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Management of Outdoor Education in Developing Naturalistic Intelligence and Early Childhood Character

Dini Lidinillah¹, Sri Handayani²

¹Universitas Islam Nusantara, Bandung, Indonesia, dinilidinillah96@gmail.com

²Universitas Islam Nusantara, Bandung, Indonesia, srihandayani@uninus.ac.id

Corresponding Author: dinilidinillah96@gmail.com¹

Abstract: This research analyzes the management of Outdoor Education in developing naturalistic intelligence and early childhood character at TK Plus Al-Muttaqin, aiming to identify implementation conditions, needs, managerial obstacles, and formulate an effective and contextual management model. Employing a qualitative approach with a single case study design, this study involves participatory observation, in-depth interviews, and documentation analysis. The findings indicate that Outdoor Education management at TK Plus Al-Muttaqin has been implemented systematically and integrally through comprehensive planning, organizing, actuating, and controlling functions, aimed at fostering naturalistic intelligence and children's character via direct nature-based learning experiences. However, implementation faces internal barriers such as variations in children's characters and teacher consistency challenges, alongside external constraints including limited facilities, land, and inconsistent support from overprotective parents. In response, this study successfully develops an Outdoor Education management model integrating POAC principles, multiple intelligences theory, character education, and Early Childhood Character Curriculum principles, supplemented by innovative strategies to address barriers. The proposed model offers a comprehensive, applicable, and contextual framework, contributing to early childhood education management practices that optimize naturalistic intelligence and character development from an early age.

Keywords: Outdoor Education Management, Naturalistic Intelligence, Early Childhood Character.

INTRODUCTION

21st-century education demands a comprehensive and holistic transformation of the learning paradigm, not limited solely to strengthening cognitive aspects, but also integrating critical thinking skills, creativity, collaboration, communication, and the formation of students' character (Johnstone et al., 2022; Mhb. & Mukhlis, 2023). Specifically in the field of Early Childhood Education, this need becomes even more urgent, considering that the early childhood period is a critical time or golden age that forms the foundation of children's personality, social, intellectual, and moral development (Herwati, 2019; Zulkarnaen et al., 2023). Appropriate stimulation at this stage can maximally shape children's long-term developmental trajectory. Howard Gardner's Multiple Intelligences Theory provides a solid theoretical foundation by

highlighting the diversity of children's learning styles and the urgency of adaptive learning approaches oriented toward individual potential (Herwati, 2019; Kamtini et al., 2025). This approach underscores the importance for educators to identify and nurture various types of children's intelligence, including linguistic, logical-mathematical, spatial, kinesthetic, musical, interpersonal, intrapersonal, and naturalistic intelligence (Winandar et al., 2023). Through the integration of multiple intelligences theory, the Merdeka Belajar Curriculum in ECE strives to maximize children's potential, encourage independent learning, and build a strong foundation for further education (Andari & Wiguna, 2023).

In the context of ECE, the development of naturalistic intelligence and character education becomes two essential elements that must be stimulated from an early age. Naturalistic intelligence, the ability to identify, observe, differentiate, and classify natural phenomena, is increasingly relevant amid the global environmental crisis, children need early exposure to build ecological awareness (N. N. Sari et al., 2022; Wijaya & Dewi, 2021). Meanwhile, character education is a national priority to instill moral values, ethics, responsibility, discipline, and social empathy (Jeniawaty & Mairo, 2022). Both dimensions require interactive learning strategies that utilise authentic environments as meaningful learning media, as evidenced by research confirming the positive impact of nature interactions on children's creativity and imagination (N. N. Sari et al., 2022). Thus, the Merdeka Curriculum in ECE encourages the optimization of the surrounding environment as a potential learning resource to stimulate various children's intelligences, including naturalistic, and strengthen character foundations (Apriliani et al., 2024; UNESCO, 2014). The integration of holistic methods in ECE, encompassing all aspects of child development, can be effectively combined with Multiple Intelligences concepts to enrich interpersonal and naturalistic intelligence (Jumiatin et al., 2020; Subagia et al., 2025).

The contemporary education paradigm is undergoing a fundamental shift from conventional closed-classroom learning models to authentic outdoor-based approaches, such as outdoor adventure learning and adventure programming. These strategies not only spark children's curiosity but also foster courage, independence, teamwork, collaboration, and adaptive character through direct nature experiences (Kiviranta et al., 2024; Mann et al., 2022). Outdoor Education aligns with the principles of the Indonesian ECE Curriculum, which prioritizes play-based learning, child potential development, and holistic integration of multiple intelligences and character values, including child-centred, contextual, holistic-integrative, and play-oriented principles (Harmi, 2022; Jeniawaty & Mairo, 2022). Outdoor-based education, which often uses nature as a living laboratory, has proven effective in stimulating children's intellectual, physical, social, and emotional progress (Wulandari, 2024).

