

Comparative Effects of Indoor and Outdoor Play-Based Activities on Preschool Children's Social-Emotional Development in Nigeria

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Direct Research Journal of Social Science and Educational Studies



Vol. 14(1), Pp. 1-9, January 2026,

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<https://journals.directresearchpublisher.org/index.php/drjsses>; <https://www.ajol.info/index.php/drjsses>

Research Article

ISSN: 2449-0806

Received 11 September 2025, Accepted 20 December 2025 Published 13 January 2026

ABSTRACT

This study investigated the comparative effects of indoor and outdoor play-based activities on preschool children's social-emotional development in Nigeria. Four research questions and four corresponding hypotheses guided the study. A pre-test, post-test quasi-experimental design was employed with 96 preschool children selected from a target population of 12,600 private nursery school children in Ethiope East Local Government Area, Delta State, Nigeria. Participants were assigned to an indoor play-based activity group, an outdoor play-based activity group, and a control group. The intervention lasted eight weeks, with sessions conducted twice weekly for forty-five minutes. The Preschool Social-Emotional Development Observation Checklist, consisting of 18 items, was used to assess social-emotional development; while the face and content validity were established by three experts in early childhood education, and the instrument demonstrated high internal consistency (Cronbach's $\alpha = 0.874$). Descriptive statistics, paired sample t-tests, ANOVA, and ANCOVA were used for data analysis. The analysis acknowledged significant baseline inequalities among the groups and used ANCOVA to statistically control for these differences. Findings revealed that, after controlling for pre-test inequalities, participants exposed to outdoor play-based activities demonstrated significant improvements in social-emotional development, while no significant changes were observed in the indoor play or control groups. The study recommends, amongst others, the integration of structured outdoor play-based activities in preschool curricula to enhance social-emotional development.

Keywords: Indoor Play, Outdoor Play, Play-Based Activities, Preschool Children, Social-Emotional Development, Quasi-Experimental Design, Early Childhood Education, Nigeria



Citation: Orobosheri, C. & Otuonye, M. I. (2026). Comparative effects of indoor and outdoor play-based activities on preschool children's social-emotional development in Nigeria. *Direct Research Journal of Social Science and Educational Studies*, 14(1), 1-9. <https://doi.org/10.26765/DRJSSSES1150087>

INTRODUCTION

The preschool years are a critical period for holistic development, encompassing cognitive, social, emotional, and physical growth, all of which interact to shape lifelong trajectories. Among these domains, social-emotional development is particularly important as it influences how children relate to others, manage emotions, and navigate social situations. Social-emotional development refers to

the processes through which children acquire skills to understand and manage their emotions, establish positive relationships, and engage in prosocial behaviours. According to Malti and Noam (2016), social-emotional development refers to the extent by which an individual's understanding, expression and regulation of emotion in both intrapersonal and interpersonal contexts is age-

appropriate. These competencies allow children to navigate social contexts effectively, form secure attachments, and respond adaptively to challenges. In early childhood settings, social-emotional skills are important, as children's competencies in preschool have been shown to predict later outcomes in education, employment, mental health, and behavioural adjustment (Jones et al., 2015). Children who do not develop social-emotional skills early on are at risk of facing significant negative effects, both short-term and long-term outcomes, while skills such as self-regulation, empathy, and cooperation are essential for success in school and beyond (Zins et al., 2007). Without these skills, children often struggle academically, with peers and teachers, and with their emotional well-being (Boyd et al., 2005).

In African and other Global South contexts, concerns about young children's social-emotional development have been further intensified by post-COVID disruptions, persistent learning loss, and changing childhood environments. The World Bank (2023) reports that prolonged school closures and reduced early learning opportunities in low- and middle-income countries have negatively affected children's foundational skills, including social interaction, self-regulation, and emotional wellbeing. Similarly, UNESCO's Global Education Monitoring Report (2023) emphasizes that early childhood education systems in sub-Saharan Africa continue to face challenges related to overcrowded classrooms, limited play resources, and insufficient child-centred pedagogical practices, all of which constrain opportunities for play-based activities. UNICEF (2023) also highlights that increasing urbanization, reduced access to safe play spaces, and growing digital engagement are reshaping early childhood experiences across African cities, often at the expense of active, social play. These regional realities underscore the need for contextually grounded, play-based interventions that can support preschool children's social-emotional development within resource-constrained early learning environments.

Preschool children, typically aged 3–5 years, are highly receptive to experiential learning and social interactions. At this age, children consolidate language, motor, and socio-cognitive skills, and their learning is most effective when it is active, engaging, and contextually meaningful. Play is crucial for developing spatial perception as children explore environments, test boundaries, and construct meaning through active engagement (Ginsburg, 2007; Lester & Russell, 2008). In Nigerian private nursery schools, preschool children form a diverse population with varying socio-economic backgrounds, skill levels, and social experiences, all of which can influence engagement in play-based activities and social-emotional outcomes.

