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Ann Spilker

University of Nebraska-Lincoln, aspilker4@huskers.unl.edu

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Outdoor Play in Preschool Children:
Parent Attitudes and Loose Part Play in Urban Settings

by

Ann M. Spilker

A THESIS

Presented to the Faculty of
The Graduate College at The University of Nebraska
In Partial Fulfillment of Requirements
For the Degree of Master of Science

Major: Natural Resource Sciences

Under the Supervision of Professor Lisa Pennisi

Lincoln, Nebraska

April 2022

Outdoor Play in Preschool Children: Parent Attitudes and Loose Part Play in Urban Settings

Ann Maisie Spilker, M.S.

University of Nebraska, 2022

Advisor: Lisa Pennisi

Outdoor play is an important aspect of young children's health social-cognitive development. However, play in natural environments is declining due to urbanization and various safety concerns. Many urban preschools have outdoor play spaces that lack natural elements that stimulate children's autonomy, creativity, and imaginative play. Furthermore, parents who find outdoor environments intimidating and fraught with danger limit young children's outdoor experiences that inhibit their motor fitness, socialization with peers, and ecological awareness. Two qualitative case studies examined preschool children's outdoor play. Study one focused on preschool children's loose parts play in urban settings while study two examined parent's attitudes towards outdoor play with young children. Key findings included children engaged in dramatic play more with natural loose parts than manufactured loose parts. And playgrounds with age/developmentally appropriate equipment, barriers/fences, and open/centralized play spaces with clear views would make parents more comfortable in providing outdoor play.

Dedication

I dedicate this project to my late grandpa Donald W. Spilker who showed me what it is to love unconditionally, work hard, and cherish the simple moments of life. Thank you, mom (Cathy L. Spilker) and dad (Dean D. Spilker), for your constant support and love during my journey. You always remind me who and whose I am.

Acknowledgements

This project could not have been possible without the constant support, teaching, and guidance of several people throughout the process. To begin I would like to thank the School of Natural Resources for funding my position as a teaching assistant. I would like to thank my wonderful parents who constantly show me unconditional love and provided an atmosphere of awe and respect for nature. I would also like to thank my best friend Andrea for her constant support and encouragement through my graduate experience and my fellow grad students and classmates who kept me accountable.

I would like to thank my previous teachers and mentors who believed in me and saw my potential even when I could not see it myself. Especially my former undergraduate advisor Joseph Gubanyi who welcomed me in as a young student who had no idea what she wanted to do with her life. He introduced me to the world of scientific research and enthralling lifestyle of bird watching (yes, it is a lifestyle). I also want to thank Jennifer Fruend for showing me how to be a powerful and unique woman of science. She is a constant inspiration. I also want to thank Mollie Von-Kampon for providing me advice and insight on loose part play with preschool children and opportunities for further study.

I also want to thank my committee members Soo-Young Hong, Hillary Mason and Daniel Snow who provided helpful and constructive feedback. Their insight and experience in the fields of early childhood education and environmental studies were invaluable. I also want to thank Dennis Ferraro and Jeff Micek for providing the animal loose part items. Finally, I would like to thank my amazing advisor, Lisa Pennisi who looked out for me as I navigated grad school and helped me get through the ups and

downs of the last two years. Thank you for helping me grow to be a better student and teacher. I could not have done this research without you.

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CHAPTER 1: PRESCHOOL CHILDREN'S PREFERENCES FOR MANUFACTURED OR NATURAL LOOSE PARTS IN AN URBAN OUTDOOR SPACE

Abstract

Outdoor environments provide diverting opportunities for young children to learn through child-led play (Coates & Pimlott-Wilson, 2018; Skar et al., 2016; Waters & Maynard, 2010). However, many urban preschools have outdoor play spaces that lack natural elements (Puhakka et al., 2019). Loose parts play (LPP) is a pedagogy of learning that introduces a variety of manipulatable objects in a play space to improve opportunities for engagement (Gibson et al., 2017). Many studies have examined how loose parts play diversify play opportunities and improve outdoor learning (Adina Cox et al., 2018; Gibson et al., 2017; Maxwell et al., 2008; Zamani, 2016), but none examined how different types of loose parts effect young children's play behaviors in an urban outdoor setting. This case study introduced three different types of loose part materials (manufactured, plant-based, and animal-based) at two different urban outdoor preschools in a small Midwestern city. Child participants (n=19) completed semi-structured interviews and their play behaviors were measured using Rubin's play observation scale (2001). Children engaged in dramatic play more with natural loose parts than manufactured loose parts. Although natural and manufactured loose parts were found to contribute to dramatic play behaviors. Functional play behaviors were the most common play behavior overall. Besides functional play, children also participated in lots of constructive play with manufactured loose part materials. Explorative play was the least common play behavior observed, with it occurring commonly with animal-based loose parts. There was a more even distribution of constructive, dramatic, and explorative play behaviors at Site 1, which has a more natural outdoor setting) compared to Site 2 (more

manufactured outdoor setting). When asked what they like to do outside, children primarily reported playing in manufactured settings (playgrounds) with manufactured play items. When all three loose part types were present in the outdoor space children preferred playing with manufactured loose parts. These findings show manufactured and natural loose parts can afford a variety of cognitive play behaviors in young children and both can be implemented in an urban preschool's outdoor space. However, children are more likely to recognize and interact with items they are familiar with, which in this case was manufactured loose parts. Therefore, educators may need to familiarize children to unfamiliar natural loose parts materials play. Further study is needed to understand how different variables may affect children's play behavior and preference for different loose part materials.

Introduction

Early childhood education programs assist in critical development by teaching fundamental skills children need for a crucial part of the growth process (Wyver, 2019). Play is an important aspect of children's development. Play stimulates children's physical, cognitive, social, and emotional well-being (Bento & Dias, 2017). Outdoor play is especially beneficial to young children's growth process, with studies showing exposure to natural elements improves children's motor fitness (Fjørtoft, 2001), creativity (Kiewra & Veselack, 2016; Zamani, 2016) cooperative interactions (Coates and Pimlott-Wilson, 2018; Duque, Martins, and Clemente, 2016) pro-social behavior (Acar & Torquati, 2015; Duque et al., 2016), pro-environmental behavior (Collado & Corraliza, 2015) and ecological awareness (Enid, Ten, Eycke, Chan, and Muller, 2014) .

Despite clear evidence that young children's development thrives when given opportunities to play in nature (Zamani, 2016), play in wild spaces is declining. One of the main culprits for this loss is urbanization (Bento & Dias, 2017). According to the United States Census Bureau, 80% of American citizens live in cities due to urbanization (2016). Studies on the benefits of outdoor play are frequently done in a lab or nature school setting, that already implement environmental education programs and possess reasonable outdoor space (Rice & Torquati, 2013; Coates and Pimlott-Wilson, 2018; Kiewra & Veselack, 2016; Zamani, 2016). However, urban preschool programs are usually confined to indoor play spaces or small outdoor spaces that lack natural elements (Puhakka, Rantala, Roslund, Rajaniemi, Laitinen, and Sinkkonen, 2019). Even when natural outdoor spaces near the centers are available, utilization is often limited by lack of access, need for transportation (Ernst, 2014), and insufficient training for educators (Bento & Dias, 2017).

Outdoor play areas in urban preschools often consist of manufactured playgrounds on artificial surfaces (Puhakka et al., 2019), affording opportunities for functional activities such as running and climbing important for physical health but not a diversity of play types or behaviors such as unstructured play important for social and cognitive development (Maxwell, Mitchell, and Evans, 2008; Nicholson, 1972; Zamani, 2016). Implementing loose parts play in outdoor spaces may provide opportunities for unstructured play (Gibson et al., 2017; Gull, Bogunovich, Goldstein, and Rosengarten, 2019) Loose parts play (LPP) is a pedagogy of learning that introduces a variety of manipulatable objects in a play space to improve opportunities for engagement (Gibson,

Cornell, and Gill, 2017). Research on implementing natural loose parts play in urban preschools can inform educators on how to diversify play opportunities and improve outdoor learning for their students (Gibson et al., 2017; Maxwell et al., 2008; Zamani, 2016). Examining educator's attitudes to determine how to help them feel confident in providing outdoor opportunities would also make loose parts play more accessible for urban preschool centers (Bento & Dias, 2017).

Design of space in an outdoor play area

Compared to an indoor classroom, play in outdoor spaces offers diverse opportunities giving children autonomy to choose how they interact with their environment (Coates and Pimlott-Wilson, 2018; Skar, Gunderson, and O'Brien, 2016; Waters & Maynard, 2010). Outdoor environments provide dynamic elements in a play space with changing weather that creates different elements for children to interact with such as snow, mud, and puddles (Bento and Dias, 2017; Kiewra and Veselack, 2016; Skar et al., 2016). Play time affords unstructured, child-led learning, discovery, and developmental opportunities compared to structured, teacher-led activities (Gibson et al., 2017). The layout of an outdoor play area impacts how children perceive and interact with the environment. Typically, urban preschools implement traditional playgrounds in an outdoor space with manufactured structures such as slides, swings, monkey bars, and teeter totter. However, if available, children often choose to challenge themselves by climbing and jumping off logs and exploring natural elements (Azlina & Zulkiflee, 2012). Natural outdoor spaces may even increase children's opportunities for play in general. One study using behavior analysis mapping found non-play behavior is observed least in natural zones compared to manufactured and mixed zones (Zamani, 2016).

Unlike traditional play areas, outdoor areas with natural elements stimulate diversity in play and learning through stimulating children's creativity and problem-solving skills (Acar & Torquati, 2015; Azlina & Zulkiflee, 2012). Manufactured playgrounds with fixed elements and parts take away the opportunity for children to use the space creatively and make it what they want (Nicholson, 1972). When four urban schools in Finland replaced their gravel areas with grass, sod, peat blocks, and planters, the green materials allowed for more diverse functional activities, imaginative play, socialization with peers, and a growing sense of responsibility and care for the outdoor space (Puhakka et al., 2019). Natural play spaces possess a wide range of benefits besides diversifying play types. Children perceive natural play yards as more restorative (able to restore a feeling of well-being) than manicured play yards. And a child's fascination with nature is a strong indicator of environmental attitudes, so encouraging a positive relationship with nature is beneficial for these reasons as well (Collado & Corraliza, 2015).

For a lot of preschoolers, the only time the children get to connect to a natural environment is when the center organizes trips to a park or woodland area. Preschools with limited resources may be unable to provide such natural experiences for their students (Ernst, 2014). Since opportunities to visit parks are often infrequent at best, strategies to improve outdoor spaces to provide students natural experiences in the programs are vital. One strategy to improve children's everyday interactions with nature includes adding sod surfaces and natural materials to an outdoor play space (Collado & Corraliza, 2015; Puhakka et al., 2019).

Play behaviors observed outdoors

Certain play settings and structures are associated with various play behaviors in children. Rubin's play observation scale for studying observed play behavior in children (2001), measures play types in three distinct categories: cognitive, social, and non-play with 15 possible play behavior codes combining the cognitive and social play categories (e.g., solitary-constructive, parallel-dramatic). Cognitive play categories are based on the child's intention or purpose as they engage in an activity or use an item in the play space. For example, if a child is waving a stick around outside is it because they like the feeling of swinging the stick (functional play) or are they pretending the stick is a magic bubble wand (dramatic play)? Cognitive play types include functional play such as simple motor activities like running and climbing, constructive play where the child manipulates objects to create something, exploration where the child examines an object or space and engages one or more of the five senses, dramatic play where the child takes on a role and engages in pretend play, and games-with-rules play where the child plays within the limits of a game and controls their actions to fit the game.

Social play categories are determined using the child's proximity and attentiveness to other children in the play area. Social play types include solitary play where the child is playing alone, parallel play where two children play side by side but are not doing the same activity or using the same toys, and group play where children are working together on an activity. Non-play behaviors are any actions or intentions not coded as play behavior such as unoccupied behavior, onlooker behavior, transitioning activities, active conversation, aggression, hovering, anxious behavior, and any other behaviors that cannot be coded as cognitive or social play. Rough-and-tumble play is coded as dramatic

group play if children are play fighting without malice towards each other (ex: two superheroes play fighting). However, if the play becomes aggressive and children are fighting with the aim to hurt each other it is coded as non-play behavior. Rough and tumble play is not allowed in most preschool centers.

Different types of loose parts are associated with different types of play behavior. For example, a manufactured loose part such as blocks may more easily offer affordances for constructive play behavior instead of explorative behavior. When manufactured loose parts were present in a preschool's outdoor classroom, children mostly exhibited constructive play behaviors (Maxwell et al., 2008). Besides physical stimulation, loose parts also allow children to explore and discover new and exciting objects. One study in a museum backyard, found children engaged more in exploratory play compared to locomotive play in the presence of different types of movable loose parts (Cox et al., 2018) The setting of the play environment can also influence children's play behaviors. When comparing dramatic play behaviors in young children, Maxwell and associates (2008) found enclosed spaces, platforms, stages, multiple entries, and connector spaces accommodated fewer children and allowed for cooperative social interaction necessary in dramatic play (Maxwell et al., 2008).

