Fort-ifying Outdoor Play

Perspectives of Active Play and Physical Literacy in an After-School Outdoor Loose Parts Play Intervention

Julie E. Campbell, Maggie Locke, Nila Joshi, Michelle R. Stone, and Becky Feicht

The authors review the impact of outdoor loose parts play on school-aged children in Canada, considering the after-school, outdoor nature of this play from the perspectives of both staff and children and how it influenced children's physical activity and physical literacy. The authors used qualitative data from three sites to develop four themes: unique opportunities for joy and engagement with loose parts; adaptable and creative play in loose parts landscapes; new and diverse movement with outdoor loose parts; and nurturing mindful movement through outdoor loose parts play. They conclude that supporting such outdoor play fosters physical literacy and increases physical activity in school-aged children. **Key words:** after-school programs; loose parts play (LPP); physical activity (PA); physical literacy (PL)

Background

Play is critical for child development and has been emphasized as a right for all children by the United Nations Convention on the Rights of the Child (United Nations 1989). Contemporary movement behavior guidelines (Tremblay et al. 2016; World Health Organization 2020) and assessments (ParticipACTION 2024) and the recent 2025 "Position Statement on Active Outdoor Play" (E.-Y. Lee et al. 2025) further underscore the importance of unstructured, active play, particularly outdoors, as a key contributor to children's physical activity (PA) and overall well-being (Dankiw et al. 2020). However, the decline in outdoor play and PA in Canada and worldwide has been well documented (Neville et al. 2022; ParticipACTION 2024), as has the associated decline in children's health and well-being (Stone and Faulkner 2014; Herrington and Brussoni 2015; Brussoni et al. 2015). This evidence highlights the increasing importance of helping children engage in such activities.

American Journal of Play, volume 18, number 2 © 2026 The Strong
Contact Becky Feicht at becky.feicht@dal.ca

Physical literacy (PL) encompasses the affective (motivation and confidence), behavioral (engagement in lifelong PA), cognitive (knowledge and understanding), and physical (physical competence) components (Higgs et al. 2019) essential for lifelong PA (Cairney et al. 2019). Fundamental movement skills, the building blocks of movement, fall within PL and include locomotor (e.g., running), manipulative or object control (e.g., throwing), and stability (e.g., balancing) skills (Barnett et al. 2016). Developing fundamental movement skills and PL through engaging in unstructured activities is widely recognized as vital for children's health and development (Cairney et al. 2019). Unstructured outdoor play uniquely supports fundamental movement skills and PL by promoting autonomy, social skills, and independent decision making (Dankiw et al. 2020; Gibson et al. 2017; Herrington and Brussoni 2015; McCormack et al. 2024; Tremblay et al. 2015). Therefore, we find it essential to examine the factors that support PL and PA during the early years so we can produce effective, developmentally appropriate interventions.

Loose parts play (LPP), a form of unstructured play often occurring outdoors, involves open-ended natural or manufactured materials that encourage creativity, problem solving, and experimentation (Gibson et al. 2017; Gull et al. 2019; Nicholson 1971). Originating from Nicholson's (1971) "theory of loose parts," LPP is grounded in the idea that play environments with variable, moveable materials offer greater opportunities for creativity and invention because children can manipulate, combine, redesign, and repurpose materials in multiple ways. Loose parts refer to items of any size without a fixed purpose, such as sticks, logs, fabric, tires, crates, planks, ropes, tubes, or recycled materials, that can be transported, combined, taken apart, and reassembled (Gull et al. 2019; Houser et al. 2016; Nicholson 1971; Sutton 2011). Importantly, there are distinctions between small loose parts, like stones and pinecones, that primarily engage fine motor skills and large loose parts, like planks and tires, that require whole-body coordination and gross motor skills (England 2019). Unlike many traditional toys, including block or constructive play, loose parts are nonprescriptive and do not imply a specific outcome or predefined form of play, allowing children to direct the play narrative, assign meaning to materials, and adapt the environment to their evolving ideas (Gull et al. 2019; Sutton 2011).

LPP has been associated with aspects of social play and engagement, although evidence for cognitive and broader socio-emotional outcomes remains limited (Cankaya et al. 2023; Cankaya, Martin, et al. 2025; Cankaya, Rohatyn-Martin et al. 2025; Dias Rodrigues et al. 2023; Flannigan and Dietze

2018; Gibson et al. 2017; Houser et al. 2016; Spencer et al. 2019). On the other hand, research about block play, in which blocks are often reported as loose parts (Cankaya, Martin, et al. 2025) has established substantial evidence concerning its benefits for many areas of child growth and development (Tian et al. 2019; Hanline et al. 2010). LPP has also been associated with physical development, PA, and PL, including confidence and motivation (Branje et al. 2021; Caldwell et al. 2023; Gibson et al. 2017; Houser et al. 2016; Naish et al. 2023; Spencer et al. 2019, 2021). These constructive and socially mediated play experiences find conceptual grounding in social-constructivist theories of development, especially Piaget's emphasis on active exploration, imitation, and discovery (Piaget 1962) and Vygotsky's view of learning as socially constructed through interaction with others and the environment (Vygotsky 1967). This provides a theoretical foundation for our reflexive exploration of participants' contextualized experiences in play.

While many loose parts interventions have occurred in early childhood settings (Cankaya et al. 2023; Dias Rodrigues et al. 2023; Houser et al. 2016; R. L. T. Lee et al. 2020), including the precursor to the current study (Branje et al. 2021; Caldwell et al. 2023; Houser et al. 2019; MacQuarrie et al. 2022; Spencer et al. 2019, 2021), few have examined school-aged children (Bundy et al. 2015; Eichengreen et al. 2024; Engelen et al. 2018; Gibson et al. 2017; Pereira et al. 2023), especially in Canada, despite the need to extend interventions to this group and include them as active research participants. Children spend most waking hours at school, where time for unstructured outdoor play and PA is limited (Trost et al. 2008). After-school programs, (or out-of-school care, or school-aged child care [Van Rooijen et al. 2023]) are increasingly popular as they provide safe, supportive environments (Durlak and Weissberg 2007) and opportunities for PA, including unstructured outdoor play (Beets et al. 2009). Maximizing the impact of these programs can enhance existing PA opportunities.

Adults greatly influence children's play outcomes, ranging from gatekeeper to playmate (Alden and Pyle 2019). In schools, staff perceptions of and engagement with loose parts affect students' experiences (Grady-Dominguez et al. 2021), making it essential to capture staff perceptions in after-school settings. Involving children in participatory research also ensures their perspectives are represented (which is often overlooked), giving children agency in sharing their thoughts about something they are experts on (play), and provides deeper insights into the intervention's impact (Burke et al. 2024; Van Rooijen et al. 2023). There has also been a growing field-wide recognition of the value

of qualitative, participatory, and creative methods research in education and child development, because they are especially effective for children, offering greater freedom and control in providing answers than more confined surveys or tests (Harcourt and Einarsdottir 2011; Pawlowski et al. 2018). Such methods also help us understand complex, context-dependent phenomena that are not easily captured through quantitative methods alone (Olsen 2025; Darbyshire et al. 2005).

To better understand the benefits of outdoor LPP for children's health and development, this study used qualitative participatory methods to capture both children's and staff members' perspectives. Specifically, the study aimed to explore how an after-school outdoor LPP intervention influenced children's PA and PL.

Methods

Study Context

This study draws on data from the Physical Literacy in the Early Years (PLEY) school project, a multimethods evaluation of a six-week, outdoor LPP intervention delivered in three after-school programs in Nova Scotia, Canada (May to July 2022). Programs served children aged three to twelve years (preprimary to grade 6) and were selected to reflect diversity in location (urban or suburban) and in socioeconomic status. The project examined the impact of outdoor LPP on children's PA and PL using a range of methods, including accelerometry, behavioral mapping, interviews, focus groups, photo documentation and elicitation, and go-along interviews with program staff, children, and parents or care givers. We report specifically on the qualitative components of the larger study, centering lived experiences and children's voices, with analyses based on qualitative data from children and program staff. The Dalhousie University research ethics board provided ethical approval, and we obtained informed consent (written consent from staff and parents, verbal assent from children) from all participants before our research staff began data collection.

