



Providing nature contact for children

– various perspectives on nature-based playground design

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Providing nature contact for children – various perspectives on nature-based playground design

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Abstract

Access to high quality play is one of the most important factors in children's physical, mental, and emotional development. Among certain key actors, however, there is a lack of knowledge of the benefits and how nature elements can support children's play, as well as lack of acceptance of nature-based playgrounds. This study concerns the opportunities within landscape architecture to promote the development of nature-based playgrounds. To develop knowledge on nature-based playgrounds and how including nature in the playground design can improve playgrounds and expand their use, data was collected from interviews with landscape architects. To understand children's perspectives on their play environments, this study also included group exercises, consisting of one meeting with fourteen preschool children (ages 6-7) and one teacher-formed lesson with seventeen primary school children (ages 8-9). Both included discussions and drawing exercises.

The meetings with children and the interviews with landscape architects provided various perspectives on play and children's possible and actual preferences. As well as ideas about ways to improve the acceptance of nature-based playgrounds. Interview results reflect numerous benefits of nature contact and nature-based playgrounds, for example, more varied, imaginative, and less aggressive play opportunities, promoting physical, mental, and emotional development. The results also indicate various challenges concerning design, implementation and maintenance, and children's inclusion in the design process. Group exercises with children revealed differences in children's preferences based on age, and highlighted the need for age-appropriate design considerations. Primary school children mainly expressed a longing for more challenging play experiences, while preschool children emphasized the importance of social interaction and the colorful nature of their play environments.

To create a play environment for all children, nature-based playgrounds can provide more opportunities for children's play and create inclusive play environments by adding loose materials, allowing free play, balancing safety requirements with the need for challenging and engaging play experiences, and providing age-appropriate equipment. Despite the potential challenges of involving children in the design process, it is important to create spaces that truly meet their needs and preferences. The drawing method used in this study indicate potential, however, more research is needed about how to efficiently include children in the design process.

Keywords: Children's perspectives, green environments, green playgrounds, landscape architecture, nature-based playgrounds, nature contact, nature experience, perspectives on play, play design, play for development, sensory play, supportive design.

Preface

“Because children grow up, we think a child’s purpose is to grow up. But a child’s purpose is to be a child.”

(Stoppard, n.d.)

I grew up in a small village in Latvia, in a neighborhood without a designed playground. Instead, I had access to garden areas, riverside, forest, grass fields, and even a small hill. I spent most of my time outdoors with my friends, playing “houses” (a roleplaying game where each child was given a role, mom, dad, sister, etc.), playing tag, or hide and seek all over the neighborhood. In the winter, we went to the hill to ski or slide off it. The only playground equipment that we had back then, was a sandbox. This experience gave me a huge insight into what it feels like to have access to nature and a place where I can choose how and with what I want to play.

I have a younger sister, age six. She is growing up in a different environment than I was, with more technologies and more urbanized playgrounds with standard colorful equipment. She is not allowed to play outside alone and most of her play time she gets only in preschool or at home. As she is growing older she starts to lose interest in the small playgrounds around her home.

In my opinion, most of the modern, standard playground designs do not focus on the benefits they should provide, but rather are too focused on the design – colorful equipment and specific safety regulations. For me, play has always been a way to use my imagination through different play equipment and elements, spend time with friends, and as a joyful experience. I wish that my sister could experience such play: to have play spaces where she has the opportunity to play freely, to use her imagination, to test her limits, and to learn about herself and the nature around her.

It might be challenging to create natural play spaces like the one I experienced while growing up, especially in modern urban environments. But it could be possible to take elements and small portions of nature and bring them into the city playgrounds, to make them more interesting, open, and available for a larger variety of children.

Table of contents

List of figures	8
1. Introduction	9
1.1. Children and nature	10
1.2. Children's perspectives	12
1.3. Research aim	13
1.4. Methodology	13
1.4.1. Interviews with landscape architects	14
1.4.2. Group exercises	15
2. Results	18
2.1. Landscape architects' perspectives	18
2.1.1. Benefits of nature	18
2.1.2. The importance of a good design	19
2.1.3. Safety and maintenance	22
2.1.4. Challenges	24
2.1.5. Involving children in the design process	25
2.2. Children's perspectives	26
2.2.1. Challenging play	26
2.2.2. Playing together	31
2.2.3. Playing in nature	34
3. Discussion	36
3.1. Landscape architects' perspectives on play and nature-based playgrounds	36
3.2. Children's perspectives on their play environment	37
3.3. Recommendations for landscape architects based on study findings	39
3.4. Methods discussion	41
3.4.1. Methodological improvements	43
4. Conclusions	44
References	46
Appendix 1 - Interview questions for landscape architects	50
Appendix 2 - Plan for group exercises with children	52

List of figures

Figure 1. Playground located behind Brocenu high school. It contains a fenced small football field, traditional play equipment with a wooden playhouse, a slide, a rope bridge, a climbing wall and a rope climbing feature.	27
Figure 2. Primary-school child with his drawing of high play equipment with climbing walls, slides, ropes and swings.....	28
Figure 3. Primary-school child drawing of a slide, hammer play equipment and a football field.....	29
Figure 4. Primary-school child drawing of wooden obstacle play equipment.....	30
Figure 5. Primary-school child drawing of play equipment with highlighted ground cover (wooden chips).	30
Figure 6. A large play area is located next to the preschool educational institution “Mūsmājas”. It contains play equipment such as slides, metal bars and climbing walls, swings, colorful wooden cars, playhouses and wooden outdoor classroom buildings.....	31
Figure 7. Preschool child drawing of the child and her friends on swings.	32
Figure 8. Preschool child drawing of the child and her parents on swings.....	32
Figure 9. Preschool child drawing of of a house in which to hide and play.	33
Figure 10. Primary-school child drawing of play equipment including a small house and platforms to sit and play together with other children.	33
Figure 11. Preschool child drawing of herself playground with her and me.	34
Figure 12. Preschool child drawing of play equipment, herself and her friends, as well as a small hill, with colorful flowers.....	35
Figure 13 . Preschool child drawing of climbing play equipment and a snowman.	35

1. Introduction

Play is an essential and meaningful part of the lives of children across all ages and cultures (Moon-Seo & Munsell 2022; Goldfarb 2019). The term play and its characteristics could be defined in various ways and could hold different meanings to different people, depending on knowledge, culture, and education (Woolley & Lowe 2013).

Many practitioners and policymakers follow the definition of play stated by the National Playing Fields Association (NPFA 2000, p. 6) “Play is a “freely chosen, personally directed, and intrinsically motivated behavior that actively engages the child”. Several researchers have stated that play activities especially outdoor play have been proven to promote physical, cognitive, social, and emotional growth for children and overall well-being (Herrington & Brussoni 2015; Wilson 2007; Wardle 2008; Woolley 2008; Woolley & Lowe 2013; Moon-Seo and Munsell 2022). Furthermore, play serves for stress relief, and relaxation and cultivates empathy, flexibility, self-awareness, and self-regulation, many of which are important and essential abilities in adult life (Burdette & Whitaker 2005).

Through playful activities, children engage in motor activities, spontaneous activities, and experiences that foster growth and learning. Play takes on various forms, and each of them differs for each individual according to his skills, education, and development levels (Duncan 2015; Fjørtoft & Fjørtoft 2004; Goldfarb 2019). Researchers have defined specific types of play, helping educators, researchers, and caregivers to understand the play, its structure, and values. These types of play include: Constructive play: manipulation of environments and elements, building and crafting, enhancing fine motor skills and creativity; Functional/Physical play: running, jumping, and climbing, developing fine and gross motor skills, muscle and brain functions, coordination, and spatial awareness; Fantasy play: explore creativity, engage in new situations through the experimentation of concepts, scenarios, and emotions in a risk-free environment, developing problem-solving skills and imaginary; Social play: interaction with peers and other persons, developing the notion of social rules, responsibility, communication skills, empathy, and cooperation; and Games with rules: organized sports and games with rules, fostering discipline, teamwork, strategic thinking and an understanding of how to respond in social situations which are controlled by rules and boundaries (Wardle 2000; Woolley & Lowe 2013; Loebach & Cox 2020).

The character of children's play also develops as they grow older. At about two years of age, children emerge in dramatic/fantasy play, where they explore themselves and their surroundings. At the same age, they also start to participate in a construction type of play. At around five years of age, children can create and participate in games with rules. They begin to accept prearranged rules for specific games and adjust to them. By the age of 6 most children are competent to engage in all of the major forms of play (Frost 1988 see in Bruya 1988).

While play itself is beneficial for children, indoors and outdoors, it is important to focus on the play environments and their design, and how they impact children's play and the opportunities for development, education, and well-being. Possibilities in specific environments could be described as affordances (Gibson 1977). Affordances could be described as the interaction between a person and the environment (user–environment–activity relationship), how this person perceives the environment, and the meaningful action possibilities it can provide (Lerstrup & Konijnendijk 2017). For example, if a tree has relatively low branches, it affords also a young person to climb it. If a tree stump is cut to the lower level and has a horizontal surface, it affords a person a place to sit or stand there. If a rock is small enough to grab on or fit in hand, it could afford to be thrown (Gibson 1977; Fjørtoft 2004; Fjørtoft & Sageie 2000; Maudsley 2007; Refshauge et al. 2015). These affordances are to some extent unpredictable, as they are unique for each individual depending on their capabilities, imagination, experience, education, and culture and they also differ in every environment (Maudsley 2007; Refshauge et al. 2015). Play outdoors in natural environments has been found to provide more affordances and provide opportunities and benefits for children, than traditional playgrounds and play indoors (Ethier 2017).

1.1. Children and nature

In contemporary society, where various technologies and media entertainment often dominate children's leisure activities, there has been a growing interest in integrating nature-based elements into children's play environments. This has led to more research on nature contact and its benefits on children's development and health among researchers, playground designers, and individuals invested in this subject (Ethier 2017; Fjørtoft 2004; Guite et al. 2006; Herrington & Brussoni 2015; White 2004). However, there remains a notable deficiency in discussions concerning nature-based playgrounds within city management and the people involved. Therefore they take limited initiative in popularizing and implementing nature-based playgrounds (Frost 1988 see in Bruya 1988; Dymont & O'Connell 2013; Hostetler 2021).

