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Swedish University of Agricultural Sciences

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## NATURAL PLAYSCAPES

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### Quality principles for designing public urban outdoor play environments

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EX0843, Independent Project in Landscape Architecture  
Department of Landscape Architecture, Planning and Management  
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Quality principles for designing urban outdoor play environments

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## Abstract

Play is one of the most important factors in children's physical, mental, emotional, and social development and as such it is important to both an individual child and to society as a whole. This thesis concerns with the quality of public urban outdoor play environments as they are one of the most important settings designed for these purposes and big part of urban landscape planning. This is a theoretical review based on literature studies including research and expertise of professionals in various fields, especially landscape architects, urban planners and environmental psychologists. Firstly, this paper briefly discusses current types of play spaces usually provided and points out their inadequacies, addressing some issues regarding negative impact on the development of children. Further on, this paper discusses children's perception of their environment and their preferences for play spaces drawing upon researches relating to "The theory of affordances". Lastly, but most importantly, this paper concludes with general quality principles as well a key qualities essential when designing urban outdoor play environments based on children's actual needs and preferences. Natural environments (natural environment elements in the regard of urban space) meet these criteria for successful and high-quality outdoor play space. As such, benefits of integrating natural elements within play spaces to enrich children's play experience and promote their positive development are determined. Further on, this paper briefly discusses the impact of integrating natural elements within the play space on children's positive emotional connection with the natural world and their environmental awareness.

*"...one can often observe children in a deep involvement with nature, and intuition alone should tell us this is important." (Hart, 1982, p. 36)*

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## Preface

As a student of Landscape Architecture I have come across the topic of Children's and young people's urban outdoor environments for the first time in one of the courses with Petter Åkerblom, who directs his focus on this topic. The concept of building a sustainable play area for children strictly using only natural materials found on the site intrigued my attention. As the importance of integrating nature into urban outdoor space seems to be a matter of course, when it comes to current playground standards it doesn't seem to reflect this thought. Sadly, these places often seem to be built without any further consideration of its purpose by placing prefabricated playground equipment in predefined hard surface area.

## Introduction

Playing outdoors is one of the most important childhood experiences and an essential factor for children's both physical and mental development and therefore provides many benefits to both individuals and society as a whole. To encourage a positive development, children should be particularly given the opportunity to play in stimulating and diverse environments to be able to practice their physical and social skills, create, experiment and explore their environment to learn about it, gain self-confidence and self-efficacy,...to be given an opportunity to fulfill all their individual and ever changing needs simultaneously (Frost, 1992; NPFA, 2000; Fjørtoft & Sageie, 2000; Titman, 1994; Moore, 1986; Wilkinson, 1980; UN, 2018; IPA, 2013).....

Despite these proven facts, play experience has become so devalued within our culture creating a big misconception about what play is or should be, especially in relation to children's use of the urban outdoor environment (Wilkinson, 1980; Hughes, 1990; Hart, 2002; Titman, 1994; Frost, 1992; Woolley, 2007; Fjørtoft, 2004). There have been even suggestions to replace the term playground with other terms such as 'playable space' or 'playful landscapes', since it has been so misconcepted and violated (Woolley, 2007). From these initiatives have emerged calls for better conditions of which the most important is the United Nations Convention on the Rights of the Child claiming child's right to play in stimulating and developmentally appropriate environments among other requirements (IPA, 2013). To reflect this theory in actual physical planning, landscape architects and planners, among other related professions, are responsible for supporting and creating such environments for children (Moore, 1986).

