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Sandboxes, loose parts, and playground equipment: a descriptive exploration of outdoor play environments

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\textbf{ABSTRACT}

The purpose of the study was to examine outdoor environments to understand whether or not young children had access to play materials and loose parts to enhance their playful experiences. This study sought to gather the availability of SAFE and quality play opportunities in early childhood outdoor environments. The study took place in one state of the United States. The study found 75\% of outdoor spaces had a playground structure that included a place for children to climb and slide down. The study found 83\% of programs had appropriate surfacing materials provided in the outdoor play environment. Loose parts, such as toys, balls, and action figures were also included in the outdoor play and learning environment. The significance of play that this study shows is outdoor environments have an abundant opportunities to support the developmental characteristics of children.

\textbf{ARTICLE HISTORY}

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\textbf{KEYWORDS}

Playgrounds; outdoor play environments; loose parts; playground safety; playground materials

\textbf{Introduction}

As more and more children are enrolled in early childhood settings for a significant part of their day, the relationship of play and the outdoor environment in early childhood programmes is a mandatory element of discussion. Unfortunately, child-initiated play opportunities for young children are altering due in part to increasing accountability to pre-kindergarten readiness (Miller & Almond, 2009). Early childhood educators are being faced with continual pressures to strengthen the rigour of their curriculum (Wohlwend & Peppler, 2015). Educators must balance developmentally appropriate practice with assurance that the curriculum is being delivered thoroughly while meeting diverse learning needs. Educators would also agree that play-based hands-on learning for young children is important in today’s society (Bergen, 2007; Cutter-Mackenzie & Edwards, 2013; Lawson, 1996).

The continued pressure for increased academic rigour in the early childhood field call for an ecological approach to change, which are strategies put forth in order to improve communities or other environmental factors (Mandell & Schram, 2008). Early childhood standards and developmentally appropriate best practices adhere to child-initiated learning opportunities and the basis for an ecological approach to change. An ecological approach to change examines how environmental factors, such as neighbourhoods, early child care programmes, schools, and social service agencies, need to change in order to help people (Bronfenbrenner, 1979). The National Association for the Education of Young Children (NAEYC) and National Health and Safety Performance Standards (NHSPS)’ Caring for Our Children (CFOC) have in place best practices for attempts to promote children’s access to healthy and safe outdoor environments. In particular, NAEYC (2012) state a variety of age- and
developmentally appropriate materials and equipment should be available for children to play inside and outside (p. 11). Also, NHSPS give recommendations to not only how the indoor environment is designed, but specific mandates and expectations for the outdoor environment. These governing agencies provide an ecological perspective to developmentally appropriate practice for outdoor time by educating and training programmes to make environmental changes so all children have access and opportunity of safe and quality outdoor play experiences. An ecological approach to inclusion can potentially influence local, state, and national organizations to develop social policy that is directed towards outdoor developmentally appropriate play.

Research shows children who are engaged and given time to be outdoors have a variety of opportunities to develop physically, socially, emotionally, and intellectually (Acar, 2014; Czalczynska-Podolska, 2014) have a chance to make sense of the world (Elkind, 2007). Small exposure to playing in nature have had positive effects on (1) children’s attention (Grahn, Martensson, Lindblad, Nilsson, & Ekman, 1997), (2) reduction of stress levels (Well & Evans, 2003), and (3) reducing childhood obesity (Liu, Qi, & Ying, 2007).

In light of pressures of kindergarten readiness and academic success in the early years (Stipek, 2003; Stipek & Byler, 2001; Vecchiotti, 2003), it is challenging and often overlooked by early childhood educational leaders to utilize the outdoor play environment (Loukaitou-Sideris & Sideris, 2009; Rivkin, 2014). Even though best practice demonstrates that outdoor play time is important to children’s developmental milestones, the amount of planning that occurs to provide a safe and quality space is often ignored (Olsen, 2013; White, 2014). Outdoor play environments in early childhood programmes need to be more than a cluster of playground equipment and toys scattered throughout the space. White (2014) indicates that optimal learning and play in the outdoor environment requires careful thought, preparation, and planning.