Nature-based playgrounds, in a simple way, could be characterized by their incorporation of natural elements such as trees, rocks, water features, sand, and

vegetation (Howe 2016; Kuh et al. 2013). Contact with nature and green environments have been described to have a positive impact on children's health and well-being (Fjørtoft & Sageie 2000; Herrington & Brussoni 2015; Kellert 2006; Raith 2015; Guite et al.2006;). Nature provides various possibilities to enhance and heighten all human senses, encourage curiosity in children, and motivate them to move, learn, explore, experiment, feel, and observe (Frost 1988 see in Bruya 1988). Most importantly – nature can be inclusive to all ages, genders, abilities, etc. (Herrington & Brussoni 2015; Fjørtoft 2004; Sabri & Abbaspourasadolah 2014).

An increasing number of children nowadays grow up in urban environments and have reduced or limited access to nature. The play environments they can access mostly follow a standard design, mainly focusing on safety, accessibility, and providing basic, sometimes colorful, play equipment from manufacturers, becoming insufficient and limited (Şensoy & İnceoğlu 2015). Unfortunately, these playgrounds lack the diversity of play possibilities and challenges for different ages. Therefore, children over time stop finding the playgrounds attractive spaces to play in. Starting at the infant age, children play. However, the play types they interact with depend on their age and abilities. As mentioned by Refshauge (2015) - when children grow older the characters of the play and what they find interesting change. For example, toddlers interact more in fantasy and constructive play. At around the age of 5 children spend the majority of their play time using play equipment or in the areas around them. Whereas older children start to need more challenges, risks, and possibilities to create and interact (Frost 1988 see in Bruya 1988; Maudsley 2007). Therefore, play environments should emphasize age/size-appropriate equipment and the characteristics of different age groups (Refshauge et al. 2015). As emphasized by Sabri & Abbaspourasadolah (2014, p. 217) “Parents preferred play equipment that is age appropriate rather than various but not suitable to age and ability”. In this situation, the diversity of nature-based playgrounds and their provided play opportunities provide play space for individuals of all ages and may feel more inclusive. And it has been proven that children in nature-based playgrounds spend more time playing and have longer play episodes, compared to play in more traditional playgrounds or indoors (Raith 2015).

By integrating natural elements in play environments, they could provide children with more unstructured and spontaneous play and interaction with the natural world (Dyment & O'Connell 2013; Burdette & Whitaker 2005; Luchs & Fikus 2013; Maudsley 2007; Verstrate & Karsten 2015; Ethier 2017). Following the idea of affordances by Gibson (1977), nature-based playgrounds and natural environments hold more affordances than traditional equipment playgrounds. Especially if these play spaces include enclosed spaces, platforms, spaces “in-

between” and loose materials, such as sticks, leaves, stones, or cones from vegetation, water, sand, tires, etc. All of these enhance all forms of play, for example, more imaginative and creative play (Refshauge et al. 2015; Frost 1988 see in Bruya 1988; Dymont & O'Connell 2013; Fjørtoft & Sageie 2000; Luchs & Fikus 2013). They afford opportunities to build and construct, connect with the environment, and increase the excitement of play (Refshauge et al. 2015). Moreover, through play in natural environments and with close contact with nature, children can cultivate a sense of appreciation for nature from an early age (Maudsley 2007; Ethier 2017).

By involving children in nature-rich playgrounds, children's connection and attachment to the natural world can be enhanced and their care for protecting the environment fostered (Hand et al. 2017; Ethier 2017). This phenomenon is defined as biophilia, meaning that humans tend to be captivated by nature and natural processes (Wilson 1986). This fascination for nature from childhood can increase the number of adults who are active in taking action to preserve nature and protect our planet (Sabri & Abbaspourasadolah 2014; Ethier 2017).

1.2. Children's perspectives

Most modern playgrounds are created based on standards for the safety of play equipment and on what someone believes would attract children, but mostly not based on the main users - children and their perspectives and desires (White 2004; Sabri and Abbaspourasadolah 2014; Şensoy & İnceoğlu 2015). As adults, people view the world through different lenses than children. They perceive landscapes as forms and may not see the affordances of environments as children would (Duncan 2015; Heft 1988). This could also be described through concepts of „places for children” and „children's places’. While „places for children” are designed by professionals or adults, through their perspectives of playgrounds and children's needs. Meanwhile „children's places” are created by children themselves, finding affordances in places and of elements which adults might not find important or might find lacking play opportunities (Rasmussen 2004; Refshauge et al. 2015). Children have a unique way of exploring and interacting with the natural world through curiosity and learning (White 2004). This creates a base of knowledge that is worth exploring and knowing.

Exploring children's ideas and how they define, conceptualize, and engage in play and environments around them could be a vital part of the design process for playgrounds, planning, designing, and even implementation (Duncan 2015; Goldfarb 2019; Little & Eager 2010; Refshauge et al. 2015; Wenger et al. 2021; White 2004).

There has been a focus on integrating children's opinions and desires into designs that would still follow safety regulations and would be realistic to build. Multiple researchers have tried to work closely with children and tried to observe their style of play, or interviewed them on their preferences and perspectives, to gain insight into what play spaces should include (Duncan 2015; Saragih & Tedja 2017; Refshauge et al. 2015; Stanton-Chapman & Schmidt 2021; Miller et al. 2017; Fjørtoft & Sageie 2000).

Recognizing children as active participants and social agents in shaping their play environments is essential for creating spaces that respond to their interests, preferences, and developmental needs (Howe 2016; Norðdahl & Einarsdóttir 2015). Through participatory design methods such as workshops, surveys, and school or common ground greening projects and child-led methods, giving children the freedom to choose their ways of gathering and presenting data, designers can gain valuable insights into children's perspectives (Jansson 2014; Duncan 2015; Şensoy & İnceoğlu 2015). Inclusion in the design process could also foster deeper attachment and care for these spaces (Jansson et al. 2018).

1.3. Research aim

This study aims to develop knowledge on the interplay between nature-based playground design and children's play, and discuss how benefits of nature-based playground design can reach out to key actors.

The main research questions are thus:

1. How can the design of nature-based playgrounds support play for children of various ages and abilities?
2. What are children's preferences about play environments, and how do their preferences correspond with nature based playground design?
3. How to include children in the process of designing nature-based playgrounds?

The main target groups of this study are key actors to educate regarding nature-based playgrounds, crucial for ensuring successful implementation and acceptance. Among these actors are mainly children's parents, municipalities and communities, and landscape architects and designers who do not specify in playground design.

1.4. Methodology

This study is based upon two methodological parts: interviews with landscape architects and group exercises with children.

1.4.1. Interviews with landscape architects

To gain insight into professionals' perspectives on nature-based playgrounds, interviews in this study were conducted with landscape architects who specialize in or work with playground design.

Prior to the interviews, comprehensive research was undertaken to gather personal background and biographical information about possible relevant interviewees. The selected interviewees were all landscape architects with experience working with playgrounds and with designing green play spaces in particular.

In total, three interviews were conducted. Two of the interviewed persons were Latvian landscape architects – Ilze Janpavle (landscape architect and employee at Latvian company “FIXMAN”) and Kristine Dreija (landscape architect and researcher at Latvia University of Life Sciences and Technologies). These interviews were conducted in Latvian. The third person interviewed was a landscape architect from Sweden – Emma Simonsson (landscape architect at URBIO). The fourth person contacted for an interview was Helle Nebelong (Danish landscape architect), but because of her busy schedule, an interview was not conducted, instead, she agreed to answer some questions through e-mail. None of the individuals interviewed for this study objected to the use of their full names in this paper.

The interviews were semi-structured, meaning that they were conducted according to an interview guide, including questions divided into focus themes (Kvale 1999) such as “Design Inspiration”, “User-Centered Design”, “Safety and Accessibility”, “Incorporating Nature”, “Cultural Sensitivity” and “Educational and Developmental Aspects”. Throughout the interviews, additional questions were introduced based on the responses provided by the participants. Each of the three interviews was one hour long, including an introduction, discussion, and additional thoughts.

Due to the request of all participants, all interviews were conducted online using the Zoom application. No external parties were present during the Zoom sessions. After consent from the participants, comprehensive records, encompassing both visual and audio elements, were captured during the interviews.

All recorded content was transcribed for further analysis and reference in the research process. The transcriptions were used for a qualitative thematic analysis. Transcripts were read several times to find meaningful ideas and aspects that could benefit this study. During the reading, multiple themes for each interview were formed, dividing transcript text accordingly. Later all interviews were analyzed together. After looking for patterns, connections, and discrepancies in the data, the results were linked together to improve and enhance the understanding of the interview material, forming five main themes: “Benefits of nature”, “The importance of a good design”, “Safety and maintenance”, “Challenges” and

“Involving children in the design process”. These themes and later subthemes were formed to answer this study’s main research questions and to efficiently present the meaningful information gained from the interviews. Each theme is described in the result part ensuring the objectivity, accuracy, and reliability of the overall framework of this study (Braun & Clarke 2023). In the result part, thoughts and perspectives expressed in the interviews are analysed, accompanied by quotes from the interviews.

1.4.2. Group exercises

Nowadays many researchers focus on child-centered methodologies, to study children's perspectives on and experiences with play and the spaces designed for play (Duncan 2015; Goldfarb 2019; Şensoy & İnceoğlu 2015; Cele 2006; Wenger et al. 2021; Jansson et al. 2018; Hill 2006). Popular methods used or mentioned by some of these researchers are observations of children at play and design workshops that include discussions, model making and drawings (Şensoy & İnceoğlu 2015; Duncan 2015). Following these existing research examples, further methods such as the drawing method and discussions with children were chosen for this study.

To have a deeper understanding of children’s perspectives on playgrounds for children of various ages, this study included drawing exercises and discussions with preschool children, aged 5-6, as well as with primary school children, aged 8-9. An important part of the discussions was children’s drawing descriptions, for a deeper understanding of the meaning behind their drawn objects and elements. This importance of children’s descriptions was also mentioned by Lindqvist (2001, p. 7), highlighting that:

”A child's imagination is not captured by an object itself, but by the story which gives the object and the actions their meaning.”

All meetings with the children took place in Broceni, Latvia, and were conducted in the Latvian language, which also is the author's language. In total 14 children from the preschool educational institution "Musmajas" and 17 children from Brocenu high school (the educational structure of the “Brocenu High School” includes primary, elementary, and high school level education in one building) were included in the study.

Exercises with preschool children

The preschool educational institution “Mūsmājas” is located in the center of the city, surrounded by multi-story residential buildings. Next to the preschool building is a large play area with multiple play equipment such as slides, metal bars, climbing walls, swings, colorful wooden cars, and playhouses. There is also

a wooden outdoor classroom building. There are few leaf trees and bushes, but mostly grass as ground cover. The whole area is fenced with a metal fence.

