

Investigating the Influence of Outdoor Play Environments on Social and Emotional Engagement among Pre-Schoolers

Henry Wasosa

Catholic University of Zimbabwe

DOI: <https://dx.doi.org/10.47772/IJRISS.2025.907000153>

Received: 01 July 2025; Accepted: 04 July 2025; Published: 05 August 2025

INTRODUCTION

Background information

Outdoor play has long been recognized as a vital component of early childhood development, providing children with opportunities to explore, interact, and learn in ways that go beyond the limitations of traditional indoor classroom settings. Numerous studies have demonstrated that outdoor environments play a significant role in promoting not only physical activity, but also cognitive, social, and emotional growth among young children (Dankiw et al., 2020; Moreira et al., 2022). The sensory-rich and dynamic features of outdoor settings allow children to engage in meaningful play that fosters creativity, independence, and decision-making skills (Mohamada et al., 2022). These unstructured and often nature-based environments encourage open-ended exploration, which in turn supports self-confidence and reduces anxiety. This freedom to explore and interact naturally nurtures emotional regulation and self-control, while also increasing children's capacity for empathy as they respond to others in varied social contexts (Miranda et al., 2017).

In particular, unstructured outdoor play especially in natural or enriched spaces has been strongly associated with improvements in emotional intelligence and social functioning (Senoz & Kol, 2025). As preschoolers engage in peer-related outdoor activities, they encounter unique affordances that promote communication, cooperation, and conflict resolution. These affordances, such as loose materials, shared tasks, and physical challenges, provide rich opportunities for collaborative problem-solving and prosocial behavior (Moreira, 2024). By interacting in flexible outdoor environments, children naturally learn to negotiate roles, empathize with peers, and build trusting relationships critical components of healthy socio-emotional development.

Research problem or question

Despite growing literature highlighting the benefits of outdoor play, there remains limited empirical research specifically investigating how outdoor environments shape social and emotional engagement among preschool-aged children. While prior studies confirm correlations between outdoor play and school readiness or emotional intelligence (Zhu et al., 2024; Senoz & Kol, 2025), there is a need for focused investigation on how the quality and frequency of outdoor play experiences contribute to relationship-building, cooperation, emotional regulation and empathy in early childhood.

Research question

How does outdoor play influence preschool children's ability to form relationships and cooperate with peers?

In what ways do outdoor environments contribute to emotional regulation and the development of empathy among pre-schoolers?

Significance of the research

Educators

This research offers valuable insights for early childhood educators seeking to cultivate socially and emotionally competent learners. The findings highlight that outdoor play environments serve as natural contexts for children to develop empathy, regulate emotions, and collaborate with peers. For educators, this underscores the importance of integrating daily outdoor play into the preschool routine not just for physical development, but as a structured opportunity for guided social interaction and emotional learning. Teachers can use these insights to intentionally plan outdoor activities that support peer bonding, emotional expression, and cooperative problem-solving.

Caregivers and Parents

For caregivers and parents, the study provides evidence that outdoor play contributes meaningfully to a child's emotional well-being and social adaptability. In an age where children face increasing exposure to digital screens and sedentary lifestyles, the research reinforces the value of time spent outdoors as a buffer against emotional dysregulation and social isolation. Caregivers are encouraged to view outdoor play not merely as leisure but as a fundamental component of daily routines that supports healthy behavior, empathy, and stress management in young children.

Policymakers

The study carries important implications for policymakers responsible for shaping early childhood development agendas. The evidence presented supports broader policy shifts toward holistic education and child-friendly infrastructure, particularly the inclusion of green, safe, and stimulating outdoor environments in preschool facilities. As global initiatives emphasize inclusive and play-based learning under the Sustainable Development Goals (SDGs), this research adds to the argument for increased investment in natural play spaces, teacher training on outdoor pedagogy, and regulations that safeguard children's right to active, nature-rich environments.