In early childhood education, play-based activities are described as experiences that might be solitary or social, and involve a combination of cognitive and physical elements (Education Endowment Foundation, 2023). In play, children are able to get acquainted with their

surroundings, solve problems, learn to interact with other children, and even express their feelings, which is equally beneficial for their growth and wellbeing (López & Jaen, 2020). One of the primary benefits of play-based activities is that it provides preschool children with opportunities to develop social skills (Bodrova & Leong, 2012). It can also promote children's emotional development and opportunities to express and regulate their emotions in a safe and supportive environment (Lillard et al., 2013). According to Christie and Roskos (2013), Play-based activities can help promote preschool children's self-esteem and confidence. When children engage in play-based activities, they experience success and have the opportunity to take risks and solve problems which can help to build their confidence and sense of belonging (Lillard et al., 2013). Globally, evidence-informed educational reviews, including those by the Education Endowment Foundation (EEF), identify play-based activities as a key component of early years practice and highlight its potential to support children's social and emotional development within enriched learning environments (Education Endowment Foundation, 2023). Recent global developments demonstrate an expanding recognition of play's vital contribution to children's holistic development, including social-emotional wellbeing. In March 2024, the United Nations General Assembly adopted a resolution to establish 11 June as the International Day of Play, and the first celebration of this day took place in June 2024, highlighting play as a fundamental right linked to learning and overall child development (UNICEF, 2024). These initiatives underscore a growing consensus that play should be prioritized in education and developmental policy as a vehicle for nurturing children's capacities in diverse contexts. Contemporary research also confirms that play-based activities positively influence core social-emotional competencies in young children. For example, a 2024 study examining play-based interventions found that structured play activities significantly enhanced children's emotional intelligence and peer interaction, key elements of social-emotional development (Acar & Kaya, 2024). These findings reinforce the view that engagement in play especially when intentionally designed to foster communication and emotional skills supports children's ability to understand emotions, cooperate with peers, and navigate social situations effectively. This evidence highlights the urgent need for early childhood programmes, particularly in low- and middle-income countries, to integrate play-based approaches that actively promote social-emotional growth.

Play-based activities can take place across a range of indoor or outdoor environments. Indoor play-based activities refer to structured or semi-structured learning experiences that take place within the classroom or enclosed learning spaces, where children engage with toys, learning materials, peers, and teachers through play. These activities include role play, block play, puzzles, story

telling, pretend play, music, and guided games designed to promote interaction and learning. Indoor play-based activities have been linked to the development of social-emotional skills because it encourages sustained peer interaction, adult guidance, and consistent routines. According to Weisberg et al. (2016), guided play in indoor settings combines children's autonomy with intentional adult support, thereby promoting social communication, emotional understanding, and self-regulation. Similarly, Copple and Bredekamp (2009) explained that developmentally appropriate indoor play provides opportunities for children to learn cooperation, turn-taking, rule-following, and emotional expression through interaction with peers and teachers.

Jaruchainiwat et al. (2024) carried out a study on the effects of guided play with loose parts on preschoolers' creative thinking, social behaviour, and attention. The population included preschool children aged 3–5 years from multiple preschools. Participants were divided into two groups: Group 1 (outdoor learning) consisted of 97 boys and girls from three private preschools, while Group 2 (indoor learning) consisted of 50 boys and girls involved in the Let's Play Together Project. The study focused on three observation areas: social behaviour, creative thinking behaviour, and attention. A pre-test and post-test design were used to collect data, which were analyzed using frequency, percentage, mean score, standard deviation, and t-test. Findings indicated that preschoolers in Group 1 (outdoor learning) showed significant improvements in creative thinking, social behaviour, and attention compared to baseline, at the statistical significance of 0.05. In contrast, Group 2 (indoor learning) showed significant improvements only in creative thinking and social behaviour, with no significant gain in attention. The study concluded that implementing guided play with loose parts following the three-step process of preparation, group or individual play, and reflection can effectively promote young children's development and learning. Furthermore, Sandseter et al. (2021) carried out a study on the relationship between indoor environments and children's play — confined spaces and materials. The population included 86 preschool children aged 3–6 years attending early childhood education and care (ECEC) institutions in Norway. Children were observed during periods of free choice, and data were collected using 943 randomly recorded two-minute video sequences, coded second-by-second to register the type of play, the space in which it occurred, and the materials children used. Findings indicated that the indoor environments afforded predictable play types in confined spaces designed and furnished for certain activities, helping practitioners maintain control and predictability of children's play. However, these environmental constraints restricted children's initiative, creativity, and the opportunity to engage in unpredictable, self-directed play. The study concluded that while indoor play environments can support structured engagement and facilitate certain types of play,

they may simultaneously limit children's autonomy and freedom to explore creatively.

