, selecting materials, and determining appropriate ways to use available resources.

In addition to cognitive and creative development, nature exploration activities also demonstrated the emergence of moral values, particularly respect and responsibility toward the environment. Children began to understand that natural materials should be used appropriately, not damaged, and

utilized wisely. The teacher guided children to collect materials sufficiently, maintain environmental cleanliness, and return unused materials after activities.

The teacher's role was identified as a crucial factor in the successful implementation of *nature play*. The teacher not only provided play materials but also designed meaningful learning experiences, delivered stimulating questions, connected play activities with life values, and helped children construct meaning from their experiences.

Within the context of Islamic early childhood education, the teacher's role extends beyond facilitating play activities. Teachers serve as facilitators who connect children's experiences with faith-based values and moral understanding. For example, when children observe leaves, teachers do not only encourage them to identify colors

and shapes but also guide them to understand that leaves are creations of Allah that provide benefits for human life.

Table 1. Implementation of Nature Play Learning at RA Nurul Ilmi

Learning Activities	Children's Activities	Developmental Aspects Stimulated
Exploration of natural materials	Observing, touching, and identifying leaves, stones, soil, twigs, and other natural objects	Cognitive development, sensory experiences, curiosity, and religious values
Playing with leaves, stones, and twigs	Arranging, classifying, and creating simple works using natural materials	Creativity, motor skills, problem-solving, and responsibility
Outdoor play activities	Moving and interacting directly with the surrounding environment	Physical-motor development, social-emotional development, and environmental awareness
Group activities	Discussing, sharing materials, and collaborating with peers	Communication, cooperation, and social-moral values

Based on Table 1, *nature play* demonstrates multidimensional characteristics because each activity stimulates several developmental domains simultaneously. For example, when children arrange twigs into creative works, they not only develop hand coordination but also learn to collaborate,

make decisions, appreciate peers' ideas, and understand that natural materials are part of the environment that should be protected. In addition to exploration activities, creative activities using natural materials represent an important component of *nature play* implementation.



Figure 2. Children's Creative Activities Using Natural Materials

Figure 2 illustrates children's activities in producing creative works using natural materials. Children were given opportunities to select and combine various materials based on their own ideas and creativity. Natural materials function as *open-ended materials* that enable children to create diverse forms of work based on their imagination.

Through these creative activities, children learned to express ideas, appreciate their own and others' creations, and develop self-confidence. At the same time, teachers integrated moral values into the activities, including

cooperation, sharing materials, appreciating Allah's creations, and caring for the environment.

Interviews with teachers revealed that children demonstrated higher enthusiasm when learning activities were conducted through natural environments because they were able to observe, touch, and directly experience learning objects. Children became more actively involved because these activities were consistent with the characteristics of early childhood learning, which emphasizes play, exploration, and concrete experiences.

Table 2. Impact of Nature Play on Children's Development

Developmental Aspect	Findings from <i>Nature Play</i> Activities
Religious and moral values	Children recognized nature as Allah's creation, demonstrated gratitude, cared for the environment, and learned responsibility toward living things
Physical-motor development	Children engaged in activities involving collecting, arranging, moving, and manipulating natural objects
Cognitive development	Children observed, compared, classified, and discovered simple concepts
Creativity	Children produced creative works based on their own ideas and imagination
Social-emotional development	Children collaborated, shared, communicated, and respected peers
Environmental attitudes	Children began to recognize the importance of caring for and preserving nature

Based on Table 2, *nature play* demonstrates that playing in natural environments contributes to children's overall development. Children not only develop early academic abilities but also experience character formation through interactions with their environment.

The study also identified supporting and inhibiting factors affecting the implementation of *nature play*. Supporting factors included the availability of a school environment that allowed the use of natural materials, teachers' creativity in designing learning activities, and children's enthusiasm during participation. Meanwhile, inhibiting factors included weather conditions, challenges in managing outdoor activities, and the need to communicate with parents regarding the benefits of nature-based learning.

Overall, the findings demonstrate that *nature play* at RA Nurul Ilmi is not merely an activity involving natural materials but represents a pedagogical approach that connects children with nature, religious values, and social experiences. Through playing with nature, children learn to understand the environment as an essential part of life and as Allah's creation that should be respected, appreciated, and protected.

4.2 Discussion

The findings of this study demonstrate that *nature play* represents a learning approach that aligns with the characteristics of early childhood

education because it positions direct experience as the foundation of learning. Young children learn through concrete experiences; therefore, natural environments serve as relevant learning resources by providing real objects that can be observed, touched, explored, and manipulated.

In this study, learning activities did not position children as passive recipients of information but as active learners who construct understanding through play-based experiences. This perspective is consistent with constructivist theory, which emphasizes that children develop knowledge through interactions with their environments. As proposed by Piaget, children construct their understanding through direct experiences and interactions with the surrounding world [24].