An ecological approach to equitable outdoor play opportunities can potentially influence early childhood profession to develop social policies that are directed towards inclusive, developmentally appropriate play. Social policy is a plan of action adopted by a government, non-government organization, or business enterprise to remedy or prevent a social problem or make society better (Hall & Midgley, 2004) to create, maintain, or improve living conditions (Dawson, 2010; Segal, 2007; Smith, Stebbins, & Dover, 2006). Adopting a social policy at the local or state level that mandates inclusive, safe, and developmentally appropriate outdoor environments which offers authentic play opportunities for all children and their families can foster social interactions and create opportunities for healthy children and families. The National Program for Playground Safety (NPPS) established a S.A.F.E. playground framework for early childhood programmes to use at the local, state, and national level. The S.A.F.E. model for playgrounds represents variables in outdoor environments, which indicate the possible relationships and interactions of those variables in producing safe play areas (Thompson, Hudson, & Olsen, 2007). The purpose of this study was to investigate early childhood outdoor environments to determine the availability of SAFETM and quality play environments that may enhance or eliminate playful childhood experiences. The SAFETM framework provides a foundation for developing a social policy to support quality and inclusive outdoor play environments. Furthermore, the aim of this paper will discuss outdoor environments in early childhood in order to elevate children’s play opportunities while supporting children’s interest and developmental characteristics.

The value of outdoor play in the early years

Today more than ever children’s access to outdoor play has lessened (Loukaitou-Sideris & Sideris, 2009; Rivkin, 2014) and is under attack by many conditions in today’s society (Miller & Almond, 2009). A presentation before the American Academy of Pediatrics, Dr Kristen Copeland reported the concern for children stating that children were supposed to stay inside because caregivers did not provide appropriate clothing for weather conditions (Copeland, Sherman, Kendeigh, Saelens, & Kalkwar, 2009). The researchers found staff reported parents intentionally sent children to their
programmes without coats so their children would have to stay inside. ‘Nature deficient disorder’ has been termed by Louv (2008), in which he discusses the growing decrease in today’s children’s outside time.

While the research illustrates a concern with children’s experience outdoors, there has been a call to restoring the great outdoors (Rivkin, 2014). The American Academy of Pediatrics (2011) issued a report stating unstructured play time is more valuable for children than passive entertainment. Furthermore, they stressed ‘recess is crucial and necessary component of a child’s development and, as such, it should not be withheld for punitive or academic reasons’ (AAP, 2013). In addition, Ginsburg (2007) encourages the importance of free and unstructured play in young children. He states ‘free and unstructured play is healthy and – in fact – essential for helping children reach important social, emotional, and cognitive developmental milestones as well as helping them manage stress and become resilient’ (p. 183).

The development of outdoor spaces does not just happen. It should involve a process where decisions are made concerning multiple factors such as the users (children, educators, and families), outdoor play regulations, early childhood best practices, financial resources available, and agency standards and requirements. The process should be dynamic, with involvement from diverse individuals who have a concern for the welfare of the children who will be using the site. Thus, in planning an outdoor space, one of the first requirements is to understand early childhood outdoor play regulations and best practices.

**United States safety standards and guidelines**

Since the 1980s, two of the most influential groups leading the way in playground safety in the United States have been the Consumer Product Safety Commission (CPSC) and the American Society for Standards and Materials (ASTM International). Although these guidelines and standards are voluntary (neither group has the ability to send out playground inspectors or enforce them directly), they have been adopted by many professional organizations and various state governments. They have been recognized in the United State’s courts as the standard of care. The influence of the CPSC has provided the public with technical safety information for designing, constructing, operating, and maintaining public playgrounds. CPSC offers a handbook, *Handbook for Public Playground Safety*, to guide the public against unreasonable risk of injury and death from consumer products and assist in evaluating the safety of products (2010).

ASTM International is a national non-profit organization with a long history of creating manufacturing standards for a range of industries. ASTM International standards are used by manufacturing companies, installers, and architects and designers. Governmental and other agencies may adopt the ASTM International standards for regulations, codes, or reference them for guidance. The ASTM International has developed 16 standards related to children’s play, playground surfacing, or playground equipment as issues and needs have emerged. The ASTM International playground standards are topics around the design playground equipment, playground surface materials, accessibility, and fencing.