As part of the larger study, before the intervention, staff completed brief webinars (seven to fourteen minutes each) on outdoor play, loose parts, PL, fundamental movement skills, and risky play, plus a one-hour virtual training introduction to the project and its study expectations. We then spent two weeks collecting baseline quantitative PA data, followed by six weeks of outdoor loose parts play and two weeks of final data collection within the intervention period

(weeks 5 and 6, quantitative and qualitative). Staff completed qualitative photo documentation forms throughout the six-week outdoor LPP intervention. For the intervention period, each site received the same loose parts kit containing mainly medium to large loose parts (e.g., tree cookies, pool noodles, tarps, logs, balls, pipes, tubes, wooden planks and spools, rope, buckets, hula hoops, and tires). We selected these in consultation with site directors and according to outdoor LPP literature, ensuring diversity in natural and manufactured materials to create greater affordances for play. Children freely used these materials during outdoor play throughout the intervention. Our analyses draw on qualitative data collected during and near the end of the intervention period.

The three sites varied widely. Site A, located in a suburban school and recreation center, offered a large green space with trees, and the program had some prior experience with outdoor LPP. Site B, in a lower socioeconomic area, was a suburban recreation center affiliated with a charitable organization dedicated to supporting children and youth and had limited green space and an asphalt court. Its after-school program provided outdoor free play alongside structured activities like tag and race games but had limited outdoor LPP. Site C, a private school in an urban core, had two fenced outdoor play spaces for its after-school program. At this site, one space for children aged six through twelve years featured trees, a large, man-made hill, wooden logs, and a large, paved area, but no formal play structures. The other space for children aged three to five years offered a fixed playground on gravel with some surrounding trees and bushes. Although this site had minimal prior outdoor LPP, outdoor education and outdoor time constituted key pillars of the school's mission.

Our Approach

This study pulls together qualitative data from staff focus groups and photo documentation with child go-along interviews and photo elicitation interviews. We grounded our approach in a relativist ontology and constructivist epistemology (Braun and Clarke 2022; Creswell 2018). We do not subscribe to notions of singular realties and understand meaning making as highly localized and contextualized (Braun and Clarke 2022; Creswell 2018). We further describe our reflexive thematic analysis approach, but by way of introduction, we recognize and value our positions as an active part of the development and production of this research. The broader PLEY school research team is led by researchers from a wide variety of personal and disciplinary backgrounds. Our qualitative analysis involved the coprincipal investigators and a number of research staff.

At the outset of this work, we met as a team to discuss our positions and reflexivity. Our qualitative team was composed of all women, mostly white, and relatively able-bodied, with some diversity in invisible and learning disabilities. We varied widely in age and knew we had different generational perspectives on play, on engagement with the outdoors, on sports, and on school structures. Members of our team had educational backgrounds in early childhood education, kinesiology, and health promotion. We shared a variety of experiences and relationships with children and child care: a couple of us were mothers, many of us were from large families, and all of us had engaged in employment or volunteerism related to children and youth, including coaching, recreation, and early childhood education. We discussed at the outset how these perceptions inform our approach, and we continued the discussions and reflections as the analysis developed.

Participants and Data Collection

We invited all staff at the three sites to submit photo documentation forms and join focus groups. Nine staff submitted photo documentation forms, each documenting children's outdoor play, the loose parts that were used and how they were used, the staff's reflections on LPP's connection to PL (children's motivation, confidence, and competence to move) and which fundamental movement skills (i.e., locomotor, manipulative, stability) were displayed. In total, staff from the three sites submitted fifty photo documentation forms. Near the end of the intervention, one staff member from each site took part in an in-depth interview to discuss the photos and how the children were using the loose parts in the photos. Fifteen staff members, including program directors, trained early childhood educators, and student staff, participated in focus groups toward the end of the intervention (two to seven participants per site). These hour-long focus groups explored staff experiences with the intervention, children's engagement, and perceived effects on children's PA and PL. Sites A and B held focus groups in person, while site C's focus group was conducted virtually; all were audio recorded and transcribed.

For the child data, eleven children (three to four per site) participated in go-along interviews toward the end of the intervention. In these participatory interviews, the researcher accompanied children through their outdoor play spaces, inviting them to show where they liked to play, which loose parts they used, and why. This method helped center children's perspectives and reduce adult-child power dynamics by allowing children to guide the conversation in familiar contexts (Carpiano 2009; Pawlowski et al. 2018). Additionally, sixteen

children (three to seven per site) took part in photo elicitation interviews. They used child-friendly (VTech Kidizoom) cameras to capture photos and short videos of favorite loose parts and play spaces. These images then served as prompts in small group, twenty- to thirty-minute interviews, in which children described what they photographed and why these places or materials mattered to them. We audio recorded and transcribed all interviews. Parents completed a demographic survey at the time of consent for their children. For both child data collection activities, there was a mix of gender (boys, girls, nonbinary) and they ranged in age from four to eleven years. See figure 1 for detailed participation information by participant group.

Data Analysis—Reflexive Thematic Analysis

We employed reflexive thematic analysis informed by Braun and Clarke (2022). Although not distinct or linear, the phases of reflexive thematic analysis commonly

Participant group	**Site**	**Number of participants**	**Gender distribution (child data only)**	**Average age (years) (child data only)**
Staff – Photo Documentation Forms	A	5 (36 forms total) (P1=11 forms; P2=5 forms; P3=7 forms; P4=7 forms; P5=6 forms)		
	B	3 (9 forms total) (P1=1 form; P2=7 forms; P3=1 form)		
	C	1 (5 forms)		
Staff – Photo Documentation Interviews	A	1		
	B	1		
	C	1		
Staff – Focus Groups	A	6		
	B	7		
	C	2		
Children – Go-Along Interviews	A	3	2 boys, 1 girl	10.5
	B	4	3 boys, 1 girl	5.0
	C	4	2 boys, 2 girls	5.0
Children – Photo Elicitation Interviews	A	3	2 boys, 1 girl	10.5
	B	6	4 boys, 2 girls	5.4
	C	7	4 boys, 2 girls, 1 non-binary	6.0

Figure 1. Participation by participant group (P above = participant).

include familiarization, coding, theme generation, development, review, and refining. Our analysis took an iterative approach in which members of the research team met regularly to work on our analysis. We reflected on our positions and reflexivity and discussed our approaches to analysis, which we viewed as a spectrum from descriptive to interpretive and experiential to critical. Our approach combined these dimensions but leaned toward the deductive, interpretive, and critical, recognizing that participants (staff and especially children) were unlikely to discuss and conceptualize PL and fundamental movement skills as researchers do, thus requiring our critical analysis and interpretation to make meaning of the data.

Following the initial discussion of our approaches and positions, as part of the phases of reflexive thematic analysis, we engaged in familiarization, asking all members of the team to review all the data (transcripts of staff photo documentation forms and interviews, focus groups and child go-along and photo elicitation interviews, and photos from staff photo documentation and child photo elicitation). We engaged in both immersion and critical questioning, reviewing each piece of data in detail, and stepping back to consider what it might mean in the context of this analysis. As a team, we then iteratively engaged in coding, facilitated by NVivo software (Release 1.7.1., QSR International). We used a team approach in which all data got coded by more than one person to encourage team discussion, reflection, and sharing across perspectives. Our coding reflected our critical deductive approach, coding for elements relevant to our study purpose (Braun and Clarke 2022). Code clusters and initial theme ideas were generated collaboratively by reflecting on our individual coding as a team and exploring potential groupings or patterns of codes relevant to our study purpose. A smaller group of research assistants, led by the study's coprincipal investigators, then engaged in theme refinement and review over multiple sessions, reviewing codes, initial code clusters, and ideas using sticky notes to develop and refine our themes. In alignment with our reflexive approach, we refined themes to ensure each had a central concept and clear boundaries and each represented the richness of our data in response to our study purpose (Braun and Clarke 2022). All members of the team were encouraged to engage in reflexive journaling, and we regularly revisited our reflexive ideas throughout the analysis process.