Loose parts play

Children, especially young children, explore the world around them kinesthetically. Curiosity-driven, children like to touch, build, move, and discover materials within their play space. Manufactured loose-parts such as PVC pipes, colored blocks, pieces of fabric, and tires are often used in urban preschool programs (Maxwell et al., 2008). Although manufactured elements are sanitary and aesthetically pleasing, they do not provide

diverse benefits for the students, and can make parts difficult to interact with and manipulate by being fixed to the ground or side of the building (Nicholson, 1972).

Loose parts play comes from Simon Nicholson's loose parts theory which states "in any environment, both the degree of inventiveness and creativity, and the possibility of discovery, are directly proportional to the number and kind of variables in it" (1972, p.6).

Though the definition of loose parts play is ambiguous, a recent review of loose parts play literature found that the focus is discovering, experimenting, and interacting with a variety of objects (Gull et al., 2019). Children appear to choose open-ended materials with no prescribed use such as blocks and logs over manufactured toys (Maxwell et al., 2008; Zamani, 2016) Non-standardized, easy to manipulate materials of good quality were most frequently used by children and supported their divergent thinking and ingenuity (Kiewra and Veselack, 2016). Materials in a play space contribute to children's representational modes, part of cognitive development where children remember a specific experience, conceptualize it, and recreate it (Brown and Burger, 1984).

The value of natural materials

Manipulating natural materials empowers children to engage their creativity and ingenuity (Kiewra & Veselack, 2016). Manufactured play items with a defined purpose, such as ones found in a play kitchen, have pre-conceived scripts. Open-ended materials such as blocks, logs, tree stumps, sticks, rocks, leaves, and sand evoke children's creativity and imagination. Control is within the child to manipulate natural materials to use and imagine any way they want. Natural materials contribute to cognitive and social play behaviors in flexible ways (Azlina & Zulkiflee, 2012; Kiewra & Veselack, 2016;

Maxwell et al., 2008; Rubin, 2001) such as constructive and dramatic play, both higher order cognitive play behaviors (Maxwell et al., 2008; Rubin, 2001)

Children use imagination and ingenuity with nature materials to conceive the items' purpose or use (Coates & Pimlott-Wilson, 2018; Kiewra & Veselack, 2016). Flexible thinking and creativity are critical for children's development and contribute to later ecological awareness. For example, children can use existing features of a natural area such as trees or bushes to build forts and invite other children to join in the process and enjoy the finished product (Skar et al., 2016). While urban preschools are conditioned to using manufactured loose parts, natural items are an easy to obtain sustainable resource.

Purpose Statement

Nicholson's loose parts theory states "both the degree of inventiveness and creativity, and the possibility of discovery, are directly proportional to the number and kind of variables in it [the environment]" (1972, p.6). While some studies examined how loose parts promote children's creativity, imagination (Coates and Pimlott, 2018; Kiewra and Veselack, 2016), and diversified play opportunities and behaviors (Maxwell et al., 2008; Zamani, 2016), no study compared different types of loose parts materials on young children's play behaviors, specifically natural versus manufactured loose parts. The types of loose part materials may afford varying play and learning opportunities for preschool children, such that manufactured loose parts mainly consist of objects with predesigned scripts (Maxwell et al., 2008) while natural items allow children opportunities for innovation by manipulating objects to fit individual needs (Kiewra & Veselack, 2016). Other types of social and cognitive play may be impacted as well. Therefore, the aim of this case study is to observe and compare how preschool children's play behaviors

change with the presence of different types of loose parts in an urban preschool's outdoor space: manufactured, plant, and animal parts.

Research questions

- Will children exhibit different social or cognitive play behaviors with different loose parts materials present in their outdoor play area?
- When manufactured, plant, and animal materials are present, will children prefer a loose part that is manufactured or natural?

Methods

Study Design

This study was based on a qualitative case study design with multiple sites in one medium sized Midwestern city. Case studies use single or multiple cases to provide an in-depth understanding of an issue or problem using a real-life context (Creswell & Poth, 2016). In this instance, the case consisted of preschool children's play behaviors with loose parts within the bounded system of outdoor spaces at two different preschool centers. Qualitative measures used in this study were observations and interviews. Observations took place in the naturalistic setting of the outdoor space. Interviews with the children provided an understanding of their perceptions of outdoor play time and loose parts.

IRB and ethical considerations

IRB approved the case study October 2021. Ethical considerations took place throughout various phases of the study to respect participant privacy and conduct a rigorous qualitative study (Creswell & Poth, 2018). Staff at the preschool centers are dedicated to

their relationship with families and wish to contribute to the general knowledge about the best early childhood education practices. Both preschool directors involved voiced their interest in learning more about how loose parts play could improve the quality of outdoor play experiences.

All participant data is protected in encrypted online files that only the research committee have access to. All names and preschool center locations were replaced with pseudonyms to protect identities. Site directors of both preschool centers were contacted about the purpose of this study and allowed the primary researcher to contact families of the fall 2021 and spring 2022 preschool semester. Families were given a consent form disclosing the details of the study, any risks involved, the general procedure, and informing them of their rights to participate or not participate.

Sample Selection Procedures

The purpose of this case study is to examine how preschool children's play behaviors may change in the presence of different types of loose parts materials. Maximum variance sampling was used to get a wide range of preschool children. Participants were sampled from two different urban preschools. Site directors first informed parents of the study through an email the primary researcher wrote containing a flyer and consent form. This first method of recruitment was not very successful. For the second phase of recruitment, which was more successful, the primary researcher visited each of the two preschool locations in-person during pick-up and drop-off periods. Parents of potential participants were each given an information packet containing an invitation letter, flyer, consent form, and return envelope.

Participants

Site 1 has a population size of 84 preschool children and site 2 has 80 preschool children. After the recruitment period nineteen preschool children's parents or cared givers provided consent to participate in the study (site 1=11, site 2=8). Each participant was between the ages of 3-5. Nine participants were female and ten were male.

Site Descriptions

Site 1 views play as the most important vehicle to early learning. In the building there are five preschool rooms and three prekindergarten rooms with 10-12 children in each room with one teacher. The site recently transformed the outdoor courtyard space into an outdoor play area. A fence encloses the area of grass and mulch runs along the sidewalk and cuts through a wooden gazebo. The enclosed outdoor space includes a mud kitchen, music station, weathervane, tree stumps, two trees, and planter boxes for flowers and vegetables. There is also a fixed bouncing plastic car that fits four to six preschool children.

Site 2 views outdoor time as a key element of their curriculum and children go outside every day. The program has three preschool classrooms and one prekindergarten classroom. Each classroom has the capacity to hold 24 students. Outdoor play space is 5,456 ft² and mainly consists of concrete surfaces with some rubber padding and turf grass. One sand pit is located to the south of the gated outdoor play area. Three shade structures are in the play space. One on the north side and two on the south. The program already implements some loose parts play outdoors including tree trunks, branches, tree cookies, stumps, logs, ramps, and other rubber materials.

Materials

Manufactured loose parts: colorful plastic blocks, canvas fabric, cardboard pieces, plastic tubs, milk crates, and PVC pipe.

Plant/natural loose parts: Tree stumps, bark, sticks, leaves, acorns, logs, rocks, pinecones, and locust tree seeds.

Animal/natural loose parts: Turkey feathers, shells, fossils, snakeskin, animal skulls, deer antlers, and animal bones.

Data collection process

The data collection process for this study follows a 7-week timeline that started November 2021 and ended January 2022. Each stage is described in further detail below.

One week prior to informal observations start

All loose parts materials were present during outdoor play time. The primary researcher was present during the childcare center's play periods, so the students got used to the researcher and new materials. Site 1 was visited in the mornings from 9:00-10:15 and Site 2 was visited promptly after, from 10:30-12:00. Preschool children were encouraged to play with the materials brought and mostly played with the blocks, PVC pipe, and sticks. Several kids also enjoyed examining the bird feathers and animal bones.

Participants from the two sites answered pre-interview questions asking how often participants play outside, what they like to do outside, whether they like to play even when it's muddy or snowy, and anything they don't like to do outside.

First week of formal observation: Only manufactured loose parts present.

Formal observations began with only manufactured materials in the play space. Play behaviors were coded using Rubin's play observation scale (2001) for at least 30 minutes a day at each site. Throughout the week during morning play time, children were individually pulled aside and asked two interview questions about their thoughts on the materials present in the outdoor play space:

Which of the play parts do you like to play with most? Why?

How do you play with (that object?)

Second week of formal observations: Only plant/natural loose parts present

Manufactured materials were replaced with plant loose parts. During daily outdoor play time play behaviors were coded using Rubin's play observation scale (2001) for at least 30 minutes per site per day. Throughout the week children were asked the same two interview questions about their thoughts on the materials present in the outdoor play space during play time.

Third week of formal observations: only animal loose parts present

Plant loose parts from the week prior were replaced with animal loose parts. Play behaviors were coded using Rubin's play observation scale (2001) during outdoor play time for at least 30 minutes per site per day. Throughout the week children are asked the same two interview questions about their thoughts on the materials present in the outdoor play space.

Last week of formal observation: All three loose part types are present.

After observations with only one type of loose part present in the play space was completed, comparative research observations began. The three different loose parts materials were set up at different areas of the outdoor play space to help observe which material preschool students chose to use. However, since all materials could be manipulated and moved, the materials became mixed up by the end of the observation period became mixed by the end of the observation day. The setup was reset at the start of each day. Play behaviors were coded using Rubin's play observation scale (2001). Throughout the week children were asked the same two interview questions about their thoughts on the materials present in the outdoor play space.

Week 7: Post-study interviews

The first five weeks of observations were completed right before winter break. Both sites were visited again when preschool sessions resumed in January three weeks after the final week of informal observations. Preschool children completed a group interview (groups of three to four children) in a separate room away from the rest of their classmates. Children were presented with two of each of the three kinds of loose part materials present throughout the study (blocks, PVC pipes, pinecones, locust seed pods, deer antlers, and turkey feathers). Each item was brought out one at a time and children were allowed to interact with the items and were asked what the item is and how they played with the item.

Measures

Observations of play behaviors

Play behaviors were observed using the “Play Observation Scale” (Rubin, 2001). This scale is specifically used for observational studies that examine cognitive and social play behaviors children exhibit in indoor and outdoor settings. Cognitive play behaviors include functional, constructive, dramatic, and games-with-rules. Social play categories include solitary, parallel, and group play. The target child’s social and cognitive behavior was coded every 10-20 seconds for a period of five minutes to get a general sense of the child’s play behaviors that day (Rubin, 2001). During that 10-20 second period if a child displayed more than one social or cognitive play behavior the researcher marked the behavior that the child displayed for the majority of the 20 second period (see Appendix B for observation coding sheet example) After the five minutes coding period, a new target child was selected from the group and coding for play behaviors continued. Coding was completed over a 30-minute period three times a week. The observation period occasionally lasted longer than 30 minutes when children would go inside to warm up during cold weather, before coming back outside later (raw data listed in Appendix A).

Interviews with children

The process of interviewing preschool children required adaptability. Initially during the first week, preschool children were interviewed in a designated quiet space away from the group for about five minutes. This method of interviewing appeared to make children uncomfortable as they were either unwilling to respond to questions or only answered yes/no. To combat this, children were either interviewed during outdoor play time or earlier in the morning during breakfast/indoor free play time. This way children felt comfortable in their environment and provided more detailed responses to the interview questions. Preschool children participated in interviews before, during, and after the

formal observation period (see Appendix C for complete list of interview questions). Interviews serve to analyze preschool student's perspectives about loose parts and outdoor play. All interviews were audio recorded, then transcribed.

Analysis

Analyzing qualitative data is a complex and rigorous process. Analysis here was based off Creswell and Poth's data analysis spiral consisting of five activities following data collection: 1) managing and organizing data, 2) reading and noting emerging ideas, 3) describing and classifying codes into themes, 4) developing and accessing interpretations, and 5) representing and visualizing data (2018). Interviews and observations have different analysis processes based on the data analysis spiral.

Observations Analysis

Before observations begin, an excel spreadsheet was created to organize play behavior codes by student, loose part present, and preschool center. Rubin has fifteen possible viable play codes that combine social and cognitive play behaviors (Rubin, 2001). For example, if the targeted child is building a castle with blocks next to another child playing with dolls their behavior would be coded as parallel-constructive, because the child is near a peer but is not directly interacting with that peer while playing (parallel) and is demonstrating constructive behavior with blocks. At times the researcher needed to stay very close to the child being coded to discern between play behavior types that can easily be confused. For example, dramatic play can look like functional play when indeed the child is pretending to be something else. Frequency of play behavior types were calculated at the end of every formal observation week.

