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Research on the Integration of Ecological Farms and Children's Experiential Education under the Concept of Nature Education

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Abstract: Current agricultural experiences for children suffer from issues such as homogenization, shallow levels of engagement, and wasted resources. Combining ecological farms with children's nature-based experiences can effectively address these shortcomings. This integration transforms ecological farms from solely food production spaces into educational and experiential environments. It allows children to participate in and learn about planting, cultivating a healthy lifestyle, and fostering social responsibility. Furthermore, it offers new development opportunities for traditional agriculture, promotes community integration, and enhances interpersonal relationships. The application of nature education in outdoor spaces for children broadens the scope of learning beyond the classroom and enriches their understanding of nature. This study focuses on designing outdoor activity spaces for children, rooted in nature education, that enable them to learn through play. Through the investigation and analysis of the causes of difficulties in real life, this study aims to reduce the number of children with "natural deficiency syndrome" and reconstruct the relationship between children and nature. This research should start from the following aspects, establish the educational concept of children's natural experience in the connection with nature, create an experience-oriented "natural ecological school" to create a good family atmosphere for natural experience education, and build a social support system for multi-subject participation.

1. Research Background

With the continuous exploration and development of the concept of nature education, its scope has broadened significantly, extending beyond children to include adults as beneficiaries. On one hand, the acceleration of urbanization and modernization has limited the range of children's activities, while the mobile age has drastically impacted their lifestyles through electronic devices. As a result, children have become increasingly disconnected from nature and the land, leading to phenomena such as "nature deficit disorder" and social difficulties. These issues, combined with rising concerns about childhood obesity, attention disorders, and depression, have attracted growing attention.[1] Given that agricultural landscapes—with their plants, soil, flowers, and natural

elements—offer experiences closely aligned with nature, many people have begun organizing and participating in agriculture-based nature activities for children. This trend has fueled the rise of parent-child agricultural models in recent years. [2]

Although there are various types of agricultural experience services available, they often lack creativity, suffer from homogenization, and primarily focus on one-time, tourism-oriented leisure activities dominated by managers. From the perspective of children's educational development, such superficial agricultural experiences no longer meet the expectations of parents, who are increasingly seeking deeper and more meaningful engagements[3]. Eco-farms, with their highly participatory and collaborative characteristics, offer an effective solution to address children's "nature deficit disorder[4]. On the other hand, as urbanization progresses, first-tier cities are transitioning into high-density urban environments. This shift, alongside concerns about food safety and the weakening of interpersonal relationships, has spurred a growing demand for community-based public planting spaces[5]. However, given China's specific context, long-term cultivation on public land often blurs the lines between usage rights and private ownership. This complicates community management, leading some community administrators—despite recognizing the positive impact of eco-farms on community building—to resist such initiatives[6].

2. The Concept of Nature Education

"Nature experience," also known as "nature education," is an approach that uses the natural environment as an educational backdrop. It employs scientifically sound and systematic methods to help children deeply connect with and immerse themselves in nature. Through the collection, analysis, and reorganization of natural elements and information, this process cultivates systematic thinking in learners. Nature experience education is a relatively new concept in children’s education, emerging in recent years[7]. Its core elements are "education" and "experience." This approach places children in natural environments for experiential learning, aiming to address "nature deficit disorder" caused by rapid urbanization. It seeks to remedy the loss of children's perception of time, space, and natural order, which has resulted from the fast-paced development of material technologies in urban settings. Through this process, children can gradually restore their inherent affinity with nature[8].

In this study, the context of children's nature experience is discussed within the framework of eco-farms. It represents a combination of nature education and agricultural practices, offering children both educational and hands-on planting experiences. In highly developed urban environments, there is a growing yearning among city dwellers for pastoral lifestyles[9]. The opportunity to personally engage in the planting process and harvest food not only helps to relax the mind and alleviate societal pressures but also fosters meaningful parent-child interactions. As the issue of "nature deficit disorder" among children becomes more pronounced, parents are shifting their focus from school-centered education to more holistic approaches that emphasize comprehensive growth. This transition includes an increasing awareness of and interest in children’s nature education and experiential learning.

Among the artificial landscapes of cities, agricultural plant elements bear the closest resemblance to natural elements. Farms, with their rich diversity of plants and naturalistic terrains, provide ideal environments for children to play and interact with nature. These settings are particularly well-suited for developing children’s hands-on abilities and enhancing their social skills, making them highly appealing to both children and their parents. From a leisure perspective, the natural and service-oriented resources of agriculture offer not only recreation but also serve an educational purpose, delivering valuable learning experiences through direct interaction with nature[10].