This particular preschool was chosen because I am in close contact with the teachers, as my sister studies there. Therefore, the children interviewed were familiar with me. Prior to the meeting, an agreement was made with the preschool management and teachers, where they gave their consent for me to meet and talk to the children. I prepared an interview guide with the openly formulated base questions and tasks (see Appendix 2).

There was only one meeting with the preschool children. Before the meeting the preschool teachers had discussed the topic of play and playgrounds and the children had prepared drawings of their “dream playground”. The children were encouraged to be open-minded and draw whatever they wanted. The meeting was conducted in their classroom, to make them feel more comfortable and I was introduced as a guest. The children, the teacher, and I sat in a circle. Each child was asked to come forward and share their ideas and meanings of their drawing. Children were also encouraged to comment on each other’s ideas. The teacher and I asked questions related to each drawing, to understand the drawings better, as well as why the children chose to draw those exact things and why they chose to color them in such colors.

Afterwards, the children's indoor and outdoor play in the preschool playground was observed. The whole process was supervised by their teacher. This observation was done for more possibility to talk to children in a less “tense” atmosphere, in the hope of getting more information. More questions related to the research topic were asked to children. For example –“Can you tell me about your favorite activities or games to play at the playground?”; “What do you not like when you play outside/indoors?”; “How does playing on the playground make you feel?”; ”How does the playground change with the seasons? Are there specific things you like to do on the playground in different seasons?” However, given that these observations were done in the evening, the children were rather tired, and therefore, these observations gave only a small amount of information. For easier analysis, quick notes were made during the group discussion and the play observation.

All drawings were collected as an archive for this study and some of them are included in the result part of the study. Later on the notes from this meeting were written down in a clearer format and additional information was added: highlights from discussions and other interactions with children during their playtime, which had not been written during the meeting. All drawings were studied, and compared with the descriptions of the children. In the process, connections and differences between drawings were studied. All results from the meeting with the Kindergarden children were divided into three themes: “Playing together”, “More nature” and “Play equipment”. These results were later compared with the results from the exercises and discussions with the primary school children.

Exercises with primary school children

Brocenu high school is located on the outskirts of the city center, on a small hill, the hilly landscape contrasting with other parts of the city that are more flat. The school is located next to a private housing area. On the side of the school, there is an ice hall and sports buildings and on the other side, there is a larger park. Behind the school is Cieceres Lake. The school itself is surrounded by a large amount of greenery: trees, bushes, and seasonal flowering. On the school grounds, a small playground is located. This playground consists of traditional playground manufactured equipment: a wooden playhouse, a slide, a rope bridge, a climbing wall, and a rope climbing feature.

To gain insight into older children's perspectives on play and playgrounds, similar tasks as the ones from the meeting with preschool children were given also to primary school children aged eight and nine. Because of the time limit, the planned outdoor interviews with the primary school children were canceled. However, I sent a request to the primary school teachers, in the hopes of further collaboration, adding possible exercises and task descriptions the teachers could use to collect data for this study. As a result, an agreement with the primary school teachers from Brocenu high school was made. Furthermore, the teachers formed lessons that included a short discussion about play and playgrounds available to them as well as other open structured questions, and a task for the children to draw their "ideal/ dream playground".

Documentation of the discussions and exercises conducted during the meeting was collected by the teachers and sent to me for further analysis. The material included comprehensive records, encompassing both visual and audio elements. Later all audio material was transcribed by the author to facilitate analysis.

All video transcripts were read several times to find connections between them. These transcripts were compared to the drawings, to find differences between what is drawn and how children described them. In the analysis of the primary school children's drawings and discussions, four themes were identified: "Age-appropriate equipment", "More challenges", "Playing with others" and "Safe play". These themes were used as a base for further analysis.

Collected material from the meetings with preschool children and documented material from the primary school children, were analysed together. The themes formed in previous analyses were compared to each other. In addition, preference differences between ages, genders and tasks given, were partly looked at. Further, all information was categorized into three main themes "Challenging play", "Playing together", and "Playing in nature". These themes were used to structure the result part of the study, where each of these themes was analyzed, using information gained from the meetings and all children's drawings.

2. Results

2.1. Landscape architects' perspectives

2.1.1. Benefits of nature

In the interviews, all respondents showed that they were aware that spending time in green spaces is linked to numerous health benefits, including reduced stress levels and improved mental well-being. The respondents mentioned that nature-based playgrounds not only provide opportunities for physical activity but also offer spaces for relaxation, cognitive and emotional development, as well in some way improvement in well-being. In addition to the psychological benefits, Emma also discussed how nature-based elements could offer a rich sensory experience. Nature playgrounds can include, for example, tactile elements like barefoot paths, music, and sounds incorporated into playground equipment, enhancing the overall experience, stimulating the senses, and encouraging exploration. These design elements, similar to therapy gardens, can offer more play opportunities and spaces for children with mental disabilities. Many researchers and designers try to bring children closer to nature through playground designs.

In her interview Emma mentioned her current work on play biotopes or “lekotoper”. Through this, she is trying to figure out how playground areas can be built up just with nature. She highlighted that play is not just about physical activity, but also includes the psychological aspects of play. Play encompasses comprehension of surroundings, social interaction, and fantasy, all of which contribute to children’s cognitive and emotional development. Children tend to engage in longer and more imaginative play when surrounded by natural environments, where they can interact with loose materials and construct their surroundings. Children can create, imagine, socialize, and in general shape their play environments according to their creativity and preferences.

Nature-based playgrounds also present an opportunity to educate children about the natural world in a fun and interactive way. Both Ilze and Emma in their interviews highlighted how, through cultural elements that contrast with nature such as insect hotels, sculptures, or light installations, designers can somehow

give children some c to understand nature. Children can learn about different aspects of nature, and their surrounding nature and environments. This approach not only fosters a deeper appreciation for the environment but also encourages curiosity and exploration, in addition to making children participate in longer play sequences.

When talking about the connection to nature and its importance to children, the biophilic theory that suggests that humans inherently have a connection to nature was described as an important aspect. But as most of the interviewees concluded: many children today lack this bond due to growing up in urban environments and having a lack of access to green, natural areas in their everyday lives. Emma emphasizes in her interview, that “if children don't have this like-love relationship with nature, they don't care about nature, and this bond needs to be created quite early in a person's childhood.” Therefore, designers and caregivers have this mission of making children interested in nature and caring about nature and having memories of spending time in nature, playing in puddles, with wood sticks, and so on. Ultimately, by educating parents and society at large, as emphasized by Ilze, designers can create environments that promote children's development, foster a connection with nature, and enrich community life.

From the interviews, it became apparent that municipalities and a large part of society believe that nature-based playgrounds are more expensive compared to standard playgrounds with swings and slides. Addressing misconceptions, such as the belief that natural playgrounds are more expensive or less accessible, is identified as crucial. As discussed in the interview with Kristine, most nature-based playgrounds are not more expensive than classic ones. She described how in Latvia, for the classic playgrounds people pay for foreign country-designed equipment and materials. That sums up to much higher expenses than if they were to use materials and resources from their own country, made by their country craftsmen. She also mentioned that using natural elements would reduce the impact of climate change, support their country craftsmen, and create knowledge of the quality of local materials: “knowing what we are paying for”. Using local plants and materials also creates ways of educating children about nature and their surrounding environment.

2.1.2. The importance of a good design

Design principles

It emerged during the interviews that when considering the integration of nature-based playgrounds within urban environments, it is important to create a thoughtful design framework, to ensure both functionality and acceptance from parents and society itself. Emma and Kristine stated that it is important to provide existing successful examples to provide a strong foundation for future projects

and to popularise nature-based playgrounds. These “good examples” can work also as a way of addressing concerns about safety to parents who may perceive natural environments as too risky for children.

Design theories such as "cues to care", were discussed by Emma, as guide efforts can create orderly yet naturalistic playgrounds, helping parents understand that the seemingly untidy elements serve a purpose in promoting children's development. This can be achieved by including some design elements/“cues” that indicate that a specific “messy looking” landscape is well maintained and cared for. This may be especially important in urban environments, where people are not used to such ecosystems or places that are rich.

The respondents mentioned the importance of providing children with opportunities for creative play and development, instead of only providing traditional play equipment such as slides, climbing frames, etc. Through the interviews, it appeared that playgrounds do not always need big, complex equipment and elements, but also achieve results using simple techniques – letting children express themselves creatively.

In response to „How is it possible to make a playground interactive and creative?” the interviewees proposed various aspects that might be looked upon during the design process, such as design details, creating surprises, and integrating nature into play environments. Design details, such as including some story or theme and allowing children to learn about the area, can provide sensory and creative stimulus, and maybe new communication forms, where things can be done only by working together with other children. For example, give some elements with base functions, that can be used by children, and allow them to use them, move them, make experiments, learn, etc. Themes can also be created to enhance the experience by incorporating narratives reflecting the area's history or natural features, using equipment and elements of varied colors, sizes, and forms. Another good example is creating surprises/ hidden places you find going through something; something that provides a chance to learn and find new things every time you go through, over, behind something. By carefully integrating natural elements with architectural features and existing, topography playgrounds can seamlessly blend into their surroundings, offering unique experiences that cater to diverse preferences.

Emphasized by both Kristine and Ilze, embracing themes and narratives enriches the playground experience, providing context and meaning to the play environment. Moreover, incorporating seasonal changes and an abundance of loose materials ensures that the space evolves throughout the year. In urban environments where children have low or no access to nature, incorporating natural elements like wood, water, and stones becomes even more critical, as even

these small details allow children to engage with nature and develop a deeper bond with the environment.

The interviewees found it important for play environment designers to provide children with surprises and opportunities to learn about their surroundings and themselves, leading to self-development. According to the interviewees, architects and designers should recognize the importance of defined spaces within playgrounds. Emma described how very open playground areas with no spaces inside can't create environments for fantasy play. This is especially noticeable in Kindergarten and school playgrounds, where children, according to her example, play on the outskirts of the courtyard, because they have no other small spaces to play in. Therefore, it is important to understand that these defined spaces encourage imaginative play and offer children opportunities to explore and interact with their surroundings.

