

RESEARCH ARTICLE

The Influence of Outdoor Learning Environments on the Early Childhood Development of The Kindergarten Learners

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ABSTRACT

This study assessed the influence of outdoor learning environments on the early childhood development of kindergarten learners at Nangka Elementary School, Balamban, Cebu, during the school year 2025–2026 as a basis for an action plan. Employing a descriptive-correlational research design, the study involved 60 parents who evaluated the outdoor learning environment across four dimensions (physical environment features, safety and accessibility, natural elements and materials, and play opportunities and affordances), and four kindergarten teachers who assessed 60 learners across four developmental domains (physical fitness, approaches to learning, socialization, and imagination). Data were collected using an adapted questionnaire and analyzed using frequency, percentage, weighted mean, standard deviation, and Pearson's correlation coefficient. The findings revealed that the outdoor learning environment was rated "Very Good", with safety and accessibility receiving the highest rating. Learners' early childhood development was "Highly Developed", with physical fitness as the strongest domain. However, specific deficiencies were identified, including limited ball play equipment, hanging structures, water sources, and lower ratings in problem-solving experimentation and original role-play. The correlation analysis yielded an r -value of 0.155 ($p = 0.236$), indicating no significant relationship between the two variables. Consequently, the null hypothesis was not rejected. Based on these findings, an action plan titled "Project P.L.A.Y. (Promoting Learning through Active Yardscapes)" was proposed to address the identified gaps through targeted environmental enhancements and pedagogical strategies.

KEYWORDS

Outdoor Learning Environment, Early Childhood Development, Outdoor Play, Physical Fitness, Approaches to Learning, Socialization

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Introduction

The global foundation for integrating outdoor learning into early childhood education stems from mounting evidence highlighting its critical role in fostering holistic child development, encompassing physical, cognitive, and socio-emotional domains (Al-Thani, 2022). Exposure to natural environments and outdoor play is increasingly recognized as a crucial factor in promoting physical activity, thereby mitigating issues such as childhood obesity and fostering robust physiological development (Laely et al., 2023). Research demonstrates that outdoor play offers joyful learning experiences and positive impacts on cognitive, physical, and practical areas, in contrast to technology-dominated indoor environments (Ghazali et al., 2023), with access to nature enhancing overall health, well-being, and learning capabilities (Kiviranta et al., 2023). Contextual factors in diverse geographical and cultural settings influence outdoor learning provision, as perspectives on outdoor play may vary (Yim & Yunus, 2024), yet the multifaceted benefits provide a compelling argument for its integration worldwide (Fermin et al., 2024). This global outlook informs educational policies advocating for unrestricted playtime, recognizing long-term impacts on student health and learning

efficiency (Liu & An, 2024), as outdoor environments enable movement, stimulation, and attention vital for engagement and health minimizing sedentary time and improving physical literacy and well-being (Lannoy et al., 2025).

This widespread endorsement, exemplified by the 2015 Position Statement on Active Outdoor Play, underscores a global consensus on unstructured outdoor engagement for children's physical and psychological well-being (Lee et al., 2022). Reviews highlight positive impacts on students' mental and physical health, cognitive development, and academic outcomes from school-related outdoor learning (Patchen et al., 2024), emphasizing that outdoor learning is not merely recreational but foundational for comprehensive child development (Collins et al., 2025). This acknowledgment highlights the urgent need to address "nature-deficit disorder" in Western societies, where children spend significantly less time outdoors than previous generations (Delores et al., 2024), while Indigenous cultures worldwide have long emphasized nature-based education fostering deep connections to land and holistic development (Plessis & Postlewaite, 2024). Researchers advocate for primary schools to actively promote physical activity through outdoor learning to combat health issues and foster improved motor skills including balance, coordination, and endurance (Frances et al., 2024).