Interview Analysis

Preschool children's responses during interview sessions were audio recorded and then transcribed. Transcripts were read through twice to get a general idea of the children's answers from the 7-week study period. Analysis on the pre-study responses included how often children play outside, the type of play children take part in outside, and if there's anything they do not like about outdoor environments. Analysis on responses during the informal observation period categorized how children used the loose part that week and which loose part they liked playing with the most. Responses during the informal observation periods were categorized based on how the child described using the loose part and which loose part they mentioned frequently.

Results

Observations

This study aimed to examine how preschool children play with different types of loose parts materials so educators can provide diversified outdoor experiences in urban settings. Findings from informal observations are first presented as a comparison of manufactured and natural (combinational of plant-based and animal-based) loose part materials. SPSS (version 26) was used to run one-way ANOVA and Post Hoc tests to determine any statistically significant differences between cognitive and social play behaviors with manufactured or natural loose parts. Then data from Sites 1 and 2 were compared to see if there were any notable differences of cognitive or social play behaviors at the two preschool centers. A total of 2,377 separate observations were recorded.

Manufactured vs. natural loose parts

Functional play was the most frequently observed cognitive play behavior for both manufactured and natural loose parts but was observed most with natural parts (see Figure 1). Dramatic play behaviors were observed most frequently in the presence of natural loose part materials. Exploratory play also occurred most with natural loose parts, although exploratory play was the least observed form of cognitive play behavior.

Constructive play was the second most common cognitive play behavior for manufactured loose parts, but children only participated in constructive play with manufactured loose parts. Furthermore, three of four cognitive play types, all but constructive, occurred more often when natural parts were present in the outdoor play space in comparison to manufactured parts. Children also used both natural and manufactured parts in all forms of social play behaviors but participated in group and solitary play more with natural parts and parallel play more with manufactured parts.

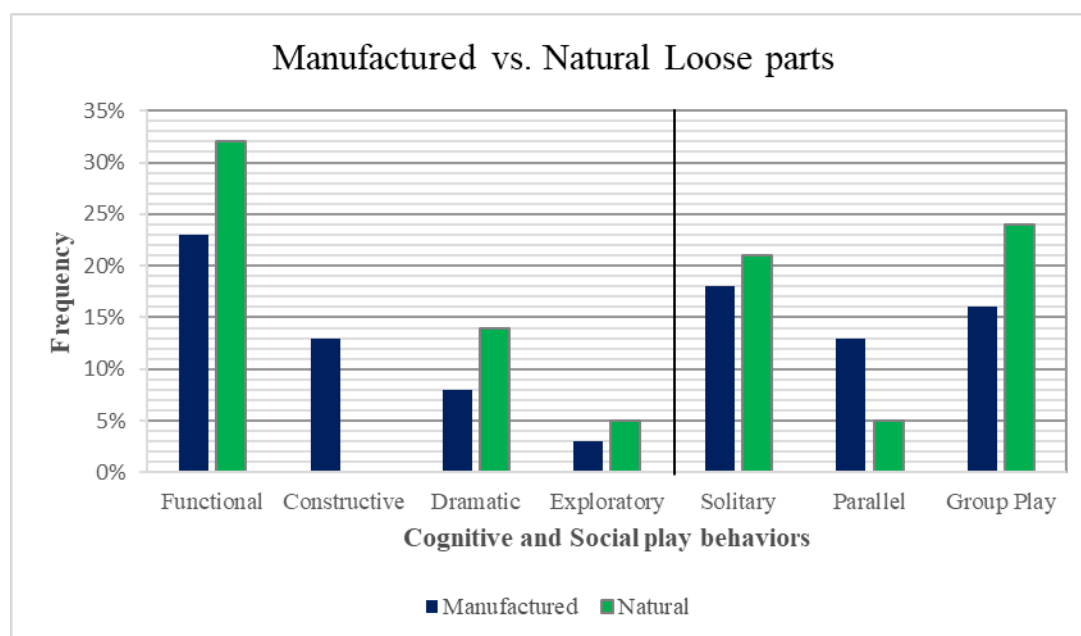


Figure 1: The frequency of cognitive and social play behaviors observed when manufactured and natural loose parts materials were present at both Site 1 and 2.

Comparison of all loose part types at both sites

Figure two separates natural loose parts into plant-based and animal-based loose parts. For cognitive play when comparing all three loose part types, explorative play occurred most frequently with animal-based loose parts, followed by plant-based loose parts. However dramatic play occurred most frequently with plant-based loose parts then animal-based loose parts. For social play, group play occurred most with natural loose parts (Figure 1 and Figure 2). Children played in solitude most frequently with manufactured loose parts and the combination of loose parts (Figure 2). Group play was observed most for plant-based loose parts. Parallel play behavior was the least common social behavior observed.

When all loose part types were combined and present in the outdoor space during the last week of formal observation to test whether children preferred a certain type of loose part, children preferred manufactured items. Children also mostly engaged in functional play and constructive play with all loose part types present.

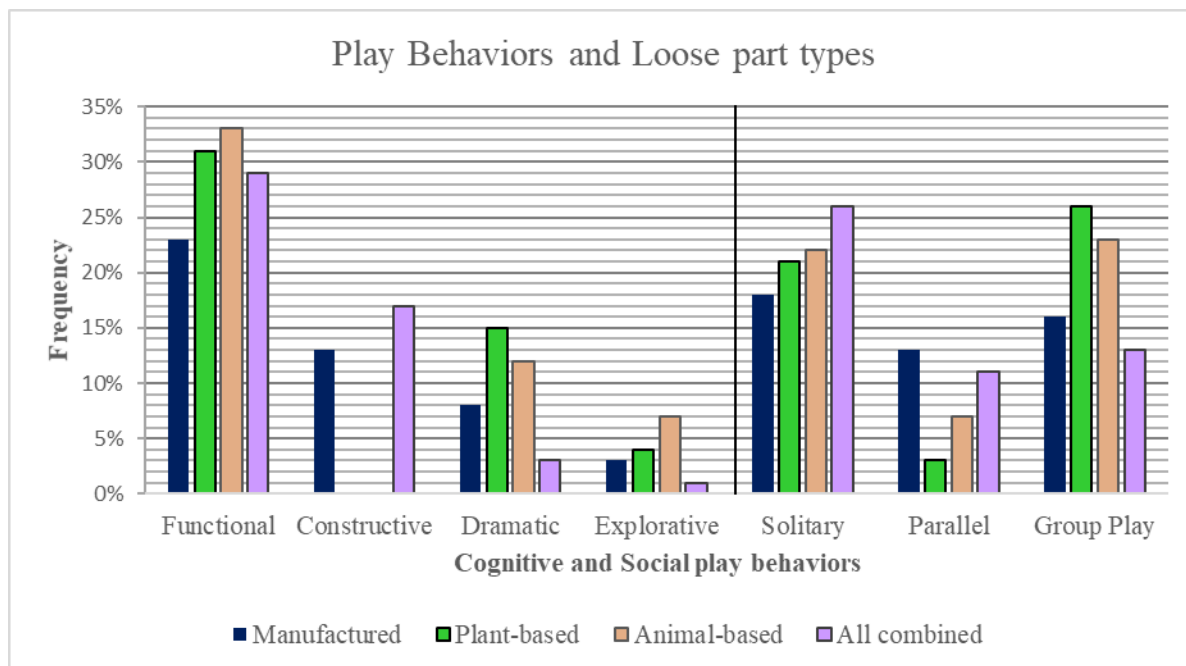


Figure 2: The frequency of cognitive and social play behaviors observed when different types of loose parts materials were present at both Site 1 and 2.

One-way ANOVA tests comparing manufactured and natural loose part types found statistically significant differences in functional play behaviors ($F(1,36) = 8.117$, $p = 0.007$) and constructive play behaviors ($F(1,36) = 12.625$, $p = 0.001$) while there were no statistically significant differences for dramatic ($F(1,36) = 0.000$, $p = 1.000$) or explorative play ($F(1,36) = 3.879$, $p = 0.57$) (Table 2). Children participated in functional play more with natural loose parts and constructive play behavior with manufactured loose parts. No constructive play behaviors were reported with natural loose parts. .

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Func	Between Groups	787.605	1	787.605	8.177	.007
	Within Groups	3467.474	36	96.319		
	Total	4255.079	37			
Cog	Between Groups	324.237	1	324.237	12.625	.001
	Within Groups	924.526	36	25.681		
	Total	1248.763	37			
Dram	Between Groups	.000	1	.000	.000	1.000
	Within Groups	1725.474	36	47.930		
	Total	1725.474	37			
Expl	Between Groups	36.026	1	36.026	3.879	.057
	Within Groups	334.316	36	9.287		
	Total	370.342	37			

Table 1: Results from one-way ANOVA test comparing cognitive play behaviors for manufactured or natural loose part types.

A Post Hoc test compared the means of each cognitive play behavior for manufactured and loose part materials separately to identify any mean differences (Table 3). Functional play behaviors were statistically different from dramatic ($p=0.26$) and explorative ($p<0.001$) play behaviors in the presence of manufactured loose parts. When natural loose parts were present in the outdoor space, functional play behaviors were statistically different from constructive ($p<0.001$), dramatic ($p<0.001$), and explorative ($p<0.001$) play behaviors. Furthermore, constructive play behaviors were statistically different from dramatic play behaviors ($p<0.001$).

Multiple Comparisons

Tukey HSD

Dependent Variable	(I) CPB	(J) CPB	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Man	functional	constructive	4.211	2.080	.189	-1.26	9.68
		dramatic	6.000*	2.080	.026	.53	11.47
		explorative	8.895*	2.080	<.001	3.42	14.36
	constructive	functional	-4.211	2.080	.189	-9.68	1.26
		dramatic	1.789	2.080	.825	-3.68	7.26
		explorative	4.684	2.080	.119	-.79	10.15
	dramatic	functional	-6.000*	2.080	.026	-11.47	-.53
		constructive	-1.789	2.080	.825	-7.26	3.68
		explorative	2.895	2.080	.509	-2.58	8.36
	explorative	functional	-8.895*	2.080	<.001	-14.36	-3.42
		constructive	-4.684	2.080	.119	-10.15	.79
		dramatic	-2.895	2.080	.509	-8.36	2.58
Nat	functional	constructive	19.158*	2.159	<.001	13.48	24.84
		dramatic	10.632*	2.159	<.001	4.95	16.31
		explorative	16.053*	2.159	<.001	10.37	21.73
	constructive	functional	-19.158*	2.159	<.001	-24.84	-13.48
		dramatic	-8.526*	2.159	.001	-14.21	-2.85
		explorative	-3.105	2.159	.480	-8.78	2.57
	dramatic	functional	-10.632*	2.159	<.001	-16.31	-4.95
		constructive	8.526*	2.159	.001	2.85	14.21
		explorative	5.421	2.159	.067	-.26	11.10
	explorative	functional	-16.053*	2.159	<.001	-21.73	-10.37
		constructive	3.105	2.159	.480	-2.57	8.78
		dramatic	-5.421	2.159	.067	-11.10	.26

*. The mean difference is significant at the 0.05 level.

Table 2: Results of Post Hoc test comparing the means of different cognitive play behaviors observed with manufactured or natural loose parts present in an outdoor space

When comparing social play behaviors of manufactured or natural loose parts, statistically significant differences were found for parallel ($F(1,36) = 3.033, p = 0.090$) and group play behaviors ($F(1,36) = 7.952, p = 0.008$) (Table 2). Children participated in parallel play more with manufactured loose parts and group play more with natural loose parts. When investigating mean differences of social play behaviors with manufactured loose parts, Post Hoc test showed no significant differences (Table 3). When natural loose parts were present in the outdoor space parallel play was significantly different from solitary ($p = 0.003$) and group play ($p < 0.001$) (Table 4).