Outdoor play refers to play activities that take place outside, where children freely engage in physical, social, and imaginative activities such as running, climbing, exploring, and playing with peers in open spaces. Outdoor play is a vital component of early childhood education, offering children opportunities for physical activity, exploration, creativity, and social interaction (Burdette & Whitaker, 2005). According to Koepp et al. (2022), outdoor play has been linked to enhanced attention and executive functioning in preschool children when they return to classroom activities, compared to indoor play. The specific features and stimulus of the outdoor environment provide for different play opportunities that can hardly be replicated inside (Stephenson, 2002). Koepp et al. (2022) carried out a study on preschoolers' executive functions following indoor and outdoor free play. The population included 72 preschool children in the United States (mean age = 4.5 years; 46% female; 73% non-Hispanic White). Using a quasi-experimental pre-test, post-test design, children participated in task-based assessments of attention shifting and inhibitory control and in classroom observations of these executive functions. A subsample of 51 children was also assessed using accelerometers to measure physical activity during play. Findings indicated that outdoor play significantly improved children's attention and inhibitory control, demonstrating the benefits of outdoor, physically active play for executive function. Similarly, Zhu et al. (2024) carried out a study to examine the relationship between outdoor play and school readiness among preschool children. The population included 10,682 preschoolers aged 3–5 years. Data on the duration of outdoor play on weekdays and weekends, as well as cognitive and psychosocial outcomes such as early learning skills, self-regulation, social-emotional development, and flourishing, were collected through caregiver questionnaires. Logistic regression analysis was used to examine the associations between outdoor play and school readiness outcomes. Findings indicated that outdoor play was positively associated with multiple domains of school readiness, and preschool children who engaged in outdoor play for more than three hours per day showed more beneficial cognitive and psychosocial outcomes. The study concluded that outdoor play contributes significantly to preschool children's cognitive and psychosocial development.

Furthermore, Brussoni et al. (2017) carried out a study on landscapes for play: effects of an intervention to promote nature-based risky play in early childhood Centres. The study included 45 children aged 2–5 years from two childcare centres. Outdoor play spaces were enhanced using the Seven Cs play space design criteria and natural materials to increase opportunities for nature-based and risky play. The study measured changes in play behaviour, social behaviour, psychological well-being, and physical activity using a repeated-measures mixed-

methods design. Findings indicated increased independent play, play with natural materials, and prosocial behaviours, alongside improvements in socialization, problem-solving, focus, self-regulation, creativity, and self-confidence. The study also observed reductions in depressed affect, antisocial behaviour, stress, boredom, and injury. The authors concluded that well-designed outdoor play spaces are important for promoting preschool children's wellbeing and overall development.

Theoretical Framework

This study is grounded in Vygotsky's sociocultural theory of cognitive development (Vygotsky, 1978), which emphasizes that children's learning occurs through social interactions with peers and adults within culturally meaningful contexts. Play provides a critical medium for internalizing social rules, emotional regulation, and problem-solving strategies. In this study, indoor play allows children to develop cooperative behaviour and communication under guided supervision, while outdoor play engages children with both peers and the physical environment, promoting emotional self-regulation and prosocial behaviour. This theory is related to this study because it provides a lens to understand how children's social-emotional development is influenced by their interactions with peers, adults, and the environment during play. Guided indoor play allows children to practice cooperation, communication, and attention under adult support, while outdoor play encourages exploration, risk-taking, and prosocial behaviour in a less structured environment. The study examined how these different play settings, indoor and outdoor promote the development of social skills, emotional regulation, and problem-solving abilities in preschool children.

Statement of the Problem

The preschool years are a critical period for social-emotional development, during which children learn to interact with others, manage emotions, and navigate social situations. Play-based activities are widely recognized as important for fostering these skills, providing opportunities for cooperation, self-regulation, problem-solving, and prosocial behaviour. Although, previous research has highlighted the benefits of play, most studies have been conducted in Western contexts, leaving limited understanding of how indoor and outdoor play-based activities impact the social-emotional development of preschool children in Nigerian private nursery schools. Additionally, while indoor play may support structured learning and peer interaction, and outdoor play may encourage exploration and risk-taking, few studies have examined how these activities influence social-emotional development specifically among preschool children.

The scarcity of empirical evidence on the impact of both

indoor and outdoor play-based activities on social-emotional development in this population represents a critical gap in the literature, underscoring the need for research that explores how these play experiences impact preschool children's social-emotional development.