Results

We developed four themes through our analysis, each of which relates to PA and

specific aspects of PL. Each theme also draws on the example of fort building, which we found was a significant trend throughout the data. The four themes, titled (in brief), Unique Opportunities for Joy and Engagement, Adaptable and Creative Play, New and Diverse Movement, and Nurturing Mindful Movement, are presented below.

Unique Opportunities for Joy and Engagement with Loose Parts

The first theme relates to the affective and behavioral components of PL, including the motivation and confidence to participate in PA for the engaging nature of loose parts. Staff from all sites discussed the fun loose parts offer, with one staff member in focus group B noting: "I find that every day when they go outside that the first thing they're at is the bin and they can't wait to get in there and tear every little last piece out of it." Another staff member from focus group A specifically praised the addition of the loose parts, saying "I have to be honest when I heard the loose parts were coming, I was like okay, yippy, we get the loose parts, [but] it's been amazing." In the go-along interviews, the children also expressed their excitement and seemed enthralled with building play structures, specifically forts, using their loose parts. Children consistently returned to this activity, diving into the bins of materials with excitement and urgency. As one child shared during a photo elicitation interview for the focus group at site B: "Yeah, last day we built a giant fort, it was so fun." (Figure 2 displays a photo taken by the children at site B of one of the forts they built.) These building projects seemed to bring joy, curiosity, and sustained interest to the children's play.

The flexibility of loose parts allows low-barrier engagement in PA that facilitates children trying new things and engaging in active play. A staff member from focus group B noticed that "some of the kids who technically would just sit on the bench and just sit there and not do anything, they're up, they're trying to play, they're trying to build things and get a lot more involved that way." A similar sentiment was expressed during the photo documentation interviews at site C: "The older kids would just kind of find a spot to sit . . . and then I think once these [loose parts] arrived they really enjoyed them. They were more physical for sure." A child at site B discussed during the photo elicitation interviews the open-ended nature of the loose parts: "I like to build forts, [name] built a fort with me and we made beds, we used little tires and wood for a seat and a TV." Because the loose parts play did not have any requirements or prescriptions, it provided options and led to increased participation, breaking up sedentary time and energizing the children's play.

Figure 2. Photo children took of the fort they built at site B

The engagement in building and moving with the loose parts also helped build the children's confidence in active play. As one staff member in focus group C described it, "I think there's been little boosts of confidence, like, within certain things that they're doing or like accomplishments with what they're doing with the loose parts." In focus group B, a staff member similarly noted that "they're more confident to play . . . especially those kids who never used to play. I feel like they don't hesitate to get in there now, and they're just more confident to pick up something from the loose parts and start playing with it, and a lot more confident in joining other kids." The introduction of outdoor LPP provided an opportunity for children to try new things and experiment with their play and movement, building their confidence in taking part.

Adaptable and Creative Play in Loose Parts Landscapes

Our second theme also relates to the affective and behavioral components of PL, specifically the motivational adaptability and creative opportunities offered by loose parts in outdoor play sites and varying play spaces and environments. For example, in one of the photo elicitation interviews at site A, a child discussed loving to use the loose parts in nature: "I like nature and I like going in the woods, so I recorded that because I like the woods and it's nice and quiet." Although loose parts can be used on their own, their incorporation with natural

elements found in outdoor play spaces offered new meanings. As a staff member from focus group A stated: "One little boy . . . said, ' I want to build a house.' And I said, 'Okay, what do you need?' He came up with two boards, so I put them over two rocks, and I said, 'Look, that makes a nice bench.'"

The children also used trees to enhance affordances for outdoor LPP, and figure 3 shows a tree swing a group of children at site A created. Similarly, children at all sites used loose natural materials like dirt along with manufactured loose parts in their play, as one noted during the go-along interviews as site B.

Child: Where is she getting that dirt?
Child: Over there.
Interviewer: I think it's under the tree. So you guys dig the hole, you have a hole that you dig to get the dirt?
Child: Yeah.
Interviewer: Is it hard to dig?
Child: We use like stuff to dig with. (go-along interview B)

Figure 3. Swing built at site A using the environment

Including the loose parts in their outdoor spaces brought new meaning to nature and natural elements, contributing to greater motivation to engage with their spaces

By facilitating children's creativity, loose parts also motivated movement. For example, a staff member during the photo documentation interviews at site A noted that the loose parts sparked creativity, extending children's play by requiring them to engage in PA. "The boys were worried [about] the big hole that was filled with water. They didn't want anyone to fall in so they used the pallet as a bridge. . . . They were so creative." Similarly, the children at site C described during a go-along interview "making birthday cakes" with "wood chips and rocks." Fort building stood out as a highly creative use of loose parts. Motivated by their availability, children used the planks, pallets, tarps, spools, and natural materials to construct these forts, often choosing these structures as the central focus of their play. These creations appeared at all the sites and offered ongoing opportunities to adapt, add on, or rebuild, supporting both imaginative play and physical engagement. As one child declared in a photo elicitation interview at site B, "Someone said go get some wood if you want to join the fort," which highlighted how loose parts supported the creation and continuation of fort-based play over time. A staff member echoed this: "Seeing these spools being used in so many different ways, [it's] like just crazy how the kids get creative with it." The open-ended nature of the loose parts play allowed for a never-ending creativity, accommodating whatever the children's play needs seemed to be, and in doing so, it gave children endless opportunities (and the motivation) to move.

The flexibility and adaptability of the loose parts motivated children by allowing play in different outdoor settings and by meeting varied interests, leading to more inclusive and collaborative play. As one staff member in focus group A put it, "There's something for everyone with the loose parts . . . which is what we always needed, I think. I find that they're doing more play because of it." Staff in focus group B observed how children who might not usually play together, including different age groups and genders, began collaborating: "We have two kids who are in two different groups, [whom we] did not ever see . . . playing together, and last week they literally followed each other and played together with the loose parts. . . . It was really nice to see that five-year-old meet the eight-year-old, and they both just played the whole day together."

The lack of rigidity of loose parts fosters a collaborative spirit where all children feel they can be included in the play and are therefore more motivated to engage in PA.

New and Diverse Movement with Outdoor Loose Parts

The third theme relates to the physical aspect of PL—the development of competence and confidence in various motor skills and movement intensities for engaging in physical activities. One of the highlights of outdoor LPP is that it facilitates new and diverse types of movements. A staff member described in a photo documentation interview at site C how the loose parts provided new opportunities for children to climb, especially when they combined them with features of the outdoor environment: "Maybe the type of climbing they were doing because before the loose parts, they had never used a plank to climb onto the deck or tree." Another staff member, from focus group A, echoed this idea about the value of loose parts for affording new opportunities to climb and move more in general: "I feel like they're doing a variety of movements, yeah. Definitely a lot of climbing, yeah. I think ours definitely are moving a lot."

According to staff from focus group C, the nature of the loose parts and the inclusion of heavier items in the kits, such as wooden planks, pallets, and tubing, provided affordances for children to lift and carry items and, usually, to build their forts or other structures, diversifying their movements: "I think they probably moved differently with them just because it was something different on the playground. So, like before the loose parts they'd do things like running, and then now they're doing things like lifting." A go-along interview at site C mentioned children engaging in new movements such as lifting. A staff member addressed one of the children: "Wow that's so full. Are you going to lift it up? Wow you lifted it up. Good job [name]. Great job." Staff also took photos of the children bending down and lifting loose parts (figure 4).

Beyond offering opportunities for diverse types of movement, the loose parts provided options for varying intensities of movement and breaking up sedentary time. For instance, many children used the parts in imaginative play and enhanced their high-intensity games. As staff in focus group B noted, "You see a lot of kids running around, using [pool noodles] like swords and trying to protect whatever they're imagining. . . . We definitely don't see a lot of that on our day-to-day basis without the loose parts."

Children also used loose parts to build forts and other structures (see figure 5), which demanded moderate- to high-intensity movements such as lifting, crawling, squatting, and climbing. Others were able to include the loose parts in more low-intensity movements, such as balancing on planks (see figure 6) or digging and scooping natural materials into buckets. One child explained making a cake.