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Sol	Between Groups	252.737	1	252.737	3.033	.090
	Within Groups	2999.474	36	83.319		
	Total	3252.211	37			
ParII	Between Groups	71.158	1	71.158	4.340	.044
	Within Groups	590.316	36	16.398		
	Total	661.474	37			
GP	Between Groups	545.684	1	545.684	7.952	.008
	Within Groups	2470.316	36	68.620		
	Total	3016.000	37			

Table 3: Results from one-way ANOVA test comparing social play behaviors when manufactured or natural loose parts were present in an outdoor space

Multiple Comparisons								
Dependent Variable	(I) SPB	(J) SPB	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval		
						Lower Bound	Upper Bound	
manS	Tukey HSD	solitary	parallel	1.895	2.008	.615	-2.95	6.74
			group play	.526	2.008	.963	-4.31	5.37
		parallel	solitary	-1.895	2.008	.615	-6.74	2.95
			group play	-1.368	2.008	.775	-6.21	3.47
		group play	solitary	-.526	2.008	.963	-5.37	4.31
			parallel	1.368	2.008	.775	-3.47	6.21
	Bonferroni	solitary	parallel	1.895	2.008	1.000	-3.07	6.86
			group play	.526	2.008	1.000	-4.44	5.49
		parallel	solitary	-1.895	2.008	1.000	-6.86	3.07
			group play	-1.368	2.008	1.000	-6.33	3.59
		group play	solitary	-.526	2.008	1.000	-5.49	4.44
			parallel	1.368	2.008	1.000	-3.59	6.33
NatS	Tukey HSD	solitary	parallel	9.789*	2.789	.003	3.07	16.51
			group play	-1.895	2.789	.776	-8.62	4.83
		parallel	solitary	-9.789*	2.789	.003	-16.51	-3.07
			group play	-11.684*	2.789	<.001	-18.41	-4.96
		group play	solitary	1.895	2.789	.776	-4.83	8.62
			parallel	11.684*	2.789	<.001	4.96	18.41
	Bonferroni	solitary	parallel	9.789*	2.789	.003	2.90	16.68
			group play	-1.895	2.789	1.000	-8.79	5.00
		parallel	solitary	-9.789*	2.789	.003	-16.68	-2.90
			group play	-11.684*	2.789	<.001	-18.58	-4.79
		group play	solitary	1.895	2.789	1.000	-5.00	8.79
			parallel	11.684*	2.789	<.001	4.79	18.58

*. The mean difference is significant at the 0.05 level.

Table 4: Results of Post Hoc test comparing the means of different cognitive play behaviors observed with manufactured or natural loose parts present in an outdoor space.

Site 1

Unlike when both study sites were combined, functional play was not the most common cognitive play behavior for all loose part types at Site 1. Functional play was the most common play behavior in the presence of plant-based and manufactured loose parts, but dramatic play was most common for animal-based loose parts. Furthermore, dramatic play was the second most common play behavior observed in the presence of manufactured loose parts. Out of all three social play behaviors, group play was observed most frequently at Site 1, especially for plant-based loose parts. Children engaged in solitary or parallel play in the presence of manufactured, and a combination of loose part types. Solitary play was most common when animal-based loose parts materials were present in the outdoor space.

Site 2

Unlike Site 1, functional play behaviors were observed most frequently in the presence of all loose part types at Site 2. Furthermore, children exhibited dramatic play behaviors most frequently in the presence of plant-based loose parts followed by manufactured loose part materials. Solitary play was the most common social play behavior.

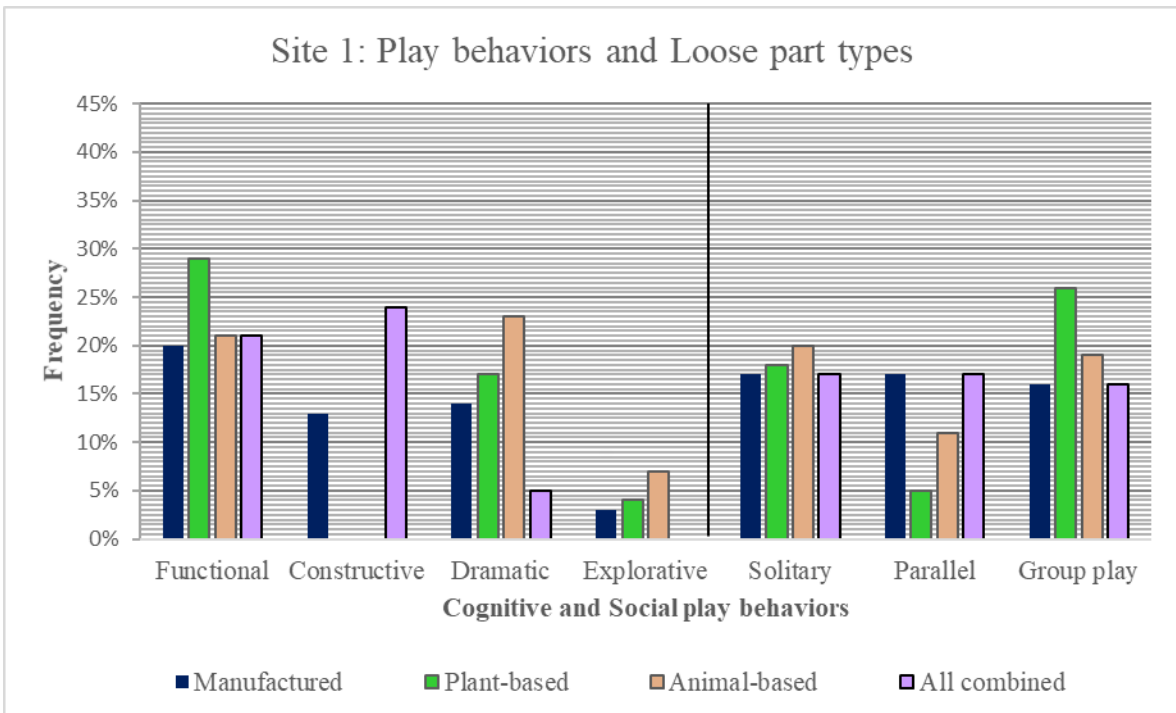


Figure 3: The frequency of cognitive and social play behaviors observed in the presence of different types of loose parts materials at site 1.

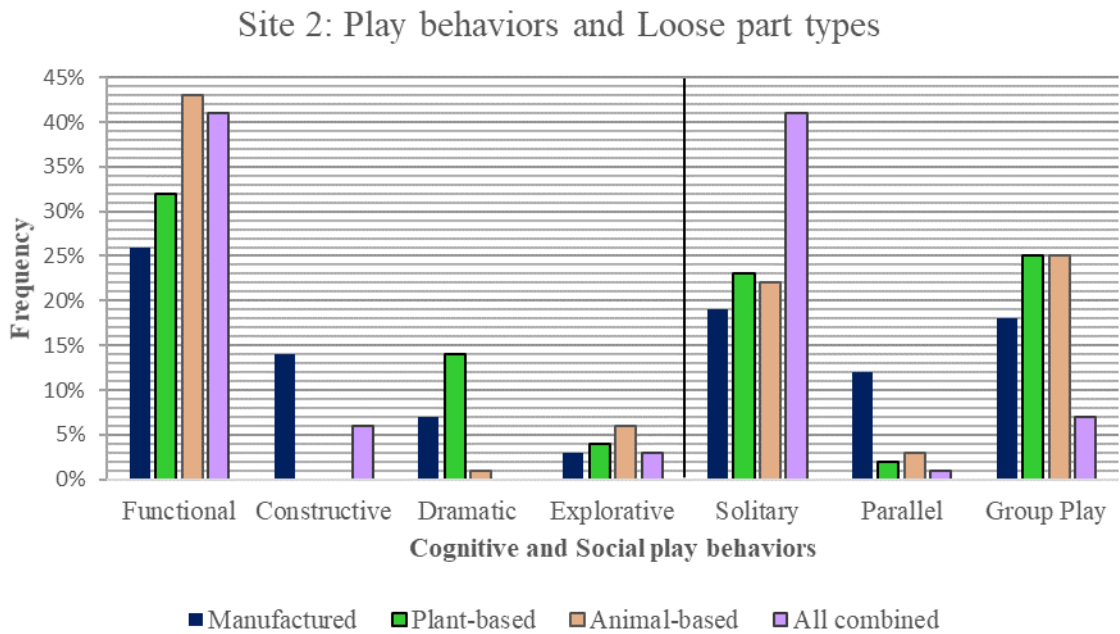


Figure 4: The frequency of cognitive and social play behaviors observed in the presence of different types of loose parts materials at site 2.

Interviews

When participants were asked what they like to do outside almost every participant mentioned playing with manufactured toys or playground equipment such as bikes, dump trucks, swings, and monkey bars. Many participants reported playing outside even when it is muddy or rainy with activities such as splashing in puddles, making mud pies, and catching rain drops in their mouth. The few children who do not like to go outside when it is muddy gave the following reasons: my clothes will get dirty, I get wet when it is raining, or it is too dirty outside when it's raining and muddy. When asked if there is anything participants do not like to do outside, many children responded "no," but some shared they do not climb super high places because it is scary or that sometimes they would rather play inside on their iPad or watch TV.

Participants were also interviewed during each of the four informal observation weeks where different loose part types were present in the outdoor space. Children were asked two questions on what item they liked playing with most and how they used that item in the outdoor play space. During the first week of observations when only manufactured loose parts were present in the space children reported playing with the PVC pipes, cardboard, and colorful blocks the most. Children mainly reported engaging in constructive and dramatic play followed by functional play. Several children reported building big towers, bubble machines, and houses with items such as the blocks, PVC pipes, and cardboard. Many children at Site 1 were especially fascinated with the cardboard boxes and pretended the boxes were pizzas and delivered the pizzas to various spots of the outdoor space. During the second week of observations plant-based loose parts were present in the space and children reported playing with the sticks, leaves, and tree seeds the most. Children mostly reported functional play behaviors such as crushing,

throwing, jumping on, and collecting the plant-based items. Dramatic play behaviors were also reported. A pair of boys noted how they collected tree seeds in their cubbies and called them “magic beans,” pretending the seeds would grow into a giant plant.

During the third week of observations only animal-based loose parts were present in the space and children reported playing with the turtle shells, feathers, and clam shells the most. Similarly, to the plant-based loose parts, children mostly reported functional play behaviors with the animal-based loose parts such as crushing, throwing, and making collections with the items. Other play behaviors reported were explorative play where some children explained how the feathers and clam shells felt and dramatic play behaviors where children described how they used the feather as a broom or pretended clam shells were ketchup for their picnic. All three loose part types (manufactured, plant-based, and animal-based) were combined during the final week of informal observations. Children reported playing most frequently with manufactured items such as the cardboard boxes, blocks, and PVC pipes. The other loose parts mentioned were plant-based materials including pinecones, rocks, and logs and one animal-based item, the clam shells. Play behaviors reported were mostly functional and constructive including stepping-on, crushing, hitting, throwing, and building with the items. Dramatic play behaviors were also mentioned such as playing house with a large cardboard box or pretending to eat cereal on a canvas sheet and boxes.

Children also completed a post-study interview in groups of three-four children three weeks after the final week of informal observations where groups of children were shown a few items used during informal observations that were either manufactured, plant-based, or animal-based loose parts (colorful blocks, PVC pipes, pinecones, locust seed

pods, antlers, and turkey feathers). The children easily identified the two manufactured items (blocks and PVC pipes) and described building things such as towers, castles, and other structures with the items. Some children also reported engaging in pretend play by using the PVC pipes as swords, guns, and horns (by blowing on the pipe at one end). When the pinecones and locust pods were presented again to the children some easily identified the items while others did not know when the items were. The children who recognized the pinecones or locust seeds described playing with them at home or a local park. When asked how they play with the two items the children mostly described functional play behaviors such as throwing, rolling, stomping, or stepping on the items to make a “crunch” sound. Some children also described dramatic play behaviors as one girl pretended the locust pod was a snake. With the two animal-based loose parts the children easily recognized the feathers and antlers. Similar to plant-based loose parts, the children mostly explained using the feathers and antlers for functional play and some dramatic play. The feathers were used to “tickle” their friends and children described throwing, kicking, and dropping the antlers. Antlers were also used as blasters to fight off bad guys and some children used the feathers to pretend they had wings and could fly.

Discussion

This study sought to compare different types of loose part materials to see if natural or manufactured loose part affected young children’s play behaviors that contribute to social and cognitive development. Outdoor play spaces with natural settings stimulate children’s creativity and problem-solving skills (Acar & Torquati, 2015; Azlina & Zulkiflee, 2012). Therefore, natural loose parts might also stimulate young children’s ingenuity and inquiry by offering affordances for different types of cognitive play in

urban preschools that do not have natural settings. Compared to functional play, dramatic play is associated with higher levels of thinking in young children (Rubin & Watson, 1978). Dramatic play involves creating pretend scenarios that prompt children's creative thinking. And ambiguous natural materials are found to spark children's imagination as they are free to use the items however they see fit (Kiewra & Veselack, 2016). Therefore, we expected that dramatic play would be observed most frequently in the presence of natural loose parts. The findings from this study show children engaged in dramatic play with natural loose parts more frequently than with manufactured loose parts. This pattern was also observed at site 1 where dramatic play behaviors were most frequent in the presence of plant-based and animal-based loose part materials. At Site 2 dramatic play behaviors were more common in the presence of plant based loose part materials followed by manufactured materials. Even though natural materials provide more opportunities for dramatic play than manufactured loose parts, manufactured materials also contribute to imaginative play. A comparison of natural and manufactured play settings found that even though natural play settings provide opportunities for imaginative play, dramatic play was observed most frequently with a combination of a manufactured play setting and items (Drown & Christensen 2014)

Functional play was the most common cognitive play behavior type in the presence of all loose part types at both study sites. Other studies that implemented loose parts in outdoor spaces found similar results (Maxwell et al., 2008; Zamani, 2016). There was a statistically significant difference of functional play behaviors with manufactured and natural loose parts where functional play was more common with natural loose parts. This may be because children did not engage in any constructive play behaviors with

natural loose parts, so they spent more time engaging in functional play. Functional play behaviors include simple motor activities such as running, jumping, throwing, and climbing; activities done simply because children enjoy the stimulation (Maxwell et al., 2008; Rubin, 2001). Young children may exhibit lots of functional play behaviors in the outdoor play space because the indoor classrooms are not a suitable space for motor activities. When comparing both study sites, functional play behaviors were more prevalent at Site 2 than Site 1. Furthermore, there was a more even distribution of constructive, dramatic, and explorative play behaviors at Site 1 compared to Site 2. This may be because Site 1 has a more naturalistic setting with grass, trees, rocks, and logs already implemented in the space, whereas site 2 is a more manufactured setting with rubberized floors and cement with some trees. Manufactured zones were found to offer more opportunities for functional play, while the natural and mixed zones provided more opportunities for constructive, exploratory, and dramatic play (Zamani, 2016).