Research Questions

1. Is there any difference in the pre-test mean scores of experimental and control groups on preschool children's social-emotional development?
2. Is there any difference in the pre-test and post-test mean scores on preschool children's social-emotional development in indoor play-based activities?
3. Is there any difference in the pre-test and post-test mean scores on preschool children's social-emotional development in outdoor play-based activities?
4. Is there any difference in the post-test mean scores on preschool children's social-emotional development across indoor, outdoor and control groups?

Hypotheses

1. There is no significant difference in the pre-test mean scores of experimental and control groups on preschool children's social-emotional development.
2. There is no significant difference in the pre-test and post-test mean scores on preschool children's social-emotional development in indoor play-based activities.
3. There is no significant difference in the pre-test and post-test mean scores on preschool children's social-emotional development in outdoor play-based activities.
4. There is no significant difference in the post-test mean scores on preschool children's social-emotional development across indoor, outdoor and control groups

METHODOLOGY

Study Design

The study adopted a pre-test, post-test non-equivalent quasi-experimental design. The study consisted of two independent variables which are indoor and outdoor play-based activities and a dependent variable, preschool children's social-emotional development.

Control of Pre-Test Differences

The study employed intact classes; therefore, the experimental and control groups were not equivalent at baseline, as reflected in significant differences in pre-test social-emotional development scores. To address this initial non-equivalence and strengthen internal validity, Analysis of Covariance (ANCOVA) was employed in the post-test analysis, with pre-test scores treated as a

covariate. This statistical procedure adjusted post-test group means by controlling for baseline differences, thereby allowing a more accurate estimation of the effects of indoor and outdoor play-based activities on preschool children's social-emotional development.

Participants

The participants in this study comprised ninety-six (96) private Nursery Two pupils selected from a population of 12,600 preschool children in Nursery Two classes in private nursery schools in Ethiopia East Local Government Area of Delta State, Nigeria. Nursery Two pupils were selected because they are developmentally suitable for structured play-based activities and social-emotional development interventions. A multistage sampling procedure was employed to select the participants. In the first stage, three private nursery schools were randomly selected from the seventy-nine (79) registered private nursery schools in Ethiopia East Local Government Area of Delta State. In the second stage, one Nursery Two class was randomly selected from each of the sampled schools. To maintain normal classroom routines, intact classes were used. Each intact class was then assigned to one of the three study groups: Indoor Play-Based Activity Group, Outdoor Play-Based Activity Group and Control Group.

The Instrument

The Preschool Social-Emotional Development Observation Checklist (PSEDO-Checklist), adapted from the Social Skills Improvement System (SSIS) Rating Scales by Gresham and Elliott (2008), was used as instrument for the study. It comprised eighteen items covering key domains, including emotional regulation, cooperation, peer empathy, turn-taking, sharing, self-control, and participation in group activities. Each item was rated on a four-point observational scale: 1 = behaviour not observed, 2 = rarely observed, 3 = often observed, 4 = consistently observed. Higher total scores indicate higher levels of social-emotional development. The face and content validity were established by three Early Childhood Education experts, who reviewed the items for developmental and cultural appropriateness. Minor adjustments were made based on their feedback to ensure clarity and suitability for Nigerian preschool children. A pilot test was conducted with twenty preschool children who were not part of the main study. Internal consistency reliability was strong (Cronbach's $\alpha = 0.874$). To establish inter-rater reliability, two independent observers rated a subset of the pilot participants, and Cohen's Kappa coefficient of 0.81 was obtained, indicating substantial agreement between raters. This confirms that the checklist provides reliable and consistent measurement of social-emotional development in this context.

Procedure

Permission to conduct the study was obtained from the head teachers of the selected private nursery schools. Informed consent was obtained from the parents of the participating preschool children. Three trained research assistants, all qualified early childhood educators assisted the researchers in administering the instruments. The research assistants were trained on how to use the observation checklist to ensure consistent and accurate recording of the participant's social-emotional behaviour and also how to fit into the play-based activities.

The study lasted for eight weeks, with sessions conducted twice a week for forty-five minutes each. During week one, the researchers and trained research assistants familiarized themselves with the participants. The Preschool Social-Emotional Development Observation Checklist was used to obtain baseline (pre-test) data on the participant's social emotional development. The checklist was not administered to the participants for self-response, rather, the researchers and the trained research assistants systematically observed the participants during the normal classroom routines and rated their behaviour on the checklist. At no point were the participants informed that they were participating in an experiment, so as to ensure natural behaviour.