Figure 4. Photo taken at Site B of a child lifting a piece of wood

Child: Making birthday cakes, too.
Interviewer: You're making birthday cakes, too? What's going to go in your birthday cake?
Child: Wood chips and rocks. (go-along interview C)

The open-endedness and creativity facilitated by loose parts, motivated the children to disengage from sedentary activities. For example, children who normally might engage in seated activities after school now took part in movement, even at low intensities. As a staff member in focus group B explained, "I find . . . before when we only had the balls, a lot of the kids don't enjoy sports and when we had . . . just the balls and skipping ropes, a lot, especially the little girls just sat out. But now with the kitchen stuff, I see a lot of them more engaged and constantly playing and not wanting to go sit out." The inclusive nature of outdoor LPP was perceived to increase variety in PA intensities, particularly by breaking up sedentary activity.

Last, the types of movements that the children engage in with loose parts are often risky in nature. Children are motivated to take risks in their play, and

Figure 5. Car built out of loose parts at site C

Figure 6. Planks used to balance and walk across and between garden boxes at site B

risky play promotes diverse movements and offers diverse health benefits. Staff from focus group A shared the following example: "I find they usually resort to ramps, anything like things that they can go through or roll down . . . including themselves. Literally they were inside the tires just rolling down the hill." Children also expressed how much they enjoyed risky, outdoor, loose parts play. One child, during photo elicitation interview B, explained that tires were among the most enjoyable items to play with when describing why they chose to photograph them: "Cause I rolled down the tire before." Staff also acknowledged the benefit of loose parts in allowing children to take risks and build confidence in moving through these risky play experiences. For example, when the children created a swing out of loose parts, a staff member watching the children said in photo documentation interview A, "A couple of the boys were a bit reluctant to try the spinning, but they slowly tried and gained the confidence to do something they didn't try before. (In this way . . . they sometimes will spin on a swing but said they felt safer on the swing holding [on to] the bread crate)." These children were trying new things and pushing their limits, resulting in increased confidence in their movements and in themselves.

Nurturing Mindful Movement Through Outdoor Loose Parts Play

The final theme concerns the affective and cognitive domains of PL as related to children's knowledge and understanding of how and why they move their bodies. Through interactions with loose parts, children not only develop physical competence, they also gain an awareness of their bodies and the physical world around them. When creating, say, something like a swing, the children first had to learn to ensure they did not get hurt. As one staff member noted during photo documentation interview A, "I thought it was wonderful to see them spinning and spinning instead of just using it as a swing. They needed to hold on tight and make sure not to move around on the crate while it was spinning, they came up with that safety tip . . . as they called it. It didn't pose a risk in my mind until they started to spin it rather than swing it. But they were great at making sure to tell each other to hold on." Additionally, the children were aware of the benefits of playing with the loose parts for their health. When asked in photo elicitation interview B why one child took a photo of another playing with the loose parts, the first answered: "Because it's moving your body, I mean getting more strength. Strength means you're moving your body a lot." These examples demonstrated the potential for children to develop more body awareness through interacting with the loose parts.

Engaging with the loose parts also required the children to be strategic, to communicate, and to use teamwork to build structures or create shared imaginary play scenarios. A staff member during the photo documentation interview at site C explained how the children were working together: "They were doing like a drumming set up. . . . I kind of take [photos] when I notice they're all in on it 'cause it doesn't happen that often. . . . They were all working on the same thing. And, yeah, there was cooperation" (see figure 7).

Another staff member, from focus group B, noted "A lot more teamwork was being done to help, 'cause they can't lift the pallets. So I was seeing a lot of teamwork to try and move and build these structures." When building forts and other structures, children took the opportunity to take the lead and support others who wanted to join in. Children negotiated designs, assessed material stability, delegated roles, and provided peer-to-peer instruction, as they discussed during a go-along interview.

> Child: That hurts, oh well, I was trying to make it sturdy. You can see my footprint. Don't put this on the bottom, put that one on the top.

Figure 7. Children playing together in building a drumming circle at site C

Interviewer: Why?
Child: 'Cause look, that one goes like this, and then that can go over it. The tallest one is like this, I think. There.
Child: Let's try this one right here, and put that one on top. See. No, that one was the top.
Child: And then we put this one on it 'cause that one will fit, and then this one would be the last one and then with the top.

Working together and building with the loose parts exemplified cognitive engagement and provided opportunity for communication and teamwork, which contributed to children's confidence and motivation to engage in active play.

Discussion

This study used reflexive thematic analysis to develop four themes illustrating staff and child perspectives of an after-school outdoor LPP intervention's impact on children's PA and PL. Children and staff perceived outdoor LPP as enhancing children's PL by facilitating motivation, confidence, competence, and knowledge of the value of PA. Loose parts were adaptable, transforming outdoor play spaces into dynamic, inclusive environments that promoted creativity, movement, and social interaction. Our findings build upon and are aligned with broader research on outdoor LPP (Cankaya, Rohatyn-Martin, et al. 2025; Dias Rodrigues et al. 2023; Eichengreen et al. 2024; Gibson et al. 2017; Loebach and Cox 2022; McCormack et al. 2024; Spencer et al. 2019; Van Rooijen et al. 2023) that have emphasized that outdoor LPP contributed to children's risk taking, creativity, problem solving, independence, confidence, leadership, and relationship building.

Children expressed enthusiasm and enjoyment for outdoor LPP, echoing other interventions (Dias Rodrigues et al. 2023; Eichengreen et al. 2024; Engelen et al. 2018; Lee et al. 2020). A recent Dutch study of children aged eight to eleven years using loose parts at recess found self-reported enjoyment was high and children experienced less boredom and improved behavioral conduct (Eichengreen et al. 2024). In our study, children often expressed enjoyment while building forts. Like Powell (2007), we found fort play facilitated a sense of ownership, which led to further engagement. Staff noted that loose parts motivated children, especially those who may not typically engage in active play after school. This has been expressed by children in another after-school

program who found loose parts more exciting than their typical after-school activities (Van Rooijen et al. 2023). The change in pace for play opportunities appeared to motivate more children to move and play after school.

The flexibility of loose parts was apparent in their adaptability to the environment and the resultant social interactions during play. As in our study, Flannigan and Dietze (2018) found loose parts play engaged a variety of ages and genders, fostering an inclusive environment. Similarly, Pereira and colleagues (2023) found that loose parts provided variety in play possibilities to prevent separation by gender or age. Flannigan and Dietze (2018) also noted children's ability to assign new roles to both loose parts and natural materials, resulting in diverse forms of play. Although multisite interventions rarely comment on the differences between sites (Gibson et al. 2017), our study adds this contextualization, noting that despite differences in outdoor play environments, all sites embraced the flexibility of loose parts. With different affordances such as green space, rocks, or tree cover (or lack thereof), children at each site adapted outdoor LPP to suit their environments. This adaptability not only supported meaningful play but also fostered deeper connections with nature. Our finding is consistent with the work of Hu (2024), who found children used available natural materials alongside loose parts to explore, create, and develop early understandings and connections with nature.

Our findings emphasize the physical aspect of PL. Staff and children expressed that outdoor LPP encouraged a broad range of movements, particularly those requiring motor skills and strength. One popular LPP activity included the use of pool noodles, where children carried them, ran with them, and engaged in sword play, mirroring findings from Flannigan and Dietze (2018), who noted that children engaged in high-energy actions such as running, climbing, and chasing. These activities, often part of imaginative play, were also highlighted by Rich (2003) as typical in weapon-themed play, fostering creativity, social skills, risk assessment, and inclusion. Further, loose parts provided opportunities for varying intensities of movement, from high-intensity games to slower activities like fort building, breaking up sedentary activities that many children take part in during the after-school period. Engaging with loose parts facilitates children's engagement in diverse movement behaviors and intensities and contributes to developing physical competence, which is essential to overall health and development (Fairclough et al. 2023; Poitras et al. 2016).