Constructive play behaviors are usually associated with manufactured loose parts (Maxwell et al., 2008). However, the findings show functional play was the most common cognitive play behavior with manufactured materials, followed by constructive play. Post Hoc analysis also showed no significant difference between functional and constructive play behavior with manufactured loose parts. However, there was a significant difference between functional play and dramatic and explorative play.

There was a statistically significant difference between constructive play behaviors in the presence of manufactured or natural loose parts which is not surprising considering that no constructive play behaviors were observed with natural loose parts. Even though children had items such as logs and sticks they could build with, children only engaged in

functional, dramatic, or explorative play behaviors with natural loose parts. At Site 1, children exhibited more dramatic play behaviors (14%) with manufactured loose parts than constructive play behaviors (13%). This may be because young children use loose parts to engage in constructive and dramatic play simultaneously as they create spaces for pretend scenarios (Maxwell et al., 2008; Rubin, 2001). Explorative play was the least common play behavior observed. Children mostly engaged in explorative play with the animal-based loose parts. This may be because the animal-based loose parts such as the antlers, clam shells, turtle shells, and feathers were novel items for the young children and many of them had questions about what the items are and where they came from.

When all loose parts were combined the last week of informal observations it was hypothesized that children would play with animal-based loose parts more frequently than manufactured or plant-based loose parts. The thought was that children would be fascinated by the novel items as many young children probably are not familiar with deer antlers, snakeskin, turtle shells, and turkey feathers. However, children reported and were observed mostly playing with manufactured loose parts such as the cardboard boxes, blocks, and PVC pipes. Furthermore, during the pre-interview participants were asked about what they like to do outside and almost every child described playing with manufactured toys or playground equipment such as bikes, dump trucks, swings, and monkey bars. Children may choose to play with manufactured items more frequently because they can relate with those items more as they interact with them daily and it prompts scaffolding of play (Drown & Christensen, 2014). Mollie Von Kampon, a master teacher at the Ruth Staples learning lab (a natural preschool at the University of Nebraska-Lincoln), found that young children especially toddlers gravitate towards

manufactured materials compared to other loose part materials because children are used to those items and interact with them daily (M. Von Kampon, personal communication, April 7, 2022). When given a choice between a novel toy and toy young children are familiar with, children usually choose to interact with the recognized toy (L. E. Schulz & Bonawitz, 2007). As stated before, many young children probably do not interact with animal-based loose parts such as antlers, turtle shells, snakeskin, and clam shells on a regular basis. Therefore, educators need to allow children to become familiar with and encourage play with natural loose parts to provide diverting play opportunities by making those items a part of their daily routine in indoor and outdoor play spaces.

Often children reported or were observed throwing, crushing, standing on, and breaking loose parts in the outdoor space, specifically the plant and animal based loose parts. This might be because the children were not taught what the items are or how to use the items. For this study researchers wanted to focus on how preschool children play organically with a variety of loose parts in an outdoor space. A huge stage of play with young children is cause and effect play where children try to figure out what the object can do (M. Von Kampon, personal communication, April 7, 2022). This type of play is also known as causal learning and studies have shown young children's free exploratory play supports causal learning (L. E. Schulz & Bonawitz, 2007; L. Schulz & Gopnik, 2014). While it may seem destructive for young children to crush, throw, and stand-on materials, it's a main component of their learning development. Although, some loose parts brought in the study are items that educators may not want children to crush or break such as turtle shells, snakeskin, and seashells. In that case educators would need to determine the culture of how different materials are played with. For example, teachers could say "it's

ok to crush up the milkweed seed pods and watch the seeds fly away in the wind, but we need to gently touch the snakeskin because it breaks easily, and we want to let our other friends get to interact with the snakeskin as well.” Educators who want to implement loose parts play in their outdoor classrooms need to find a balance of both kinds of materials that children can break open and have that cause and effect play and other material where children learn how to be gentle and use extra care while handling. Furthermore, there is no right or wrong set of loose part materials that should be implemented in outdoor play environments. Educators and caretakers who want to implement loose part play should follow interests of play and find appropriate items for children to break open, step on, throw, and explore.

Limitations

Both preschools that participated in the study value outdoor nature play, which may not accurately represent many urban preschools. Further studies could purposefully sample from urban preschools that do not value natural outdoor play or do not already implement loose part play. Due to the Covid-19 pandemic, two out of the four potential preschool programs declined participating in the study because they would not allow visitors in their classrooms in fall, 2021. Implementation of loose parts could not be controlled as both preschools who participated in the study already implement loose parts play in the outdoor spaces. It was hard to try find a preschool program that does not already use loose parts play because it is becoming an integral part of early childhood education.

Furthermore, it was hard to keep children from using other loose part toys already present in the outdoor spaces. At site 2 children have access to little bikes that they can ride on a little cement path through the play space. The bikes were removed from the space after

the first week of observations because children mostly used the bikes instead of interacting with the introduced loose part materials. There were also some trunks of outdoor toys at both sites and children would get the items out and play. Separation of toys from loose parts was not always possible and made it hard to code play behaviors based on the loose parts introduced in the space. Determining play behaviors, especially dramatic play behaviors was also tricky because children would often silently act out a scene or engage in pretend play. Another study found it was hard to determine if a child is participating in solitary dramatic play unless they verbalize what they are doing out loud (Cloward Drown & Christensen, 2014).

Conclusion

The play behaviors of preschool children were observed in the presence of three different types of loose part materials. In doing so this study gives educators and caregivers an idea of how different types of play behaviors affect play behaviors of young children while contributing to their growth and development. Unstructured outdoor play time provides children meaningful opportunities for learning and discovery while loose part play contributes to children's physical, mental, and social development. (Gibson et al., 2017; Kiewra & Veselack, 2016; Skar et al., 2016). Overall functional play was the most common behavior observed every study week. Children mostly used manufactured materials for constructive play while the presence of natural loose parts such as plant-based and animal-based items increased dramatic play. Even though natural loose parts provided more opportunities for imaginative pretend play than manufactured loose parts, a combination of both types of materials can be used to contribute to dramatic cognitive play behaviors. Explorative play was the least common play behavior observed. Children

mostly engaged in explorative play with the animal-based loose parts. Children at Site 1, which has more of a naturalistic setting, displayed more dramatic, constructive, and explorative behaviors than children from site 2, which has a more manufactured outdoor setting. This means that natural play settings encourage more types of cognitive play, and natural loose parts encouraged children to engage more often in dramatic and explorative play than when children were just playing with manufactured loose parts.

Before informal observations started children described playing outside mostly in manufactured settings (playgrounds) and when children were interviewed again after the study was over children still mostly reported playing with manufactured items when all loose part types were present in the outdoor space. This is because children interact directly with manufactured items daily and more easily recognize manufactured loose part materials (Drown & Christensen, 2014). When a novel toy and familiar toy are present in the same space young children usually choose to interact with the familiar toy (L. E. Schulz & Bonawitz, 2007). Educators who wish to utilize loose part play to provide divergent play opportunities need to make those items a part of their daily routine in indoor and outdoor play spaces. Manufactured and natural loose parts provide affordances in different play types and can be utilized to contribute to preschool children's learning through play. Though this study begins to examine how different types of loose parts may affect preschool children's play behaviors in an urban outdoor environment, more study is needed to understand specific variables that may influence children's familiarity and play behavior with different loose parts.

Further Study

This study looked at how different loose parts materials affect preschool children's play behaviors in outdoor play spaces. However as this was a case study, more research is needed to examine how different types of loose part materials affect children's play behaviors. Instead of comparing types of loose parts, size of the loose part may also affect young children's play behavior as smaller items may be used more for exploration and collecting while larger loose parts may be used for constructing spaces for children to act out pretend scenarios. More study is needed on how different variables may affect how children play with natural loose parts such as comparing more natural or manufactured outdoor preschool settings. The setting of an inside or outside classroom may also change how loose parts are used. More explorative behaviors may be observed inside the preschool classroom since children do not have the space to run around, climb, throw, and perform other functional play behaviors like they can in an outdoor classroom. A further study could also compare different ways of modeling the natural loose parts to encourage children who are not familiar with the items to play with them. Another study could also compare a combination of settings (natural and manufactured) and natural loose parts to see if there is an increase in a variety of cognitive play behaviors in young children. Even though social play behaviors were reported, this study mainly focused on cognitive play behaviors. More study is needed on how different types of loose parts may influence children's cooperative interactions and other social behaviors.

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APPENDIX A: RAW DATA

	MANUFACTURED	PLANT	ANIMAL	COMBINED	TOTAL
FUNCTIONAL	189	202	162	121	674
CONSTRUCTIVE	107	0	0	70	177
DRAMATIC	67	101	61	12	241
EXPLORATIVE	22	27	32	5	86
SOLITARY	147	138	107	108	500
PARALLEL	105	23	36	45	209
GROUP PLAY	127	169	112	53	461
					2348

APPENDIX B: OBSERVATION CODING SHEET

Play Observation Coding Sheet

Cognitive Play Behavior Codes:

- F-Functional play
- C-Constructive play
- D-Dramatic play
- E-Exploratory
- GR-Games with Rules

Social Play Behavior Codes:

- S-Solitary play
- P-Parallel play
- G-Group play
- NP- Non-play behavior

Child's Pseudo Code T104

Date 11/29/21

Loose part type manufactured

Time interval	F	C	D	E	GR	S	P	G	NP	NOTES
Start time	✗					✗				Running around the yard by herself
0:20 m	✗					✗				
0:40 m		✗					✗			Constructed a tower with the colorful blocks next to T102
1:00 m		✗					✗			
1:20 m		✗					✗			
1:40 m		✗					✗			
2:00 m		✗					✗			
2:20 m			✗					✗		
2:40 m			✗					✗		Pretended to have a picnic with T101 using the canvas sheet and some cardboard
3:00 m			✗					✗		
3:20 m			✗					✗		
3:40 m			✗					✗		
4:00 m			✗					✗		
4:20 m			✗					✗		Pretended cardboard boxes were pizzas and pretended to deliver them with some boys
4:40 m			✗					✗		
5:00 m			✗					✗		

APPENDIX C: INTERVIEW QUESTIONS

Children pre- study interview

How often do you play outside?

What things do you play with outside, what do you do with (item)?

What do you like about playing outside?

What is your favorite thing to do while playing outside at school?

What don't you like about playing outside?

Do you like playing outside even when it's raining and muddy?

What do you do when it's muddy outside?

Do you like playing outside when it's snowing?

What do you do outside when it's snowing?

Are there any parts of the outdoor playground that you do not like?

Children interviews during each observation week

Which of the play parts do you like to play with most? Why?

How do you play with (that object?)

Children post- study interview: *These questions will be grouped with each of the three different types of loose-part materials: manufactured, plant/natural, and animal/natural.*

How did you guys play with this item? (Hold up either a manufactured, plant, or animal loose part)

How often did you play with this item?

What was your favorite thing to do with this item?

CHP 2: THE BALANCE OF FUN AND RISK- A CASE STUDY OF CAREGIVER'S ATTITUDES TOWARDS PRESCHOOL CHILDREN'S OUTDOOR PLAY

Abstract

Outdoor play is an important aspect of young children's healthy social-cognitive development (Gurholt & Sanderud, 2016; Sandseter et al., 2020). However, play in natural environments is declining due to various safety concerns (Bento & Dias, 2017; Brussoni et al., 2012). Media sources suggest outdoor play is full of safety risks (Brussoni et al., 2012), so many parents find outdoor environments intimidating and fraught with danger. Thereby inhibiting young children's creativity, motor fitness, socialization with peers, and ecological awareness (Coates & Pimlott-Wilson, 2018; Duque et al., 2016; Fjørtoft, 2001; Kiewra & Veselack, 2016; Ridgers et al., 2012; Zamani, 2016). This case study examined caregiver's attitudes toward outdoor play in preschool children through a sample of Midwestern families. Parents completed two interviews and an observation period with the researcher to identify safety concerns of outdoor play, how outdoor play has changed over time, boundaries they give young children while playing outside, and the role caregivers take while their young child plays outside. Parents reported that outdoor play has changed in that it is more structured, there are more safety concerns and liability issues, and they feel pressure to intentionally provide meaningful outdoor play opportunities. Barriers of play were identified in two categories: danger from people and danger from nature. Parents stated that playgrounds with age/developmentally appropriate equipment, barriers/fences, and open/centralized play spaces with clear views would make them more comfortable in providing outdoor play. Even though parents offered ideas for changes, some participants shared they were not sure if any changes

would make them more comfortable with their young child playing in outdoor environments.

