



## Literature Review on the Role of Home Gardens as a Medium for Environmental Learning for Children

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### ABSTRACT

This study aims to identify the strategic role of home gardens as a medium for environmental learning for children and to map ecological aspects that can be internalized through the optimization of yard space. The research method used is Research and Development (R&D) with the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) development model. This study focused on the use of home gardens as mini natural laboratories through an experiential learning approach. The results show that home gardens are an effective informal learning environment in fostering environmental awareness, discipline, and a love of cleanliness through exploratory activities such as planting and caring for plants. Direct interaction with biotic elements in home gardens can significantly stimulate children's cognitive, motor, and mental health development. Even in limited space, the use of media such as pots or vertical gardens still provides high educational value. The main conclusion of this study is that home gardens function as vital pedagogical instruments capable of building environmental literacy from an early age. The successful implementation of this media depends heavily on parental creativity and guidance in designing safe and stimulating garden features. By making home gardens a learning center, children can develop strong ecological intelligence as a foundation for their future character.

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## 1. INTRODUCTION

Education is a dynamic process aimed at influencing, protecting, and assisting students to become independent in their lives through the knowledge they acquire. Essentially, education is not simply the transfer of knowledge from teacher to student, but rather a systematic effort to shape character, critical thinking skills, and individual adaptability to their environment. However, in recent years, the world of education has faced unprecedented challenges, particularly related to changes in children's learning patterns due to massive technological developments and the post-COVID-19 pandemic impact. The sudden transformation of the education system to digital often leaves children bored and overly attached to their gadgets. (Komala & Harjo, 2021) suggest that prolonged online learning leads to boredom in children, necessitating learning innovations that utilize the surrounding environment so that children are not fixated solely on static digital screens.

The phenomenon of declining interest in reading and the lack of direct interaction with nature are serious challenges for the development of the current generation. Today's children tend to prefer technology-based entertainment such as online games or social media over physical exploration activities outdoors. This poses a significant risk of alienating children from the realities of their social and natural environment, a condition often referred to as "nature deficit disorder." In fact, the natural environment is a crucial learning resource, both as a vehicle and as an object of learning, particularly in introducing science and environmental ethics from an early age. Utilizing the environment as a learning medium allows children to acquire information based on direct, real-life experiences (experiential learning), which ultimately fosters a love and responsibility for preserving the natural environment.

One concept that can be optimized is the use of green open spaces, such as home gardens or school parks, as outdoor learning environments. (Kurniawan, 2021) defines an educational garden as a green area containing various types of plants and other natural elements specifically designed to have educational value. Using a garden as an outdoor learning medium has comparative advantages over classroom learning, which tends to be rigid, limited by walls, and one-way. Learning in the open air offers richer, more diverse, and multisensory activities. Cognitively, stimulation from the natural environment, such as the texture of leaves, the color of flowers, and the sounds of nature, has been shown to improve children's long-term memory because the learning process is fun, stress-free, and full of exploration.

Furthermore, it's important to note the differences in stimulation between indoor and outdoor environments. (Kharisa, 2025) explains that while indoor environments support a focus on problem-solving and creative thinking within a controlled space, outdoor environments play an irreplaceable role in developing children's gross motor skills, such as running, jumping, and balance. Furthermore, outdoor play environments, such as parks, significantly enhance children's social skills through shared space and cooperation within playgroups. Interactions in open environments are more dynamic and provide children with the freedom to express themselves holistically, both physically and emotionally. Beyond cognitive and physical aspects, the role of parks as learning media also touches on vital mental health. Activities outside the classroom in a beautiful park setting can significantly reduce stress and anxiety levels in children, which often arise from a heavy curriculum load. In parks, children have the opportunity to take a break from formal routines and recharge their mental energy through contact with nature. In more specific contexts, such as in the home environment or Community Reading Gardens (TBM), the presence of parks serves as a means to enhance children's artistic creativity and adaptability through activities integrated with

nature. (Seni & Bandulu, 2023) in their research on the TBM Rumah Tukik emphasized that the role of reading gardens is not limited to being a source of literacy information, but also as a forum for education and entertainment that can spark children's artistic creativity through the use of natural materials and an inspiring open atmosphere.