Risky play was evident in our findings, with children taking calculated risks and testing their abilities by rolling down hills in tires or balancing on elevated

surfaces. These behaviors, also reported in other outdoor LPP interventions (Branje et al. 2021; Caldwell et al. 2023; Flannigan and Dietze 2018; Grady-Dominguez et al. 2021; MacQuarrie et al. 2022; Van Rooijen et al. 2023) build PL through developing confidence and using their bodies in new and more demanding ways (Branje et al. 2021; Caldwell et al. 2023). Following the work of Bundy and colleagues (2015) exploring the use of outdoor LPP to promote risky play, Grady-Dominguez and associates (2021) analyzed staff perceptions to explore differences in intervention success. They found children became more engaged and less fearful when staff supported loose parts compared to schools where staff seemed apprehensive or frequently intervened in play. This highlights the value of exploring both staff and child perspectives on active, outdoor, and risky play. Staff members' attitudes and experiences shape their comfort and willingness to support risky play in child care settings (Spencer et al. 2021), making it crucial for educators and staff to support unstructured and risky play for children to benefit (Flannigan and Dietze 2018). Professional development in loose parts and risky play, and their effective application, is imperative to strengthen staff support for these practices.

Our findings also relate to the knowledge and understanding components of PL. Children demonstrated cooperation, problem solving, and teamwork, which often occurred when the children worked together to build forts and create shared play scenarios using loose parts. This collaborative element aligns with findings from Eichengreen and colleagues (2024) and Flannigan and Dietze (2018), who noted that outdoor LPP often becomes goal directed, requiring children to assign roles, communicate decisions, and strategize together, promoting essential social skills. Children in our study discussed and coordinated tasks like lifting heavy objects, moving tires, and deciding the placement of materials within their builds. Unlike past research that focused primarily on staff views (Caldwell et al. 2023), our study adds children's perspectives on how outdoor LPP builds knowledge and understanding to engage in PA for life.

Interestingly, each of our themes draws on the notion of fort building. Building a special place for children, or constructive play, is a fun and adaptable activity that emerges consistently and fosters inclusivity across ages, genders, and cultures (Cankaya et al. 2023; Casey and Robertson 2016). Constructive play facilitates inclusion, encourages diverse movements and intensities, and promotes teamwork and communication as children collaborate to create structures. One such play type, described by White (2014), involves "becoming at home," in which children create shelters, hiding places, forts, or dens. This play pattern

highlights the universal appeal of fort building as children seek to carve out personal spaces. Past research has shown that when children are exposed to natural loose parts (e.g., sticks, leaves, mud) and provided the opportunity to engage in self-directed, unstructured play at school, they often create and build forts (Powell 2007; Rufo 2012), underscoring how fort building aligns with children's instinct to create unique, defined spaces. In our study, children built forts and this activity supported aspects of both PA and PL.

Although we consider forts as conceptual entities that foster many elements of children's healthy development and PL, they also carry a colonial legacy that warrants careful consideration. Traditional colonial forts symbolized dominance and exclusion, particularly of Indigenous peoples (Donald 2009), so integrating fort building into contemporary play must be guided by culturally responsive frameworks such as Indigenous Métissage and Etuaptmumk (Two-Eyed Seeing), which blend Indigenous and non-Indigenous perspectives (Riley et al. 2023). By emphasizing land connection, storytelling about natural materials, and collaborative construction, educators and staff can honor this history while still leveraging forts to promote active, embodied learning (Donald 2009; Riley et al. 2023). To do so, targeted professional development is essential, not only to equip educators and staff with strategies for inclusive, decolonized pedagogy but also to maximize children's movement, PL, and well-being through mindful constructive play with loose parts.

Implications

Our project, through exploring perspectives of both staff and children, has deepened our understanding of outdoor LPP's contribution to children's PA and PL. Although existing research highlights many benefits of outdoor LPP (Cankaya et al. 2023; Dias Rodrigues et al. 2023; Gibson et al. 2017), studies have largely overlooked its impact on school-aged children's movement behaviors, and multiple components of PL. Our study used multiple methods to explore how outdoor LPP may impact children's PA and the affective, behavioral, cognitive, and physical components of PL. Previous studies have primarily examined outdoor LPP from adult perspectives (Caldwell et al. 2023; Spencer et al. 2019, 2021) or through adult observations (Eichengreen et al. 2024; Flannigan and Dietze 2018; Loebach and Cox 2022; Naish et al. 2023; Pereira et al. 2023). Our study explores perspectives of both adults and children on how outdoor LPP play influences children's PA and movement behaviors. Adults shared their

observations about the intervention and resultant PA and PL behaviors, while children expressed their experiences and feelings about outdoor LPP. This combination offers valuable insights and a more holistic view of how outdoor LPP may enhance PL development.

While our analysis emphasizes PL and fundamental movement skills, these terms were not explicitly mentioned by the children or staff in the intervention. Instead, their perspectives emphasized enjoyment, creativity, and collaboration, unless they were prompted to talk about concepts of PL such as confidence, motivation, or competence. This suggests that although outdoor LPP interventions can be situated within theories of PL, the connections to these concepts are often made through latent analysis. The findings from our study also provide compelling evidence for after-school programs and community settings to incorporate outdoor LPP to encourage active play and PL development. As outdoor play declines (Tremblay et al. 2015), outdoor LPP emerges as a powerful mechanism to motivate children to play with others, to build confidence, and to diversify movement skills.

Our findings align with national and international PA guidelines (e.g., "Canadian 24-Hour Movement Guidelines for Children and Youth" in Tremblay et al. 2016) that recommend daily moderate-to-vigorous PA, several hours of light movement, and time spent outdoors. They are also supported by the *Position Statement on Active Outdoor Play* (Tremblay et al. 2015; E.-Y. Lee et al. 2025), which emphasizes the developmental importance of self-directed outdoor play, including opportunities for risk taking. Incorporating loose parts into outdoor play spaces, from schoolyards to parks to child care centers, can help meet these recommendations while supporting children's holistic development (Cankaya et al. 2023). In addition to individuals working and taking part in after-school programs and educational settings, our findings may be of interest to parents, recreation staff, public health professionals, city planners, and policymakers. Having evidence from both adult and child perspectives strengthens the case for outdoor LPP as a developmentally appropriate, accessible, and meaningful approach to reversing the trend of declining outdoor play and promoting lifelong engagement in PA.

Strengths and Limitations

Strengths of this study include the reflexive approach taken in the analysis,

including the perspectives and reflections of various team members with expertise in PA, PL, health promotion, conducting research, and working with children and youth. Through our analysis, we critically examined our own perspectives and experiences, which contributes to the credibility and relevance of our findings. Our use of multiple methods and diverse sites strengthens the analysis by incorporating children's perspectives, often overlooked in research. Qualitative approaches like go-along interviews and photo elicitation actively engage children as agents in shaping their experiences, addressing gaps in understanding from their viewpoint. The use of these approaches also strengthens our attempt to capture the often overlooked affective and cognitive components of PL, providing deeper insight into how outdoor LPP fosters motivation, confidence, and development. The inclusion of varied after-school programs with different environments further highlighted the adaptability of loose parts in fostering diverse play behaviors and PL development.

It is also important to acknowledge the limitations of this work. Although our study begins to address gaps in the literature regarding the inclusion of children's voices and diverse settings, a notable limitation proved to be the difficulty in understanding the experiences of children from diverse backgrounds, particularly racialized children. Racialized children may experience play uniquely, as when Black children face greater surveillance in risky play, which may impact their confidence, motivation, and PL development (McPherson 2021; Watson et al. 2024). This highlights the ongoing need for intentionally inclusive research that represents diverse play experiences (e.g., racialized and newcomer children, children with disabilities, neurodiverse, and gender-diverse children) and their role in PL development.

Additionally, this study took place during the COVID-19 pandemic. Due to restrictions on indoor gatherings, recruitment had to be conducted outdoors, making direct and meaningful contact with parents challenging, which may have affected both the number of participants and the diversity of those who chose to participate. Also, participation in both the photo documentation forms and focus groups varied across sites, reflecting differences in the number of total and consenting staff at each location.