Introduction

Play is a crucial component of children's development. Play stimulates children's physical, social, cognitive, and emotional well-being (Bento & Dias, 2017). Outdoor play is especially beneficial to young children's growth process, with studies showing exposure to natural elements improves children's motor fitness (Fjørtoft, 2001), creativity (Kiewra & Veselack, 2016; Ridgers et al., 2012; Zamani, 2016) cooperative interactions (Coates and Pimlott-Wilson, 2018; Duque, Martins, and Clemente, 2016) pro-social behavior (Acar & Torquati, 2015; Duque et al., 2016), pro-environmental behavior (Collado & Corraliza, 2015; Ridgers et al., 2012) and ecological awareness (Enid, Ten Eycke, Chan, and Muller, 2014; Ridgers et al., 2012). Young children experience the world kinesthetically through their five senses. An outdoor environment provides an exceptional venue for learning through exploration. Repeated exposure to unstructured outdoor play positively impacts various aspects of children's development (Brussoni, 2007).

Despite clear evidence that young children's development thrives when given opportunities to play in nature (Zamani, 2016), play in wild spaces is declining. Today children spend most of their time indoors performing sedentary activities instead of participating in active play outdoors (Sandseter et al., 2020). One of the main culprits for this loss of outdoor play is a growing culture of fear that affects caregivers' attitudes towards outdoor play so much so that children are kept inside (Bento & Dias, 2017). And children who do get to play outside are often put in structured activities led by adults

instead of given opportunities for free play (Veitch et al., 2006). The younger the child, the more restrictions, as caregivers reported restricting the independent mobility of young children more than older children (Veitch et al., 2006). Excessive safety regulations from overprotective parents diminish children's opportunities for spontaneous and risky play (Brussoni et al., 2012). This case study specifically focuses on caregivers' perceived barriers that prevent them from providing enriching outdoor experiences for their preschool-aged children.

Literature review

Benefits of Outdoor Play Environments

Outdoor environments are excellent sites for young children's learning and development. Natural spaces provide dynamic elements in a play space where changing weather creates different elements for children to interact with such as snow, mud, and puddles (Bento and Dias, 2017; Brussoni, 2007 Kiewra and Veselack, 2016; Skar et al., 2016). Different weather conditions provide various learning conditions and play opportunities as children make mud pies, splash in puddles, and create sculptures out of snow. Compared to the indoors, play in an outdoor space offers diverse opportunities giving children the freedom and autonomy to choose how they interact with their environment (Coates and Pimlott-Wilson, 2018; Skar, Gunderson, and O'Brien, 2016; Waters & Maynard, 2010). Freedom of choice makes young children more confident to try new things and take risks. Play time affords unstructured, child-led learning and developmental opportunities compared to structured activities led by educators or caregivers (Gibson et al., 2017).

Unlike traditional play areas with sedentary structures, outdoor areas with natural elements stimulate diversity in play and learning by stimulating children's creativity and problem-solving skills (Acar & Torquati, 2015; Azlina & Zulkiflee, 2012). Manufactured playgrounds with fixed elements and parts take away the opportunity for children to use the space creatively and make it what they want (Nicholson, 1972). Natural play spaces possess a wide range of benefits besides diversifying play types. Children perceive natural play yards as more restorative (able to restore a feeling of well-being) than manicured play yards and a child's fascination with nature is a strong indicator of environmental attitudes (Bento & Dias, 2017; Collado & Corraliza, 2015).

Children hold the power to manipulate natural materials and engage their creativity and ingenuity (Kiewra & Veselack, 2016). Most manufactured toys do not provoke the same imaginative genius in young children natural materials do. Play items with a defined purpose, such as ones found in a play kitchen model, come with assigned pre-conceived scripts (Maxwell et al., 2008) Whereas open-ended natural materials such as logs, tree stumps, sticks, rocks, leaves, and sand evoke children's creativity and imagination (Azlina & Zulkiflee, 2012; Kiewra & Veselack, 2016) Control is within the child to manipulate natural materials to make it anything they want it to be.

Caregiver's perceptions of safety in outdoor play

The well-being of children is of utmost importance to parents and caregivers. Some families with young children view an outdoor environment as too hazardous. Many parents identify safety concerns as the greatest impediment to their child's independent outdoor play and exploration (Veitch et al., 2006). Because of this, some parents are determined to eliminate all opportunities for risk in the child's life which has a negative

effect on outdoor play experiences (Brussoni et al., 2012; Sandseter et al., 2020). What barriers prevent caregivers from giving their young children natural outdoor experiences? Traffic safety and fears of “stranger danger” were the two most frequently identified barriers by parents studied from 5 different countries in Europe (Sandseter et al., 2020). Another study in Australia found that parents are most concerned with their child’s safety during outdoor play with specific concerns of road traffic, strangers, and gang violence (Veitch et al., 2006).

Many parents in cities across the United States worry about safety and security of their child’s outdoor play environment. One study done in different parts of New York city found a direct negative correlation between parents’ anxiety about neighborhood safety and children’s outdoor activity levels (Weir et al., 2006). These results suggest that parents and caregivers concerned with hazards in an outdoor environment heavily restrict their child’s outdoor play experiences. Young children especially are restricted from outdoor experiences due to the level of independence parents are willing to afford the child (Veitch et al., 2006). Do young children share the same fears as their parents and caregivers? Even though parents and caregivers report several fears and concerns for their child playing outdoors (Sandseter et al., 2020; Veitch et al., 2006; Weir et al., 2006), very few children expressed fears of the natural environment (Ridgers et al., 2012).

The role of observant and caring adults in an outdoor environment

The role adults fulfill in children’s lives is significant and can impact their future. Parents and caregivers serve as important mediators for young children’s outdoor activity and exploration (Veitch et al., 2006). Adults impact how much time children spend outside too. Children who experienced a forest school program shared that their caregivers or

other members of the household controlled their opportunities for play at home because they were reliant on adults or older siblings to let them play in natural environments. (Ridgers et al., 2012). Some studies provide evidence that children are not getting outside as much as they should. A longitudinal study done with numerous caregivers and their children across the nation revealed that little more than half of all preschool children are not given one guardian-supervised outdoor play opportunity per day (Tandon et al., 2012).

Outdoor time with natural materials is most successful when children initiate play and are given autonomy to choose what they do in the environment (Gibson et al., 2017; Kiewra & Veselack, 2016). However, adults run the risk of overrunning activities where children cannot self-initiate play (Skar et al., 2016). Time outdoors is most successful when children lead activities with very little adult supervision (Gibson et al., 2017). As children explore a natural environment, adults can participate by responding to the child's interests and engaging the child in the outdoor space (Waters & Maynard, 2010). In these instances, caregivers act as a companion to play instead of an authoritarian with full control of the learning experience. Therefore, this study seeks to explore the caregiver-young child relationship in an outdoor setting to understand the role adults take when they are in an environment that may be perceived as hazardous.

Purpose Statement

Natural outdoor play is becoming more popular in early childhood education centers. However, not much is known about young children's outdoor opportunities outside of preschool centers. Research on the environmental outcomes of outdoor play for young children while growing is still remarkably behind research with older children (Ardoin et

al., 2018; Davis, 2009). Furthermore, not much is known about parent's use and perceptions of outdoor play areas (Davis, 2009). Thus, it is difficult for educators, policy makers, and other supporters to know the best course of action to assist caregivers in providing enriching outdoor opportunities that contribute to their young child's learning and development.

This case study examined caregivers' attitudes toward preschool children's outdoor play to define common themes that may prevent parents from providing enriching outdoor opportunities for their child outside of preschool. Interviews and an observation period with caregivers reveal how outdoor play changed over time by comparing the caregiver's own childhood experiences outdoors to the outdoor experiences they offer their children, factors of an outdoor environment preventing caregivers from letting their child play there, and the role taken while their young child plays outside. This case study gives caregivers a voice to help understand their point of view and shed light on this issue.

Research Questions

CRQ: What are the main fears or social constraints that prevent caregivers from providing outdoor experiences for their young child?

SRQ1: How do the caregivers' own outdoor play experiences differ from the experiences they are willing to offer their child?

SRQ2: What outdoor boundaries does a caregiver set for their child during play?

SRQ3: What conditions or scenarios make caregivers comfortable enough to provide outdoor experiences for young children?

SRQ4: What is the caregiver's role while their child plays outdoors?

Rationale

The intent of this qualitative study is to provide an in-depth exploration of caregivers' perceptions on outdoor play, which fits the aim of a case study seeking to tell the narrative of several individuals within a bounded system (Creswell & Poth). Through their point of view, we get a full picture of the situation to better understand barriers of outdoor play, the boundaries given to young children by their caregivers, and develop strategies to help parents and caregivers feel comfortable in providing beneficial outdoor opportunities. The study will also contribute to gaps in the literature in two main areas: early childhood environmental education and parents' perceptions of and participation in nature play. A recent analysis of K-12 environmental education studies found that exploring the outcomes of early childhood environmental education programs does not take significance in the literature (Ardoin et al., 2018). Studies on early childhood environmental education also usually examine educator's perceptions of outdoor play (Ernst, 2014; Kiewra & Veselack, 2016). Even though 80% of children who reach preschool age are enrolled in a form of childcare where parents are not present (Tandon et al., 2012), young children still spend a significant amount of time with their caregivers and the habits they develop at a young age can stay with them for the rest of their life.

Methods

Design type

A collective case study (Creswell & Poth, 2018) was used to focus on the issue of declining outdoor opportunities for young children within the bounded system of multiple

families within the Midwest. Parent perceptions of outdoor play were examined to understand barriers that inhibit young children's outdoor play opportunities. Purposeful sampling allowed the selection of families that fit the requirements of the study provided a full picture of the issue.

IRB and ethical considerations

The project was approved by IRB in October 2021. Ethical considerations are necessary throughout various phases of the study to respect the privacy of the families and conduct a rigorous qualitative study (Creswell & Poth, 2018). The site directors of three preschool centers were contacted about the purpose of this study and to give permission to contact families during the Fall 2021 and Spring 2022 semesters. Several preschool centers voiced a desire to improve their outdoor education programs and were interested in learning about caregivers' perceptions of outdoor play. Families were given a consent form that discloses the details of the study, any risks involved, the general procedure, and informed them of their rights to participate. Parents had to consent for their child to participant in the observation period through IRB protocol. All participant data were protected in encrypted online files. All names and preschool center locations were replaced with pseudonyms.

Because this study involves parent's perceptions and observes interpersonal interactions with their young children, it is possible that negative caregiver-child interactions, disruptive child behavior, or outdoor incidents were noted. This study focuses on parent's perceptions and examines the role parent's take as they play outdoors with their child. Therefore, negative interactions and incidents cannot be removed from the study. However, identities of participants will remain anonymous, and responses and

observations were not written as embarrassing, cruel, or malevolent towards the participants.

Sample Selection Procedures

The purpose of this case study is to examine caregivers' attitudes towards preschool children's outdoor play to define common themes among families in the Midwest. Maximum variance sampling was used to get a wide range of families with young children. Participants were sampled from three different preschools. Two were in an urban city while one was in a nature center outside of the city. Parents were first informed of this study through an email sent to them by the director of the preschool their young child attended. The primary researcher wrote the email that contained a flyer, and the consent form. This first method of recruitment was not very successful. For the second phase of recruitment the primary researcher visited each of the three preschool locations in-person during pick-up and drop-off periods. Potential participants were each given an information packet containing an invitation letter, flyer, consent form, and return envelope. This method of recruitment was more successful in getting parents and caregivers to agree to consent to participate in the study.

Participants

After the recruitment period, fourteen parents agreed to participate in the study. One parent dropped out after the first interview session leaving a final sample size of thirteen parents. Participants were all female –the mother to their preschool children. Each participant had at least one child (3-5 years old). Sometimes fathers and other older

siblings were present at the observation session that occurred at different local parks, but all interview sessions and data were collected from female participants.

Data Collection Methods

A primary feature of qualitative designs is to use a variety of data collection methods to improve trustworthiness and to improve the narrative being told or described (Creswell & Poth, 2018; Merriam & Tisdell, 2016). Two forms of data collection were utilized to get a rich description of the issue examined in this case study. The primary data collection method was two semi-structured interviews with the parents about their perceptions of outdoor play with their young child. Observations with the parent and young child were done to observe how the parents interacts with the child in the predestined outdoor playground space. The data collection process was completed November 2021 through January 2022.