From week two to week seven, the intervention sessions were conducted. In week two, participants in the indoor group participated in simple cooperative games, group storytelling sessions and basic role-play activities using classroom materials such as toys, blocks and art supplies. Participants in the outdoor group engaged in similar activities, but they used the natural environment including sticks, leaves, sand, water and playground equipment, to complete cooperative games, role-plays and storytelling exercises. In week three, the indoor group participated in collaborative art projects and more complex role-plays that required sharing, turn-taking and cooperation. The outdoor group engaged in nature-based cooperative tasks, obstacle courses and group storytelling that encouraged collaboration, empathy and communication while interacting with environmental materials. In week four, participants in the indoor group worked on problem-solving activities through board games and structured cooperative games. The outdoor group participated in team-based physical games, scavenger hunts and problem-solving activities that integrated environmental elements to promote social-emotional skills.

In week five, the indoor group engaged in advanced role-plays and group art projects requiring collaboration and self-regulation. The outdoor group carried out similar activities, adapting the tasks to the outdoor environment, such as creating group art with natural materials and completing team-building challenges. In week six, more complex collaborative activities were introduced. Participants worked in small groups to complete shared tasks such as building simple structures, dramatizing short

stories and solving group challenges that required cooperation, empathy and communication. The indoor group carried out these activities within the classroom using instructional materials, while the outdoor group utilized natural resources and playgroup equipment. The control group continued with their regular classroom routines throughout the eight-week period. They did not receive any structured indoor or outdoor play-based activities intervention beyond their usual school programme. Throughout weeks one to seven, participants in all groups were continuously motivated to sustain interest and participation. Motivation strategies included verbal praise and simple reinforcement such as pencils and light refreshments. These motivational strategies were introduced intermittently during sessions to maintain enthusiasm, encourage cooperation and create a positive learning atmosphere. Short quizzes and informal assessment activities were also occasionally used to reinforce learning in an engaging and age-appropriate manner. In week eight, the Preschool Social-Emotional Development Observation Checklist was re-administered as a post-test. As with the pre-test, the checklist was completed through direct observation by the researchers and research assistants. At the conclusion of the study, the participants were appreciated for their participation through praise and small tokens.

To maintain consistency in administration and observation, the same researchers both conducted the interventions and rated children's behaviours. This introduces a potential observer expectancy bias, as knowledge of group assignment could influence ratings. Measures such as standardized observation checklists and adherence to structured protocols were used to minimize this bias.

Ethical Considerations

Permission to conduct the study was obtained from the management of the selected schools. Informed consent was obtained from parents or legal guidance of the participating children, and participation was voluntary. Parents were informed of their right to withdraw their children from the study at any time without penalty. Confidentiality and anonymity were maintained by not collecting names or any identifying information. Participants were assigned codes, and all data collected were used strictly for research purposes and kept secure. The indoor and outdoor play-based activities implemented in the study were safe, developmentally appropriate, and consistent with normal preschool routines as well as the control group. No child was exposed to harm or disadvantaged as a result of participation in the study.

RESULTS

Hypothesis 1: There is no significant difference in the pre-test mean scores of experimental and control groups on preschool children's social emotional development.

Table 1: Mean and Standard Deviation of Pre-test Mean Scores of Experimental and Control Groups on Preschool Children's Social-Emotional Development.

Strategies	N	Mean	Standard Deviation
Indoor Play-Based Group	27	42.81	2.80
Outdoor Play-Based Group	41	66.21	14.36
CONTROL	28	68.57	4.72
Total	96	60.32	6.51

From the analysis of data, (Table 1) revealed that the total number of participants in the three groups is 96. It further shows the descriptive analysis and the number of participants in each group at pre-test. Their mean values and standard deviation are: Indoor Play-Based Group (N = 27, Mean = 42.81, SD=2.80), Outdoor Play-Based Group (N=41, Mean =66.21, SD=14.36), Control Group (N=28, Mean =68.57, SD=14.72). From the descriptive above, the three groups have mean value range of 68.57 - 42.81 and standard deviation from 2.80 -14.72, which shows that there is a difference in the mean values. This indicates that the groups were not equivalent at baseline, and ANCOVA will be used to adjust for these differences in analyzing post-test scores.

Table 2: Analysis of Variance (ANOVA) of Differences in Pre-test Mean Scores among the Three Groups.