Despite the enormous potential of gardens as learning media, the reality on the ground shows that their utilization is still not optimal in Indonesia. Many open spaces around homes and schools are left neglected, barren, or simply considered visual aesthetic elements without addressing their instructional educational value. Educators and parents often face challenges in designing systematic action plans or micro-curricula to transform gardens into effective learning resources. Yet, gardens designed with pedagogical principles can help children understand scientific concepts initially considered abstract, such as the classification of living things, symbiosis, and the structure and function of plants. (Nurwidodo1, 2022) explains that utilizing well-managed school gardens as learning resources has been shown to significantly improve student learning activities and understanding because they can directly observe the objects being studied.

The development of the "Nature School" concept, or nature-based learning, is a promising alternative solution for reinvigorating children's awareness that learning is a fun and non-threatening activity. By utilizing the open environment, children can develop their creativity, self-control, and practical skills more naturally and intuitively. Therefore, a literature review on the role of home gardens as a medium for environmental learning is highly relevant to provide a strong theoretical foundation and practical guidance for educators and parents in maximizing the potential of green spaces around them for a healthier and smarter future generation.

The purpose of this article is to examine in depth the strategic role of parks, both in school and home environments, as effective educational tools for children in the digital age. Through this literature review, it is hoped that various benefits of parks as outdoor learning media can be identified, ranging from cognitive (intelligence), affective (attitudes and emotions), to psychomotor (physical skills) aspects. Furthermore, this article also aims to provide recommendations regarding the criteria for an ideal educational park and implementative steps in utilizing it as a sustainable and inclusive learning resource.

In summary, the literature review in this study will cover theories regarding outdoor learning environments, the concept of garden-based learning, and a synthesis of various recent research findings regarding the impact of interactions with green environments on holistic child development. With a comprehensive understanding of the role of gardens, it is hoped that new innovations in learning methods will emerge that are no longer limited to the confines of the classroom, but are also able to integrate natural resources as an unlimited learning laboratory for children, in order to create a balance between technological advances and environmental wisdom.

## 2. METHODS

This study used a Research and Development (R&D) approach focused on developing home gardens as adaptive environmental learning media for children. The development stages followed the ADDIE model: Analysis, Design, Development, Implementation, and Evaluation. The research location was limited to the household, utilizing the yard as a mini natural laboratory. The main focus of this development was to create an educational green open

space, where outdoor play environments have been shown to significantly improve children's gross motor skills and social skills (Kharisa et al., 2025).

The media development phase begins with a needs analysis and design of the garden's zoning, which includes areas for plants and other biotic elements. Implementation of this plan involves active family participation, as the home environment is a highly effective learning environment for young children. According to Husain (2025), the Green Education approach at the Early Childhood Education (PAUD) level plays a strategic role in instilling environmental values through family involvement and nature-based learning. This media is designed to allow children to interact directly with nature, which serves as a crucial factor in the educational process and optimizes their learning outcomes.

Implementation was carried out through experiential learning and play-based learning methods, where children were directly involved in exploratory activities in the garden. This implementation plan was evaluated to determine its effectiveness in instilling character values and cognitive abilities. As explained by (Kurniawan, 2021), an ideal educational garden must be tailored to the child's developmental level to provide a fun learning environment and enhance long-term memory through natural stimulation. The scope of observation encompassed holistic developmental aspects, including physical-motor, social-emotional, and intellectual.