Accessibility

Following this study's aim, during the interviews, I posed the question: "How do you ensure that nature-based playgrounds are accessible to children of diverse ages/abilities?" and "How do you ensure that your playgrounds remain engaging and relevant over time?" The interviewees mostly concluded that children over time change their preferences of play types and play environments. It was stated that some playground designs do not offer places for older children, as they have grown out of the equipment provided. In some situations, playgrounds are not accessible for children with disabilities or lower development levels. The interviewees stressed the need for accessible design that accommodates children of all ages and abilities, ensuring that every child has the opportunity to play and explore comfortably. When looking at the age aspect, the respondents mentioned that it would be more likely that children would lose interest in playgrounds with fixed equipment, than when children are provided with more natural environments and loose materials:

A nature playground is for children of all ages. I don't think they lose interest in a nature playground with a shaped landscape, lots of trees and wilderness, places for bonfires, etc. But they lose interest in unimaginative playgrounds with fixed equipment that looks like something specific and has limited functions. (Helle Nebelong 2024.01.23)

Helle writes that children with disabilities desire equal treatment and should be afforded the same opportunities as other children. However, some design aspects should be considered to create inclusive playgrounds. For example, it is important to consider the ground material, as loose ground materials may pose challenges for children using wheelchairs or other mobility aids, limiting their ability to navigate the space comfortably. It is also important to consider the movement

consider the movement in the playground and play with equipment so that most play equipment can be accessed and used by all children. In addition to physical accessibility, Emma in her interview also mentioned the sensory needs of children with conditions such as ADHD or autism. Nature-like elements, such as natural textures and calming environments, can provide a soothing and inclusive experience for these children. Therefore, by creating well-designed environments that address a range of abilities and sensory preferences, nature-based playgrounds can become inclusive spaces where all children can play and feel welcomed.

The playground can give space for people of a wide range of ages because children do not come alone to the playground, they come with their brothers, sisters, parents, grandparents, etc. And the more interesting this place is created for all, the better, according to Ilze. Every piece of equipment should be able to be used by older people or by children's caregivers if the children get scared or need help. Therefore, the equipment should follow European standards for providing space, challenges, and opportunities for ages 1-99. In addition, designers should also consider how to find and include something that would be nice and interesting for everyone who comes to the playgrounds, for example, sports areas, sitting areas, picnic areas, and even outdoor gyms for elderly people.

Kristine is a designer for a larger playground in Jelgava, Latvia. This playground was partly nature-based and included natural elements, accessibility aspects, and different spaces for various age groups. After the playground had been implemented, it was observed for a few months. During the interview, Kristine was asked about the use of the defined places by children of different age groups. She mentioned that children need their space, where they feel that they belong and have specific equipment according to their abilities, but they should also be able to freely choose their play space and equipment. In contrast to Kristine's example, Ilze stated that "the simpler the playground is the more it is suitable and available for all ages, development levels, and society groups".

2.1.3. Safety and maintenance

While nature contact provides multiple benefits to children, playgrounds using nature elements or nature-based playgrounds have not become well-known or popular design choices in municipalities.

When asked about aspects that need to be considered to provide safe play environments the interviewees raised another aspect that was not considered before the interview: the importance of educating parents and interest groups. Accordingly, parents are the main interest group to educate regarding nature-based playgrounds, crucial for ensuring their successful implementation and acceptance within communities, municipalities, and among designers themselves. As mentioned by all interviewees, many clients and municipalities hesitate to

embrace natural, nature-based environments due to concerns about risk management as well as due to a lack of information about the cost and benefits of nature contact.

We all want to be safe in our everyday lives, and when it comes to children, we try to take extra care for them to be safe. During the discussion about safety, Kristina quoted Jolanta Kušnere (Latvian playground inspector): “The safest playground is the one that has not been built.” This means that there are so many safety hazards, and even if you build a playground following all safety standards, there will always be a risk. Therefore, ensuring safety in playground design should involve a more nuanced approach that considers both risk and benefit. As Emma emphasizes in her interview, assessing the probability of risk occurrence is crucial (you should see the risk, but also, how possible is it that this will occur), alongside understanding how the environment influences behavior. She later described how a tidy playground may instill a false sense of safety, while a more natural landscape prompts greater caution. For example, when children come to a standard playground, a style that they are familiar with, and that looks and feels safe, they will become more risk-taking and not pay that much attention to their behavior. Meanwhile, if children come to areas with more landscape character or natural areas that they are not used to, they will act more carefully. Emma describes it as if the environment itself is an indicator of how children behave.

Throughout all interviews, it was mentioned that children need challenges and complex environments to handle risks. Through play, children try to find places to run, go through, and climb, higher and higher, and even climb places that should not be climbed on. So how can we as landscape architects and designers provide such an environment that is safe enough but still provides the needed challenges and risk for the children? Helle advocates for a pragmatic approach, prioritizing necessary safety measures without sacrificing the essence of play. She states: “Make playgrounds safe - not as safe as possible but as safe as necessary.” Ultimately, creating safe playgrounds requires a thoughtful integration of safety standards, environmental considerations, and common sense. From the selection of materials to the arrangement of play equipment in the playground area - according to Helle - every aspect of playground design needs to be considered, in order to maximize its potential to foster a secure, yet stimulating play environment. Therefore, there is a necessity for ongoing maintenance and monitoring, as well as for clear guidelines and safety standards to alleviate concerns and promote acceptance.

Kristine emphasized that landscape architects and designers play a key role in advocating for natural spaces and they need to be equipped with the knowledge and confidence to argue for their inclusion. According to the interviewees, by engaging with society as a whole and empowering advocates such as landscape architects and designers, who specialize in, work with, or are well-educated in

nature-based playground design to disseminate information, interest groups can foster a greater understanding of the benefits of nature-based playgrounds and encourage their widespread adoption.

2.1.4. Challenges

It was evident from the interviews that only few examples of nature-based playgrounds together with the lack of education about nature contact benefits and challenges during the design process, are likely to be factors that make clients and municipalities prefer simpler, easily implemented designs.

When discussing the differences between traditional playgrounds and nature-based ones, Kristine pointed out that while working with standard playground designs it is possible to clearly articulate customer requirements and specifications, and easily find and prepare materials and construction services. Meanwhile, for natural playgrounds, it is challenging to define these parameters and obtain suitable materials. Ilze supports this aspect, suggesting that the possibilities for designs often depend on factors such as the client's budget and the existing environmental constraints. She mentioned that even though she occasionally proposes more natural playground concepts, they are not always favored by clients due to concerns about higher maintenance and restoration requirements over time. As mentioned by both Emma and Ilze, in these situations, landscape architects and designers have to argue for environments that have higher play value.

There is a challenge of following safety standards in the long term. As an example taken from the interview with Kristine: “when wood changes its form due to external conditions the wood splits, breaks, and creates safety risks to playground users”. Ilze also states that it is hard to implement “loose parts” in playgrounds that are not fully monitored, as otherwise, they would create safety hazards. However, she notes that they are important in natural play spaces as they promote exploration.

Another challenge that was mentioned by Emma, is the landscape architect part in the construction and building process. As she stated, in Sweden normally landscape architects are not on site during construction, but only make the construction drawings. It is important to be on site, she mentions, otherwise the construction company can modify the drawings without any notice. She notes that when you work nature-based, and especially when working with a lot of recycled material, the designer might not know in the beginning what kind of material they will work with, so it might be beneficial to improvise on site. A solution mentioned by Emma could be at the start of the design process state that the designers are going to be on-site and will be making part of the design decisions there.

Future possibilities

When asked about future design possibilities, Emma envisions a shift from traditional playgrounds to interconnected "play lines" that involve integrating traditional playgrounds adjacent to natural areas and extending beyond designated areas. For example, allowing children and even adults to engage in play as they move through the city, ensuring that children have safe and accessible opportunities for recreation and exploration throughout the city. There is a need for a strategic approach to city planning where the priority is play.

Ilze, similar to Emma, envisions a future where play is integrated into the fabric of the city, providing children with opportunities for creative expression and exploration at every turn. She suggests creating spaces that encourage playfulness and creativity, such as drawing games on sidewalks or encouraging people to do that themselves by putting crayons in different spaces around the city. In this way, communities can foster a culture of play that benefits both children and adults.

2.1.5. Involving children in the design process

From the interviews, it became apparent that the feedback from and inclusion of the user, in this situation, children in the design process of playgrounds is essential for creating spaces that truly meet their needs and desires. However, the interviewees saw a need to develop and improve ways in which children's perspectives can be taken into account, including children themselves. Ilze suggests that it could be the art of the designer; how to create something a customer needs but in a way that the customer thinks he created it. She calls these human–playground connections the key to success.

Additionally, workshops in Kindergartens and schools can help designers gain a deeper understanding of children's play preferences and inform design decisions. As an example given by Ilze, children might find some equipment really important and useful, while designers or teachers find it useless. Helle highlights that by seeking input from children through drawings and other creative exercises, designers can uncover unique ideas and preferences that may not emerge through traditional questioning. She stresses that by simply asking children what their preferences for a playground are, they would typically come up with all the well-known playground features: swings, slides climbing structures, etc.

When working directly with children, Kristine emphasizes the importance of creating an atmosphere where children feel free to express themselves creatively (to think "outside the box") without fear of criticism. She discusses the problem, where in the modern education system, children are used to thinking "inside the box", they always have specific tasks and points to follow through to achieve the results and they might get confused when someone asks to do the opposite. Designers should encourage children by providing children with insight into the

design process and allowing them to freely express their preferences. As a result, designers can gain valuable insights and inspiration.

Emma elaborated on this topic suggesting a “design on-site” approach, involving children directly in the design process by allowing them to move around, experiment, make their rooms, and speak about their ideas on-site. This approach can also foster some kind of sense of ownership and involvement, making children feel like they are a part of something. This can also lead to children feeling connected to the outcome. As maybe it's abstract always to think about drawings or to imagine a space, by engaging children directly in the design process on-site, their input becomes more tangible and impactful.

However, as stressed by all interviewees it can be challenging to effectively engage children in the design process due to their imaginative ideas and limited understanding of practical constraints. As direct communication with children may not always be possible, involving educators in the design process can provide valuable insights into children's needs and preferences.

2.2. Children’s perspectives

In total fourteen drawings from preschool children and seventeen drawings from primary school children were gathered, illustrating their “ideal/dream playground”. The children produced a wide range of drawings, illustrating their favorite play equipment, different colors, and placements. The drawings differed between different ages and genders. Younger children focused their drawings on emotions, drawing themselves, nature, colorful elements, and their friends or family, meanwhile older children focused on specific play equipment and safety.

The meetings and drawings were analyzed and as a result, three main themes were formed: “Challenging play”, “Playing together”, and “Playing in nature”. Each of the three themes is described here using children's descriptions of their ideas, complemented by their drawings.