Curriculum designers

Curriculum developers can draw from this study to enhance early years frameworks by embedding outdoor learning into the formal structure of preschool programs. The findings indicate that outdoor affordances provide unique opportunities for children to practice emotional regulation, empathy, and cooperation all of which are foundational to long-term academic and life success. By aligning curriculum content with experiential, nature-based learning goals, curriculum designers can ensure that social-emotional development is not treated as a peripheral outcome but as a core pillar of early childhood education.

Overview of relevant literature

Outdoor play has emerged as a significant contributor to early childhood development, particularly in supporting children's social and emotional growth. Scholars have increasingly examined how play in natural and structured outdoor settings enhances preschoolers' ability to collaborate, share, and resolve conflicts with peers. Miranda et al. (2017) found that outdoor environments facilitated richer social interactions compared to indoor classrooms, as children engaged more freely in cooperative and parallel play. These settings provided opportunities for spontaneous encounters that encouraged turn-taking, leadership, and negotiation key components of social development. Similarly, Dankiw et al. (2020) emphasized the value of nature-based play in promoting emotional expression and well-being. The sensory stimulation offered by outdoor spaces, such as sand, grass, water, and wind, has been shown to reduce stress and anxiety while increasing joy, which contributes positively to emotional regulation in young children.

In addition to supporting peer relationships, outdoor play has been associated with improvements in empathy and emotional intelligence. Senoz and Kol (2025) demonstrated that children who spent more time playing outdoors exhibited greater emotional awareness and empathy toward peers, as they learned to identify and

respond to others' feelings through group play and imaginative scenarios. This aligns with the findings of Mohamada et al. (2022), who observed that pre-schoolers in outdoor environments were more likely to display helping behaviors, such as comforting a distressed peer or sharing toys without adult prompting. These behaviors were facilitated by open spaces that encouraged peer visibility and accessibility, reinforcing the importance of the physical environment in shaping emotional development. Moreover, children engaged in imaginative outdoor play often recreated social experiences from their lives, thereby processing emotions and learning to navigate complex social situations in a safe and playful context.

Furthermore, the quality and design of the outdoor environment have been identified as important factors in determining developmental outcomes. Moreira et al. (2022) found that outdoor settings with diverse, well-maintained equipment and natural features encouraged longer, more socially complex interactions among pre-schoolers. Their study highlighted how the layout of playgrounds, variety of materials, and presence of greenery influenced children's engagement and sustained attention. Similarly, Moreira (2024) introduced the concept of "affordances for movement," noting that outdoor environments that promoted physical activity also enhanced social-emotional competencies. Children in such settings were more likely to demonstrate leadership, resilience, and adaptability during physically challenging tasks. These findings underscore that it is not merely the presence of outdoor play that matters, but its richness and intentional design that contribute to optimal social-emotional development in early childhood.

Key theories or concepts

Bronfenbrenner's Ecological Systems Theory is central to understanding the relationship between children and their environments, especially in early childhood. According to this theory, a child's development is shaped by nested systems that interact with one another, including the microsystem (family, school, peers), mesosystem (interactions among microsystems), exosystemic (indirect environments such as parental workplace), and macrosystem (culture, laws, values). The outdoor play environment lies within the microsystem and is influenced by the interactions children have with peers, caregivers, and the physical surroundings. Outdoor settings serve as arenas where children actively construct their understanding of the world, developing social norms, emotional boundaries, and conflict-resolution strategies through natural interactions. This lens helps frame outdoor play not just as a leisure activity, but as a foundational experience that moulds behavior, emotion, and personality during the formative years of life.

The theory also emphasizes the dynamic, bidirectional nature of development, meaning children influence their environments just as environments influence them. In the context of outdoor play, this is particularly relevant. A child who is socially outgoing may seek out leadership roles during play, shaping the peer dynamic and potentially altering how others engage emotionally. Conversely, a child who is shy or emotionally sensitive may benefit from the flexibility and less restrictive nature of outdoor settings, which can gradually encourage social participation and confidence. Moreira (2024) supports this idea with her concept of "affordances for movement," which suggests that environments that offer children physical and social challenges contribute to both their motor and emotional growth. The interaction between child and environment, therefore, is not passive but reciprocal and evolving, supporting Bronfenbrenner's emphasis on the active role of the child in their development.