Within the Philippine context, where a noticeable decline in physical activity and a rise in sedentary behaviors among children and youth raise significant public health concerns (Campoamor-Olegario et al., 2025). The first-ever Philippine Report Card on Physical Activity revealed that a vast majority of Filipino youth are among the most physically inactive globally, with only 15.4% meeting international recommendations (Cordero, 2025), underscoring the urgent need for interventions such as integrating outdoor learning environments to promote physical activity (Verma et al., 2024). Chronic malnutrition affecting one in four Filipino children under five impedes optimal development and learning capacity (Moraleda et al., 2025), compounded by the lack of child-centered green spaces in urban poor communities (Alejandre et al., 2022). The emphasis on academic achievement in structured classrooms often overshadows active play's role in holistic development, exacerbated by the COVID-19 pandemic limiting outdoor recreational access (Cordero, 2024). Surveillance data from 2018 to 2022 indicate that physical activity among Filipino adolescents was very low, with only 14% in 2011 and 7% in 2019 meeting sufficient levels, suggesting a declining trend (Reilly et al., 2022), contributing to a rising prevalence of non-communicable diseases including obesity, hypertension, and diabetes, imposing a substantial economic burden on the healthcare system (Palad et al., 2023; Tagare, 2022).

This concerning national picture directly impacts local communities like Balamban, Cebu, where Nangka Elementary School serves migrant worker families in densely populated, informal settlements with limited access to safe recreational spaces. Anecdotal evidence from teachers reveals that many five- and six-year-old learners exhibit poor upper-body strength and coordination, struggle with climbing and catching, engage in sedentary recess behaviors, and show lower experimentation and persistence in gross motor tasks compared to fine-motor activities. The outdoor grounds lack designated play zones, varied terrain, equipment, shade, water features, and loose parts, while parents express concerns about excessive screen time and safety fears limiting outdoor play. These local manifestations suggest that learners are not developing fundamental movement skills at the expected rate, compromising their physical literacy, social confidence, and readiness for structured physical education.

Given these pressing issues, this study aims to investigate the influence of outdoor learning environments on the early childhood development of kindergarten learners at Nangka Elementary School, Balamban, Cebu, during SY 2025–2026. Specifically, it seeks to determine parents' assessment of the outdoor environment across four dimensions (physical features, safety and accessibility, natural elements, and play affordances) and the level of child development across four domains (physical fitness, approaches to learning, socialization, and imagination), while examining the relationship between these variables. The findings will serve as the basis for developing "Project P.L.A.Y. (Promoting Learning through Active Yardscapes)," an evidence-based action plan to enhance the outdoor learning environment and support holistic development, ultimately benefiting children, teachers, parents, school administrators, and the broader Balamban community.

Literature Review

Outdoor learning environments play an important role in early childhood development because they provide children with opportunities for active movement, exploration, interaction with nature, and play-based learning. Recent research describes outdoor learning as supporting children's holistic development, health and well-being, and multimodal, hands-on learning experiences (Kiviranta et al., 2023). Preschool teachers likewise recognize outdoor education as an opportunity for experiential learning and meaningful interaction with nature (Szczotka & Szewczuk, 2023). The quality of the environment is particularly important because appropriate spaces, equipment, natural materials, and varied activities provide children with different opportunities for play and learning (Beqiri & Mućaj, 2025). At the same time, environmental conditions such as temperature, weather, and available space can restrict children's opportunities for outdoor play, demonstrating the importance of creating

safe, accessible, and appropriate outdoor environments (Oh, 2023). Parents and caregivers also perceive nature-based outdoor spaces as providing opportunities for children to be physically active, solve problems, direct their own play, develop independence, interact socially, and express creativity and curiosity (Sturges et al., 2023). These findings emphasize that physical environment features, safety and accessibility, natural elements and materials, and opportunities for play are important considerations when assessing the quality of an outdoor learning environment.

Outdoor learning is also associated with developmental outcomes relevant to physical fitness, approaches to learning, socialization, and imagination. Outdoor play provides children with opportunities to practice fundamental movement skills, and an outdoor play intervention has been shown to improve locomotor and object-control skills among preschool children (Veiga et al., 2025). More recent research also found an association between frequent outdoor play and motor-skill competence among preschool-aged children, although the relationship differed by gender (Biino et al., 2025). Beyond physical development, outdoor education can encourage active participation, motivation, teamwork, responsibility, and experiential learning. Nature-based environments can also support creativity, exploration, problem-solving, meaning-making, and social-emotional development, while nature-based learning involving outdoor exploration and gardening has been linked with creativity, imagination, independence, decision-making, and self-regulation (Barrable, 2022). Observational research comparing nature and traditional preschools further found differences in children's physical activity, play behavior, and social conflict according to their exposure to natural outdoor environments (Nguyen et al., 2024). Collectively, these recent studies suggest that a well-designed outdoor learning environment can provide meaningful opportunities that support multiple dimensions of kindergarten learners' development, providing a strong basis for examining these relationships among learners at Nangka Elementary School.