**SAFE™ model**

Using injury data from the Centers for Disease Control and Injury Prevention and the safety guidelines from CPSC and ASTM, the National Program for Playground Safety identified four risk factors (SAFE™) that interpret the playground safety standards and guidelines: Supervision of children in playground, Age-appropriate design of materials and equipment used in outdoor spaces, Fall surfacing under and around the equipment, and Equipment and surface maintenance (NPPS, 1996). Since the identification of the risk factor, the SAFE™ model has been a foundation for assessing the safety of playgrounds in other environments (Thompson et al., 2007; Xethali, Christoforidis, Kambas, Aggelousis, & Fatouros, 2009) and has been a guide for planners on playground design (Burris & Boyd, 2005;
Addressing only one of the SAFE™ elements within the model alone, such as fall surfacing, cannot ensure children’s safety, and a quality learning experience.

Each outdoor space will have specific needs and challenges related to the placement of equipment and support structures, which facilitate the first category in the SAFE™ model, supervision. It is imperative that all agencies have discussion on creating the area for supervision so adults are able to see and move throughout the area. Morrongiello and Schell (2010) specified three critical supervision dimensions to consider: attention (extent of watching and listening), proximity (within versus beyond arms reach), and continuity of attention and proximity (constant/intermittent/not at all). Supervision considerations also include signage, open sight lines, and zones for play (Olsen, Hudson, & Thompson, 2016).

Outdoor play environments for children should be designed according to the age and developmental ability of the child, which considers the next category in the SAFE™ model, age appropriateness of the equipment and materials. The CPSC recommends play areas be designed for and separated by age categories 6–24 months, 2–5 years, and 5–12 years (CPSC, 2010). For instance, young children do not have the strength or agility to use upper body equipment such as horizontal ladders (CPSC, 2010). Younger children could get injured if they play on equipment not developmentally appropriate for them. Likewise older children can be injured if they inappropriately use equipment meant for younger children.

The third category in the SAFE™ model is fall surfacing. Falls are the number one factor cited of nonfatal unintentional injuries suffered by children interacting with playground equipment (National Center for Injury and Prevention, 2009). Selecting and maintaining proper fall surfacing under and around the playground equipment is a crucial element in providing a safe play environment (ASTM, 2013; Laforest, Robitaille, Lesage, & Dorval, 2001). Outdoor environments for young children should install and maintain an acceptable shock-absorbing surface under and around playground equipment that will sustain the fall heights (ASTM, 2013; CPSC, 2010).

The fourth category in the SAFE™ model is equipment and surface maintenance. The standard of care and best practice for equipment maintenance involves a playground maintenance policy (Philpott & Serluco, 2010). According to CPSC (2010), routine inspection and maintenance issues include identifying broken equipment, cracks, dangerous debris, vandalism, missing parts, and rot.

**Accessibility requirements**

Along with safety guidelines, there is also a regulation in the United States, the Americans with Disabilities Act (ADA). As Frost, Brown, Sutterby, and Thornton (2004) indicate a decade ago ‘accessibility is one of the critical issues of playground design for the future’ (p. 221). Many playgrounds are not accessible to children with disabilities (Burkhour & Almon, 2010; Olsen & Dieser, 2012). ADA became mandatory regulations in 2013 by the United States federal government (USDOJ, 2010). Failure to do so is deemed a violation.

The standards apply to play areas designed and constructed at community parks, neighbourhoods, schools, and childcare facilities. The document provides technical provisions for ground-level and elevated play components, accessible routes, transfer systems, ground surfaces, and soft contained play structures. It also provides requirements for inclusive play by enabling children to get to and from playgrounds, providing opportunities for them to play, and by enhancing possibilities for interaction with other children (USDOJ, 2010).

**Early childhood outdoor spaces best practices**

The profession of early childhood in the United States has several agencies that support best practices in young children education.
Caring for our Children: National Health and Safety Performance Standards addresses health and safety in the United States outdoor environment. Information presented in these standards includes size and location of space, types of play and playground equipment, water play areas, toys, maintenance, appropriate surfacing materials, and inspection processes (American Academy of Pediatrics, et al., 2011).

The Early Childhood Environment Rating Scale (ECERS) is designed to assess the quality of early childhood environments with specific suggestions on amount of uninterrupted free play, protection from sun and wind, adequate supervision, access to gross motor equipment, and semi-private space in the outdoor environment. The Infant/Toddler Environment Rating Scale is designed to assess outdoor environments designed for children aged 0–30 months, addressing similar elements to the ECERS and also includes suggestions on science and nature elements and dramatic play materials in the outdoor environment (Garnsm, Cryer, & Clifford, 2006).