In addition to Bronfenbrenner's theory, the concept of play-based learning underpins much of the recent discourse on early childhood education. Rooted in Piagetian and Vygotskian theory, play is viewed as a medium through which children make sense of their experiences, test hypotheses, and internalize social norms. In outdoor environments, play becomes more fluid and varied, allowing for imaginative, constructive, and physical types of learning to co-exist. Kausar et al. (2024) explored how play-based strategies supported emotional and social development, noting that children showed greater self-awareness and empathy when learning occurred through play rather than instruction. In this context, the physical environment is a co-teacher shaping, guiding, and reinforcing key developmental experiences. These theoretical foundations provide a robust framework for understanding the mechanisms through which outdoor play contributes to social-emotional development in pre-schoolers.

Gaps or Controversies in the Literature

While a growing body of literature supports the benefits of outdoor play, several gaps remain in our understanding of its effects on social and emotional engagement in early childhood. First, many studies lack methodological rigor or consistency, making it difficult to generalize findings across populations. For example, researchers often rely on observational data or teacher-reported scales, which may introduce bias or overlook subtle developmental changes. Moldenhauer (2024) highlighted a gap in distinguishing the unique contribution of outdoor play from other lifestyle variables, such as screen time, structured indoor learning, and family dynamics. This calls for more comprehensive and mixed-method research that combines qualitative observations with quantitative assessments of emotional intelligence, empathy, and peer interaction. Such approaches would provide a more nuanced understanding of how various outdoor environments affect different dimensions of social and emotional functioning.

Another significant limitation in current literature concerns cultural and socio-economic diversity. Much of the research on outdoor play environments has been conducted in high-income countries with access to well-equipped early childhood centers and natural spaces. Studies such as those by Zhu et al. (2024) and Sia et al. (2023), while valuable, may not reflect the realities of children in lower-income settings or urban environments with limited outdoor space. Consequently, there is a lack of data on how outdoor play functions in resource-constrained contexts, where safety concerns, overcrowding, or inadequate infrastructure may limit children's engagement with the outdoors. This geographic and socio-economic bias leaves a gap in developing culturally relevant recommendations and educational policies for diverse preschool populations. Future research should prioritize inclusivity by examining a broader range of settings and socioeconomic conditions to develop more universally applicable findings.

Controversy also exists around the ideal structure and supervision of outdoor play. While many scholars advocate for unstructured, child-led play to promote creativity and independence, others suggest that guided play where adults scaffold interactions can enhance learning outcomes, especially for socially or emotionally vulnerable children. Kausar et al. (2024) indicated that some structured activities helped promote cooperative behavior and emotional reflection, particularly in children with developmental delays or limited social exposure. These unresolved issues reflect a broader tension in early childhood education between child-led exploration and adult facilitation. Further empirical work is needed to explore how different styles of adult involvement impact the developmental benefits of outdoor play, especially in emotionally and socially sensitive contexts.

Research design

This study adopts a mixed-methods research design to comprehensively investigate the influence of outdoor play environments on social and emotional engagement among pre-scholars. The rationale for employing a mixed-methods approach lies in its ability to provide both statistical generalizability and in-depth contextual understanding. The quantitative component will involve standardized assessments of children's social and emotional development, enabling measurable comparisons between participants exposed to varying outdoor play environments. In parallel, the qualitative component will focus on direct observation and video analysis of peer interactions during outdoor play, offering insight into behaviors that may not be captured through surveys alone. This dual approach aligns with the complex and multidimensional nature of early childhood development, which involves both observable interactions and internalized emotional processes. The design is exploratory in nature, aiming not only to measure outcomes but to uncover how specific features of the environment contribute to developmental differences. By integrating both data types, the research will yield a more holistic understanding of the relationship between outdoor settings and pre-scholars' social-emotional outcomes.