To strengthen the validity of the development, this study drew on the concept of ecological literacy, which utilizes natural elements as the best teacher for children. (Subramaniam, 2002) emphasized that garden-based learning allows children to learn through personal discovery in a natural environment, which helps them understand the ecological principles that govern life. Therefore, this methodology prioritizes the arrangement of a planned learning environment with features such as trees and plants that are safe yet stimulating for children's creativity.

Finally, the effectiveness of this media is measured through observations of changes in children's behavior and environmental awareness in a conducive play environment. (Lestari & Prima, 2020) in their study emphasized that providing a learning environment in the form of a green open garden provides optimal experiences and stimulation for children's growth and development. By integrating educational values into domestic practices through home gardens, this methodology is expected to become an effective model for outdoor learning environments to shape children's character and care for the environment from an early age.

### 3. RESULTS AND DISCUSSION

Studies show that home gardens are crucial informal learning environments for early childhood because they offer rich and diverse sensory stimulation through natural elements. Utilizing yards or gardens as learning media has been shown to positively impact children's health, comfort, and development (Lissimia et al., 2022). In these environments, children can engage in various exploratory activities that support spontaneous brain development, especially during the critical period under the age of three (Craig et al., 2024). The presence of natural elements such as plants, sunlight, and fresh air in home gardens creates a more relaxed and healthy learning space than enclosed spaces (Lissimia et al., 2022).

Using gardens as outdoor learning environments allows for thematic learning processes where children can explore real-world facts and concepts around them (Kurniawan, 2021). Simple activities like planting and watering plants are not only physical activities but also

effective in fostering discipline and a love of cleanliness from an early age (Mustaghfiroh & Nogroho, 2025). Through direct interaction with small ecosystems in the garden, children begin to build a basic understanding of life processes and the importance of maintaining the balance of nature (Cañón-Vargas *et al.*, 2025).

This discussion on the role of home gardens underscores the importance of environmental literacy, starting at the smallest level. Gardens serve as living laboratories that stimulate children's curiosity, observation skills, and questioning abilities (Cañón-Vargas *et al.*, 2025). When children are involved in garden care, they not only learn about plant biology but also develop a deeper environmental awareness of the human role in preserving nature (Cañón-Vargas *et al.*, 2025). This is particularly relevant given the urgency of cultivating an environmentally conscious character amid the current global ecological crisis (Mustaghfiroh & Nogroho, 2025).