Although various studies confirm the effectiveness of nature-based learning in enhancing multiple intelligences, learning motivation, and children's conceptual understanding (Johnstone et al., 2022; Kiviranta et al., 2024), field conditions in Indonesian ECE institutions are still dominated by indoor activities (Nirwana et al., 2025). Most institutions have yet to maximize the surrounding environment as a learning medium despite its abundant potential. This results in children tending to be passive, less sensitive to the environment, and suboptimal character development (Rasto et al., 2023). This gap underscores the urgency of systematic interventions to address management and infrastructure constraints (Setyawan et al., 2019).

Theoretically, Outdoor Education has proven effective in advancing naturalistic intelligence and children's character (Johnstone et al., 2022), but its success depends on structured and sustainable management, including nature-based curriculum planning, facility management, safety protocols, open space optimization, and data-based evaluation (Nirwana et al., 2025; Rasto et al., 2023). Ironically, many ECE institutions still lack systematic management frameworks, making Outdoor Education implementation suboptimal and not fully integrated into the learning process (Idhayani et al., 2023). Therefore, in-depth research is

needed to analyze, explore, and design an effective Outdoor Education management model to optimize the development of naturalistic intelligence and early childhood character.

Various studies have validated the benefits of nature-based learning for early childhood potential. Hartati (2022) concluded that direct learning with the natural environment enhances multiple intelligences, learning motivation, and student understanding. This finding is reinforced by Handajani (2019), who demonstrated the contribution of outdoor adventure learning to character formation in children, particularly courage, independence, and care. Theoretically, the significance of nature experiences in shaping character is also affirmed by Mortlock (1987) and Priest & Gass (1997), explaining that outdoor activities facilitate exploration, decision-making, and learning from authentic challenges.

From a developmental theory perspective, the Multiple Intelligences review by Masdudi (2017) emphasizes the essence of flexible and diverse learning approaches to maximize early childhood potential. This aligns with research by A. P. Sari et al. (2023), which proves that Outdoor Education not only enhances naturalistic intelligence but also supports social-emotional progress and children's learning engagement. However, existing literature focuses more on the effectiveness of nature-based methods rather than management implementation aspects at the institutional ECE level. Thus, developing an Outdoor Education management model remains a research gap requiring further exploration.

Based on the previous literature review, several crucial gaps have been identified. The majority of studies highlight the effectiveness of Outdoor Education on specific early childhood aspects, but delve less into the design and execution of nature-based learning management in ECE. There is no integrated management model encompassing activity planning, resource organization, safety assurance, and systematic evaluation. Yet, program success is highly determined by institutional managerial readiness. Additionally, although school environments are rich in potential, their utilization is not optimal due to the absence of explicit management guidelines. ECE research is also predominantly focused on indoor learning rather than structured outdoor spaces.

The novelty of this research lies in developing a comprehensive and applicable Outdoor Education management model in the ECE context. Unlike pre-existing studies focused on learning effectiveness, this research formulates a specific managerial framework to advance naturalistic intelligence and character through natural environment exploitation. The model integrates Multiple Intelligences, Outdoor Education theory, and ECE Curriculum principles into a unified management system. Furthermore, this research provides structured implementation guidelines, covering planning, organizing, implementation, facilities and safety, and continuous evaluation. Thus, the research contribution enriches the discourse on ECE management, particularly nature-based learning.

This research aims to analyze the implementation conditions of Outdoor Education in ECE institutions and identify managerial needs and obstacles. Additionally, an effective and contextual Outdoor Education management model is formulated to support the development of naturalistic intelligence and early childhood character. The results are expected to provide practical recommendations for ECE institutions in maximizing the surrounding environment as a safe, meaningful, and sustainable learning resource.

METHOD

This study employs a descriptive qualitative approach with a single-case study design to explore in a deep and holistic manner the phenomenon of Outdoor Education management in developing naturalistic intelligence and character education in early childhood. The qualitative approach was chosen because it is capable of capturing meaning, understanding, and the construction of social reality from the participants' perspectives. This aligns with Creswell (2018) view that qualitative research focuses on the natural and contextual exploration of phenomena. This choice is also supported by Bogdan & Taylor (1975), who emphasize that

qualitative research studies the world in its natural setting to gain an in-depth understanding of phenomena.