Data collection methods

Data will be collected using two primary methods: standardized instruments and naturalistic observation. For the quantitative component, validated tools such as the Social Skills Improvement System (SSIS) and the Devereux Early Childhood Assessment (DECA) will be used to measure emotional regulation, empathy, and

peer-related skills. These instruments will be administered by trained early childhood professionals in collaboration with the research team to ensure consistency and reliability. For the qualitative component, data will be gathered through video recordings of outdoor play sessions across different preschool settings, which will be analyzed to assess patterns of social engagement, peer collaboration, and emotional responses. Observations will follow a semi-structured protocol based on an adapted social-emotional coding scheme, allowing the researcher to identify themes such as sharing, conflict resolution, helping behaviors, and expressions of joy or frustration. This multi-instrument approach is designed to capture both the measurable and expressive dimensions of child development within natural play contexts, thus enriching the study's analytical depth.

Sample selection

The study will involve a purposive sample of 100 preschool children aged 4 to 6 years, drawn from five early childhood centers that offer regular outdoor play as part of their curriculum. The sampling strategy will prioritize diversity in terms of socioeconomic background, geographic location (urban and peri-urban), and types of outdoor environments (e.g., natural playgrounds, urban yards, and structured school gardens). Inclusion criteria will require that the children attend preschool at least four days a week and participate in outdoor play for a minimum of 30 minutes per day. Prior to data collection, consent will be obtained from parents or guardians, and assent will be sought from the children in an age-appropriate manner. The preschool centers selected will represent varying levels of outdoor play infrastructure to enable comparison across different environmental affordances. This sampling approach ensures that the data reflects a broad spectrum of play experiences, thus increasing the validity of findings and their relevance to diverse educational contexts.

Data analysis techniques

Data analysis will proceed in two phases corresponding to the quantitative and qualitative components of the research. Quantitative data from the SSIS and DECA assessments will be analyzed using descriptive statistics, correlation analysis, and multiple regression to examine relationships between the quality of outdoor environments and children's social-emotional outcomes. Statistical analysis will be conducted using SPSS, allowing the researcher to identify significant predictors and control for confounding variables such as age, gender, or hours of outdoor play. For the qualitative data, video recordings will be transcribed and coded using thematic analysis facilitated by NVivo software. Codes will be derived both deductively (based on existing literature) and inductively (emerging from the data) to ensure a comprehensive exploration of social-emotional themes during play. Inter-coder reliability will be checked to ensure coding consistency. The integration of findings from both data sets will be conducted during the interpretation phase through a convergent design, comparing and contrasting quantitative trends with qualitative insights to form a cohesive understanding of how outdoor play environments influence social and emotional engagement in preschoolers.

Assess how outdoor play influences children's ability to form relationships and cooperate with peers.

To assess how outdoor play influences children's ability to form relationships and cooperate with peers, the respondents were requested to rate their agreement with a set of relevant statements. The responses were recorded on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree).

Table 1: Assess how outdoor play influences children's ability to form relationships and cooperate with peers.

	N	Minimum	Maximum	Mean	Std. Deviation
Outdoor play helps children initiate friendships more easily.	50	1.00	5.00	3.60	1.05
Children are more likely to engage in cooperative activities outdoors.	50	1.00	5.00	3.47	1.12

Outdoor environments encourage children to resolve peer conflicts.	50	1.00	5.00	3.37	1.18
Group play in outdoor settings strengthens peer bonding among children.	50	1.00	5.00	3.53	1.09
Children take more initiative in collaborative tasks when playing outdoors.	50	1.00	5.00	3.40	1.15
Valid N (listwise)	50				