2.2.1. Challenging play

During the discussions with primary-school children, they were all concerned that their current school playground is lacking certain key elements, such as climbing walls, pyramids and rope nets, slides, and challenging play equipment, all that could satisfy their desire for adventurous and engaging play experiences fitted to their age and abilities.



Figure 1. Playground located behind Brocenu high school. It contains a fenced small football field, traditional play equipment with a wooden playhouse, a slide, a rope bridge, a climbing wall and a rope climbing feature.

The most common words used during primary-school children's discussions were "higher" and "bigger". Meanwhile, for preschool children, this need for more challenges and higher equipment was not noticeable. Only one boy drew climbing equipment, mentioning that he wanted higher equipment.

Slides, while present in most playgrounds, are often perceived as too small and safe for most of the children. In the discussion about their school playground, primary-school children mentioned that they would love to have bigger slides, as the existing ones are for "small children". These ideas are also reflected in their playground drawings, where they envision slides that are taller and more thrilling. One boy drew a whole play equipment in various sizes of slides, highlighting that he still wants smaller children to have a chance to play and slide down the slides, while having higher slides for older children (see Figure 2).



Figure 2. Primary-school child with his drawing of high play equipment with climbing walls, slides, ropes and swings.

Similarly, most of the primary school children included drawings of football fields, mentioning that they want a football field with more space to run and play and a bigger football goal net. They already have a football field in their school area, but apparently, they find it too small and not providing enough space for older children.

This need for more challenge and risk was also shown in primary-school children's drawings through types of chosen equipment. Except for climbing walls and high stairs and slides, children also drew rope swings with platforms, “houses” on top of high stairs, carousels, and trampolines. One boy drew play equipment where you can use a play hammer to hit to move a ball up, to see your strength. This could symbolize the need to challenge themselves and prove their strength and abilities (see Figure 3).

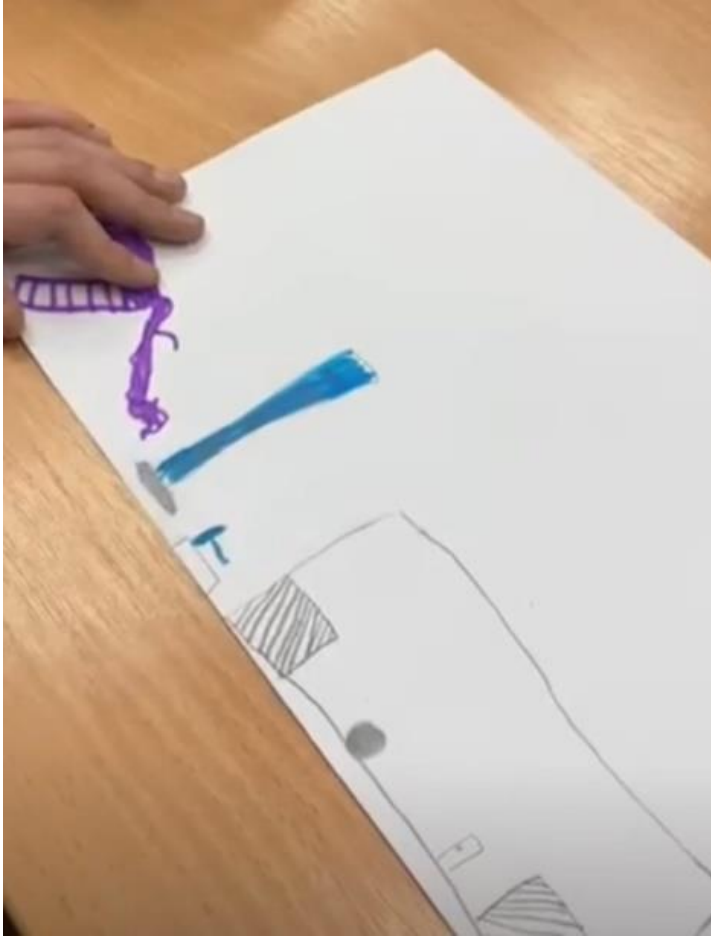


Figure 3. Primary-school child drawing of a slide, hammer play equipment and a football field.

Another primary-school boy in his drawing displayed wooden obstacle play equipment (see Figure 4). During the description, he mentioned that it is dangerous and challenging. He drew a rope swing with platforms, a balance rope that you need to cross to get to a climbing wall, wooden logs that you need to jump on, and a rope swing and slide at the end.

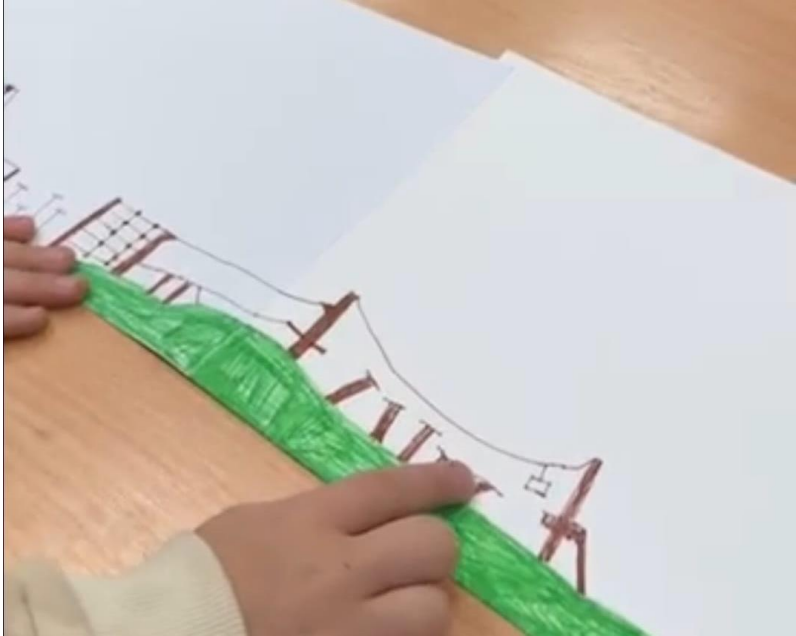


Figure 4. Primary-school child drawing of wooden obstacle play equipment.

These structures provide opportunities for physical exertion and skill development, pushing children to test their limits and conquer new heights. What is interesting from their drawings, all primary-school children also highlighted the need for specific ground cover (rubber, synthetic grass, sand) or safety measures like landing mat underneath for a safer fall (see Figure 5).



Figure 5. Primary-school child drawing of play equipment with highlighted ground cover (wooden chips).

This focus on a specific ground cover for safety reasons was not noticeable in the preschool children's drawings. Instead, most of them just stated that they want grass ground cover, as that is what they have in their current preschool playground.



Figure 6. A large play area is located next to the preschool educational institution “Mūsmājas”. It contains play equipment such as slides, metal bars and climbing walls, swings, colorful wooden cars, playhouses and wooden outdoor classroom buildings.

2.2.2. Playing together

While primary-school children mostly focused on bigger and higher equipment for more challenge and risk, preschool children mentioned that they wanted bigger sandboxes or swings, justifying this idea by the preference and need to play together with their friends or family members. But overall, all children, preschool and primary school, expressed a preference for playing together.

Multiple preschool children expressed the need for more or bigger swings, so they could swing together with all of their friends, without needing to stand in a line or aside while others swing (see Figure 7).



Figure 7. Preschool child drawing of the child and her friends on swings.

Some children also expressed their need for opportunities for play with their family. A girl from preschool drew a scene where she uses the swings together with her whole family, saying that usually there are no swings that can be used with mom or dad, as there mostly is only one swing at the playground or they are meant only for small children (see Figure 8).



Figure 8. Preschool child drawing of the child and her parents on swings.

In the preschool children's drawings, they mostly drew areas where everyone can play together, such as big sandboxes, small houses (see Figure 9) where you can hide in and play with your friends, and areas where to run and hide.



Figure 9. Preschool child drawing of a house in which to hide and play.

In the primary school children's drawings, children did not draw people, but focused only on the playground equipment. The most reflected equipment in the primary school children's drawings were stairs that lead to small houses or platforms to sit, play, and look around (see Figure 10). These elements appeared in both the boys' and the girls' drawings. However, through their drawing descriptions, the children mentioned their preferences of playing together with their peers or also younger children.

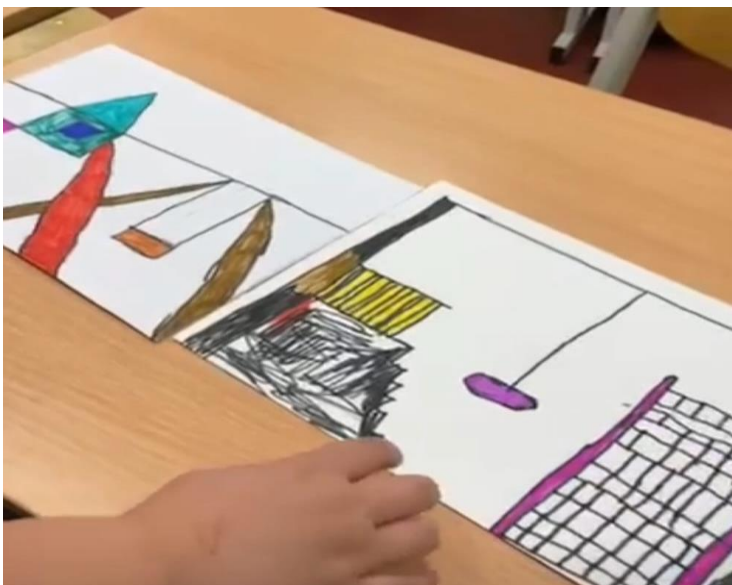


Figure 10. Primary-school child drawing of play equipment including a small house and platforms to sit and play together with other children.

In the preschool children's drawings, focus was also on the colors and people in it. This may symbolizes their perception of play, as a way to socialize and spend their time with friends and family. Some children drew their family, friends, and

teachers. In one of the drawings the girl drew me right next to her, describing that she likes it when adults can play together with them in the preschool playground (see Figure 11). Before the meeting the teacher mentioned that I will come and talk with them about playgrounds. This may be the reason why the girl decided to draw me in her drawing.



Figure 11. Preschool child drawing of herself playground with her and me.

2.2.3. Playing in nature

Children's desire of having more nature in their surrounding play environments was another theme evident in the discussions with the preschool children and it was also reflected in multiple children drawings. In almost all drawings of preschool children there was sun, sky, grass, flowers and so on (see Figure 12). However, among the primary-school children's drawings, only a few of them included natural elements like trees, flowers, and grass and none of them used the symbol of sun and sky.