A single-case study design was used based on Yin (2018) assertion that case studies are effective for analyzing contemporary phenomena within real-life contexts, especially when the boundaries between phenomenon and context are not clearly visible. In this research, the case study focuses on TK Plus Al-Muttaqin in Subang Regency to understand the uniqueness of nature-based learning management implemented concretely at that single site. This approach is also in line with Merriam & Tisdell (2016), who states that case studies aim to generate deep understanding of a particular case rather than statistical generalization. Thus, the focus of this research is to obtain rich insights into managerial practices within one naturalistic setting.

Data collection was conducted using source and method triangulation principles to ensure accuracy and comprehensiveness. The techniques included moderate participant observation, semi-structured in-depth interviews, and document analysis. Participant observation was based on Spradley (2011) concept, which emphasizes participatory observation to understand activities and meanings within participants' social contexts. In-depth interviews were conducted with the principal, teachers, and parents to explore their perceptions, experiences, and interpretations regarding Outdoor Education management. Document analysis was used to complement and strengthen the data through program reviews, activity photos, learning reports, and other archives. In line with Moleong (2017), the researcher acted as the main instrument of the study, being sensitive, reflective, and able to build trust with participants. Research instruments were supported by observation guidelines, interview protocols, and field note formats.

Data validity was maintained through source and method triangulation, member checking, and audit trail techniques. Triangulation was carried out to compare data consistency across informants and collection procedures. Member checking involved confirming the researcher's interpretations with informants, as recommended by Patton (2015) and Creswell (2018). Moreover, the trustworthiness principles of Lincoln et al. (1985) - including credibility, transferability, dependability, and confirmability - were applied to ensure research quality. An audit trail was conducted by documenting all research processes transparently so that the analytical process could be traced.

Data analysis followed the interactive model of Miles et al. (2014), consisting of three main stages: data reduction, data display, and conclusion drawing/verification. In the data reduction stage, the researcher selected, grouped, and focused on important data related to Outdoor Education management. Data display was carried out through narratives, matrices, and thematic categories so that patterns and relationships among the data could be clearly identified. Conclusion drawing was conducted gradually and iteratively, with repeated verification to ensure that the findings were consistent with field data. In addition, insights on constant comparative qualitative analysis were applied to help the researcher build strong and meaningful categories.

With this comprehensive methodological framework, the study is expected to generate an in-depth, interpretative, and context-rich description of the effectiveness of Outdoor Education management as a strategy for developing naturalistic intelligence and character education in early childhood. The qualitative case study approach enables a holistic understanding of how early childhood education institutions design, implement, and evaluate nature-based learning within the daily lives of young children.

RESULTS AND DISCUSSION

This section presents the research findings data regarding the management of Outdoor Education at TK Plus Al-Muttaqin, which includes planning, organizing, implementation, supervision, and identification of the obstacles faced. These findings are then analyzed and

interpreted in depth, referring to the research problems and comparing them with relevant literature.

Planning of Outdoor Education

The planning of Outdoor Education management at TK Plus Al-Muttaqin is conducted systematically and integrated into KOSP, RPT, and RPPH, with the aim of developing naturalistic intelligence and children's character through direct learning experiences in nature. Exploratory activities such as feeding animals, caring for plants, maintaining garden cleanliness, and garden exploration are carried out in groups, while the plan includes objectives, locations, standard operational safety procedures, risk management, and curriculum alignment, involving collaboration between the principal, teachers, parents, and the community. These activities cultivate self-awareness, social awareness, and environmental awareness. This nature-based observation learning approach aligns closely with naturalistic intelligence theory and has been validated by various studies showing the benefits of nature-based learning for early childhood potential. Hartati, 2022 concludes that direct learning with the natural environment enhances multiple intelligences, learning motivation, and student understanding. Character values of Responsibility, Sympathy, and Discipline are developed in accordance with child development theory as well as Early Childhood Character Curriculum 2014 policies and PPK 2018 in forming the Pancasila Student Profile. These findings affirm that thorough and integrated planning is a crucial foundation for the effectiveness of the Outdoor Education program, in line with the importance of structured and sustainable management.