Methodology

This study employed a descriptive-correlational research design to examine the relationship between the outdoor learning environment and the early childhood development of kindergarten learners at Nangka Elementary School, Balamban, Cebu, during the school year 2025–2026. The descriptive component was used to determine the learners' profile in terms of age and sex at birth, parents' assessment of the outdoor learning environment, and teachers' assessment of early childhood development. The correlational component determined the relationship between the outdoor learning environment and learners' developmental outcomes without manipulating any of the variables. The study involved 60 parents and four kindergarten teachers. The 60 kindergarten learners served as subjects of observation rather than direct respondents. Parents assessed the outdoor learning environment in terms of physical environment features, safety and accessibility, natural elements and materials, and play opportunities and affordances. Meanwhile, teachers assessed learners' development in terms of physical fitness, approaches to learning, socialization, and imagination. Data were collected using an adapted structured questionnaire based on the Outdoor Free Play Scale for Children–Preschool Version (OFPS-P). The instrument underwent content validation by experts in early childhood education and research methodology before its administration. Data gathering was conducted after securing the necessary permissions from appropriate education authorities and the school administration. Informed consent was obtained from participants, and confidentiality, voluntary participation, and data privacy were observed throughout the research process. Completed questionnaires were retrieved, checked, coded, and encoded for statistical analysis. Frequency and percentage were used to describe the learners' demographic profile, while weighted mean and standard deviation were employed to determine the levels of outdoor learning environment and early childhood development. Pearson's product-moment correlation coefficient (Pearson's r) was used to determine the strength, direction, and statistical significance of the relationship between the two major variables at the 0.05 level of significance.

Results

Table 1. Physical Environment Features

Indicators	WM	SD	Verbal Description
The outdoor space has enough open area for running, jumping, and chasing activities.	4.60	0.49	Excellent
There are climbing structures or natural elements (e.g., trees, hills, logs) that challenge the child's balance and coordination.	4.07	0.90	Very Good
The ground surface includes natural terrain (e.g., grass, sand, dirt)	4.43	0.50	Excellent

Indicators	WM	SD	Verbal Description
that encourages varied movement.			
There are balls, throwing toys, or objects that promote kicking and catching skills.	2.40	0.79	Fair
The outdoor equipment allows children to swing, hang, or pull themselves up.	2.33	0.71	Fair
Aggregate Mean	3.57		Very Good
Aggregate Standard Deviation		0.68	

The results show that the physical environment features obtained an aggregate mean of 3.57, verbally described as Very Good. Open spaces with a weighted mean of 4.60 and natural terrain with 4.43 were rated Excellent, indicating strong opportunities for active movement. However, balls and throwing toys with 2.40 and equipment for swinging, hanging, or pulling with 2.33 were rated Fair. This implies that the school should provide additional play equipment and materials to create more varied opportunities for children's physical and motor development.

Table 2. Safety and Accessibility

Indicators	WM	SD	Verbal Description
The outdoor area is safely enclosed and free from hazards.	4.85	0.36	Excellent
Children of all ability levels can easily access and move through the outdoor space.	4.90	0.30	Excellent
There is adequate adult supervision without restricting children's free movement.	4.20	0.44	Very Good
The outdoor space has shaded areas to protect children from too much sun exposure.	3.77	0.87	Very Good
Pathways are clear and allow children to move freely between different activity areas.	4.58	0.70	Excellent
Aggregate Mean	4.46		Excellent
Aggregate Standard Deviation		0.53	

The results show that safety and accessibility obtained an aggregate mean of 4.46, verbally described as Excellent. Accessibility for children of all ability levels received the highest weighted mean of 4.90, followed by safety from hazards at 4.85. Shaded areas received the lowest weighted mean of 3.77, although still rated Very Good. This implies that the outdoor environment is generally safe and accessible, but additional shaded areas may further improve children's comfort and protection during outdoor learning and play activities.