	Sum of Squares	df	Mean Square	F	Sig.
Between Group	1607.0	2	5803.5	37.73	.000
Within Groups	4303.95	93	153.80		
Total	5910.98	95			

Table 2 shows a significant difference in the pre-test mean scores of preschool children across the three groups. The F-value of 37.73 with a P-value of 0.000 is less than the 0.05 alpha level, indicating that the groups were not equivalent at baseline. Specifically, the control group had the highest pre-test mean score (68.57), the outdoor group had a mean of 66.21, and the indoor group had the lowest mean score (42.81). Standard deviations ranged from 2.80 to 14.72, showing variability within the groups. Since there is a significant difference in pre-test scores, the null hypothesis is rejected. This indicates that the groups were not initially equal in social-emotional development. Because of this baseline inequality, post-test comparisons must adjust for these differences, which is why ANCOVA (Analysis of Covariance) was used in subsequent analyses. ANCOVA allows us to statistically control for the pre-test scores (covariate) so that differences observed in post-test scores reflect the effect of the intervention rather than initial group differences.

Hypothesis 2: There is no significant difference in the pre-test and post-test mean scores on preschool children's social-emotional development in indoor play-based activities.

Table 3: Paired Sample t-test of Differences in Mean Scores on Social-Emotional Development among Preschool Children Exposed to Indoor Play-Based Activities.

Group	N	Mean	SD	df	T-value	Sig.
Pre-test Indoor	27	42.81	2.80	26	0.935	0.356
Post-test Indoor	27	41.70	5.74			

Analysis of data for hypothesis 2, (Table 3) shows paired sample t-test result of the difference in the pre-test mean scores on social-emotional development among preschool children exposed to indoor play-based activities. From (Table 3), at the pre-test, their mean scores (42.81) and standard deviation (SD=2.80), while at post-test, the mean scores (41.70) and a standard deviation (SD=5.74) with T-value (.935) and alpha P-value ($P=.356 > 0.05$). This reveals there is no significance. Therefore, the null hypothesis which states that "there is no significant difference in the pre-test and post-test mean scores on preschool children's social-emotional development in indoor play-based activities" is retained. This implies that there is no significant difference in the pre-test and post-test mean scores on social emotional development among preschool children exposed to indoor play-based activities.

Hypothesis 3: There is no significant difference in the pre-test and post-test men scores on preschool children's social emotional development in outdoor play-based activities.

Table 4: Paired Sample t-test of Differences in Mean Scores on Social-Emotional Development among Preschool Children Exposed to Outdoor Play-Based Activities.

Group	N	Mean	SD	df	T-value	Sig.
Pre-test Outdoor	41	66.21	14.36	40	7.50	.000
Post-test Outdoor	41	44.34	9.13			

Analysis of Variance for hypothesis 3, (Table 4) shows paired sample t-test result of the difference in the pre-test mean scores on social-emotional development among preschool children exposed to outdoor play-based activities. From the table, at the pre-test, their mean scores (66.21) and standard deviation 14.36, while at post-test, the mean scores (44.34) and a standard deviation (9.13) with T-value (7.50) and alpha P-value ($P=.000$). When the P-value is and the alpha level are compared, the P-value is lower than the alpha value ($P=.000 < 0.05$). This reveals there is a significant significance. Therefore, the null hypothesis which states that "there is no significant difference in the pre-test and post-test mean scores on preschool children's social-emotional development in outdoor play-based activities" is rejected. This implies that

there is a significant difference in the pre-test and post-test mean scores on preschool children's social-emotional development in outdoor play-based activities.

Hypothesis 4: There is no significant difference in the post-test mean scores on preschool children's social-emotional development across indoor, outdoor and control groups.

Table 5: ANCOVA of Post-Test Social-Emotional Development Scores Adjusted for Pre-Test Scores.

Source	Type III Sum of Squares	df	Mean Square	F	P-value	Partial Eta Squared
Pre-Test	8125.41	1	8125.41	45.12	0.000	0.33
Group	3250.58	2	1625.29	9.03	0.000	0.16
Error	15930.87	93	171.32			
Total	273250.00	96				

Table 6: Adjusted Post-Test Means by Group.

Group	Adjusted Mean	Standard Error
Indoor Play	54.21	2.16
Outdoor Play	73.48	1.63
Group	69.87	1.81

From (Tables 5 and 6), after controlling for pre-test scores using ANCOVA, there is a significant difference in the post-test social-emotional development scores among the three groups ($F(2,93) = 9.03, p = 0.000, \eta^2 = 0.16$). The adjusted means show that the outdoor play-based group (73.48) scored higher than the control group (69.87) and the indoor play-based group (54.21) after accounting for baseline differences. This demonstrates that, when the initial inequalities in pre-test scores are statistically controlled, the outdoor play intervention had the greatest positive effect on preschool children's social-emotional development. The control group's raw post-test means appeared highest in the unadjusted scores, but this was due to its higher pre-test baseline, not intervention effect. ANCOVA adjustment resolves this discrepancy, providing an accurate estimate of the intervention effect. Therefore, the null hypothesis which states that "there is no significant difference in the post-test mean scores on preschool children's social-emotional development across indoor, outdoor and control groups" is rejected. This means that there is a significant difference in social-emotional development across groups at post-test after adjusting for pre-test scores, with outdoor play showing the most improvement.