The National Association for the Education of Young Children Standard 9: Physical Environment (NAEYC) Physical Environment standard highlights several social, emotional, and intellectual domains in the outdoor environment, specifically referencing dramatic play, expressive arts, math, science and nature, literacy, and social studies (National Association for the Education of Young Children, 2005). The Head Start Program Performance Standards expectations for Head Start agencies addressing the maintenance, repair, safety, and security of all facilities (US Department of Health and Human Services, 2005).

Methods

This study sought to gather the availability of SAFE™ and quality play opportunities in early childhood outdoor environments. The intent was to examine outdoor environments to understand whether or not young children had access to play materials and loose parts to enhance their playful experiences and to understand whether or not they complied with safety requirements.

Child care environments

The study took place in the United States throughout one state (name to be released after the blind review process). The researchers utilized a random sample selection in order to maintain the ability to generalize findings throughout the state of (release of state after blind review). The researchers identified six quadrants in the state using the state’s Early Childhood Areas. The Early Childhood Areas was founded by the state’s Department of Human Services on the premise that communities and state government can work together to improve the well-being of the youngest children (Early Childhood, 2016). The areas receive state funding in six quadrants. The quadrants were Northwest, Southwest, North Central, South Central, North East, and South East. The researchers used the six quadrants as the method for selecting the child care programmes.

Within each quadrant, the researchers then identified three cities in each of the population categories. The population categories were determined by the researchers (a) cities under 5000, (b) cities between 5,001–24,999, and (c) cities who have over 25,000 population. Once the cities were determined in each population category, a child care list from the selected city was then generated from the state’s Department of Human Services database. The researchers identified all of the licenced childcare facilities in that city.

Once the list was obtained from the state’s Department of Human Service database, there was a randomized selection between the numbers of child care programmes in each city to the number of programmes visited in the selected city. During a four-month period, the researchers visited 61 early childhood programmes. Forty-two early childhood outdoor areas were visited with a population over 25,000. Twelve early childhood outdoor areas were visited with a population between 5001 and 24,999. Seven early childhood outdoor areas were visited with a population under 5000. In addition,
23% locations visited were from South East, 20% were from Northwest, 16% were from North Central, 16% were from South West, 15% were from North East, and 10% were from South Central.

**Survey instrument**

Using the NPPS’s inspection programme handbook (Olsen, Hudson, & Thompson, 2015) and the playground safety checklist found in the *Handbook for Public Playground Safety* (CPSC, 2010), researchers evaluated the randomly selected early childhood programmes outdoor play environments. Researchers piloted the survey in a neighbouring community with an estimated inter-rater reliability ($r = 0.89$). The survey instrument was a checklist composed of 108 questions. The survey was composed of four parts: (1) basic description of the outdoor environment, (2) physical layout of the outdoor environment, (3) SAFE™ factors of outdoor environment, and (4) specific pieces of materials, equipment, and toys.

**Results**

**Description and physical layout of outdoor play environments**

A summary of the data found 51% of the outdoor environments had playground equipment that was relatively new, installed after 2011. Thirty-one per cent of the playground equipment was installed between 2005 and 2010, 2% prior to 2005, and 15% was undetermined. United State’s guidelines regarding playgrounds were first published by CPSC in 1981 and have been revised five times since, with the latest revisions published in 2010. Ninety-eight per cent of outdoor environments were buffered by a fence, natural element, or distance from cars or other motorized hazards. In addition, 83% had a buffer between playground equipment and play zones.

Many of the outdoor play areas had nature elements (71%) and materials for gross motor skill development (59%). Only 59% had an open grass area for children to run freely in an open space. The American Academy of Public Health Association (2013) encourages nature access for children as nature exposure has been related to lower mortality and illness, higher levels of physical activity, lower stress, and a greater sense of well-being. Natural environments have found to improve children’s attention, self-regulation, and motor abilities (Flouri, Midoushas, & Joshi, 2014).

Whole child development is critical in early childhood environments (Bergen, 2007; Lawson, 1996). Hands-on experiences, especially through play opportunities, for young children is natural in most early childhood settings (Cutter-Mackenzie & Edwards, 2013). This study found only 40% of the outdoor environments had dramatic play materials. However, the majority of outdoor play areas have some type of loose parts or toys (90%), slides (89%), climbing structures (82%), sandboxes (64%), and storage units (62%).