## Background

With rapid growth of population living in urban areas which is around 55% today and estimated to reach nearly 70% of the world's population by the year 2050 (UN, 2018), the life and the way many children spend their free time has changed radically over the past few decades. This has not only changed due to new possibilities that modern age has brought such as technology innovations, but also the threats that come along with urban development including constantly increasing amount of traffic and higher risk of crime, but also due to lacking possibilities of access to adequate and quality outdoor play environments (Hughes, 1990). Many believe that city development has been dominated by considerations other than the children's needs (Coninck-Smith, 1990). Much of the motivation for establishing play spaces has emerged as a reaction to these raising threats rather than children's actual needs and preferences resulting in children's spatial segregation (Hart, 2002). The opportunities for play in stimulating outdoor environments seem to be declining, as much of the public urban outdoor play space currently relies primarily on installation of manufactured playground equipment, which alone does not meet children's complex demands (Frost, 1992). Most people tend to think of the value of playgrounds for the development of physical skills, while the social, emotional and cognitive development is so little recognized.

Among those issues that arose along with massive urbanization, a growing disconnection between people and the natural environment is a concern that resonates across all societies. As the natural environment has traditionally been a place for play in the past, our modern society seems to have neglected the great value of such environments for the development of young people, despite its many proven benefits (Fjørtoft, 2004). Not every child has an opportunity to experience the real natural environment first hand. For many children the little time spent on school and public playgrounds is the only opportunity to come in touch with the natural world, which is also the reason why it is so important to integrate natural elements within urban outdoor play settings, as well as all other urban environments.

When creating play provision for children, we should in the first place question ourselves what is the primary purpose of it. What stands do we express and in what way will that affect the children?

## Aim and purpose

In this paper I would like to most importantly examine how we can improve the quality of urban outdoor play environments from the perspective of landscape architecture taking into consideration children's actual needs and preferences. The aim of this paper is also to point out current inadequacies in designing children's urban outdoor play environments based on research and expertise of professionals in various fields, especially landscape architects, urban planners and environmental psychologists. Based on these experts' research examining children's behavior and preferences regarding play I would like to offer an insight into their point of view. This paper will conclude on benefits and qualities of natural playscapes promoting health and positive skills development as well as knowledge development. Furthermore, this paper will indicate what role do natural elements play in the quality of play spaces and what issues modern society faces due to a growing disconnection between children and natural environment.

- How can we from the perspective of landscape architecture improve the quality of children's urban outdoor play environments?
- What benefits and challenges does integrating of natural elements in children's outdoor play environments pose?

## Limitations

This paper focuses on opportunities for play in public urban outdoor environments that are specifically and intentionally designed for these purposes. Play spaces are very important for children in urban environments, dens areas especially, where opportunities for free play tend to be limited (Hart, 2002). Playgrounds as part of school or kindergarten grounds are not of primary interest in this paper, even though I recognize they are equally important for child's development. This paper focuses primarily on the provision for free play and informal games rather than organized sports and games. Free play is here separated from the category of organized sports and recreation to emphasize the importance for child's development, as many think it is in a comparison with these organized activities of a trivial or secondary importance (Hart, 2002).

Given that there are many factors related to the design of playgrounds that need to be taken into account, this paper addresses only some of them. As such, some factors are mentioned only marginally such as maintenance, financing, safety regulations, accessibility, etc. This paper focuses exclusively on a quality of these spaces with main interest in benefits gained from integrating natural elements.

A time scope during which the used literature sources were published ranges from the present up to the 1980s, which is also approximately the duration during which this topic began to be gradually discussed. This paper discusses current situation in play provision, which however has not much changed since then, at least in the regard of quality.



## Key definition and terms description

IPA = International Play Association

CRC = Convention on the Rights of the Child

BCRPA = British Columbia Recreation and Parks Association

NPFA = National Playing Fields Association

Play is a “freely chosen, personally directed, and intrinsically motivated behavior that actively engages the child” (NPFA, 2000, p. 6)

Functional play can be described as a simple repetition of certain action - muscular movement, when children exercise their physical capabilities.

Constructive play develops from a functional experience and involves environmental manipulating in order to transform the surrounding space to achieve a direct goal – to create something. Constructive play is more complex and encourages a development of reasoning and problem-solving skills as well as cognitive and physical skills, while incorporating the features of a functional play.

Natural playscape refers in this paper to an intentionally designed playground based on natural landscape features; it may also incorporate some of the traditional playground features such as for example a swing.