**Figure 1.**

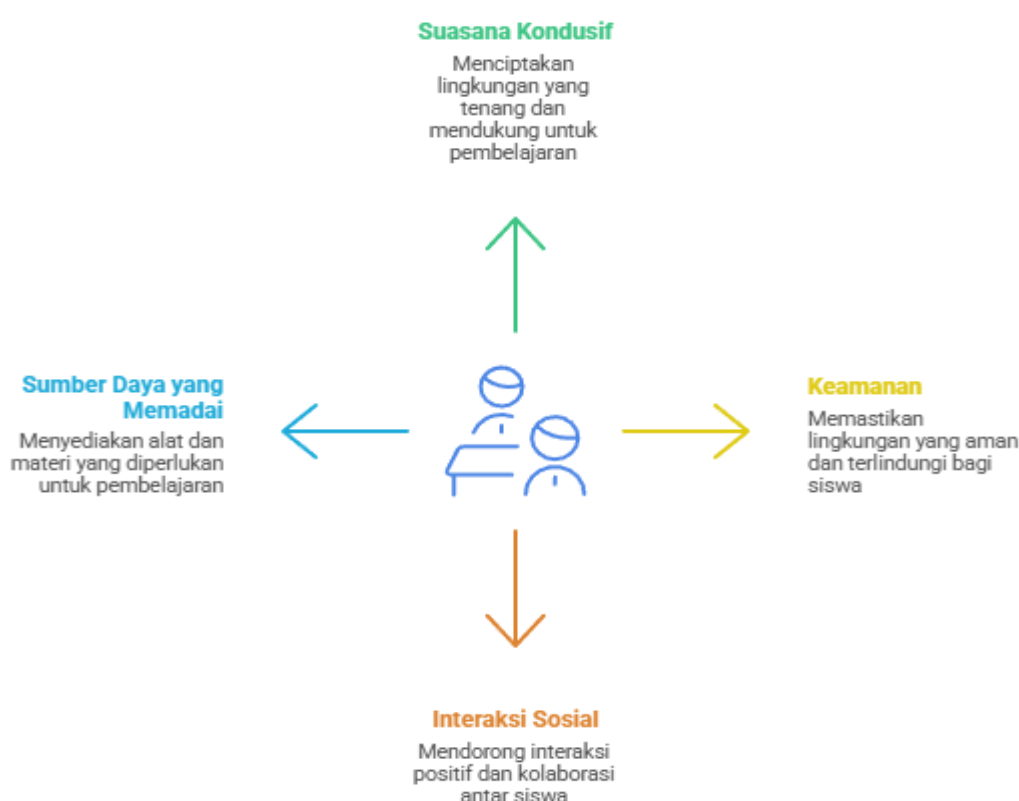


**Figure 1.** Principles of Learning Environment

The effectiveness of home gardens as learning media is also supported by the flexibility of their design. Even with limited space, appropriate garden design using media such as polybags or vertical gardens can still provide high educational value for families (Hafid *et al.*, 2021; Lissimia *et al.*, 2022). The use of practical planting media makes it easier for children to actively participate in gardening activities without requiring a large area (Hafid *et al.*, 2021). Therefore, limited space is not a barrier for parents to create nature-based educational zones for their children.

Psychologically, children's proximity to nature in the home provides a relaxing effect that reduces stress levels and increases learning focus (Lissimia *et al.*, 2022). Outdoor activities provide variety, preventing boredom, especially in a lifestyle that tends to be sedentary

indoors (Hafid *et al.*, 2021). The integration of play and learning in gardens has been shown to improve all aspects of development, including cognitive development, mental health, and self-regulation (Kurniawan, 2021). This shows that the home garden is not just an aesthetic element of the building, but a vital pedagogical instrument.

**Figure 2.**



**Figure 2.** The Impact of Home Gardens on Children

To conclude, optimizing the role of home gardens requires parental awareness and creativity in designing safe and educational features for children. The inclusion of elements such as sensory gardens or native plant areas is highly recommended due to their greater ecological and educational benefits (Craig *et al.*, 2024; Lissimia *et al.*, 2022). Parental support in accompanying garden activities is a key factor in successfully internalizing environmental values in children (Mustaghfiroh & Nogocho, 2025). By making home gardens a learning center, children will grow up with strong ecological intelligence to equip them for the future.

#### 4. CONCLUSION

Based on the analysis and studies conducted, it can be concluded that home gardens play a strategic role as effective mini-natural laboratories in supporting environmental education for children. The community service's goal of identifying the role of home gardens and mapping environmental learning aspects has been achieved, with home gardens proving to be adaptive, accessible, and sustainable learning media within the family ecosystem. Through the integration of activities such as gardening and biotic observations, children not only receive cognitive and motor stimulation but also internalize character values such as discipline, responsibility, and ecological intelligence.

The application of the outdoor learning concept in the domestic setting provides a concrete solution to limited land and children's saturation with digital devices. Further development of this program emphasizes that the effectiveness of home gardens as educational media does not depend on land size, but rather on the creativity of the design and the quality of interactions between parents and children. Going forward, this home garden-based learning model can be developed into a practical guide for families to create independent learning environments that can foster a generation that cares more about environmental conservation from an early age.

## 5. AUTHORS' NOTE

Praise be to Allah SWT, who has bestowed His grace, blessings, and gifts, enabling the author to successfully complete this assignment/community service. May blessings and peace always be upon the Prophet Muhammad, peace be upon him, the best role model for all mankind until the end of time.

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