A study conducted in 2004 by the NPPS reported a variety of equipment in child care programmes (NPPS, 2004). Table 1 identifies the percentage of play materials and playground equipment pieces

<table>
<thead>
<tr>
<th>Equipment</th>
<th>2015 (%)</th>
<th>2004 (%)</th>
<th>Change % 2004–2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slide</td>
<td>89</td>
<td>83</td>
<td>+6</td>
</tr>
<tr>
<td>Swings</td>
<td>3</td>
<td>48</td>
<td>−45</td>
</tr>
<tr>
<td>Climbing structures</td>
<td>82</td>
<td>NA</td>
<td>−4</td>
</tr>
<tr>
<td>Merry-go-rounds</td>
<td>5</td>
<td>9</td>
<td>−4</td>
</tr>
<tr>
<td>Balance beam</td>
<td>11</td>
<td>4</td>
<td>+7</td>
</tr>
<tr>
<td>Steering wheels</td>
<td>44</td>
<td>13</td>
<td>+31</td>
</tr>
<tr>
<td>Play panels</td>
<td>41</td>
<td>4</td>
<td>+37</td>
</tr>
<tr>
<td>Storage units</td>
<td>62</td>
<td>NA</td>
<td>−4</td>
</tr>
<tr>
<td>Sand boxes</td>
<td>64</td>
<td>17</td>
<td>+47</td>
</tr>
</tbody>
</table>
found in outdoor play areas compared to 2004. There has been a 45% decrease in the percentage of swinging opportunities for children to play. In addition, a 47% increase in sandboxes and 27% increase in play panels (such as tic-tac-toe boards, spin the shapes, mirrors, etc.) has occurred since 2004.

Another component examined was inclusiveness and accessibility. The 2010 United States’ ADA Standards for Accessible Design became law in 2012. The reviewers found 58% had an accessible path from the programme’s building to the outdoor play area. In addition, 43% included a path from the edge of the play area was connected to the play equipment. Only 31% of the outdoor environment was inclusively designed for children of all abilities to play with others and have access to the outdoor materials and equipment.

**SAFE™ factors of outdoor environment**

Part of a high-quality outdoor space involves some key safety concepts that should be considered during the planning process. At least four factors are contributing factors regarding injuries to children on playgrounds: Supervision, Age appropriate design, Falls surfacing, and Equipment maintenance (Thompson & Hudson, 2001).

**Supervision**

The presence and ability to supervise properly is crucial in outdoor environments. Most surveys (97%) were administrated at times when children were not present in the outdoor environment. Supervision is more than viewing children (Schwebel, 2006) and has been cited as a contributing factor in practically all expert witness cases (Frost & Sweeney, 1996), supervision questions related to the layout, organization of space, and blind spots. It was found only 9% of the programmes had signs posted indicating the need for supervision. In addition, 66% allowed supervisors to see inside closed spaces and 68% the area is free of blind spots, where children may not be easily seen or heard.

**Age-appropriate design**

Playground guidelines published by the CPSC indicate that equipment should be manufactured and installed for ages 6 months–23 months, 2–5 years of age, and 5–12 years of age (CPSC, 2010). Fifteen of the programmes (25%) visited had a designated space outside for children aged 6–23 months. Sixty-three per cent of the early childhood outdoor environments had one play area for all the children they serve. Twenty-nine per cent of the outdoor environments had two play areas. Seventy-five per cent of programmes provided toys, manipulative objects, and playground equipment that was age-appropriate for 2- to 5-year-olds.

Based on the review of literature, early childhood programmes are encouraged to provide semi-private spaces where children can play alone or with small groups of friends (American Academy of Pediatrics, et al., 2001). In this study, 54% of the programmes had some type of semi-private space. These spaces may have included a semi-enclosed reading nook, miniature willow tree, and dramatic play area. ASTM standards state playgrounds should post signs illustrating age appropriateness of the area (2011). Ten per cent of programmes had posted age appropriateness signs.

**Fall surfacing**

Falls to the surface are cited as a contributing factor in 70% of the playground injury data (O’Brien, 2009). Thus, proper surfacing under and around the playground equipment is a crucial element in providing a proper surface. According to CPSC guidelines, acceptable playground surface materials include unitary or loose-fill material (CPSC, 2010). Unitary materials include rubber mats, rubber tiles, or a synthetic grass. Some examples of loose-fill material include wood
products (engineered wood fibre, wood chips), shredded/recycled rubber mulch, sand, and pea gravel. CPSC recommends that unitary and loose-fill materials must be tested and comply with ASTM F1292 (CPSC, 2010). The study found that 83% of programmes had appropriate surfacing materials provided in the outdoor play environment and 77% of the surface area was free of foreign objects and evidence of poor drainage. Table 2 illustrates the types of surfacing material underneath the playground equipment.