## Methodology

This chapter is divided in two paragraphs of which the first one explains the procedure of searching and selection of the sources; in the second one the writing process is explained.

### Literature resource search and evaluation

This bachelor thesis was written as a theoretical review based on literature studies. The search was mostly conducted through Google Scholar database and SLU library online catalogue. The procedure during which the relevant literature sources were chosen can be described as a cycle of three following steps.

» In the first step I searched through the SLU library online catalogue using keywords and definitions associated with the thesis topic (urban outdoor play space, natural playground, playscape, free play, children’s urban space, etc.) to see whether there has been any previous research on this topic done.

» After several relevant results were found in the SLU library online catalogue, I started searching for more references through these books and articles. Further search of these references was done mostly through Google Scholar database, which offered a wide range of results.

» Many of the results turned out to be secondary sources - shorter articles often referring to the same experts of which the most important are Roger Hart, Ingunn Fjørtoft, James J. Gibson, Harry Heft, Robin C. Moore and others. In the last step I searched on the most important studies by these and other important authors to gather as many primary sources of information as possible.

During the whole writing process new interesting references were being found through this cycle that led to an even wider range of sources available regarding this topic. Since this project was carried out during relatively short period of time, the amount of utilized literature had to be limited in order to be able to sufficiently evaluate it. The reason for excluding an article would be if too many articles from the same author were similar or if the article was too old to be relevant at the present situation. Another reason would also be the language availability, as only materials in English could be evaluated.

### **Writing structure**

Firstly, this paper reminds readers of the importance of play and its effect on children's development. Following, it discusses current types of play spaces that are usually provided within public urban outdoor environment and points out their inadequacies. Further on, this paper discusses children's perception of their environment and their preferences of play spaces based on the experimental studies relating to The theory of affordances, that is shortly introduced. Most importantly, this paper concludes with general values as well as key qualities essential when designing successful and high-quality outdoor urban play environments based on children's actual needs and preferences. Functions of natural environments as a ground for play, respectively integration of natural elements in the context of urban environment are discussed, identifying what benefits and challenges they offer to enrich children's play experience and to promote their positive development. At last, the paper briefly discusses the impact of integrating natural elements within the play space on children's positive emotional connection to the natural world and their environmental awareness.

## Where do children play today?

The designation of specific spaces for play started developing as a reaction to increasing traffic and other unpleasant influences of the 'streets' caused by a mass urbanization during the period of industrialization in the 19th century (Hart, 2002). Increasing threats for children in the rapidly growing urban environment leading to decreasing free movement in public space and constraining accessibility to natural environments, which used to serve as areas for play, all led to a creation, of what we know today as playgrounds. This tendency segregated children from the daily life of their societies, which is however essential for their development and therefore for society as a whole (Hart, 2002; Noschis, 1992). Although this article does not directly address this topic, it is necessary to mention what has already been pointed out a long time ago; rather than containing children in separated spaces we should make a greater effort to create safe and children-friendly environment in general (Hart, 2002).

As Roger Hart (2002, p. 135) aptly expressed, *"It is an irony of urban development that children in many of the world's poorest neighborhoods have more freedom to play outdoors close to their homes than children in middle-class areas of the same cities or in the high-income nations."*

The most common type of play provision in urban areas today is still a traditional playground (Jansson, 2009) commonly described as a flattened hard surfaced area with installed prefabricated static play equipment such as slide, swing, seesaw or climbing frame often also surrounded by a fence, occasionally we could find a sandpit (Moore, 1986; Hughes, 1990; Frost, 1992; Hart, 2002; Woolley, 2008). This type of playground is typically duplicated from place to place, not designed by landscape architects but very often put together by the (same) playground equipment company without any knowledge of play value (Woolley, 2007). Traditional playgrounds have justly received a lot of criticism for their limited value to children. They are able to accommodate a functional play to some extent but far too little constructive play that is just essential (Frost, 1992). Despite being often expensive they don't address either environmental, experimental (Hughes, 1990) or motor behavior deficits (Frost, 1992), neither children's need to explore their environment (Fjørtoft, 2004). Specifically it is attributed to them to be stereotyped and overly repetitive, predictable, non-responsive, isolated and constraining experiences (Woolley & Lowe, 2013; Kuh, et al., 2013). Children would mainly express criticism about these places to be boring and very little challenging - not corresponding to their age, and with very little opportunity given to express themselves (Titman, 1994). As the different playground equipment is adapted to the use of certain age group (Jansson, 2009), it only accommodates a small proportion of children and segregates the different age groups. Despite the inadequate design and considerable criticism from all sides, there are examples from America (Moore, 1986) and England (Woolley, 2008) where children frequently used these playgrounds. Moore (1986) has however stated that the reason is mainly a limited opportunity to experience other than these restricted outdoor environments. Another voices would oppose, stating these environments