Organizing of Outdoor Education

The organizing of Outdoor Education management at TK Plus Al-Muttaqin is carried out systematically and collaboratively with the involvement of the principal, teachers, and parents, in accordance with POAC principles and collaborative education management. Child-centered activities employ a buddy system to foster cooperation, empathy, and responsibility, while teachers act as facilitators using guided choice strategies that provide opportunities for children to explore according to their interests and abilities. Division into small groups features rotating roles, alongside implementation of non-destructive rules and safety procedures. Activities are implemented through a buddy system to cultivate children's empathy and social responsibility, which aligns with the concept of awareness of others in the theory. Teachers act as facilitators of direct experience-based learning, with 60% of time allocated for nature exploration, supporting the theory of naturalistic intelligence development through observation and classification of natural phenomena (Sari et al., 2022). The implementation of safety procedures and role division reflects the effectiveness of the controlling function. Character building through the T-S-D system aligns with the theory of moral knowing–feeling–action as well as the view that discipline is self-regulation ability. The synergy between management, naturalistic intelligence, and character formation reflects outdoor learning principles, where nature serves as a learning source that builds self-awareness, social awareness, and ecological awareness in early childhood. These findings indicate that effective organizing involves coordination among various parties and child-centered learning strategies, creating a conducive environment for holistic development.

Implementation of Outdoor Education

The implementation of Outdoor Education management at TK Plus Al-Muttaqin is conducted in a warm, planned, and child-centered manner through the application of the buddy system and guided choice strategies, with approximately 60% of time allocated for direct exploration so that children learn to recognize nature, think critically, and develop naturalistic intelligence. Teachers act as facilitators who instill character values of Responsibility, Sympathy, and Discipline through role division, positive praise, and role modeling, while

activities are carried out with strict safety procedures and non-destructive rules. This process runs systematically and directed according to POAC principles, which include preparation of tools, areas, and meaningful activity rules for children; the buddy system fosters empathy and social responsibility, while supporting children's independence, self-boundary recognition, and emotion management. Supervision is embodied through safety procedures and 3R reflection. Activities such as gardening and animal observation strengthen children's naturalistic intelligence development (Sari et al., 2023). Handajani, 2019 also shows the contribution of outdoor adventure learning to children's character formation, particularly courage, independence, and care. Theoretically, the significance of nature experiences in shaping character is also emphasized by Mortlock, 1987 and Priest and Gass, 1997, who explain that outdoor activities facilitate exploration, decision-making, and learning from authentic challenges. Overall, this implementation integrates education management principles, naturalistic intelligence development, and early childhood character education, in line with national education policy directions based on direct experiences and Pancasila Student Profile formation.

Supervision of Outdoor Education

Supervision of Outdoor Education management at TK Plus Al-Muttaqin is conducted continuously and humanely through direct observation, scheduled supervision, and verification of “3R” activity documentation, with the principal playing an active role in modeling and providing feedback. Supervision results show that most teachers are in the “good” category, but improvements are still needed in the consistency of using open-ended questions and documenting real actions. This process is carried out formally and informally as an integral component of learning, not just administrative control. The principal functions as a supervisor through field supervision, checklists, and modeling, which reflects the controlling function in POAC. Supervision focuses on children's self-awareness, social, and environmental development with a humanistic-reflective approach so that teachers effectively guide children in recognizing emotions and environmental care. Coaching through open-ended questions stimulates naturalistic intelligence. In character development, teachers serve as role models for discipline, responsibility, and empathy values, culminating in “3R” actions as manifestations of environmental awareness. This process demonstrates data-based, reflective, and sustainable supervision to support holistic character and naturalistic intelligence development in children.

Obstacles in Outdoor Education Management

Table 1 Obstacles in the Implementation of *Outdoor Education Management* at Al-Muttaqin Plus Kindergarten

Obstacle Category	Brief Description of Findings
Internal	Children: Differences in children's characters, difficulty recognizing their physical needs, showing diverse social behaviors, lack of self-awareness and independence, as well as character variations that hinder empathy. - Teachers: Challenges in maintaining consistency of rules between indoor and outdoor activities, and managing differences in children's characters within groups.
External	Facilities & Land: Limitations in facilities and funds, natural observation tools, limited access to exploration land, and lack of activity variation. - Parents: Parents' habit of being overly protective thus children lack independence, lack of consistency in habituation at home, and lack of support for zero waste programs or environmental love principles.