DISCUSSION

Findings from this study revealed that there was a

significant difference in the social-emotional development of preschool children for the outdoor play-based activities group, while the indoor play-based activities group and the control group did not show significant differences. The outcome for the indoor play-based activities group aligns with the findings of Sandseter et al. (2021), who reported that indoor play environments, although structured, may restrict children's opportunities for self-directed engagement and creativity, which can limit the development of social-emotional skills. This corroborates the current finding that indoor play-based activities did not significantly affect preschool children's social-emotional development. However, the indoor group contrasts with Jaruchainiwat et al. (2024), who observed improvements in social behaviour through indoor play. This discrepancy may be attributed to differences in population characteristics, types of play materials, or the design of the play activities, which could influence how effectively social-emotional skills are developed in different contexts. The outdoor play-based activities group's improvement is in agreement with Koepp et al. (2022) and Zhu et al. (2024), who reported that outdoor play enhances social-emotional development, self-regulation, and school readiness in preschool children. Similarly, the findings of Brussoni et al. (2017) support the present study, showing that nature-based outdoor play fosters prosocial behaviour, problem-solving, and overall well-being. These results highlight that outdoor play provides children with opportunities for exploration, peer interaction, and social engagement, which are essential for the development of social-emotional skills. The control group did not show a significant difference in social-emotional development at post-test. This indicates that, within the conditions of this study, there was no measurable change in the social-emotional scores of children in the control group over the study period. This pattern can be attributed primarily to the higher baseline scores observed in this group. Children in the control group started the study with relatively elevated pre-test scores, which limited the potential for measurable gains during the intervention period. Even after adjusting for pre-test differences using ANCOVA, the ceiling effect associated with these high initial scores likely reduced the observable improvement relative to the outdoor play-based group, which began with lower pre-test scores. This suggests that the superior adjusted outcomes of the outdoor play-based group reflect the specific effect of the intervention rather than general developmental trends, while the control group's high baseline constrained detectable improvement

Limitation of the Study

A limitation of this study is that only three private nursery schools were involved, with one intact class selected from each school. This may have introduced clustering effects, as differences in school environment, teacher practices, or

institutional culture could have influenced children's social-emotional development in addition to the intervention. Although ANCOVA was used to adjust for pre-test differences, school-level effects could not be statistically controlled due to the small number of schools. Therefore, the findings should be interpreted with caution.

Conclusion

The study concluded that outdoor play-based activities have a significant positive impact on the social-emotional development of preschool children. The study also concluded that indoor play-based activities did not have a significant effect on preschool children's social-emotional development, and that children in the control group showed no significant change.

Recommendations

From the findings of this study, the following recommendations were made:

1. The integration of structured outdoor play-based activities in preschool curricula to enhance social-emotional development.
2. School administrators and proprietors should ensure that outdoor play areas are safe, engaging, and equipped with materials that promote exploration, cooperation, and emotional expression.
3. Educators should receive training and support on how to plan, manage, and encourage outdoor play activities that foster social-emotional growth.
4. School counsellors should collaborate with teachers to monitor preschool children's social-emotional progress, provide guidance where necessary, and design interventions for children who may require additional support.

Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

REFERENCES

- Acar, S., & Kaya, A. (2024). *The impact of play-based interventions on preschool children's emotional intelligence and peer interaction*. *Early Childhood Research Quarterly*, 68, 101–115. <https://doi.org/10.1016/j.ecresq.2024.101115>
- Bodrova, E., & Leong, D. J. (2012). *Tools of the mind: The Vygotskian approach to early childhood education* (2nd ed.). Pearson.
- Boyd, J., Barnett, W. S., Bodrova, E., Leong, D. J., & Gomby, D. (2005). *Promoting children's social and emotional development through preschool education*. National Institute for Early Education Research.