Methodologically, consistent with our approach to reflexive thematic analysis, interpretation was not guided by the frequency of codes, photos, or contributions; instead, analysis sought to represent the range of ideas and perspectives expressed at all the sites. As reflexive thematic analysis privileges contextually situated meaning making, the findings are specific to this sample and setting

and are not intended to produce universally generalizable claims, but rather to offer in-depth insights that may resonate with similar contexts (Braun and Clarke 2019, 2022). Furthermore, the process of synthesizing data into overarching themes inherently involves interpretation and abstraction, which may unintentionally overlook unique or less common perspectives within the dataset. Finally, although participants largely described positive experiences with outdoor LPP, this does not suggest that implementation is without logistical or contextual challenges, which have been identified in previous research (Spencer et al. 2019). Rather, the present findings reflect the perspectives of those engaged in this particular study.

Conclusion

Through the PLEY school intervention, staff and children's perspectives from this sample highlight the perceived value of outdoor LPP in supporting children's PA and PL in after-school settings. Within this context, staff and children perceived outdoor LPP to support children's motivation to play, confidence in movements, trying new movements, understanding the limits of the body, and collaboration and communication. This study's use of multiple participant-engaged methods highlights that both staff and children perceived outdoor LPP positively in diverse after-school sites and adds to the growing evidence of its benefits. Given national and international guidelines and frameworks for PA and PL and the rising support for children's lifelong engagement in movement to promote healthy development, these findings may help inform discussion around the integration of outdoor LPP in similar contexts. Both the early years and school environments are critical stages and settings for establishing foundational movement behaviors. Other jurisdictions, such as the United Kingdom, have already recognized outdoor LPP's value by embedding it into school settings as a health promotion strategy (Casey and Robertson 2016; Play Wales 2017). Canada and other nations have an opportunity to do the same, using existing evidence and momentum to scale up this approach and promote equity in children's access to meaningful, developmentally appropriate play.

References

Alden, Christine, and Angela Pyle. 2019. "Multi-Sector Perspectives on Outdoor Play in Canada." *International Journal of Play* 8:239–54. https://doi.org/10.1080/21594937.2019.1684145.

Barnett, Lisa M., David Stodden, Kristen E. Cohen, Jordan J. Smith, David Revalds Lubans, Matthieu Lenoir, Susanna Iivonen, Andrew D. Miller, Arto Laukkanen, Dean Dudley, Natalie J. Lander, Helen Brown, and Philip J. Morgan. 2016. "Fundamental Movement Skills: An Important Focus." *Journal of Teaching in Physical Education* 35:219–25. https://doi.org/10.1123/jtpe.2014-0209.

Beets, Michael W., Aaron Beighle, Heather E. Erwin, and Jennifer L. Huberty. 2009. "After-School Program Impact on Physical Activity and Fitness." *American Journal of Preventive Medicine* 36:527–37. https://doi.org/10.1016/j.amepre.2009.01.033.

Branje, Karina, Daniel Stevens, Heather Hobson, Sara Kirk, and Michelle Stone. 2022. "Impact of an Outdoor Loose Parts Intervention on Nova Scotia Preschoolers' Fundamental Movement Skills: A Multi-Methods Randomized Controlled Trial." *AIMS Public Health* 9:194–215. https://doi.org/10.3934/publichealth.2022015.

Braun, Virginia, and Victoria Clarke. 2019. "Reflecting on Reflexive Thematic Analysis." *Qualitative Research in Sport, Exercise, and Health* 11:589–97. https://doi.org/10.1080/2159676X.2019.1628806.

_____. 2022. *Thematic Analysis: A Practical Guide*.

Brussoni, Mariana, Rebecca Gibbons, Casey Gray, Takuro Ishikawa, Ellen Beate Hansen Sandseter, Adam Bienenstock, Guylaine Chabot, Pamela Fuselli, Susan Herrington, Ian Janssen, William Pickett, Marlene Power, Nick Stanger, Margaret Sampson, and Mark S. Tremblay. 2015. "What Is the Relationship Between Risky Outdoor Play and Health in Children? A Systematic Review." *International Journal of Environmental Research and Public Health* 12:6423–54. https://doi.org/10.3390/ijerph120606423.

Bundy, Anita C., Shirley Wyver, Kassia S. Beetham, Jo Ragen, Geraldine Naughton, Paul Tranter, Richard Norman, Michelle Villeneuve, Grace Spencer, Anne Honey, Judith Simpson, Louise Baur, and Julia Sterman. 2015. "The Sydney Playground Project-Levelling the Playing Field: A Cluster Trial of a Primary School-Based Intervention Aiming to Promote Manageable Risk-Taking in Children with Disability." *BMC Public Health* 15:1125. https://doi.org/10.1186/s12889-015-2452-4.

Burke, Lynsey, Divya Jindal-Snape, Angela Lindsay, Susan Whyte, Mhairi Wallace, Duncan Mercieca, Megan McKenzie, and Brenda Keatch. 2026. "Spaces for Play: Listening to Children's Voices." *Education 3-13* 54:431–54. https://doi.org/10.1080/03004279.2024.2318254.

Cairney, John, Dean Dudley, Matthew Kwan, Rheanna Bulten, and Dean Kriellaars. 2019. "Physical Literacy, Physical Activity, and Health: Toward an Evidence-Informed Conceptual Model." *Sports Medicine* 49:371–83. https://doi.org/10.1007/s40279-019-01063-3.

Caldwell, Hilary A. T., Rebecca A. Spencer, Nila Joshi, Karina Branje, Jane Cawley,

Heather Hobson, Sara F. L. Kirk, Daniel Stevens, and Michelle R. Stone. 2023. "Impact of an Outdoor Loose Parts Play Intervention on Nova Scotian Preschoolers' Physical Literacy: A Mixed-Methods Randomized Controlled Trial." *BMC Public Health* 23:1126. https://doi.org/10.1186/s12889-023-16030-x.

Cankaya, Ozlem, Mackenzie Martin, and Dana Haugen. 2025. "The Relationship Between Children's Indoor Loose Parts Play and Cognitive Development: A Systematic Review." *Journal of Intelligence* 13:52. https://doi.org/10.3390/jintelligence13050052.

Cankaya, Ozlem, Natalia Rohatyn-Martin, Karen Buro, Okan Bulut, and Keirsten Taylor. 2025. "Loose Parts Play Encourages Spontaneous Science, Technology, Engineering, and Mathematics (STEM) Behaviours." *Communications Psychology* 3:183. https://doi.org/10.1038/s44271-025-00362-y.

Cankaya, Ozlem, Natalia Rohatyn-Martin, Jamie Leach, Keirsten Taylor, and Okan Bulut. 2023. "Preschool Children's Loose Parts Play and the Relationship to Cognitive Development: A Review of the Literature." *Journal of Intelligence* 11:151. https://doi.org/10.3390/jintelligence11080151.

Carpiano, Richard M. 2009. "Come Take a Walk with Me: The 'Go-Along' Interview as a Novel Method for Studying the Implications of Place for Health and Well-Being." *Health & Place* 15:263–72. https://doi.org/10.1016/j.healthplace.2008.05.003.

Casey, Theresa, and Juliet Robertson. 2016. *Loose Parts Play: A Toolkit*. https://inspiringscotland.org.uk/wp-content/uploads/2017/03/Loose-Parts-Play-web.pdf.

Creswell, John W., and J. David Creswell. 2018. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, 5th ed.

Dankiw, Kylie A., Margarita D. Tsiros, Katherine L. Baldock, and Saravana Kumar. 2020. "The Impacts of Unstructured Nature Play on Health in Early Childhood Development: A Systematic Review." *PLoS One* 15:e0229006. https://doi.org/10.1371/journal.pone.0229006.

Darbyshire, Philip, Colin MacDougall, and Wendy Schiller. 2005. "Multiple Methods in Qualitative Research with Children: More Insight or Just More?" *Qualitative Research* 5:417–36. https://doi.org/10.1177/1468794105056921.

Dias Rodrigues, Andreia, José Marmeleira, Clarinda Pomar, Elsa Lamy, Daniela Guerreiro, and Guida Veiga. 2023. "Body-Oriented Interventions to Promote Preschoolers' Social-Emotional Competence: A Quasi-Experimental Study." *Frontiers in Psychology* 14:1198199. https://doi.org/10.3389/fpsyg.2023.1198199.