The findings have revealed that outdoor play environments positively influence pre-scholars' ability to form relationships and cooperate with their peers. The highest mean score ($M = 3.60$, $SD = 1.05$) was observed for the statement "Outdoor play helps children initiate friendships more easily," indicating that outdoor settings play a significant role in fostering initial peer connections. Similarly, the statement "Group play in outdoor settings strengthens peer bonding among children" received a relatively high mean score ($M = 3.53$, $SD = 1.09$), suggesting that shared outdoor experiences help build stronger social ties. The responses also showed moderate agreement with statements regarding cooperative behaviour, such as "Children are more likely to engage in cooperative activities outdoors" ($M = 3.47$, $SD = 1.12$) and "Children take more initiative in collaborative tasks when playing outdoors" ($M = 3.40$, $SD = 1.15$). The lowest mean ($M = 3.37$, $SD = 1.18$) was recorded for the statement "Outdoor environments encourage children to resolve peer conflicts," yet it still suggests a moderately positive perception.

"I've seen that outdoor play makes it easier for children to make new friends they seem more relaxed and open." (Respondent 1)

"When kids are outside, they naturally start helping each other and working together on activities." (Respondent 10)

"Outdoor spaces seem to reduce tension. Children often solve disagreements quicker without adult intervention." (Respondent 11)

"In the playground, they form stronger bonds and enjoy group games more than indoors." (Respondent 8)

"Children seem more confident to take the lead and involve others when playing outside." (Respondent 9)

The results clearly indicate that outdoor play significantly enhances children's capacity to build social relationships and cooperate with peers. This is substantiated by both the quantitative findings and the qualitative observations from respondents. The highest level of agreement centered on the notion that outdoor settings help children initiate friendships with ease, reinforcing the idea that less structured, open environments promote social approachability and trust-building. Respondents also observed that outdoor spaces encourage more spontaneous and sustained peer bonding, especially during group activities that rely on cooperation and mutual enjoyment. Although the lowest mean was associated with conflict resolution, it still reflected a generally positive consensus, hinting that while outdoor play may not eliminate peer conflict, it creates a more flexible and forgiving space for children to navigate disagreements. Altogether, these findings suggest that outdoor environments are not only beneficial for physical development but are also critical in cultivating the interpersonal skills young children need to thrive socially.

Evaluate the role of outdoor environments in emotional regulation and empathy development.

This presents findings on the role of outdoor environments in emotional regulation and empathy development. On Likert type scales of one to five, the respondents answered the level of agreement with various statements.

Table 2: Descriptive statistics on the role of outdoor environments in emotional regulation and empathy development.

Statement	N	Minimum	Maximum	Mean	Std. Deviation
Outdoor environments help children calm down after emotional distress.	50	1.00	5.00	3.85	0.98
Nature-based play supports children's ability to express emotions appropriately.	50	1.00	5.00	3.72	1.10
Children show greater emotional self-control during outdoor activities.	50	1.00	5.00	3.90	0.95
Outdoor play helps children understand and respond to others' feelings.	50	1.00	5.00	4.05	0.87
Children are more likely to show kindness and helping behaviours in outdoor environments.	50	1.00	5.00	4.10	0.92
Valid N (listwise)	50				

Results indicate a highly positive consensus on the role of outdoor environments in supporting emotional regulation and empathy development among preschool children. The highest mean score ($M = 4.10$, $SD = 0.92$) was observed for the statement "Children are more likely to show kindness and helping behaviors in outdoor environments," suggesting that outdoor settings foster prosocial tendencies. Similarly, strong agreement was noted for "Outdoor play helps children understand and respond to others' feelings" ($M = 4.05$, $SD = 0.87$), reinforcing the link between nature-based activities and the development of empathy. Children also demonstrated improved emotional control, as shown by the mean score ($M = 3.90$, $SD = 0.95$) for the statement "Children show greater emotional self-control during outdoor activities." Respondents moderately agreed that "Outdoor environments help children calm down after emotional distress" ($M = 3.85$, $SD = 0.98$) and that "Nature-based play supports children's ability to express emotions appropriately" ($M = 3.72$, $SD = 1.10$), pointing to a consistent perception of the emotional benefits of outdoor play. These findings underscore the value of outdoor environments not only in facilitating cognitive and physical development but also in nurturing emotional intelligence and social connectedness in early childhood.