Figure 12. Preschool child drawing of play equipment, herself and her friends, as well as a small hill, with colorful flowers.

Several children from the preschool expressed that they wanted colorful flowers, water features, and hills they could use for playing and sliding during winter. The children also expressed their excitement about winter time, as they could play in the snow, make snow angels, and build snowmen (see Figure 13).



Figure 13 . Preschool child drawing of climbing play equipment and a snowman.

3. Discussion

3.1. Landscape architects' perspectives on play and nature-based playgrounds

The importance and benefits of play and nature contact in children's lives were recognized by all interviewed landscape architects. This might be expected since all of them are working closely with play environment design in their professional careers. The interviewees showed thorough understanding of their role in shaping spaces for children and advocating "fighting" for natural spaces, and educating themselves as professionals and educating people around them about the benefits of play and nature contact in playgrounds in particular. Especially nowadays when children's contact with nature is declining as the urbanized world is increasing, it is important to focus on providing spaces that support nature contact, play, and sensory stimulation.

Spending time in green spaces has been associated with improved mental well-being and cognitive development (Guite et al. 2006). Also, the importance of integrating natural elements such as trees, water features, and diverse terrain into playground designs, providing children with opportunities for exploration, imaginative play, and sensory stimulation was highlighted. Moreover, natural elements serve as valuable educational tools for children to learn about themselves and the environment around them, fostering children's attachment to nature, which could further develop in a higher level of care and protection of nature (Hand et al. 2017; Ethier 2017).

According to the interviewees - a crucial aspect of creating successful nature-based playgrounds lies in the design process itself. It is important to balance safety requirements with the need for challenging and engaging play experiences, as taking risks is essential for children. While safety considerations are a crucial part of the design, overly controlled and safe environments may limit children's opportunities for risk-taking and skill development (Little & Eager 2010). Instead, an approach that prioritizes necessary safety measures while preserving the fundamental quality of play was advocated. Some interviewees considered nature-based playgrounds as more suitable for providing children with challenges and

risks than other playground types. Natural environments are more complex, provide more diverse and intense play, and allow children to engage in risky play (Raith 2015; Norðdahl & Einarsdóttir 2015).

Accessibility emerged as another significant concern, with landscape architects emphasizing the importance of creating inclusive environments that accommodate children of all ages and abilities, and adults accompanying children. When designing these environments, it is important to consider the design elements, such as age and ability appropriate equipment, ground materials, equipment design, and materials and their placement in the area (Goldfarb 2019). By prioritizing accessibility and through specific design principles, nature-based playgrounds can become inclusive spaces where all children feel welcome and inspired to explore and increase affordances for play (Herrington & Brussoni 2015).

Involving children in the design process, described as essential for creating spaces that truly meet their needs and preferences (Howe 2016), was also important to the interviewees. Unfortunately, several of the interviewees did not have opportunities to work closely with children, reasoning that with lack of time during the fast-paced design process, and the challenges related to children's imaginative ideas and limited understanding of practical constraints. Although they have worked closely with educators and caregivers, this experience provided them with the opinion that also the educators and caregivers can provide valuable insights into children's play preferences and behavior. While challenging, engaging children directly allows designers to gain more valuable insights into children's preferences and needs, as adults might disregard valuable aspects due to their contrasting ways of perceiving play (Duncan 2015). Methods of working with children mentioned in the interviews were workshops, creative exercises, and on-site design involvement, offering children the possibility to express themselves freely and contribute to the development of playgrounds that reflect their imagination and desires.

3.2. Children's perspectives on their play environment

In this study the exploration of children's perspectives on play was done through the task of drawing their "ideal/dream playground". Descriptions of ideal playgrounds from the perspectives of the children interviewed in this study formed three main categories: challenging play, playing together, and playing in nature. "Challenging play" involved the need for higher and more age-appropriate play equipment and more challenging play types. "Playing together" described the need for appropriate equipment and spaces, where children could play together with their peers or family. "Playing in nature" is concerned with incorporating nature into children's play environments.

Among the primary school children, the main theme that emerged was the longing for more challenging play experiences. Children in their play seek out and enjoy challenges and form play that can push their boundaries (Frost 1988 see in Bruya 1988). The aspects of wanting higher and more adventurous equipment, such as climbing walls, higher and bigger slides, rope swings, and nets in this study support earlier findings on children's preferences and desires for challenging, complex, and exciting play environments (Dyment & O'Connell 2013, Little & Eager 2010). Similar results were found in Jansson's 2015 study, which included children 6–11 years of age. Her results indicated that all children seek challenges in play spaces. Although, in this study longing for risk and challenges was not evident in the same way among preschool children. This might be reasoned by the fact that the play equipment accessible to them is more age-relevant and supports their play needs better.

The importance of playing together was evident among all children, although it was emphasized more by preschool children, whose drawings often included scenes of social interaction with peers or family members. In children's play an important aspect is the ability to social interactions, play together, make friends, negotiate, and talk (Wenger et al. 2021; Björklid & Nordström 2007). Even though primary school children did not include obvious elements that symbolize the “play together” aspects, several children through their descriptions of their drawings highlighted some parts, for example, observation platforms or small houses that could be used as a place to gather and play together with others. Therefore in this situation, it was important to hear children's descriptions of their drawings before making any conclusions.

Additionally, both age groups expressed interest in incorporating nature into their play environments. However, it was more evident for preschool children, as their drawings included colorful landscapes with flowers and hills. This might reflect that younger children are more open and positive towards nature, still holding a sense of relatedness to nature (White 2004). While for older children, built structures and possibilities for challenges and socializing were more important, and their affiliation with nature has not been nurtured (Jansson 2014; White 2004). However, it was expected that at age 8-9 children would still be close to nature, and appreciate it as much as preschool children did in this study. The low emphasis on nature was also a surprise because primary school children have access to the school's playground which is surrounded by big trees, bushes, water, and other natural elements. Another reason for such results might be children's types of expressions through their drawings. Younger children usually use symbols such as yellow sun and blue colored clouds in their typical drawings (Yilmaz 2012). For primary school children, their task was to draw their ideal playground, so they focused less on the nature around it. In Jansson's (2015) research, she used similar age groups to the ones used in this study, but the results

differed from this study. Jansson's results indicated that the children were interested in nature and the affordances the surrounding nature could provide, while this study's results indicated that children did not focus on the nature as much. The differences between my study and hers were in the used methods and tasks. Therefore, difference in the results could be reasoned by the task given or could have been influenced by the way the task was conducted by the teachers.

3.3. Recommendations for landscape architects based on study findings

The study provides several key arguments and insights that landscape architects can use to support the design and implementation of nature-based playgrounds:

Highlighting the Benefits of Nature Contact:

- Emphasize the mental well-being, cognitive development, physical health, and sensory stimulation benefits of spending time in green spaces.
- Advocate for integrating natural elements such as trees, water features, and varied topography in playground designs. These elements not only enhance play value but also encourage curiosity and exploration, and serve as educational tools, helping children to learn about and appreciate nature, fostering a deeper appreciation for the environment.
- Convey that children tend to engage in longer and more imaginative play when surrounded by natural environments, where they can interact with loose materials and create their surroundings.
- Address the impact on the surrounding environments. In modern days, most urbanized cities need to bring nature back. Climate change is an important argument.
- Incorporate themes to make use of the opportunity to educate children about the natural world in a fun and interactive way through nature-based playgrounds.

Balancing Safety and Risk:

- Incorporate higher and more adventurous play equipment that caters to the desire for risk, excitement and challenge.
- Address the need to balance safety requirements with providing challenging and fascinating play experiences. Analyze the potential risks and the likelihood for them to happen. This might help in designing the playground, as well as provide an argument in support of the design to convince the customer.

- Promote the idea that nature-based playgrounds can offer more complex, diverse, and intense play opportunities, which are essential for children's development.
- Provide ongoing maintenance and monitoring, as well as clear guidelines and safety standards.
- Work closely with customers/ municipalities, and provide possibilities to teach how to handle nature and natural elements. Encourage them to dare to use nature elements in their playground designs.

Ensuring Accessibility and Inclusivity:

- Design playgrounds that accommodate children of all ages and abilities, as well as adults accompanying them.
- Consider factors such as age-appropriate equipment, ground materials, and the placement of play structures.
- Prioritize accessibility to make nature-based playgrounds inclusive spaces where all children feel welcome and inspired to explore.

Facilitating Social Interaction:

- Design play spaces that promote social interaction, such as observation platforms and small houses where children can gather and play together. This is important for fostering social skills, making friends, and collaborative play.
- Provide children with surprises and opportunities to learn about their surroundings, others, and themselves, leading to self-development.

Involving Children in the Design Process:

- Develop structured methods to efficiently include children in all stages of the design process, from initial concepts to on-site implementation and maintenance. Examples of methods to include:

Workshops: Conduct interactive workshops where children can discuss their ideas.

Creative Exercises: Use drawing, photography, and storytelling as tools to gather children's ideas. For instance, asking children to draw their "ideal playground" can reveal valuable insights into their play preferences and needs.

On-Site Design Involvement: Involve children in on-site visits to the designed areas, allowing them to participate in walking around, and discussing ideas and thoughts about their vision for the site.

Ensure that the participation process is inclusive, welcoming children of different ages, abilities, and backgrounds. Use communication techniques and tools to ensure all children are heard and valued.

Work closely with teachers, parents, and caregivers who understand children's developmental needs and behaviors. Their insights can complement children's ideas.

Regularly reflect on the participation process to identify what worked well and what could be improved. This continuous improvement approach can improve future projects and ensure that child participation becomes standard practice in playground design.

- Address the challenges of involving children:

Working with children should be a back-and-forward process: Keep detailed records of children's input, including drawings, notes from workshops, and feedback from on-site visits. This documentation can serve as a reference throughout the design process and ensure that children's voices are not lost as the project progresses.

Design a structured yet flexible timeline that allows for meaningful child participation without delaying the project;

While children may have imaginative ideas that are not always practical, it's important to respect and value their creativity. Encourage discussions that help children understand realistic constraints and involve them in finding creative solutions that balance their desires with safety and feasibility.

Nature-based playgrounds are becoming more popular, especially amongst landscape architects. Although there are not clear guidelines for them to follow, while integrating them as well as advocating for them to the public. While this study identifies some key arguments and insights, it is only based on a selection of literature and a small sample of informants, which limits the argumentation and generaliability of the results.