Skin cancer is the most common form of cancer in the United States (Balk, O’Conner, & Saraiya, 2004). Intense exposure to high solar rays in childhood increases the risk for developing skin cancer later in life. The United States CPSC warns adults the risk of thermal burns from playground equipment and surfacing material (2016). In this study, it was found 90% of surfaces are protected by some type of shade structure to prevent from blistering feet or hands.

**Equipment maintenance**

Maintenance of toys, manipulative objects, and playground equipment is critical in order for children to have quality experiences during play outdoors. Equipment maintenance is an important element because without routine inspection and repair any equipment will fall into disrepair and thus pose a hazard to children using the equipment. In addition, the lack of maintenance could void a manufacturer’s warranty, put children in physical danger, and waste dollars on unusable equipment. In the study, overall the composite playground structures were recorded to be in good condition (92%). However, only 43% of play toys, materials, and loose parts were reported to be in good condition. Table 3 highlights maintenance components with playground equipment and other toys and materials children engage with during outdoor play experiences.

**Sand play, loose parts, and other play materials**

Children love to engage with their physical environment and the manipulative equipment that are present in these spaces (Nicholson, 1971). Manipulative objects are materials that children can pick up, sort, arrange, and collect. Examples of these objects include holding containers, sand toys, building toys such as blocks, boxes, dolls and action figures, wheeled toys, art supplies such as brushes, paint, cups, water tables, sponges, and dramatic play toys such as kitchen materials/cooking utensils, dress-up, dolls, and action figures, and materials found in nature such as pine cones, rocks, sticks, and smooth stones. Brown (2009) indicated play is an essential

<table>
<thead>
<tr>
<th>Table 2. Type of surfacing material underneath playground equipment.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of surfacing materials</td>
</tr>
<tr>
<td>----------------------------</td>
</tr>
<tr>
<td>Programmes using some type of wood product</td>
</tr>
<tr>
<td>Programmes using pea gravel</td>
</tr>
<tr>
<td>Programmes using rubber tiles</td>
</tr>
<tr>
<td>Programmes using poured-in-place rubber</td>
</tr>
<tr>
<td>Programmes using sand</td>
</tr>
<tr>
<td>Programmes using crumb rubber</td>
</tr>
<tr>
<td>Programmes mixing loose-fill surfacing material</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 3. Maintenance check of playground equipment and play toys/materials.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment maintenance check</td>
</tr>
<tr>
<td>----------------------------</td>
</tr>
<tr>
<td>Free of missing parts</td>
</tr>
<tr>
<td>Free of protruding bolts</td>
</tr>
<tr>
<td>Free of head entrapments</td>
</tr>
<tr>
<td>Free of splinters</td>
</tr>
<tr>
<td>Free of cracks and holes</td>
</tr>
</tbody>
</table>
way that humans learn to socialize and play provides a platform for exploration (Colton & Gore, 1991). Therefore, loose parts, toys, and manipulative objects are instrumental pieces of a child’s play experience. Diverse types of play materials should be available so each child has the opportunity to manipulate and explore. Construction of loose parts enhances children’s outdoor environments (Dempsey & Strickland, 1999). As was previously mentioned, the majority of outdoor play areas in this study had loose parts, play materials, and toys (90%) present. The study identified the types of loose parts, play materials, and toys that were located in the outdoor environment (Table 4).

The outdoor environment is filled with opportunities for pretend and constructive play. Sand and water are one of the most critical, yet controversial elements of the outdoor environment in early childhood. Sand and water play has the great value for children’s social and cognitive development (Dodge, Colder, & Heroman, 2010; Frost et al., 2004). The ever-changing materials lead to creative thinking and provide rich tactile experiences, yet in many cases, teachers must navigate cross cultural discussions with families and manage the care of the maintenance of sand and water materials. This study found 64% of the outdoor play environment had evidence of sand and water play.