Donald, Dwayne Trevor. 2009. "Forts, Curriculum, and Indigenous Métissage: Imagining Decolonization of Aboriginal-Canadian Relations in Educational Contexts." *First Nations Perspectives* 2:1–24.

Durlak, Joseph A., and Roger P. Weissberg. 2007. *The Impact of After-School Programs that Promote Personal and Social Skills.* Collaborative for Academic, Social, and Emotional Learning (CASEL). https://files.eric.ed.gov/fulltext/ED505368.pdf.

Eichengreen, Adva, Martin Van Rooijen, Lisa-Maria Van Klaveren, Maedeh Nasri, Yung-Ting Tsou, Alexander Koutamanis, Mitra Baratchi, and Carolien Rieffe. 2024. "The Impact of Loose-Parts-Play on Schoolyard Social Participation of Children with

and without Disabilities: A Case Study." *Child: Care, Health, and Development* 50:e13144. https://doi.org/10.1111/cch.13144.

Engelen, Lina, Shirley Wyver, Gabrielle Perry, Anita Bundy, Tammie Kit Yee Chan, Jo Ragen, Adrian Bauman, and Geraldine Naughton. 2018. "Spying on Children During a School Playground Intervention Using a Novel Method for Direct Observation of Activities During Outdoor Play." *Journal of Adventure Education and Outdoor Learning* 18:86–95. https://doi.org/10.1080/14729679.2017.1347048.

England, Laura. 2019. *Looking for Learning: Loose Parts*.

Fairclough, Stuart J., Lauren Clifford, Denver Brown, and Richard Tyler. 2023. "Characteristics of 24-Hour Movement Behaviours and Their Associations with Mental Health in Children and Adolescents." *Journal of Activity, Sedentary, and Sleep Behaviors* 2:11. https://doi.org/10.1186/s44167-023-00021-9.

Flannigan, Caileigh, and Beverlie Dietze. 2018. "Children, Outdoor Play, and Loose Parts." *Journal of Childhood Studies* 42:53–60. https://doi.org/10.18357/jcs.v42i4.18103.

Gibson, Jenny Louise, Megan Cornell, and Tim Gill. 2017. "A Systematic Review of Research into the Impact of Loose Parts Play on Children's Cognitive, Social, and Emotional Development." *School Mental Health* 9:295–309. https://doi.org/10.1007/s12310-017-9220-9.

Grady-Dominguez, Patricia, Jo Ragen, Julia Sterman, Grace Spencer, Paul Tranter, Michelle Villeneuve, and Anita Bundy. 2021. "Expectations and Assumptions: Examining the Influence of Staff Culture on a Novel School-Based Intervention to Enable Risky Play for Children with Disabilities." *International Journal of Environmental Research and Public Health* 18:1008. https://doi.org/10.3390/ijerph18031008.

Gull, Carla, Jessica Bogunovich, Suzanne Levenson Goldstein, and Tricia Rosengarten. 2019. "Definitions of Loose Parts in Early Childhood Outdoor Classrooms: A Scoping Review." *The International Journal of Early Childhood Environmental Education* 6:37–52.

Hanline, Mary Frances, Sande Milton, and Pamela C. Phelps. 2010. "The Relationship Between Preschool Block Play and Reading and Maths Abilities in Early Elementary School: A Longitudinal Study of Children with and without Disabilities." *Early Child Development and Care* 180:1005–17. https://doi.org/10.1080/03004430802671171.

Harcourt, Deborah, and Johanna Einarsdottir. 2011. "Introducing Children's Perspectives and Participation in Research." *European Early Childhood Education Research Journal* 19:301–7. https://doi.org/10.1080/1350293X.2011.597962.

Herrington, Susan, and Mariana Brussoni. 2015. "Beyond Physical Activity: The Importance of Play and Nature-Based Play Spaces for Children's Health and Development." *Current Obesity Reports* 4:477–83. https://doi.org/10.1007/s13679-015-0179-2.

Higgs, Colin, John Cairney, Paul Jurbala, Dean Dudley, Richard Way, and Drew Mitchell. 2019. *Developing Physical Literacy: Building a New Normal for All Canadians*.

Sport for Life Society. https://litteratiephysique.ca/wp-content/uploads/2020/01/DPL-2_EN_web_November_2019-1.pdf.

Houser, Natalie E., Jane Cawley, Angela Kolen, Daniel Rainham, Laurene Rehman, Joan Turner, Sara F. L. Kirk, and Michelle R. Stone. 2019. "A Loose Parts Randomized Controlled Trial to Promote Active Outdoor Play in Preschool-Aged Children: Physical Literacy in the Early Years (PLEY) Project." *Methods and Protocols* 2:27. https://doi.org/10.3390/mps2020027.

Houser, Natalie E., Lindsay Roach, Michelle R. Stone, Joan Turner, and Sara F. L. Kirk. 2016. "Let the Children Play: Scoping Review on the Implementation and Use of Loose Parts for Promoting Physical Activity Participation." *AIMS Public Health* 3:781–99. https://doi.org/10.3934/publichealth.2016.4.781.

Lee, Eun-Young, Louise De Lannoy, Yeong-Bae Kim, Apoorva Rahtod, Maeghan E. James, Olivia Lopes, Brianna Nasrallah, Anujah Thankarajah, Dina Adjei-Boadi, Maria Isabel Amando de Barros, Scott Duncan, Robyn Monro Miller, Lærke Mygind, Leigh M. Vanderloo, Po-Yu Wang, Mark S. Tremblay, and AOP10 Steering Committee Group. 2025. "2025 Position Statement on Active Outdoor Play." *International Journal of Behavioral Nutrition and Physical Activity* 22:117. https://doi.org/10.1186/s12966-025-01813-9.

Lee, Regina Lai Tong, Shelly Lane, Graeme Brown, Cynthia Leung, Stephen Wai Hang Kwok, and Sally Wai Chi Chan. 2020. "Systematic Review of the Impact of Unstructured Play Interventions to Improve Young Children's Physical, Social, and Emotional Wellbeing." *Nursing & Health Sciences* 22:184–96. https://doi.org/10.1111/nhs.12732.

Loebach, Janet, and Adina Cox. 2022. "Playing in '*The Backyard*': Environmental Features and Conditions of a Natural Playspace Which Support Diverse Outdoor Play Activities Among Younger Children." *International Journal of Environmental Research and Public Health* 19:12661. https://doi.org/10.3390/ijerph191912661.

MacQuarrie, Madison, Jessie-Lee D. McIsaac, Jane Cawley, Sara F. L. Kirk, Angela M. Kolen, Laurene Rehman, Rebecca A. Spencer, and Michelle R. Stone. 2022. "Exploring Parents' Perceptions of Preschoolers' Risky Outdoor Play Using a Socio-Ecological Lens." *European Early Childhood Education Research Journal* 30:372–87. https://doi.org/10.1080/1350293X.2022.2055103.

McCormack, Gavin R., Calli Naish, Jennie Petersen, Dalia Ghoneim, and Patricia K. Doyle-Baker. 2024. "It Is Child's Play: Caregiver and Playworker Perspectives on a Community Park-Based Unstructured Play Program." *PLoS One* 19:e0311293. https://doi.org/10.1371/journal.pone.0311293.

McPherson, Kisha. 2021. "Are We Free to Go? Anti-Black Racism and Its Impact on Black Play." *American Journal of Play* 13:356–82.

Naish, Calli, Gavin R. McCormack, Anita Blackstaffe, Levi Frehlich, and Patricia K. Doyle-Baker. 2023. "An Observational Study on Play and Physical Activity Associated with a Recreational Facility-Led Park-Based 'Loose Parts' Play Intervention During the COVID-19 Pandemic." *Children* 10:1049. https://doi.org/10.3390/children10061049.

Neville, Ross D., Kimberley D. Lakes, Will G. Hopkins, Giampiero Tarantino, Catherine E. Draper, Rosemary Beck, and Sheri Madigan. 2022. "Global Changes in Child

and Adolescent Physical Activity During the COVID-19 Pandemic: A Systematic Review and Meta-Analysis." *JAMA Pediatrics* 176:886–94. https://doi.org/10.1001/jamapediatrics.2022.2313.