Landscape architects should continue to educate themselves and others about the benefits of nature-based playgrounds. This ongoing education can help build a stronger case for these playgrounds and encourage broader acceptance and implementation.

3.4. Methods discussion

In the initial stages of planning this study, a variety of methodological approaches were considered, including interviews with children's parents, in-depth discussions with children, and observations of their play, alongside on-site visits to multiple playgrounds across three chosen countries (Latvia, Sweden, Denmark). These methods were considered for their potential to provide rich, qualitative insights into children's interactions with play environments and the perspectives of various key actors. However, given the limitation of time, language barriers, and the limited scope of the study, a more focused approach was adopted. This decision was made to ensure the usefulness of the research within the given limitations while still aiming to gather meaningful data.

The methods used in this study were chosen based on their proven success in other previous research. Methods such as interviews with professionals and drawing exercises and discussions with children have been widely used in similar studies to gather qualitative data effectively.

The research process in this study was non-linear. Data collection methods, such as interviews and group exercises with children were conducted in parallel with literature review and other information gathering. This approach allowed for continuous clarification of the research questions and methods, and allowed the study to adapt and incorporate new insights as they emerged. For example, literature references and new topics suggested by interviewees were incorporated into the study, enriching the theoretical base and providing new directions for the study. Further the information and suggestions from interviews were also used in practice within the group exercises with children.

One of the key strengths of the methodology was its ability to capture diverse perspectives on play and nature-based playgrounds. By combining the insights of landscape architects with those of children, the study was able to compare professional and user perspectives. This approach highlighted both the theoretical and practical aspects of designing play environments. Furthermore, it provided a starting point, for developing suggestions for landscape architects and other interest groups for further possibilities on working with children during the design process.

However, several important limitations of these research methods should be noted. Firstly, the landscape architects to interview were limited to Sweden, Denmark, and Latvia. Additionally, group exercises with the children were carried out in Latvia and in Latvian language, as it is the author's native language. These factors limited the results of the research, given that the results are based on a limited sample consisting of these people's experiences, thoughts, and ideas on the research topic. However, the ideas and results mentioned in this study could be applied, or taken into consideration as relevant also for different countries. One might argue that children's perspectives on play don't vary significantly from country to country, given the similarities between school and preschool playgrounds and surrounding environments in Scandinavian countries and those accessible to Latvian children.

The inclusion of children's drawings provided a unique expression of their preferences, which is often overlooked in more structured data collection methods. Yet, the sample size was relatively small, given the time limitation for this study and the responsiveness from schools. The exercises with children did not provide the expected results, instead, they lacked the focus on nature elements or nature-based playgrounds. The results only provided information about the children's play preferences. Another aspect to reflect on is that the drawing exercise, although conducted by me, was presented to the children by their teachers. Therefore, the way the teachers presented the drawing task, could have impacted the results.

3.4.1. Methodological improvements

If this study were to be conducted again, several methodological adjustments could enhance its capacity to capture the role of nature elements in children's play. Firstly, to capture the role of nature elements more effectively, future studies could incorporate a more structured and direct approach to observing children's play in natural environments, for example, conducting multiple sessions where children interact with different types of natural elements. Additionally, using methods such as video recordings, followed by structured interviews with children about their experiences and ideas, could offer a broader understanding of how nature influences play, and less teacher-influenced results.

Secondly, a key aspect that could improve this study would be increasing the sample size. In this study, the number of interviews and children included in exercises were too small to provide comprehensive results and the data collected may not fully represent the broader population. Furthermore the results did not provide information to fully answer one of this research questions, with the focus on various age. Therefore, increasing the sample size and ensuring a more diverse demographic background would make the findings more robust, providing a more diverse range of perspectives and experiences.

It should furthermore be noted that conditions for realizing nature-based playground design might vary across the 3 countries. Therefore, more extended research is needed to understand these contextual differences and their implications for design, and implementation. Each country may have unique environmental, cultural, and economic factors that influence the effectiveness of nature-based playgrounds and acceptance within society. More research could also help in developing customized proposals that consider local conditions and needs, providing detailed design principles that are effective and sustainable across different settings.

If the study were continued, it would be valuable to incorporate psychological research to deepen the understanding of the results obtained from working with children. For example, exploring the reasons behind their choices in drawings, through literature studies and interviews or focus groups with children. For instance, understanding why children choose certain elements or themes in their drawings can provide a richer context for interpreting their preferences and needs and how they interact with and perceive their environment. Additionally, analysing how different age groups prioritize certain features in their ideal playgrounds could inform age-appropriate design strategies.

4. Conclusions

How can the design of nature-based playgrounds support play for children of various ages and abilities?

The study revealed that the design of nature-based playgrounds can significantly support play for children of various ages and abilities by incorporating diverse natural elements and flexible play structures. Through interviews with landscape architects, it became evident that there is thorough understanding within the profession of the importance and benefits of nature contact in playgrounds and everyday lives.

The interviewees highlighted the importance of integrating nature to promote physical activity, mental well-being, cognitive and emotional development, and sensory stimulation. Use of natural materials, varied topography, and opportunities for both structured and unstructured play, were identified as crucial for catering to different developmental needs and abilities. Furthermore, specific design principles, cultural elements, and themes integrated into playgrounds could serve as cues for education, understanding nature, fostering exploration and imaginative play, and deepening appreciation for the surrounding environment, catering to different developmental needs and abilities and supporting their overall growth and development.

However, the benefits of the playground and its equipment, the safety, the interest levels of children, and so on are dependent on the design. Design determines how the playground will look, as well as how children and other visitors will behave in it and how they will benefit from it. Children might be more interested in nature and its various forms and colors than in unimaginative playgrounds with fixed equipment.

What are children's preferences about play environments, and how do their preferences correspond with nature-based playground design?

In this study, children's preferences for play environments were found to align well with the principles of nature-based playground design. The results of this study showed that children are generally interested in dynamic, imaginative, and diverse play settings. The main aspects gathered through exercises with children were: challenging play, playing together, and playing in nature, where children mainly expressed a longing for more challenging play experiences and the importance of social interaction. This preference corresponds with the benefits of nature-based playgrounds, which are designed to stimulate all senses and encourage free play.

Nature-based playgrounds offer children the freedom, to explore, imagine, learn, and enjoy. And I believe that every child seeks this freedom, a place where they can be.

How to include children in the playground design process?

Children have a unique view of the world around them, and they see it differently from adults. Involving children in the design process can be essential for creating spaces that foster a sense of ownership and create more engaging and inclusive play environments that meet children's needs and preferences, and might provide valuable aspects, that adults might have disregarded.

The study identified several effective methods for including children, such as workshops, creative exercises (like drawing and photography), and on-site design involvement. These methods allow children to express their ideas and contribute meaningfully to the design. Moreover, involving children more actively in the research design process could help tailor the methods to better suit the children's ways of expressing preferences and experiences. Participatory methods, where children co-create the research tools and questions, could ensure that their voices are more accurately represented. Although there might be some challenges in including children in the design process, for example, the fast pace of the designing process, budgeting, and children's imaginative ideas and different ways of expressing their minds.

Future research should continue to develop and explore more structured approaches to efficiently include children in all design process stages: design, on-site implementation, and maintenance to maximize the benefits of playgrounds and the natural play environments in particular.

References

- Björklid, P. & Nordström, M. (2007). Environmental child-friendliness: collaboration and future research. *Children, Youth and Environments*. 17(4), pp.388-401. DOI: 10.1353/cye.2007.0013
- Braun, V. & Clarke, V. (2023). Toward good practice in thematic analysis: Avoiding common problems and being a knowing researcher. *International Journal of Transgender Health*. 24(1), pp.1-6.
- Bruya, L.D. (1988). *Play Spaces for Children: A New Beginning. Improving Our Elementary School Playgrounds*. Volume II. AAHPERD Publications, PO Box 704, Waldorf, MD 20601.
- Burdette, H.L. & Whitaker, R.C. (2005). Resurrecting free play in young children: looking beyond fitness and fatness to attention, affiliation, and affect. *Archives of Pediatrics & Adolescent Medicine*. 159(1), 46-50. DOI: 10.1001/archpedi.159.1.46
- Cele, S. (2006). *Communicating place: methods for understanding children's experience of place*. Diss. Acta Universitatis Stockholmiensis.
- Duncan, P.A. (2015). Pigs, Planes, and Play-Doh: Children's Perspectives on Play as Revealed through Their Drawings. *American Journal of Play*. 8(1), pp.50-73. DOI: 10.1080/11038128.2020.1810768
- Dyment, J. & O'Connell, T.S. (2013). *The impact of playground design on play choices and behaviors of pre-school children*. *Children's Geographies*, 11(3), pp.263-280. DOI: 10.1080/14733285.2013.812272
- Ethier, S. (2017). *Developmental benefits of play on a natural playground*.
- Fjørtoft, I. & Sageie, J. (2000). *The natural environment as a playground for children: Landscape description and analyses of a natural playscape*. *Landscape and urban planning*. 48(1-2), pp.83-97. DOI: 10.1016/S0169-2046(00)00045-1
- Fjørtoft, I. (2004). Landscape as playscape: The effects of natural environments on children's play and motor development. *Children Youth and Environments*. 14(2), pp.21-44. DOI: 10.1353/cye.2004.0054
- Frost, J.L. (1992). *Play and Playscapes*. New York: Delmar Publishers Inc.
- Gibson, J.J. (1977). *The theory of affordances*. *Hilldale, USA*, 1(2), pp.67-82.
- Goldfarb, D. (2019). *Understanding children's perspectives on the definitions and importance of play*. 2019 NCUR. pp.302-312.
- Guite, H.F., Clark, C. and Ackrill, G. (2006). *The impact of the physical and urban environment on mental well-being*. *Public health*. 120(12), 1117-1126. DOI: 10.1016/j.puhe.2006.10.005