Based on the findings presented in Table 1, the implementation of Outdoor Education at TK Plus Al-Muttaqin faces both internal and external obstacles. Internal obstacles include children's lack of self-awareness and independence, variations in character that hinder empathy, and inconsistencies in discipline habituation outside the classroom. From the environmental aspect, family habits that are not environmentally friendly hinder environmental awareness. Limitations in facilities and the diversity of natural objects reduce children's curiosity, while land and cost constraints limit direct exploration essential for naturalistic intelligence and character Nirwana et al., 2025.

The implementation of Outdoor Education at TK Plus Al-Muttaqin is also confronted with challenges related to self-awareness, social, environmental aspects, and character building. Some children show excessive bravery or reluctance to participate, indicating an imbalance in self-awareness. Children's tendency toward individualism requires optimal teacher role management to foster empathy. Other challenges include inconsistent family support for zero-waste programs and limitations in activity variation that restrict naturalistic intelligence stimulation. Character habituation in school is not yet sustainable at home. These obstacles affirm that the implementation of Outdoor Education is not free from complex challenges that require strategic attention. This aligns with the identification of research gaps that existing literature more often discusses the effectiveness of nature-based methods rather than management implementation aspects at the early childhood education institution level, indicating that developing an *Outdoor Education* management model remains a research gap that requires further exploration.

Formulation of an Effective and Contextual Outdoor Education Management Model

Based on the analysis of implementation conditions and identification of obstacles, this research contributes to the formulation of an effective and contextual Outdoor Education management model for TK Plus Al-Muttaqin. This model integrates POAC management principles, multiple intelligences theory, character education, and Early Childhood Education Curriculum principles. Through innovations such as "mini nature adventures," emotion meters, and parental involvement, the school maintains the sustainability of learning in accordance with the controlling principle in POAC, so that Outdoor Education remains optimal in supporting the development of naturalistic intelligence and early childhood character.

The formulated management model encompasses comprehensive planning that integrates Outdoor Education into KOSP, RPT, and RPPH with clear objectives for naturalistic intelligence and character development, as well as detailed risk management and safety procedures. It features collaborative organizing through the active involvement of the principal, teachers, and parents in the buddy system and role division that trains children's social responsibility. Child-centered implementation positions teachers as facilitators using guided choice strategies and allocating significant time for direct nature exploration to foster independence and contextual understanding. Reflective supervision establishes a continuous system through observation, supervision, and verification of "3R" documentation that is humanistic and oriented toward teacher and child development. Finally, obstacle overcoming strategies introduce program innovations such as Mini Community Service Projects and Environmental Alumni to involve the community and address facility/land limitations, as well as efforts to align character habituation between school and home.

This model not only emphasizes pedagogical effectiveness but also managerial sustainability, considering that the success of the Outdoor Education program is highly determined by structured and sustainable management. Thus, the proposed model provides a comprehensive, applicable, and contextual framework for early childhood education institutions in maximizing the surrounding environment as a safe, meaningful, and sustainable learning source, in line with the novelty of this research in filling the literature gap regarding Outdoor Education implementation management aspects.

CONCLUSION

Based on a comprehensive analysis of Outdoor Education management at TK Plus Al-Muttaqin, this study concludes that the implementation of Outdoor Education at the institution has been systematically structured through the consistent application of POAC management functions. Well-developed planning integrated into the curriculum supports the development of children's naturalistic intelligence and character through direct learning experiences in nature, complemented by strict safety procedures. Collaborative organization among the principal, teachers, and parents, along with child-centered implementation through guided choice and a buddy system, effectively fosters empathy, responsibility, and independence. Continuous and humanistic supervision further ensures the quality and consistency of the program.

Nevertheless, this study also identifies managerial needs and significant obstacles in optimizing Outdoor Education, including limitations in facilities, funding, and access to exploration areas, as well as internal challenges such as diverse child characteristics and inconsistent habituation from parents who tend to be protective. These challenges highlight the urgency of an adaptive managerial framework to bridge the gap between the theoretical potential of nature-based learning and real conditions in the field.

In response to these findings and challenges, this study successfully formulates an effective and contextually relevant management model for Outdoor Education. The model integrates POAC management principles, multiple intelligences theory, character education, and Early Childhood Education Curriculum principles, encompassing comprehensive planning, collaborative organization, child-centered implementation, reflective supervision, and innovative strategies to overcome obstacles. The proposed model offers a comprehensive, practical, and context-sensitive framework for early childhood education institutions to optimize the surrounding environment as a safe, meaningful, and sustainable learning resource. Thus, this study contributes to the advancement of early childhood education management practices, particularly in promoting a structured nature-based learning approach to optimize the development of naturalistic intelligence and children's character from an early age..

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