It is encouraging to know early childhood programmes are including loose parts to the outdoor environment for children to play. Children are born with natural curiosity about the world. Outdoor environments are ideal for children when they include dramatic play props, playhouses, stages, gazebos, decks, and amphitheatres to name a few. If these types of play opportunities are provided in early childhood environments, then storage becomes a critical component of the outdoor environment. Storage space is a necessity in the environment and is one of the most overlooked features (U.S. General Services Administration, 2003). Storage compartments should include a

### Table 4. Identification of loose parts, manipulative play materials.  

<table>
<thead>
<tr>
<th>Loose parts, Play materials, and Toys</th>
<th>61 Total play areas visited</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tricycle path</td>
<td>27 locations</td>
</tr>
<tr>
<td>Picnic table</td>
<td>26 locations</td>
</tr>
<tr>
<td>Buckets and shovels</td>
<td>22 locations</td>
</tr>
<tr>
<td>Kitchen playset</td>
<td>21 locations</td>
</tr>
<tr>
<td>Painting</td>
<td>19 locations</td>
</tr>
<tr>
<td>Balls</td>
<td>16 locations</td>
</tr>
<tr>
<td>Nature elements (trees, rocks, woods)</td>
<td>15 locations</td>
</tr>
<tr>
<td>Chalk board</td>
<td>12 locations</td>
</tr>
<tr>
<td>Riding equipment</td>
<td>8 locations</td>
</tr>
<tr>
<td>Children chairs</td>
<td>8 locations</td>
</tr>
<tr>
<td>Rocking equipment</td>
<td>7 locations</td>
</tr>
<tr>
<td>Balance beams</td>
<td>7 locations</td>
</tr>
<tr>
<td>Play house</td>
<td>7 locations</td>
</tr>
<tr>
<td>Balance beams</td>
<td>7 locations</td>
</tr>
<tr>
<td>Reading and writing materials</td>
<td>7 locations</td>
</tr>
<tr>
<td>Basketball hoops</td>
<td>6 locations</td>
</tr>
<tr>
<td>Action figures</td>
<td>5 locations</td>
</tr>
<tr>
<td>Bubbles</td>
<td>5 locations</td>
</tr>
<tr>
<td>Standing-alone equipment with a slide</td>
<td>4 locations</td>
</tr>
<tr>
<td>Jump ropes</td>
<td>3 locations</td>
</tr>
<tr>
<td>Musical instruments</td>
<td>3 locations</td>
</tr>
<tr>
<td>Bench</td>
<td>2 locations</td>
</tr>
<tr>
<td>Talk tubes</td>
<td>2 locations</td>
</tr>
<tr>
<td>Stepping pods</td>
<td>2 locations</td>
</tr>
<tr>
<td>Standing-alone equipment without a slide</td>
<td>1 location</td>
</tr>
<tr>
<td>Wagon</td>
<td>1 location</td>
</tr>
<tr>
<td>Sand digger</td>
<td>1 location</td>
</tr>
<tr>
<td>Stage</td>
<td>1 location</td>
</tr>
<tr>
<td>Lego table</td>
<td>1 location</td>
</tr>
<tr>
<td>Push/Pull toys</td>
<td>1 location</td>
</tr>
<tr>
<td>Blocks</td>
<td>0 location</td>
</tr>
<tr>
<td>Miniature cars/Trucks</td>
<td>0 location</td>
</tr>
<tr>
<td>Riding slide toys</td>
<td>0 location</td>
</tr>
</tbody>
</table>
combination of large storage units for tricycles, balls, and large blocks and smaller child accessible shelves for art supplies, dramatic play elements, building supplies, cars, marbles, and other loose materials. This study found 62% of the early childhood programmes had some type of storage unit placed in the outdoor play environment.

**Discussion and implications**

The purpose of this study was to investigate early childhood outdoor environments to determine the availability of SAFE™ and quality play environments that may enhance or eliminate playful childhood experiences. Examining quality outdoor play environments is a relatively new and emerging area of interest within early education as there is no clear definition of quality outdoor play environments. This study produced an initial description of outdoor play environments in early childhood. Although the study was conducted in one state in the United States and is not generalizable, it does provide a useful snapshot of play environments outdoors.