The distinctive contribution of this study lies in the integration of nature-based learning with the development of religious and moral values. In many nature-based learning practices, attention is often focused primarily on cognitive development, creativity, or physical development. However, in the context of RA Nurul Ilmi, nature is also utilized as a medium to introduce children's relationship with Allah as the Creator of all living beings.

The teacher's practice of initiating learning activities through questions such as "*Who created the leaves?*" and "*Who created the water?*" demonstrates that

nature exploration is not limited to recognizing physical characteristics of objects but is also directed toward developing children's spiritual awareness. Through these interactions, children begin to understand that their surrounding environment has a broader meaning, namely as part of Allah's creation that should be appreciated and respected.

This approach is consistent with the perspective of Islamic education, which views learning as a process that aims not only to develop intellectual abilities but also to establish a harmonious relationship between humans, Allah, other human beings, and the natural world. From this perspective, Islamic education seeks to optimize human potential so that individuals are able to recognize and develop closeness to Allah while fulfilling their responsibilities as part of social and ecological life [25]. Therefore, learning processes can serve as a means of introducing divine values through meaningful experiences that are closely connected to children's daily lives. The internalization of Islamic values in learning enables natural phenomena to be understood as signs of Allah's greatness that can be explored and reflected upon.

As explained by Idris et al. [26], learning integrated with Islamic values can begin through an understanding of Allah's creation processes, allowing children not only to acquire knowledge but also to develop spiritual awareness. Human interaction with the environment contains important educational values, including respect for nature, moral responsibility toward the environment, and the development of love and care for Allah's creations. Thus, nature functions not only as a learning resource but also as a medium for character education that nurtures gratitude, environmental awareness, and moral responsibility from an early age.

The findings further reinforce that natural-environments possess broad and multidimensional pedagogical

functions in supporting children's development. Natural elements such as soil, leaves, stones, water, and twigs are not merely play materials but serve as rich resources for developing various children's capacities holistically [27]. When children reinterpret and engage with natural objects, they develop imaginative and creative thinking abilities. This finding is consistent with previous research indicating that diverse natural environments provide rich sensory stimulation that supports children's cognitive functions [28].

Furthermore, the implementation of *nature play* represents a direct response to the phenomenon of children's declining interaction with nature (*nature deficit*), which has emerged as a consequence of modern lifestyle changes. Contemporary children increasingly spend more time indoors engaging with electronic devices rather than interacting with natural environments [29]. This condition raises significant concerns because interactions with nature have been shown to provide benefits for children's physical, cognitive, social, and emotional development [30].

Within this context, *nature play* at RA Nurul Ilmi serves as an effort to restore children's experiences with nature through simple activities such as playing with soil, observing leaves, arranging twigs, and exploring water. This approach is consistent with previous findings that the use of natural materials, including soil, stones, twigs, leaves, and water, as learning media enables children to experiment and explore through direct experiences [31]. Through nature-based activities, children develop emotional connections with their environment while simultaneously cultivating awareness and responsibility toward Allah's creations.

The teacher's role emerged as an important factor in the success of this approach. Teachers do not merely provide play environments but also construct meaning from children's

experiences through dialogue, reflective questioning, and value-oriented habituation. In this process, teachers serve as mediators who connect children's play activities with broader educational goals.

Therefore, this study contributes to the understanding that *nature play* can be conceptualized as a holistic learning approach that integrates child development, social experiences, ecological awareness, and spiritual values. Through playing in natural environments, children not only learn about nature but also develop an understanding of their position as part of Allah's creation and their responsibility to preserve and sustain life.

5. CONCLUSION

This study demonstrates that the implementation of nature play-based learning serves as an educational approach that enables young children to establish meaningful connections with the natural environment through play-based experiences. The activities conducted at RA Nurul Ilmi reveal that nature functions not merely as a play setting, but also as a learning resource that provides opportunities for children to observe, explore, create, interact, and construct understanding through direct experiences. Through the utilization of natural materials such as leaves, twigs, stones, soil, water, and other environmental objects, children receive holistic developmental stimulation encompassing cognitive abilities, physical-motor skills, creativity, social-emotional development, independence, and environmental awareness.

Beyond supporting children's developmental abilities, nature play also contributes significantly to strengthening religious and moral values. Through

introductory activities involving dialogues about various creations of Allah, children are introduced to the understanding that the surrounding natural environment represents Allah's greatness and blessings that should be recognized, appreciated, and preserved. This learning process helps children establish meaningful connections between concrete experiences and spiritual values, such as gratitude, responsibility, care, and respect for God's creations.

The implications of this study suggest that nature-based learning can be developed as a contextual learning strategy in early childhood education that aligns with children's developmental characteristics. Teachers play an essential role in designing meaningful and purposeful play experiences through appropriate stimulation, reflective questioning, and value reinforcement. Therefore, early childhood education institutions are encouraged to provide broader opportunities for utilizing the surrounding environment as a learning resource and to develop sustainable nature play practices to support children's comprehensive development.

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