Interview Procedures

Semi-structured interviews contained questions generated from an interview protocol guideline that gives the interview a conversational style and allows for open-ended responses from participants (Merriam & Tisdell, 2019). Each interview session was about 10-20 minutes each, audio recorded with participant's permission, and then transcribed. Participants had the option of completing the interview via zoom or over the phone. Interview questions were formulated to add information to the central and sub central research questions of this study.

Parents recruited from three different preschool centers in the Midwest completed the first initial interview questions. The initial interview questions seek to get a background

on what outdoor play was like for the participant as a child and note how outdoor play is different now. Participants were also asked questions about their perceptions of outdoor play, barriers given to their children while playing outside, and factors about the outdoor environment viewed as unsafe. The second interview was scheduled after the participant's informal observation was completed. The questions in the second interview accessed how the participant felt about the outdoor play space the observation took place at and if there are any other factors of outdoor environments besides those already mentioned that make them uneasy to let their child play in nature (see Appendix A for complete list of interview questions). Eleven out of thirteen participants also completed a third, follow-up interview to complete some member checking and ask participants about their perceptions of safety concerns while comparing natural and manufactured outdoor play environments.

Observation procedures

Each participant completed one informal observation period at a predestined outdoor park. The park has a massive playground with slides, swings, a giant tower, climbing structures, and tunnels, as well as a smaller playground with a sand pit and some climbing structures for younger children. All participants except two choose to complete their observation sessions at the predestined park. For one participant (T1) the predestined park was too far away from their home, so they suggested a smaller park next to a public school. That park has two separate playground sections: one with slides, ladders, and monkey bars, and the other with more climbing walls and rope ladders. The other parent (U4) chose a smaller park with more natural elements. That park had a

dome-shaped rope climbing structure with a big slide, a grassy path with animal statues, and a walking path near a waterway.

Observations at the parks took about 20-30 minutes with each family. Parents were instructed to play with their child in the outdoor environment while the primary researcher observed interactions from a distance, making their presence as unobtrusive as possible while noting all occurrences within the environment during the observation period such as the parent interactions with their child as they play outside. Special attention was given to the parent's role as they interact with their child. Some observation sessions were rescheduled throughout the data collection period if it was too cold for children to be outside.

Data analysis methods

Analysis methods were modeled after Creswell and Poth's data analysis spiral (2018). Analyzing qualitative data is not a linear process with a set path. Instead, the momentous amounts of data go through several stages in spirals with 5 main activities: organizing the data, reading and recording ideas, identifying codes and looking for patterns, developing, and assessing interpretations, representing, and visualizing the data into findings (Creswell & Poth, 2018). Field notes from the observation sessions were also analyzed during the process to determine the behaviors of common roles parents assumed while their young child played outside. After a few observation sessions were completed, five distinct parent roles were identified and continually checked throughout the analysis process. These five parent roles, observer, active participant, supporter, director, and protector are operationalized here.

Observer role: Parents stood back and watched their child as they played freely in the outdoor space. Their child may also talk with the parent from afar, but the parent mostly stays out of the way as the child plays.

Active participant role: Parents engaged in play with the child and let the child lead the direction and action of play.

Director role: A parent participates in play but tells the child what to do during play and leads the direction of play.

Supporter role: Parents either verbally support play or help their child through a difficult area of the outdoor space but do not stop or redirect play. For example, a parent can support a child pretending to be a pirate by saying “My, what a ferocious pirate you are!” And then if the child is trying, but having difficulty climbing a structure, the parent supports and offers a hand to get up or down if the child wishes.

Protector role: A parent prevents their child from utilizing a certain area of the outdoor play space they perceive as unsafe or too risky. For example, one mother prevented her child from sliding down a certain slide at the playground because there was ice at the bottom.

Interviews

Analysis of the interview questions started during the initial interview process through classifying codes in the caregiver’s responses. Codes were compared among all interview responses. Eleven out of thirteen participants completed a third interview for member checking and to ask more questions about the parents’ perceptions of nature play and any dangers while playing in nature. Two researchers first coded interview transcripts. After

reviewing the data, a graduate student not affiliated with the research project coded three random interview transcripts to check the validity of the codes. Common themes among all interview responses and observations were defined after all codes were classified.

Results

Interviews

The aim of this study was to identify parent's perceptions of outdoor play, barriers of outdoor play, how play evolved since the parents were children over the past generation, and the roles caregivers perform while their children play outdoors. Parents' perceptions of why outdoor play is important for young children fell under four common themes: mental health, physical health, connection to nature, and developmental growth. For the developmental growth theme, many included topics such as risky play, imaginative play, increased autonomy, increases in confidence and trust in their own capabilities, improved self-control, and self-regulation.

“(During independent outdoor play) she develops a sense of self and competence that allows her to, you know feel empowered to do things by herself. But then the other piece of it is that creative piece that if she's always looking for someone else to provide kind of the, the context for play or even like just reciprocate plans specifically and I don't think that it flexes her, her mind as much” (participant U3).

“It's good for my children to figure out how to entertain themselves. It helps them learn how to problem solve in gaining that independence and it also teaches them how to self-soothe...: I like risky play because it allows my children to grow their physical and mental capabilities and allows to build the ability to determine the risk, being able to

climb to certain height and try to figure out how to get balance skills to be safe be careful or whatever just to get through a certain problem” (participant U1).

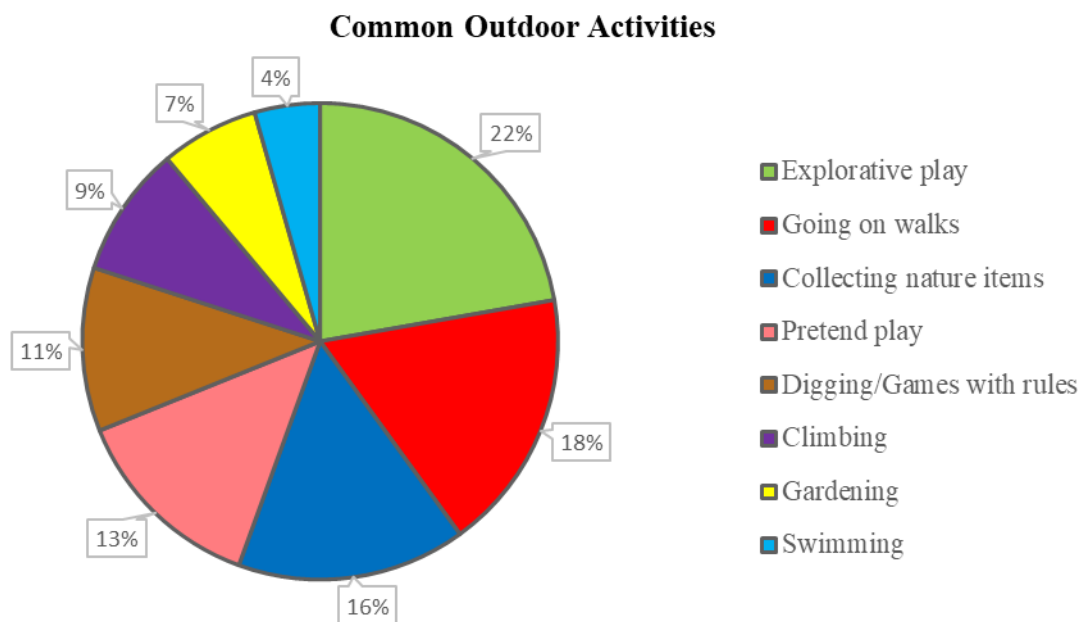


Figure 1: Common outdoor activities parents enjoyed with their young child.

Parents were asked about outdoor activities they enjoy doing with their young children.

The graph above shows common outdoor activities in order from most to least mentioned. Many participants advocated for outdoor play in natural play environments instead of relying on manufactured playgrounds. *“The natural environment gives them (preschool children) a different way to express imaginative play...like they just really like exploring and so there's much more exploring to do in actual environments and there isn't at traditional playgrounds” (participant U2).*

Outdoor play changed since parents were young children themselves. The three most common ways parents found outdoor play different now is that it is much more restricted and structured, there are more safety concerns and liability issues, and parents feel

pressure to intentionally provide meaningful outdoor play opportunities. Instead of letting children roam and explore nature areas unsupervised, playdates are scheduled at a playground or someone's house. *"I think we ask different questions when we are engaging children in outdoor play and in play in general now than we did when I was growing up. It was more like 'oh we have to do this thing outdoors, now you are outdoors.' Now it is more of a choice in parenting to go and be outdoors (participant U2).* Some participants emphasized that with the increase in safety measures and more structured play, outdoor play itself has not changed when children are given opportunities to play outdoors. *"I notice a difference in playground equipment from when I was a kid uh, I think there's been a lot of like changes for safety reasons and liability reasons... I think kids play the same way especially when they're given maybe not necessarily a playground but just an outdoor space... kids have not changed, we changed our idea of what is safe for kids to play on (participant P3)*

Barriers to outdoor play fell into two overarching themes: potential danger from people and potential danger from nature. Danger from people in this study is defined as any fear or potential harm resulting from another person's actions. The common dangers from people identified during outdoor play with young children were traffic, stranger danger (e.g., abductions), and older children. Almost every parent mentioned either a fear or awareness of the risk busy traffic poses to young children given that many young children do not yet understand those potential dangers. There were also a wide range of responses about the gravity of stranger danger risks. Some parents were very fearful while others were not as much. *"I'm just so afraid that you know someone's going to come up and kidnap my child because you hear all these stories (on social media) ... know it's scarier*

now from all the stuff that you see, and you know people getting abducted by other in their yards” (Participant P4).

“I always try to keep an eye on my two kids to make sure they have not wandered somewhere or just; you know watch for people and um strangers and those type of things” (participant T2).

The dangers of older children were identified from situations where older children were harming (either purposefully or accidentally) participants and their young children or not setting good examples of behavior. *“One recent occasion the kids (other older kids) were throwing rocks and that’s super fun you know then my kid started throwing rocks. But then the other kids started throwing rocks at me and the baby” (participant P3).*

“Even if it's like an older kid like that runs by and like accidentally pushes her down like something that she can't control. Um I mean because a lot of the kids here will just do like older kids will just do crazy things there and not necessarily realize there's a four-year-old next to them” (participant T3).

Danger from nature in this study is defined as any fear or potential harm resulting from things in the natural environment. The common dangers from nature identified during outdoor play with young children were unprotected open waters, poisonous plants, fecal matter, and polluted water areas.

Participants mentioned setting boundaries for young children during outdoor play to keep them safe. One surprising finding was many participants disclosed conversing with their young child about set boundaries to increase their child’s awareness and autonomy of potential risks while playing. *“So, we talked a lot about like “look at your surroundings,*

do you feel safe? Do you feel stable?" um and making sure that they understand what those words mean" (participant U2). Other boundaries mentioned were staying within sight of parents, physical boundaries such as sidewalks, providing proper clothing for outdoor play, children staying in locked, fenced backyards, and parents assisting during play.

When asked about the conditions or scenarios that would make participants more comfortable to provide outdoor experiences for their young child the answers mainly involved the conditions of playground spaces. The three common conditions were age/developmentally appropriate equipment, playgrounds with a barrier or fence, and play spaces that are open and centralized, providing a clear view of everything in the space and their child in the space.

"I like it to be open so I can have my eye on both of them at the same time and it just went playgrounds just safety wise you know if the equipment is not appropriate for a younger one you know that you can get worried if you know you can't let him just play by themselves" (Participant P1).

Observations

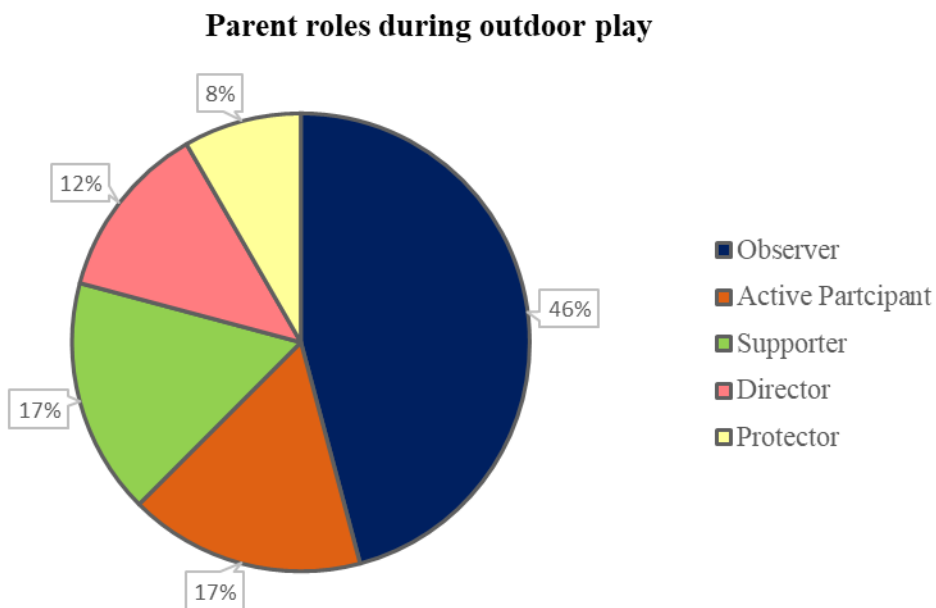


Figure 2: Frequency of parent roles observed during outdoor play with young children.