This study has provided a starting discussion on quality, engaging, and SAFE™ outdoor playful children experiences in early childhood. Despite the research findings highlighted in this study, outdoor environments in early child care programmes should be at the forefront of discussion by educators, researchers, and influential political agencies to support an ecological approach to change. The findings conclude that the traditional model with a playground equipment structure continues to be the staple of play outdoor spaces for children, as 85% of the outdoor play environments had playground structure that was designed for children to climb up and slide down. Early childhood outdoor environments are filled with possibilities for meaningful and playful experiences.

Creating an outdoor play environment that is safe and of high quality and that encourages opportunities for children to learn and develop physically, emotionally, socially, and intellectually should be the intent (Mustapa, Malik, & Hamzah, 2015). Richardson (2007) indicates whole, body multi-sensory experiences are critical for children. If social policy improves living conditions, betters opportunities, and prevents social injustices, the suggestion is to make a commitment to create social policies that value developmentally appropriate, inclusive outdoor environments for all children to meet developmental needs and to experience the joys of childhood.

To ensure quality (whole, body multi-sensory experience) and SAFE™ outdoor play experiences, a thoughtful plan must be developed to characterize the purpose and meaning of the outdoor space. Developing a purpose of the outdoor space provides a framework within which the programme can plan a quality experience for all children. Similar to developing and establishing indoor curriculum, a quality outdoor space should allow all children to progress in their development through the provisions of challenging and appropriate equipment, furnishing, and materials. Through a planning process, all children can be exposed to a play environment where some, if not all, of the developmental milestones are present.

The first consideration is for educators to allow plenty of time for inclusive child-centred outdoor play exploration. Kuh (2014) highlights the first step for early childhood educators is to go outside and make outside time a priority. Specifically, she recognizes classroom time is precious, ‘the outdoors can open the possibilities for projects, investigations, and increased social opportunities that positively impact development’ (p. 85).

The second consideration to support high quality through multi-sensory experience is by providing children play materials, toys, and loose parts. Dowda et al. (2009) concluded that the environment and the type of materials can increase physical movement. Research has also consistently shown that during outdoor time, gross motor activity is more likely to happen (Baranowski, Thompson, DuRant, Baranowski, & Puhl, 1993; Burdette, Whitaker, & Daniels, 2004). Therefore, play environments that support and encourage movement supports high quality.

The third consideration to support high quality through multi-sensory experience is by providing play environments that support emotional development. Denham (1998) describes emotions are at
the centre of children’s relationships, well-being, and sense of self allowing these characteristics to foster children’s understanding of how the world works. Flouri et al. (2014) found when children had access to quality natural environments, children’s attention, self-regulation, and motor skills were improved.

The fourth consideration to support high quality through multi-sensory experience is by providing play environments that support social development. Bourke and Sargisson (2014) found that the outdoor space allows for more peer interactions than the indoor space. The time outside is a place when children can have opportunities to make friends, learn about being accepted by peers, resolving conflicts, and expressing feelings (Trawick-Smith, 2010). In addition, Czalczynska-Podolska (2014) reported traditional playgrounds promote competitive and solitary play rather than cooperative and social interaction.

The fifth consideration to support high quality through multi-sensory experience is by providing play environments that support intellectual development. Cognitive learning, which could include math and science, happens naturally when children have access and time in the outdoor space (Wellhousen, 2002). In order to have a naturalistic and intelligences, Nilsen (2014) suggests designing specific spaces for play only. The space should not be ‘overly designed or filled with construction or play equipment restricting children’s creativity’ (p. 2).

The final consideration to support high quality through multi-sensory experience is by providing play environments that follow health and safety standards and guidelines. Outdoor environments for young children need to be more than a cluster of equipment scattered throughout the space. It is apparent that creating an enriching and safe outdoor play environment is not a haphazard process, but rather should be based upon the literature and best practices for children. Outdoor play environments should be purposeful, with high quality through multi-sensory experience. Outdoor play environments should be planned for inclusive use, while complying with regulations and standards.

In conclusion, while we all agree getting children playing outdoors is important, it is the responsibility of the early childhood programmes and educators to provide safe and quality outdoor play environments that support the developmental appropriate practice. It should be more than going to a catalogue to purchase equipment. Children deserve to have outdoor play environments that are designed with intention of them learning, discovering, and enjoying. Outdoor play environments in early childhood programmes need to be more than a cluster of playground equipment and toys scattered throughout the outdoor space. Outdoor play environments have abundant opportunities to support the whole body experience of children.

Disclosure statement

No potential conflict of interest was reported by the authors.

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