Table 3. Natural Elements and Materials

Indicators	WM	SD	Verbal Description
There are plants, gardens, or natural features that children can explore.	4.97	0.18	Excellent
Loose natural materials (e.g., sticks, stones, leaves, pinecones) are available for creative play.	4.78	0.49	Excellent
There are sources of water (e.g., puddles, small streams, water tables) for sensory play.	2.42	0.59	Fair

Indicators	WM	SD	Verbal Description
Animals or insects (e.g., birds, butterflies, worms) can be observed in the outdoor space.	2.55	0.62	Good
The outdoor environment changes with the seasons, offering new exploration opportunities.	4.25	0.65	Excellent
Aggregate Mean	3.79		Very Good
Aggregate Standard Deviation		0.51	

The results show that natural elements and materials obtained an aggregate mean of 3.79, verbally described as Very Good. Plants, gardens, and natural features received the highest weighted mean of 4.97, followed by loose natural materials at 4.78, both rated Excellent. Water sources for sensory play received the lowest weighted mean of 2.42, rated Fair. This implies that the outdoor environment provides strong opportunities for nature exploration, but adding water-based sensory resources and opportunities to observe living organisms could further enrich children's outdoor learning experiences.

Table 4. Play Opportunities and Affordances

Indicators	WM	SD	Verbal Description
The environment encourages climbing, balancing, and other gross motor challenges.	3.97	0.84	Very Good
There are open spaces that invite group games, chasing, and dramatic play.	4.42	0.79	Excellent
The outdoor setup includes quiet areas where children can rest or observe.	3.97	0.76	Very Good
There are loose parts and materials that children can move, build, and transform.	4.60	0.49	Excellent
The overall outdoor environment makes the child want to move, explore, and play actively.	4.78	0.42	Excellent
Aggregate Mean	4.35		Excellent
Aggregate Standard Deviation		0.66	

The results show that play opportunities and affordances obtained an aggregate mean of 4.35, verbally described as Excellent. The overall outdoor environment encouraging children to move, explore, and play actively received the highest weighted mean of 4.78, followed by the availability of loose parts and materials at 4.60. Gross motor challenges and quiet areas both received the lowest weighted mean of 3.97, rated Very Good. This implies that the environment strongly promotes active and creative play, while further improvements in gross motor and quiet spaces could provide more balanced play opportunities.

Table 5. Physical Fitness

Indicators	WM	SD	Verbal Description
Runs, jumps, hops, or skips vigorously across the outdoor space.	5.00	0.00	Highly Developed
Climbs, balances, or navigates uneven terrain with confidence.	4.98	0.13	Highly Developed
Throws, catches, or kicks objects like balls with coordination.	4.52	0.70	Highly Developed
Swings arms or legs energetically while moving or manipulating items.	4.83	0.38	Highly Developed
Engages in sustained high-energy actions like chasing or dodging.	4.73	0.52	Highly Developed

Indicators	WM	SD	Verbal Description
Aggregate Mean	4.81		Highly Developed
Aggregate Standard Deviation		0.34	

The results show that physical fitness obtained an aggregate mean of 4.81, verbally described as Highly Developed. Running, jumping, hopping, and skipping received the highest weighted mean of 5.00, followed by climbing and balancing at 4.98. Throwing, catching, and kicking received the lowest weighted mean of 4.52, although still Highly Developed. This implies that the learners demonstrate strong gross motor abilities and active participation in outdoor activities, while activities involving balls and coordinated object control may be further strengthened.

Table 6. Approaches to Learning

Indicators	WM	SD	Verbal Description
Maintains steady focus on a play activity without frequent distractions.	4.42	0.79	Highly Developed
Experiments with different ways to solve a play challenge (e.g., building or crossing).	4.03	1.22	Developed
Organizes play materials or sequence before starting an activity.	4.38	0.96	Highly Developed
Shows persistence by trying again after a play setback.	4.75	0.47	Highly Developed
Demonstrates initiative by starting new play ideas independently.	4.65	0.63	Highly Developed
Aggregate Mean	4.45		Highly Developed
Aggregate Standard Deviation		0.81	

The results show that approaches to learning obtained an aggregate mean of 4.45, verbally described as Highly Developed. Persistence in trying again after a play setback received the highest weighted mean of 4.75, followed by initiative in starting new play ideas at 4.65. Experimenting with different ways to solve play challenges received the lowest weighted mean of 4.03, rated Developed. This implies that learners demonstrate strong persistence, initiative, and focus, while more problem-solving activities may further strengthen their exploration and independent learning skills.