are being very little used (Wilkinson, 1980; Hart, 2002; Hart, 1979). One benefit of such provision is easily maintained apparatus and no need for professional supervision (Woolley & Lowe, 2013).

Recent years have brought some contemporary influences on the design of playgrounds as a reaction to the unsatisfactory traditional design. These play environments are in a comparison with traditional ones more designed, typically around a theme. There is a wider range of used material for the equipment, such as wood or plastic in addition to the previous metal equipment only. Surfacing has been increasingly shifting from concrete or asphalt to more sand areas and allegedly safe and accessible rubber carpets (Jansson, 2009). Research however indicates that such surfacing is questionable with respect to absolute risk, qualitative factors and cost-benefit (Woolley, 2007). Woolley (2007, p. 6) has termed these play spaces, very common in England, as “KFC” playgrounds - consisting of a kit of equipment, a fence, “*allegedly to keep dogs out – but increasingly to keep children in*”, and a carpet of rubber surfacing. The amount of these modern playgrounds, which reflect contemporary influences in terms of aesthetics but are traditional in their approach, is increasing at the expense of a purely traditional type. Traditional and contemporary playgrounds might differ in aesthetic appearance, however, looking on statements from current dates and four decades ago we can only find very little difference in terms of the quality of play. It has been suggested, that they intend to have a high aesthetic appeal for adults, but no consideration of local character or professional competence involved in many instances (Woolley, 2008), hardly addressing children’s needs or preferences. Specifically there is still too little social and cognitive play and verbal interaction (Rivkin, 1990) and also very poor sensory stimulation (Woolley & Lowe, 2013). Hughes (1990) intimated that these settings rather attempt to pre-empt demand than adapt to children’s needs and demands.

Perhaps the most meaningful model of a play provision is a so called Adventure playground, which started emerging in northern Europe in the past four decades. The idea is to provide an environment where children can explore, experiment, shape and construct freely while being provided with all different kinds of materials by professional play workers or freely by themselves (Hart, 2002). We can find there a wide range of natural materials and greenery maintained to different extents, which can not only serve to the use of children but also to local fauna (Hughes, 1990). This non-instructive type of playground is more responsive to the needs of children (Hart, 2002) and provides them with more opportunities for constructive play encouraging them to use all their imagination (Rivkin, 1990). Adventure playgrounds are popular in Scandinavia and England (Rivkin, 1990), yet compared to the traditional and contemporary ones being just a very small proportion. The problem is not only the amount of needed funding to employ professional play workers but also their source. Hart (2002) gives an example from the USA, where these places due to the limited budget rely on summer youth employment programs providing play workers for short terms and only very little trained and therefore often not being able to sustain the right kind of relationship with the children. In Moore’s “Childhood domain” (1986) children mostly find

these places attractive for their diversity but express complaints about their high supervision as many of them perceive it as a negative aspect. They would much rather like to play unobserved and not being told what to do as “it ruins the atmosphere”.