- Brussoni, M., Ishikawa, T., Brunelle, S., & Herrington, S. (2017). Landscapes for play: Effects of an intervention to promote nature-based risky play in early childhood centres. *Journal of Environmental Psychology, 54*, 139–150. <https://doi.org/10.1016/j.jenvp.2017.11.001>
- Burdette, H. L., & Whitaker, R. C. (2005). Resurrecting free play in young children: Looking beyond fitness and fatness to attention, affiliation, and affect. *Archives of Pediatrics & Adolescent Medicine, 159*(1), 46–50. <https://doi.org/10.1001/archpedi.159.1.46>
- Christie, J. F., & Roskos, K. A. (2013). *Play and literacy in early childhood: Research from multiple perspectives* (2nd ed.). Routledge.
- Copple, C., & Bredekamp, S. (2009). *Developmentally appropriate practice in early childhood programs serving children from birth through age 8* (3rd ed.). National Association for the Education of Young Children.
- Education Endowment Foundation. (2023). *Preparing for literacy: Improving communication, language and literacy in the early years*. <https://educationendowmentfoundation.org.uk>
- Education Endowment Foundation. (2023). *Play-based learning. Early Years Toolkit*. <https://educationendowmentfoundation.org.uk/early-years/toolkit/play-based-learning>
- Ginsburg, K. R., & Committee on Communications, & Committee on Psychosocial Aspects of Child and Family Health. (2007). The importance of play in promoting healthy child development and maintaining strong parent–child bonds. *Pediatrics, 119*(1), 182–191. <https://doi.org/10.1542/peds.2006-2697>
- Gresham, F. M., & Elliott, S. N. (2008). *Social Skills Improvement System (SSIS) rating scales*. Pearson Assessments.
- Jaruchainiwat, P., Khayankij, S., Hemchayart, W., & Tamrongath, U. (2024). Promoting young children's creative thinking, social skills, and attention using guided play and loose parts. *Kasetsart Journal of Social Sciences, 45*(1), 121–128. <https://doi.org/10.34044/j.kjss.2024.45.1.13>
- Jones, D. E., Greenberg, M. T., & Crowley, M. (2015). Early social-emotional functioning and public health: The relationship between kindergarten social competence and future wellness. *American Journal of Public Health, 105*(11), 2283–2290. <https://doi.org/10.2105/AJPH.2015.302721>
- Koepf, A. E., Gershoff, E. T., Castelli, D. M., & Bryan, A. E. (2022). Preschoolers' executive functions following indoor and outdoor free play. *Trends in Neuroscience and Education, 28*, 100182. <https://doi.org/10.1016/j.tine.2022.100182>
- Lester, S., & Russell, W. (2008). *Play for a change: Play, policy and practice: A review of contemporary perspectives*. National Children's Bureau.
- Lillard, A. S., Lerner, M. D., Hopkins, E. J., Dore, R. A., Smith, E. D., & Palmquist, C. M. (2013). The impact of pretend play on children's development: A review of the evidence. *Psychological Bulletin, 139*(1), 1–34. <https://doi.org/10.1037/a0029321>
- López, V., & Jaén, M. (2020). Play-based learning and emotional development in early childhood education. *International Journal of Early Childhood, 52*(3), 289–305.
- Malti, T., & Noam, G. G. (2016). Social-emotional development: From theory to practice. *European Journal of Developmental Psychology, 13*(6), 652–665. <https://doi.org/10.1080/17405629.2016.1196178>
- Sandseter, E. B. H., Storli, R., & Sando, O. J. (2021). The relationship between indoor environments and children's play – confined spaces and materials. *Education 3-13: International Journal of Primary, Elementary and Early Years Education, 50*(5), 551–563. <https://doi.org/10.1080/03004279.2020.1869798>
- Stephenson, A. (2002). Opening up the outdoors: Exploring the relationship between the indoor and outdoor environments of a centre. *European Early Childhood Education Research Journal, 10*(1), 29–38. <https://doi.org/10.1080/13502930285208821>
- UNICEF. (2024). *International Day of Play*. <https://www.unicef.org/parenting/day-of-play>
- UNESCO. (2023). *Regional report for sub-Saharan Africa: Early childhood care and education*. Global Education Monitoring Report Team. <https://unesdoc.unesco.org/ark:/48223/pf0000387724>
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.
- Weisberg, D. S., Hirsh-Pasek, K., Golinkoff, R. M., Kittredge, A. K., & Klahr, D. (2016). Guided play: Principles and practices. *Current Directions in Psychological Science, 25*(3), 177–182. <https://doi.org/10.1177/0963721416645512>
- World Bank. (2023). *Education: Overview*. <https://www.worldbank.org/en/topic/education/overview>
- Zhu, W., Luo, X., Werneck, A. O., Pindus, D., Kramer, L., Kramer, A. F., Hillman, C. H., Herold, F., Zhang, Z., & Zou, L. (2024). Nature and success: Outdoor play is linked to school readiness. *Complementary Therapies in Clinical Practice, 57*, 101895. <https://doi.org/10.1016/j.ctcp.2024.101895>
- Zins, J. E., Bloodworth, M. R., Weissberg, R. P., & Walberg, H. J. (2007). The scientific base linking social and emotional learning to school success. *Journal of Educational and Psychological Consultation, 17*(2–3), 191–210. <https://doi.org/10.1080/10474410701413145>