3. Children's Nature Deficit Disorder: Current Situation

3.1 Significant Reduction in Outdoor/Nature Experiences

Compared to their parents' generation, today's children spend considerably less time playing outdoors. The frequency of outdoor activities has drastically decreased, along with the number and diversity of playmates. Parents born before the early 1980s often enjoyed unrestrained outdoor activities in their childhood, such as swimming, climbing trees, fishing, cutting grass, herding sheep, catching birds, and engaging in farm work. However, for children born in recent decades, the time spent on activities like fishing, hiking, hide-and-seek, and climbing trees has reduced by nearly 50%. This decline reflects a significant reduction in children's engagement with nature and outdoor environments

3.2 Sedentary Lifestyles among Children

Modern children spend the majority of their day seated. In school, apart from a 10-minute recess or physical education classes, they typically remain in the classroom listening to lectures or completing assignments. Some students also attend early morning and evening study sessions, further increasing their time spent indoors. This extended sedentary routine limits their physical activity and opportunities for outdoor engagement.

3.3 Lack of Natural History Knowledge

Most children today have a significant deficit in natural history knowledge. Such knowledge is essential for understanding and appreciating nature. Without a basic familiarity with natural history, it becomes challenging to develop a genuine connection to and appreciation for the natural world.

4. Integration of Eco-Farms and Children's Nature Experiences

4.1 Advantages of Integrating Eco-Farms and Children's Nature Experiences

Compared to traditional farm-based children's nature activities, the integration of eco-farms and children's nature experiences offers the following benefits: (1) Community-Oriented Structure: Eco-farms are often rooted in community settings, such as residential neighborhoods, schools, or parks. This proximity to community hubs, combined with voluntary collaboration among members, ensures lower participation costs and greater flexibility in how activities are organized and executed. (2) Transformative and Reflective Learning: Unlike conventional leisure-focused nature tours, the integration emphasizes hands-on involvement by children. Activities span the entire agricultural cycle, including seed selection, planting, managing crops, harvesting, processing, and crafting. This comprehensive process fosters internal reflection and allows children to assume multiple roles, closing the loop of service and experiential learning. (3) Enhanced Interaction and Socialization: The community-centric and sustained nature of eco-farm initiatives fosters trust among participants. Activities based on shared themes of farming provide a solid platform for children to engage in meaningful interactions, promoting better social relationships. (4) Shift in Focus from Production to Education: Unlike traditional community agriculture, which often prioritizes food production, the integration of eco-farms with children's nature experiences emphasizes education, interpersonal connections, and community-building. This shared vision serves as a foundation for enhanced collaboration within the community.

4.2 Strategies for Integrating Community Agriculture with Children's Nature Experiences

(1) Unlocking the Potential of Available Spaces. For narrow or underutilized areas, consider designing multi-level children's activity spaces, such as climbing frames or vertical gardens, to maximize space usage.

(2) Flexible Layout: Reorganize some of the community's public facilities to create more usable space. For example, adjusting parking lots or old fitness equipment areas can provide children with more room to play in the public spaces of the community.

(3) Shared Spaces: Design certain areas as multifunctional, shared spaces that can serve various purposes, such as children's activities, learning, or recreational play. This approach allows for the efficient use of limited space, addressing multiple needs for children in the community.

(4) Temporary Activity Spaces: Use open areas or squares within the community to host temporary children's activities like outdoor lessons, art exhibitions, or other events. This can offer a variety of outdoor experiences for children without altering the existing structure of the spaces. Expanding Street Space: Consider opening up certain streets for children's play during off-peak hours. This could include setting up temporary playground equipment or organizing cultural events, allowing for more community interaction and outdoor play opportunities.

5. Conclusion

Currently, despite the abundant literature on the importance of children's outdoor activity spaces and the benefits of natural education, research on outdoor experiential education in ecological farms remains relatively limited. This study aims to explore in-depth the design of ecological farm spaces, providing practical suggestions for such space design to fill this gap, with the goal of offering references and insights for the renovation and updating of ecological farms.

This research focuses on providing children with safe and creative outdoor play spaces, especially in urban areas that lack large natural green spaces. By improving the design of existing outdoor activity spaces, this study seeks to promote the physical and mental growth of urban children, enhancing their overall health. It also looks into how to create more attractive and engaging play environments in limited spaces, allowing children in ecological farms in Xi'an to better enjoy outdoor activities.

This study incorporates natural education into the design of outdoor activity spaces, promoting a more sustainable and environmentally friendly urban design approach. The design process respects nature, utilizes, and protects the existing ecological environment, while creating more green spaces for children to grow in a natural setting. The aim is to raise urban residents' environmental awareness and contribute to the creation of a green, low-carbon urban environment.

This research is committed to creating safe, natural, and accessible outdoor activity spaces for children to improve the service offerings of ecological farms. It hopes that by enhancing the design of outdoor activity spaces, these communities will become more livable and attractive. The study also focuses on how to provide more outdoor activity opportunities in limited spaces, meeting the needs of children of different age groups, enabling them to thrive through outdoor play and natural education.

Overall, this research provides valuable insights and practical recommendations for the design of children's outdoor activity spaces in ecological farms, contributing to the broader discussion on the importance of outdoor play and natural education in urban areas.

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