- Hand, K.L., Freeman, C., Seddon, P.J., Recio, M.R., Stein, A. & Van Heezik, Y. (2017). *The importance of urban gardens in supporting children's biophilia*. Proceedings of the National Academy of Sciences. 114(2), pp.274-279. DOI: 10.1073/pnas.1609588114
- Heft, H. (1988). *Affordances of children's environments: A functional approach to environmental description*. Children's Environments Quarterly. 5, 29–37.
- Herrington, S. & Brussoni, M. (2015). *Beyond Physical Activity: The Importance of Play and Nature-Based Play Spaces for Children's Health and Development*. Current obesity reports, 4(4), 477–483. DOI: 10.1007/s13679-015-0179-2
- Hill, M. (2006). *Children's voices on ways of having a voice: Children's and young people's perspectives on methods used in research and consultation*. Childhood. 13(1), pp.69-89. DOI: 10.1177/0907568206059972
- Hostetler, M. (2021). *Cues to Care: Are city landowners willing to make ecological landscapes?* 12/2021. EDIS, 2021(6). DOI: 10.32473/edis-UW489-2021
- Howe, S. (2016). What play means to us: Exploring children's perspectives on play in an English Year 1 classroom. *European Early Childhood Education Research Journal*. 24(5), pp.748-759. DOI:10.1080/1350293X.2016.1213567
- Jansson, M. (2015). *Children's perspectives on playground use as basis for children's participation in local play space management*. Local Environment. 20(2), pp.165-179. DOI: 10.1080/13549839.2013.857646
- Jansson, M., Gunnarsson, A., Mårtensson, F. & Andersson, S. (2014). *Children's perspectives on vegetation establishment: Implications for school ground greening*. Urban Forestry & Urban Greening. 13(1), pp.166-174. DOI: 10.1016/j.ufug.2013.09.003
- Jansson, M., Mårtensson, F. & Gunnarsson, A. (2018). *The meaning of participation in school ground greening: a study from project to everyday setting*. Landscape Research. 43(1), pp.163-179. DOI:10.1080/01426397.2017.1306623
- Kellert, S.R. (2006). Building for life: Designing and understanding the human-nature connection. *Renewable Resources Journal*. 24(2), p.8.
- Kuh, L.P., Ponte, I. & Chau, C. (2013). The impact of a natural playscape installation on young children's play behaviors. *Children Youth and Environments*. 23(2), pp.49-77. DOI:10.7721/chilyoutenvi.23.2.0049
- Kvale, S. (1999). The psychoanalytic interview as qualitative research. *Qualitative inquiry*. 5(1), pp.87-113.
- Lindqvist, Gunilla. 2001. "When Small Children Play: How Adults Dramatise and Children Create Meaning." *Early Years: An International Research Journal*. 21:7–14. DOI: 10.1080/09575140123593

- Little, H. & Eager, D. (2010). Risk, challenge and safety: Implications for play quality and playground design. *European Early Childhood Education Research Journal*. 18(4), pp.497-513. DOI: 10.1080/1350293X.2010.525949
- Loebach, J.& Cox, A., 2020. Tool for observing play outdoors (TOPO): A new typology for capturing children’s play behaviors in outdoor environments. *International journal of environmental research and public health*. 17(15), p.5611.
- Luchs, A. & Fikus, M. (2013). A comparative study of active play on differently designed playgrounds. *Journal of Adventure Education and Outdoor Learning*. 13. 206-222. 10.1080/14729679.2013.778784.
- Maudsley, M. (2007). *Children's play in natural environments*. National Children's Bureau.
- Miller, L.J., Schoen, S.A., Camarata, S.M., McConkey, J., Kanics, I.M., Valdez, A. & Hampton, S. (2017). Play in natural environments: A pilot study quantifying the behavior of children on playground equipment. *Journal of Occupational Therapy, Schools, & Early Intervention*. 10(3), pp.213-231. DOI: 10.1080/19411243.2017.1325818
- Moon-Seo, S.K. & Munsell, S.E. (2022). *Play as a Medium for Children's Learning from Parents' Perspectives*. Educational Research: Theory and Practice. 33(2), pp.23-31.
- National Playing Fields Association (NPFA) (2000) *Best Play: What play provision should do for children*. London: National Playing Fields Association. Children’s Play Council and PLAYLINK. p.6.
- Norðdahl, K. & Einarsdóttir, J. (2015). Children’s views and preferences regarding their outdoor environment. *Journal of Adventure Education & Outdoor Learning*. 15(2), pp.152-167 DOI: 10.1080/1472969.2014.896746.
- Raith, A. (2015). Informal nature experience on the school playground. *International Journal for Transformative Research*. 2(1), pp.18-25. DOI 10.1515/ijtr-2015-0004
- Rasmussen, K. (2004). *Places for children—children’s places*. Childhood. 11(2), pp.155-173. DOI: 10.1177/0907568204043053
- Refshauge, A.D., Stigsdotter, U.K., Lamm, B. & Thorleifsdottir, K. (2015). *Evidence-based playground design: Lessons learned from theory to practice*. Landscape Research. 40(2), pp.226-246. DOI: 10.1080/01426397.2013.824073
- Sabri, C.R. & Abbaspourasadolah, J. (2014). Principles of Nature in the Design of Playgrounds. *International Journal of Architecture, Engineering and Construction*. 3(3), pp.210-223. DOI: 0.7492/IJAEC.2014.017
- Saragih, J.F.B. & Tedja, M. (2017). How children create their space for play?. In IOP Conference Series. *Earth and Environmental Science*. 109(1) p. 012045. IOP Publishing. DOI:10.1088/1755-1315/109/1/012045

- Şensoy, G. & İnceoğlu, M. (2015). Design guide for playgrounds. *Journal of Civil Engineering and Architecture*. 9(11), pp. 1390-1398. DOI: 10.17265/1934-7359/2015.11.013
- Stanton-Chapman, T.L. & Schmidt, E.L. (2021). *How do the children play? The influence of playground type on children's play styles*. *Frontiers in Psychology*. 12, p.703940. DOI: 10.3389/fpsyg.2021.703940 (26.
- Stoppard, T. (n.d.). "Because children grow up, we think a child's purpose is to grow up. But a child's purpose is to be a child." [Quote attributed to Tom Stoppard]. Retrieved from [<https://www.goodreads.com/quotes/29024-because-children-grow-up-we-think-a-child-s-purpose-is>]
- Verstrate, L. & Karsten, L. (2015). *Development of nature playgrounds from the 1970s onwards. Play, recreation, health and well being*. *Geographies of children and young people*. 9. DOI: 10.1007/978-981-4585-51-4_5
- Wardle, F. (2000). *Supporting constructive play in the wild*. *Child Care Information Exchange*. 5, pp.26-29.
- Wardle, F. (2008). *Play as curriculum*. *Early childhood news: The professional resource for teachers and parents*.
- Wenger, I., Schulze, C., Lundström, U. & Prellwitz, M. (2021). Children's perceptions of playing on inclusive playgrounds: A qualitative study. *Scandinavian Journal of Occupational Therapy*. 28(2), pp.136-146. DOI.org/10.1080/11038128.2020.1810768
- White, R. (2004). *Young children's relationship with nature: Its importance to children's development & the earth's future*. White Hutchinson Leisure & Learning Group. 16(2), pp.1-9.
- Wilson, E.O. (1986). *Biophilia*. Harvard university press.
- Wilson, R. (2007). *Nature and young children: Encouraging creative play and learning in natural environments*. Routledge.
- Woolley, H. & Lowe, A. (2013). *Exploring the relationship between design approach and play value of outdoor play spaces*. *Landscape Research*. 38(1), pp.53-74. DOI: 10.1080/01426397.2011.640432
- Woolley, H. (2008). *Watch this space! Designing for children's play in public open spaces*. *Geography Compass*. 2, 495–512. DOI: 10.1111/j.1749-8198.2008.00077.x
- Yilmaz, Z., Kubiak, M. & Topal, H., 2012. Czech Children's Drawing of Nature. *Educational Sciences: Theory and Practice*. 12(4), pp.3111-3119. DOI:

Appendix 1 - Interview questions for landscape architects

Design Inspiration:

- What inspires your playground designs?
- Are there specific themes or concepts you often incorporate into your designs?
- What challenges do you face when designing playgrounds?
- Do you collaborate with other professionals (e.g., educators, and child psychologists) during the design process?

User-Centered Design:

- How do you take children's needs and preferences into account during the design process? What is the biggest challenge?
- Can you provide an example of a design decision influenced by children's input?
- How do you relate to different ages?
- How do you perceive the “age limit” on playgrounds? Do you believe that over a certain age, children lose interest in playgrounds?
- How do you ensure that your playgrounds remain engaging and relevant over time?

Safety and Accessibility:

- How do you balance the need for safety with the desire to create an exciting and challenging play environment?
- How do you ensure that nature-based playgrounds are accessible to children with diverse abilities?

- How do you integrate water features into nature-based playgrounds? What considerations do you make for water conservation and safety?

Incorporating Nature:

- How do you integrate natural elements into your playground designs?
- What benefits do you believe nature-based playgrounds offer to children?
- Have you designed nature-based playgrounds with specific themes, such as forests, rivers, or meadows? How do these themes enhance the overall play experience?

Cultural Sensitivity:

- How do you ensure that a nature-based playground complements the natural features of its surrounding environment?
- Do you consider the local plant and animal life when designing nature-based playgrounds?
- Educational and Developmental Aspects:
 - How do you incorporate educational and developmental elements into your playground designs (specific design features)?
 - Do you think that including nature in playgrounds helps in children's development?
 - Are there specific design techniques that enhance sensory experiences with nature?

Favorite or Most Rewarding Projects:

- Can you share a project that you found particularly rewarding or memorable?
- What made that project stand out for you?

Appendix 2 - Plan for group exercises with children

Preschool children exercises:

- Drawing an ideal playground (something they want/ would love to play with);
- Observation of play outdoors;
- Discussion of the study's main topics;

Some questions to ask:

- Can you tell me about your favorite activities or games to play at the playground?
- Is there something you don't like when you play outside/indoors? What? Why?
- If you could change something about the playground, what would that be?
- How does playing on the playground make you feel?
- Can you share a special or funny memory from the playground?
- What kinds of things do you like to explore in nature?
- How does the playground change with the seasons? Are there specific things you like to do on the playground in different seasons?

Primary school children exercises:

- Drawing an ideal playground (something they want/ would love to play with);
- Discussion of the study's main topics;

Some questions to ask:

- Are you going to playgrounds in your free time?
- How does playing on the playground make you feel?
- Is there something you don't like when you play outside/indoors? What? Why?

- Can you share a special or funny memory from the playground?
- Can you tell me about your favorite activities or games to play at the playground?
- If you could change something about the playground, what would that be?
- Are there any rules on the playground? Is there anything you think should be different about the rules?
- How does the playground change with the seasons, and do you have a favorite season to play in? Are there specific things you like to do on the playground in the different seasons?
- Is it more fun to play in a park, beach, school backyard, or in a playground? In what way? Why?