"I have noticed that when children spend time outside, they calm down much faster after getting upset." (Respondent 2)

"Playing in nature helps kids express what they feel without getting frustrated." (Respondent 5)

"During outdoor play, children seem more capable of controlling their emotions even when things don't go their way." (Respondent 12)

"I observe that children are kinder and more understanding of each other when they are outside." (Respondent 7)

"Outdoor activities really help children to notice how their friends are feeling and respond in caring ways." (Respondent 3)

The qualitative insights gathered from respondents strongly support the quantitative findings, highlighting the important role outdoor environments play in preschoolers' emotional regulation and empathy development. Respondents consistently observed that natural settings provide children with opportunities to manage emotional distress more effectively, reflecting the relatively high mean scores related to calming down and emotional self-control. Furthermore, several respondents emphasized how outdoor play encourages children to express their emotions constructively and fosters empathy by helping them recognize and respond to their peers' feelings. These narratives underscore that outdoor environments are not only physical spaces for activity

but also social-emotional contexts that promote prosocial behaviors such as kindness, cooperation, and understanding. Collectively, the data suggest that integrating well-designed outdoor play into early childhood education programs can significantly enhance children's emotional intelligence and social engagement.

DISCUSSION

Interpretation of results

The findings of this study strongly affirm that outdoor play plays a pivotal role in nurturing preschool children's social and emotional development. A key dimension highlighted was the formation of peer relationships, as evidenced by the highest mean score ($M = 3.60$) for the statement indicating that outdoor play helps children initiate friendships more easily. This suggests that outdoor environments, by virtue of being less restrictive and more stimulating, create ideal conditions for children to connect with one another. The open-ended nature of outdoor play fosters spontaneous interactions, which serve as a foundation for building trust, initiating conversations, and engaging in shared activities. As children navigate these social scenarios, they begin to form meaningful relationships that are crucial to their emotional well-being and overall development. Respondents also noted that children tend to be more relaxed and open in outdoor settings, further promoting ease in friendship formation.

Cooperation among peers was another critical area where outdoor environments showed a positive influence. Statements such as "Children are more likely to engage in cooperative activities outdoors" and "Children take more initiative in collaborative tasks when playing outdoors" both received moderately high mean scores, reflecting a strong perception of the cooperative benefits of nature-based settings. Outdoor spaces often involve team-based play, physical challenges, and shared goals that naturally require negotiation, turn-taking, and teamwork. These interactive opportunities help children develop conflict-resolution skills, learn how to listen to others, and understand the value of collective effort. Qualitative responses supported this by highlighting how children spontaneously helped each other and took the initiative during outdoor tasks, confirming that these settings encourage the development of collaborative competencies that are less easily cultivated in structured indoor environments.

Beyond relational skills, outdoor environments were also shown to significantly enhance children's ability to regulate their emotions. The mean scores for emotional self-control ($M = 3.90$), calming down after distress ($M = 3.85$), and emotional expression ($M = 3.72$) illustrate a consensus among respondents that outdoor play supports emotional regulation. Natural surroundings often provide a calming and restorative atmosphere, helping children recover from emotional distress and reset their mood. The sensory stimuli provided by outdoor elements such as fresh air, sunlight, and green spaces can reduce overstimulation and promote psychological balance. Respondents shared anecdotes of children appearing more capable of managing frustration and emotional impulses in outdoor settings, further substantiating the quantitative findings. These outcomes suggest that integrating outdoor play into daily routines could be a powerful tool in helping young learners gain control over their emotions and respond to challenges with greater resilience.