## The theory of affordances

Ecological psychologist James J. Gibson (1979) developed ‘The theory of affordances’ describing functional properties of the environment that offer specific action possibilities to each individual. Harry Heft (1988), following up Gibson, suggested we need to describe children’s environments not in terms of their forms but in terms of their affordances. For the playing child it is rather the options for play behavior than the form of furniture that counts, as children tend to think and act intuitively. The way children perceive their environment has been so far recognized to a very limited degree in real physical planning and seems to be rather a challenge for landscape architects and planners (Hart, 1982). To be able to appropriately create and further develop spaces for children, it is essential to have an awareness of the ways in which children respond to these environmental affordances (Kuh, et al., 2013).

Many studies have implemented this theory to explore functional properties of different environments used by children. These studies supported Gibson’s and Heft’s assumption that natural environments (natural environment features) offer higher affordances compared to standardized playgrounds in many aspects.

- Sandseter (2009) conducted a qualitative research through observation and interviews on affordances for risky play, comparing two types of playground - natural and traditional. The results indicated that more natural playgrounds afforded higher risky play opportunities than purely traditional settings and therefore were also more appealing to children.
- Fjørtoft and Sageie (2000), Fjørtoft (2004) used this concept to describe natural environment as “a playground for children” studying a relationship between the structure and functions of a diverse natural landscape and its impact on physical activity and motor development of children. This study showed a significant increase in motor fitness, balance and co-ordination skills of children when exposed to diverse natural environment.
- Research by Zamani and Moore (2013) aimed to explore how different physical environment features (of manufactured vs. natural settings) can afford cognitive play behavior. The results indicated that flexible and complex natural features encouraged much higher variety of cognitive play behavior than one-dimensional manufactured fixed elements.

## Where do children want to play?

Research from a period of about forty years of children's play experiences in the urban external environment brings an evidence that children want to play in spaces other than those being designated for them (Hart, 1979; 2002; Moore, 1986; Titman, 1994). In the first place we have to realise, that this common practice in planning, of dividing up land according to its specific function, does not correspond to how children perceive and use their environment. They prefer the possibility to explore and use the environment freely regardless of land zoning and not being isolated in playgrounds (Hart, 1979; 2002; Moore, 1986).

Children at most value realness, unpredictability and diversity of unstructured, open-ended and even wild environments, where they are free to choose their own activities, discover and create their own playscape and to some way feel the ownership (Hart, 1979; Moore, 1986; Rivkin, 1990; Titman, 1994; Fjørtoft, 2004). Regardless of their experience, children favor natural environments over built and manufactured urban environments (Titman, 1994), which is even considered to be a natural human need (Woolley, 2008). This predilection for green structures is undoubtedly due to their many unique qualities that can never be provided in purely built environment (Hart, 1979; 1982; Heft, 1988). The qualities most intriguing to children would include stimulation of all senses through a wide range of natural colours, sounds, textures and smells. Likewise, a spatial diversity such as shifting topography and different layers of greenery giving the children a better conception of space and form. It is also proven that children relate better to multidimensional forms than to plain ones and prefer natural curves and softened edges of natural landscapes (Rivkin, 1990; Fjørtoft, 2004). If given the choice, children would choose natural and everyday lives materials over artificial manufactured ones (Wilkinson, 1980).

These statements indicate that children have a strong desire for complex, exciting and challenging environments than are usually not those provided for them (Fjørtoft, 2004). These values have been only little recognized through adventure playgrounds, which however only meet the needs of a very small proportion of children due to their limited accessibility (Hart, 1982).

## General values and principles for designing high-quality play space

This chapter is a summary of the most important aspects to be considered when designing a play space in the external environment following up the many studies published in order to promote a better quality of these spaces.