Nicholson, Simon. 1971. "How NOT to Cheat Children: The Theory of Loose Parts." *Landscape Architecture* 62:30–34.

Olsen, Rita Karoline. 2025. "The Value of Child Participation in Research—A Qualitative Child-Centered Approach to the Early Development of an Empowerment Inventory for Children." *Child & Youth Services* 46:400–21. https://doi.org/10.1080/0145935X.2024.2336914.

ParticipACTION. 2024. *Rallying for Resilience: Keeping Children and Youth Active in a Changing Climate. The 2024 ParticipACTION Report Card on Physical Activity for Children and Youth.* https://www.participaction.com/wp-content/uploads/2024/05/2024-Children-and-Youth-Report-Card-Highlight-Report-1.pdf.

Pawlowski, Charlotte Skau, Jasper Schipperijn, Tine Tjørnhøj-Thomsen, and Jens Troelsen. 2018. "Giving Children a Voice: Exploring Qualitative Perspectives on Factors Influencing Recess Physical Activity." *European Physical Education Review* 24:39–55. https://doi.org/10.1177/1356336X16664748.

Pereira, Joana V., Jadiane Dionísio, Frederico Lopes, and Rita Cordovil. 2023. "Playing at the Schoolyard: 'The Who's, the What's, and the How Long's' of Loose Parts." *Children* 10:240. https://doi.org/10.3390/children10020240.

Piaget, Jean. 1962. *Play, Dreams, and Imitation in Childhood.*

Play Wales. 2017. "Resources for Playing – Providing Loose Parts to Support Children's Play." https://play.wales/resources-for-playing-providing-loose-parts-to-support-childrens-play/.

Poitras, Veronica Joan, Casey Ellen Gray, Michael M. Borghese, Valerie Carson, Jean-Philippe Chaput, Ian Janssen, Peter T. Katzmarzyk, Russell R. Pate, Sarah Connor Gorber, Michelle E. Kho, Margaret Sampson, and Mark S. Tremblay. 2016. "Systematic Review of the Relationships Between Objectively Measured Physical Activity and Health Indicators in School-Aged Children and Youth." *Applied Physiology, Nutrition, and Metabolism* 41:S197–239. https://doi.org/10.1139/apnm-2015-0663.

Powell, Mark. 2007. "Fort Play: Children Recreate Recess." *Montessori Life* 19:20–30.

Rich, Diane. 2003. "Bang, Bang! Gun Play, and Why Children Need It." http://dianerich.co.uk/pdf/bang%20bang%20gun%20play%20and%20why%20children%20need%20it.pdf.

Riley, Kathryn, Amanda Froehlich Chow, Kathleen Wahpepah, M. Louise Humbert, Mariana Brussoni, Natalie Houser, and Marta C. Erlandson. 2023. "Etuaptmumk (Two-Eyed Seeing) in *Nature's Way-Our Way*: Braiding Physical Literacy and Risky Play Through Indigenous Games, Activities, Cultural Connections, and Traditional Teachings." *AlterNative: An International Journal of Indigenous Peoples* 19:426–36. https://doi.org/10.1177/11771801231167881.

Rufo, David. 2012. "Building Forts and Drawing on Walls: Fostering Student-Initiated

Creativity Inside and Outside the Elementary Classroom." *Art Education* 65:40–47. https://doi.org/10.1080/00043125.2012.11519175.

Spencer, Rebecca A., Nila Joshi, Karina Branje, Jessie-Lee D. McIsaac, Jane Cawley, Laurene Rehman, Sara F. L. Kirk, and Michelle Stone. 2019. "Educator Perceptions on the Benefits and Challenges of Loose Parts Play in the Outdoor Environments of Childcare Centres." *AIMS Public Health* 6:461–76. https://doi.org/10.3934/publichealth.2019.4.461.

Spencer, Rebecca A., Nila Joshi, Karina Branje, Naomi Murray, Sara F. L. Kirk, and Michelle R. Stone. 2021. "Early Childhood Educator Perceptions of Risky Play in an Outdoor Loose Parts Intervention." *AIMS Public Health* 8:213–28. https://doi.org/10.3934/publichealth.2021017.

Stone, Michelle R., and Guy E. J. Faulkner. 2014. "Outdoor Play in Children: Associations with Objectively-Measured Physical Activity, Sedentary Behavior, and Weight Status." *Preventive Medicine* 65:122–27. https://doi.org/10.1016/j.ypmed.2014.05.008.

Sutton, Mary Jo. 2011. "In the Hand and Mind: The Intersection of Loose Parts and Imagination in Evocative Settings for Young Children." *Children, Youth, and Environments* 21:408–24.

Tian, Mi, Tianrui Luo, and Him Cheung. 2019. "The Development and Measurement of Block Construction in Early Childhood: A Review." *Journal of Psychoeducational Assessment* 38:767–82. https://doi.org/10.1177/0734282919865846.

Tremblay, Mark S., Valerie Carson, Jean-Philippe Chaput, Sarah Connor Gorber, Thy Dinh, Mary Duggan, Guy Faulkner, Casey E. Gray, Reut Gruber, Katherine Janson, Ian Janssen, Peter T. Katzmarzyk, Michelle E. Kho, Amy E. Latimer-Cheung, Claire LeBlanc, Anthony D. Okely, Timothy Olds, Russell R. Pate, Andrea Phillips, Veronica J. Poitras, Sophie Rodenburg, Margaret Sampson, Travis J. Saunders, James A. Stone, Gareth Stratton, Shelly K. Weiss, and Lori Zehr. 2016. "Canadian 24-Hour Movement Guidelines for Children and Youth: An Integration of Physical Activity, Sedentary Behaviour, and Sleep." *Applied Physiology, Nutrition, and Metabolism* 41:S311–27. https://doi.org/10.1139/apnm-2016-0151.

Tremblay, Mark S., Casey Gray, Shawna Babcock, Joel Barnes, Christa Costas Bradstreet, Dawn Carr, Guylaine Chabot, Louise Choquette, David Chorney, Cam Collyer, Susan Herrington, Katherine Janson, Ian Janssen, Richard Larouche, William Pickett, Marlene Power, Ellen Beate Hansen Sandseter, Brenda Simon, and Mariana Brussoni. 2015. "Position Statement on Active Outdoor Play." *International Journal of Environmental Research and Public Health* 12:6475–505. https://doi.org/10.3390/ijerph120606475.

Trost, Stewart G., Richard R. Rosenkranz, and David Dzewaltowski. 2008. "Physical Activity Levels Among Children Attending After-School Programs." *Medicine & Science in Sports & Exercise* 40:622–29. https://doi.org/10.1249/MSS.0b013e318161eaa5.

United Nations. 1989. "Convention on the Rights of the Child." https://www.ohchr.org/en/instruments-mechanisms/instruments/convention-rights-child.

Van Rooijen, Martin, Kristine De Martelaer, Gerty Lensvelt-Mulders, Lisette Van Der

Poel, and Mieke Cotterink. 2023. "'It Is Scary, but Then I Just Do It Anyway': Children's Experiences and Concerns About Risk and Challenge During Loose Parts Play." *International Journal of Environmental Research and Public Health* 20:7032. https://doi.org/10.3390/ijerph20227032.

Vygotsky, Lev S. 1967. "Play and Its Role in the Mental Development of the Child." *Soviet Psychology* 5:6–18. https://doi.org/10.2753/RPO1061-040505036.

Watson, Crystal, Emma Stirling Cameron, Nicholas Hickens, Milena Pimentel, Barb Hamilton-Hinch, and Jessie-Lee D. McIsaac. 2024. "Early Childhood Leisure Experiences of African Nova Scotian Children: The Privilege of Risky Outdoor Play." *Leisure/Loisir* 48:211–29. https://doi.org/10.1080/14927713.2023.2291023.

White, Jan. 2014. "Ecological Identity – Values, Principles, and Practice." In *Learning to Learn in Nature*, edited by Robin Duckett and Mary Jane Drummond, 235–45.

World Health Organization. 2020. *WHO Guidelines on Physical Activity and Sedentary Behaviour*. https://www.who.int/publications/i/item/9789240015128.