Table 7. Socialization

Indicators	WM	SD	Verbal Description
Uses words to describe actions, needs, or ideas during group play.	4.77	0.53	Highly Developed
Joins peers' activities or invites others to join their own.	4.27	0.92	Highly Developed
Shares play items or takes turns without adult prompting.	4.88	0.42	Highly Developed
Negotiates rules or solutions during peer conflicts verbally.	4.75	0.44	Highly Developed
Responds positively to peers' suggestions in collaborative play.	4.82	0.39	Highly Developed
Aggregate Mean	4.70		Highly Developed
Aggregate Standard Deviation		0.54	

The results show that socialization obtained an aggregate mean of 4.70, verbally described as Highly Developed. Sharing play items and taking turns without adult prompting received the highest weighted mean of 4.88, followed by responding positively to peers' suggestions at 4.82. Joining peers' activities or inviting others received the lowest weighted mean of 4.27, although still Highly Developed. This implies that learners demonstrate strong cooperation, communication, and positive peer interaction,

while activities encouraging greater participation and initiation in group play may further strengthen their social skills.

Table 8. Imagination

Indicators	WM	SD	Verbal Description
Transforms everyday objects into pretend items (e.g., stick as tool).	4.70	0.56	Highly Developed
Creates original stories or roles within play scenarios.	4.02	0.98	Developed
Combines materials in novel ways to invent games or structures.	4.47	0.77	Highly Developed
Engages in make-believe dialogues with self or objects.	4.70	0.50	Highly Developed
Expands play themes with imaginative twists or extensions.	4.70	0.46	Highly Developed
Aggregate Mean	4.52		Highly Developed
Aggregate Standard Deviation		0.65	

The results show that imagination obtained an aggregate mean of 4.52, verbally described as Highly Developed. Transforming everyday objects into pretend items, engaging in make-believe dialogues, and expanding play themes received the highest weighted mean of 4.70. Creating original stories or roles received the lowest weighted mean of 4.02, rated Developed. This implies that learners demonstrate strong imaginative and creative abilities during outdoor play, while storytelling, role-playing, and other creative activities may be further encouraged to strengthen their ability to develop original ideas and play scenarios.

Table 9. Test of Relationship Between the Outdoor Learning Environment and the Early Childhood Development Among the Learners

Variables	r-value	Strength of Correlation	p-value	Decision	Interpretation
Outdoor Learning Environment and Early Childhood Development	0.155	Negligible Positive	0.236	Do not reject H_0	Not Significant

The results show a negligible positive relationship between the outdoor learning environment and early childhood development, as indicated by the r-value of 0.155. The p-value of 0.236 is greater than the 0.05 level of significance; therefore, the null hypothesis is not rejected. This indicates that the relationship between the two variables is not statistically significant. Although the correlation is positive, its strength is too weak to establish a meaningful statistical association based on the data gathered. This implies that differences in early childhood development among the learners cannot be statistically associated with variations in the outdoor learning environment in this study. Other factors related to children's development may therefore warrant further investigation in future research.

Discussions

The findings indicate that the outdoor learning environment was generally favorable across its assessed dimensions. Safety and accessibility and play opportunities and affordances were rated Excellent, while physical environment features and natural elements and materials were rated Very Good. These results suggest that the outdoor setting provides learners with safe, accessible, and engaging opportunities for movement, exploration, and creative play. However, some areas require improvement, particularly the availability of balls and throwing materials, swinging and hanging equipment, water-based sensory resources, and opportunities for observing animals and insects. Strengthening these features could provide children with more varied and meaningful outdoor learning experiences. In terms of early childhood development, learners were rated Highly Developed in physical fitness, approaches to learning, socialization, and imagination. Despite these strong developmental ratings, the relationship between the outdoor learning environment and early childhood development was negligible positive and not statistically significant, with an r-value of 0.155 and a p-value of 0.236. Thus, the null hypothesis was not rejected. These findings indicate that the present data provide insufficient evidence of a significant association between the two variables. The results also suggest that other factors related to children's development may warrant consideration alongside improvements in the

outdoor learning environment.

Conclusion

The study concludes the importance of adopting a holistic approach to early childhood education, wherein educators intentionally integrate pedagogical strategies that complement environmental provisions, such as structured activities that promote object control skills, problem-solving experimentation, and creative narrative development. In terms of program development and policy implementation, these results highlight the need for multi-faceted interventions that address not only environmental enhancements particularly in areas with identified gaps but also teacher training, family engagement, and curriculum design to ensure that all developmental domains are systematically supported. A balanced and integrative strategy, rather than an exclusive focus on environmental modifications, is essential for fostering comprehensive and sustained developmental gains in young learners.

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