Parent roles were observed and defined during the informal observation period.

Throughout the observation period parents took on one or many of these roles. For this study, parent roles during outdoor play are defined as ways in which the caretaker chooses to engage with their child as they interact with the outdoor environment. The five common parent roles noted during the informal observation period were observer, active participant, supporter, director, and protector. The role parents assumed most frequently was observer, meaning they were either watching their child play from a far-off distance or nearby. Parents rarely took their eyes off children as they played in the outdoor public space. For some participants it was harder to keep their eyes on their young child especially when the playground was busy, or they had more than one child with them to watch over. The 2nd most common parent role during outdoor play were active participant

and supporter. Instead of just watching, parents who were active participants chose to join their child in their play activities but allowed the child to control the direction and duration of play. The role of supporter meant the parents displayed either verbal or physical encouragement as the child played in the outdoor environment. For example, if a child is climbing up on the monkey bars a parent in the role of supporter may encourage their child to use their strong arms to climb. Or if a child says they're a pirate taking over a ship, a parent as a supporter will encourage that imaginative world the child created.

The two last roles that were least observed were director and protector. The role of director is where a parent controls the direction and duration of their young child's play. For example, one participant's young daughter wanted to go up and slide down the tall slide, but the participant redirected their daughter and instead had her go on the swings instead. The parent role of protector refers to parental actions that try to prevent perceived risk in the outdoor setting. Some participants prevented their young child from using certain areas of the playground because it was either not developmentally appropriate, unsafe because of icy weather conditions, or the participant parent felt it was too risky.

Discussion

Every parent agreed outdoor play is important for their young child's overall development. Several parents mentioned they appreciate outdoor play environments that challenge their young child to participate in risky play to improve confidence in their coordination, cognition, and problem-solving skills. This was also reflected in the observation period where some parents took on the role of supporter and encouraged children to trust their bodies, take risks, and try to do things themselves without help.

Besides observing and supporting play, many parents also took on the role of active participant and allowed their child to direct the duration and type of play activity in the outdoor space. Young children appear to engage more with their environment when they are allowed to initiate play and are given autonomy to choose how they interact with their environment (Gibson et al., 2017; Kiewra & Veselack, 2016; Skar et al., 2016). However, about 2 of 13 parents were observed directing their young child's play either by preventing them from using certain play equipment or controlling the duration and type of play activity. One study in Norway on adult's presence during children's outdoor play found many parents direct outdoor play into an organized event instead of allowing it to be spontaneous and child led (Skar et al., 2016).

Parents, even those that favor risky play, shared several safety concerns of outdoor environments which is consistent with other studies on parents' perceptions of children's outdoor free play (Bento & Dias, 2017; Raudeliuniene et al., 2020; Valentine & McKendrick, 1997; Veitch et al., 2006). Safety concerns split into danger from people and danger from the environment. The most common safety concerns from people were traffic and stranger danger, which is similar to other studies done in Europe and Australia (Sandseter et al., 2020; Veitch et al., 2006). Some participants were very fearful for their child's safety in terms of stranger danger due to reports of kidnapping and other horrific events portrayed through media sources. *When I was young kids were out all the time and now that social media is around it's like "Oh well these kids are getting kidnapped in broad daylight" and you know it just makes you worry more*" (Participant P4). Media sources such as news channels and other social platforms tend to exaggerate incidents of child abduction. The way media sources portray issues concerning stranger danger highly

influence parent's perceptions of whether an area is safe (Allin et al., 2014; Sandseter et al., 2020). These fears can evoke parents to try and eliminate all potential safety risks while also reducing opportunities for meaningful outdoor experiences for their young child (Brussoni, 2007; Sandseter et al., 2020).

Besides danger from people, participants also noted safety concerns from nature including unprotected open water, poisonous plants, and polluted water areas. A few participants noted their child takes swimming lessons because they want their child to know how to swim and be safe in water, but still wanted their child to be near an adult if there is open water in an outdoor play area. Different dangers from nature can be especially harmful considering young children experience their world kinesthetically through the five senses. Hazards such as poisonous plants and polluted water can pose a risk to young children trying to explore their environment. Participants were also asked about whether they prefer their young child to play in manufactured or natural environments. While some parents enjoy utilizing both settings, others said they prefer natural play environments. Several parents even mentioned they perceived natural play areas as more safe than manufactured playgrounds as it gives children opportunities for risky play without being too close to busy parkways or heavily trafficked areas. A study done in Chengdu, China found both parents and young children preferred more natural play areas while parents also perceive natural environments as less risky than more structured playground areas (Wang et al., 2018).

When asked about concerns with outdoor play, participants mostly focused their concerns on the conditions of manufactured playground spaces instead of natural play environments. This may be because parents tend to utilize manufactured playground

spaces for young children. A recent study done in California examining how outdoor activities changed over time found most children ages four to six spend most of their outdoor time at local parks compared to the older stages of child development (Izenstark & Middaugh, 2021). One parent even commented on how often they rely on playgrounds as outdoor spaces for their young child to play instead of taking them to an open natural space. *“I even find myself thinking when it’s time to play outside, which park haven’t we been to in a while, instead of thinking, let’s go walk around and explore the neighborhood... We rely on playgrounds, nature trails instead of going to big wide natural spaces and allow children to explore* (Participant U3). This reliance on urban playgrounds as outdoor play spaces changed considerably since participants were young children themselves as all except two participants mentioned spending most of their time outdoors in wide open spaces. Many participants wished to give their young child similar outdoor experiences as their own but find it considerably harder to do so because of urban landscapes, busy roads, and an increase in people using those spaces. Similar findings on barriers of outdoor play were found in Portugal, Norway, and China (Bento & Dias, 2017; Skar et al., 2016; Wang et al., 2018).

Compared to when parents were young themselves, their young children are rarely left outside to play completely unsupervised. Even when parents are not around, other adults, siblings, or neighborhood friends are usually watching the young children while they play outside. Some participants mentioned they let their young child play alone in the yard, but that they are always within sight or hearing range. This was also reflected in the observation period where several parents took on the role of observer and made sure their child was always within sight. Furthermore, many children are made aware of physical

boundaries such as “not going past the sidewalk”. Boundaries given to children while playing outside consisted of a mix of physical barriers and parental strategies. Several parents shared using both types of boundaries when allowing their child to play outside such as planting themselves near the entrance of the playground and telling children to stay on the concrete.

Solutions to help parents feel more comfortable with the outdoors consisted of proposed physical changes to play environments. Two solutions parents suggested, playgrounds with fencing/barriers and open/centralized spaces with unobstructed views, seem to directly mitigate dangers from traffic and strangers. Many parents mentioned wanting a barrier between parking lots and the playground area, to ensure children could not get hit by cars. Also, playgrounds with one entrance and a fence would also prevent children from running off or prevent strangers from approaching unnoticed. Another problem parents mentioned was playgrounds with separate, spread-out play sections, making it hard for parents to watch their young child or other children. Whereas playgrounds with centralized features would allow parents to observe their child and everything in the play environment more easily. Developmentally appropriate equipment would address dangers from the manufactured environment. If play equipment is outdated, broken, or seen as too risky for preschool children then parents may be more likely to direct their child’s play or not let them play in the outdoor environment at all. Developmentally appropriate equipment that is safe but also challenges young children’s development may also allow parents to let their young children engage in more free play in the environment. One other change a few participants mentioned was creating playgrounds with more natural elements. This solution may correspond with parents who viewed natural environments

as more safe than manufactured ones. One participant (U4) works for a local agency in charge of park systems and mentioned how the organization is trying to increase the quality and quantity of natural areas in their city. Most playgrounds have manufactured equipment with fixed elements and may not allow for exploratory play like open nature spaces (Acar & Torquati, 2015; Azlina & Zulkiflee, 2012; Collado & Corraliza, 2015).

Limitations

This study was limited to 13 female participants from families in the Midwest. The initial population was 14 but dropped down to 13 when one participant did not continue after the first interview session. Furthermore, participants from the study were selected from three preschool centers in a midwestern city making it a narrow population. With a small sample size and a focus solely on mothers of young children within the confines of one city much of these observations cannot be generalized to another population and cannot be considered an accurate representation of midwestern families. For the observation period examining parents' roles most participants (n=11) were brought to a designated manufactured park which did not offer many affordances for natural play. This may have skewed the results of the roles parents play as they were not allowed to interact with the young child as they may naturally in doing activities such as going on walks, collecting nature items, and explorative play. Case studies provide in-depth understanding of participants and events within a specific bounded system and are not usually generalizable to the general population (Creswell & Poth, 2018; Merriam & Tisdell, 2016) Even though the sample size was small, there was a wide range of responses as far as how comfortable participants were in allowing their young child to explore outdoor environments, and the results were consistent with previous research (Sandseter et al.,

2020; Veitch et al., 2006). Some participants want to allow their child to play independently while others are very wary of play in outdoor environments and fearful of perceived dangers from people and/or the environment. Demographic data on age, race, ethnicity, gender, marital status, income, education, and employment was not collected so no connection was made on how those different variables may influence parent's attitudes on outdoor play with young children. Furthermore, each family that participated in this study may experience varying degrees of accessibility to natural outdoor spaces.

Conclusion

This case study examined parent's perceptions of outdoor play and the roles they assume while their young child plays outdoors. In doing so this study gave parents an avenue to express their concerns about outdoor play with young children in a field where many studies focus on environmental educators and the children themselves, rather than parents. All participants in the study identified several ways outdoor environments benefit young children's growth and development, such as challenging their young child to take risks, encouraging autonomy, developing skills through risky play, and aiding in healthy physical and mental development.

While parents shared benefits of outdoor play, they also expressed safety concerns that caution against some forms of outdoor play. The most common safety concerns parents identified were dangers from people, including stranger danger and dangers from older children. Parents did not perceive dangers from nature as much of a risk to their children. Some parents perceived natural environments safer than manufactured playground spaces as those provide children opportunities for risky play without being too close to busy parkways or heavily trafficked areas. Many strategies and changes parents suggested to

improve outdoor play spaces included providing fences and physical barriers to reduce safety risks from traffic and strangers. Developmentally appropriate equipment is needed in outdoor parks to make parents more comfortable in allowing their young child to play freely. Parents and caregivers play a huge role in young children's growth and development. Therefore, understanding and meeting their needs in feeling comfortable with encouraging their young children to play outdoors, is needed to ensure young children regularly benefit from outdoor play.

Further Study

Though this study begins to highlight how parents view outdoor play with young children, more research is needed to understand specific variables that may influence parent's perceptions of barriers of outdoor play and strategies that make parents more comfortable to provide natural outdoor experiences for young children. A further study could allow participants to choose where they would like to complete their observation period so parents could display more natural play activities and roles while their child plays outside. In that case some parents may choose the environment they are more comfortable in whether that is natural or manufactured. Outdoor play is critical to young children's physical, mental, and social development. However, almost a quarter of parent participants in this study said they were not sure if any changes would make them feel more comfortable in allowing their children to play in outdoor environments. Either because they felt no changes would make them feel more comfortable in outdoor environments or they were unsure how outdoor environments could be improved. More study is needed to identify those barriers and tangible solutions to make parents feel more assured to provide quality outdoor play experiences for their young children.

Furthermore, more study is needed to analyze parent's perceptions of how to manage risk in outdoor environments. Is it up to parents to make sure their child is safe in outdoor areas, or is it the responsibility of local agencies to provide safe outdoor environments?

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APPENDIX A: INTERVIEW QUESTIONS

Interview 1	Interview 2
Do you think it is important for children to play outside? Why?	How did you feel about your child playing in the outdoor playground at antelope park?
What was outdoor play like when you were a young child? (SRQ1)	Were there any elements of the outdoor environment that concerned you? Why?
How is outdoor play different now compared to when you were a child? (SRQ1)	Did your child have fun playing outdoors?
What boundaries do you give your child when they play outside? (SRQ2) Describe what you do outside with your child while they are playing.	Are there other factors besides those already mentions that concern you with allowing your child to play outdoors?
Do you let your child play unsupervised outdoors? Why or why not? (CRQ)	What changes or strategies would make you feel more comfortable in giving your child more outdoor experiences? (SRQ3)
Are there any places in your neighborhood that you would not allow your child to play? Why or why not? (CRQ)	