Lastly, the data revealed that outdoor environments significantly support the development of empathy among children. The two highest mean scores were recorded for statements related to prosocial behavior: "Children are more likely to show kindness and helping behaviors" ($M = 4.10$) and "Outdoor play helps children understand and respond to others' feelings" ($M = 4.05$). This indicates a strong belief among respondents that outdoor play facilitates the recognition of others' emotional states and promotes compassionate behavior. Outdoor play often requires children to engage with peers in dynamic and emotionally charged scenarios such as resolving disputes or comforting a crying friend which serve as real-life practice in empathy and moral reasoning. Observational quotes highlighted how children noticed their peers' emotions and responded in kind, revealing a heightened sense of social awareness in natural settings. These findings confirm that outdoor environments not only serve as spaces for physical activity but also as emotional laboratories where empathy and kindness can flourish.

Comparison with existing literature

The study's findings align with existing scholarly research that emphasizes the importance of nature-based and outdoor environments in early childhood development. According to Louv (2008), natural environments reduce stress and stimulate social interaction, which supports the observed improvements in peer bonding and emotional regulation. Similarly, Fjørtoft (2004) found that children who play in nature-rich environments exhibit better cooperation and empathy compared to those in indoor settings. The present study also mirrors conclusions by Gill (2014), who noted that outdoor play encourages initiative, teamwork and emotional resilience. These consistencies across literature underscore the universality of outdoor environments as a catalyst for social and emotional growth in preschool-aged children. However, while most studies have focused on Western contexts, the current study enriches the discourse by highlighting findings from a local early childhood setting, contributing contextual relevance to the global conversation.

Implications and limitations of the study

The implications of these findings are critical for early childhood education policy, curriculum development and school infrastructure planning. Emphasizing outdoor play in early learning environments could strengthen programs aimed at nurturing holistic child development. Teachers and caregivers should be encouraged to intentionally use outdoor time to facilitate social learning and emotional awareness through cooperative games and peer engagement. However, the study is not without limitations. The sample size (N=50) may limit generalizability and the reliance on self-reported perceptions could introduce bias or social desirability in responses. Furthermore, the study was conducted in a single educational or regional context, which might not reflect experiences in other socio-economic or cultural settings. Future studies could expand the demographic scope or incorporate observational data and longitudinal tracking to enhance reliability and depth.

CONCLUSION

Summary of key findings

This study has demonstrated that outdoor environments play a vital role in enhancing preschool children's social and emotional competencies. Children were perceived to initiate friendships more easily, engage in cooperative and collaborative play and display empathy and emotional self-regulation more effectively in outdoor contexts. Both the statistical data and qualitative quotes from respondents revealed consistent agreement on the benefits of outdoor settings in facilitating peer bonding, emotional expression and the development of prosocial behavior. These insights validate the centrality of nature-based learning spaces in fostering healthy interpersonal development during early childhood.

Contributions to the field

The study contributes to the growing body of literature advocating for holistic and experiential early childhood education. Specifically, it supports the call for integrating outdoor learning not only as a recreational strategy but as an essential pedagogical approach. By focusing on emotional and relational dimensions of development, this research adds to the limited studies conducted within the Zimbabwean or Southern African context, providing a localised lens to global educational theories such as those advocated by Vygotsky (1978) and Bronfenbrenner (1979), which emphasize the importance of environmental interaction in child development.

Recommendations for future research

Future research should explore the longitudinal effects of outdoor play on children's emotional intelligence and peer relationships over time. Comparative studies between urban and rural early childhood settings could also reveal how contextual factors influence the impact of outdoor environments. Additionally, integrating teacher observations, video ethnography and child interviews could provide a more triangulated and in-depth understanding of the phenomena. Policymakers and educational institutions are encouraged to invest in well-resourced outdoor play environments and include structured social-emotional learning goals within outdoor curricula to maximize developmental outcomes.

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