An appropriately designed outdoor play setting for children should:

- provide a wide range of play experiences to encourage all aspects of children's development (physical, social, emotional and cognitive)
- allow children of different age, gender and level of abilities/disabilities to engage in play together and adapt to their changing demands
- offer opportunities to experience challenge and risk – appropriately balance the risk and safety to allow children to assess risky situations while not exposing them to dangerous situations
- be adaptable - offer environmental manipulation to allow children create their own place
- stimulate rich sensory experience – allow to experience diverse colors, sounds, textures, and scents
- promote the development of a positive emotional connection - a sense of integrity, responsibility and environmental awareness
- be tailored for the specific location – *Genius Loci* - designed to enhance the setting and meet local needs
- be sustainable and appropriately maintained - allow future change and development

## How can we define natural environment in the regard of urban space?

Many researches have proven the unquestionable benefits of playing within a natural environment and suggest they meet the criteria for high-quality play space. This chapter focuses on the specific characteristics of natural environment and discusses the benefits resulting from them. In this paper the term natural environment is used in the context of urban outdoor play environment and relates to the elements of landform, vegetation, materials and moving/loose parts, which were in this form earlier suggested by Woolley and Lowe (2013). As such, the provision of all of these four defining elements is essential in order to create more natural playscapes that would meet the quality criteria.

## Landform

Diverse topography is one of the key elements as well as a quality dimension by which the natural environment is defined, and therefore we must not neglect its importance if we want to bring children's play spaces closer to the natural environment. Diversity can be seen as synonymous with an enriched environment (Fjørtoft & Sageie, 2000), which as we know stimulates and promotes play (Frost, 1992; Titman, 1994) Moore and Wong, 1997) and therefore also has a great effect on children's motor fitness and development (Fjørtoft, 2004). As much as this environmental quality is highlighted by the experts it is also one of the most valued features for children themselves (Fjørtoft, 2004; Hart, 1982).

A research conducted by Fjørtoft and Sageie (2000) indicates the relation between diversity in topography and diversity in play activities. Different structures of the surface in terms of steepness and roughness afford opportunities for various play activities appropriate to the capabilities and preferences of each individual child. The two characteristics of topography, steepness and roughness, are the most important variables when speaking of its variety. While steep slopes were used rather for sliding and rough cliffs challenged children to climbing, more even landscape structures were used for running activities, role-play and games like hide and seek or catch and run. There is a growing body of evidence indicating that varied and challenging topography highly encourages children to engage in physical play (Woolley & Lowe, 2013; Woolley, 2008).

Varying topography can also serve as a design tool, as it can divide large open spaces into several smaller rooms and create sense of enclosure and more intimate spaces that can become a context for imaginative and small-world play. (LTL, u.d.) Moore (1986) in his book *Childhood's domain* mentions positive aspects of explored sites based on observing and interviewing children. From this research we can learn how the contrast between open and enclosed spaces and elevation levels can not only create a function for play but perceived intimate microclimate as well.

Despite the many proven benefits known for decades that diverse topography offers, most studies reporting on children's urban play spaces mostly refer to their landform as exposed monotonous flattened surfaces (Hart, 1982).

## Vegetation

A presence of diverse greenery within play settings can enrich children's play in many ways and is even proven to be highly prioritized by children themselves (Hart, 1979; Moore, 1986; Heft, 1988; Mårtensson, et al., 2013; Titman, 1994). A research conducted by Fjørtoft and Sageie (2000) confirmed assumptions that there is a positive relation between diversity in vegetation and high affordances for play activities. Furthermore, green urban outdoor settings are more likely to encourage larger share of children of different ages, genders and competencies to involve in common activities. This is mainly due to possibilities to facilitate open and flexible situations within the play with ongoing changes of place within the play



area, changes of the theme and play partners (Mårtensson, et al., 2013). Moore (1986) suggests that the increase of children's involvement in physical activity play in green urban outdoor settings might be as well a result of attractiveness of vegetation as play props encouraging imaginative play.

Children's perception of external environment is strongly associated with sensory stimulation and from several studies we can see that children realize this value that natural elements, especially vegetation can bring. One of the essential criteria of a good play space is a rich stimulation of all senses by featuring different colors, scents, textures and sounds (LTL, u.d.; England, 2008; Woolley & Lowe, 2013; Titman, 1994). Visual stimulation such as natural colors changing with the seasons are a constant source of stimulus. Blooming flowers are perceived of a high value for their aesthetics, while rather dark green plants and bushes are not valued in the same way. Also other senses are evoked by the scents and textures of flowers, as one child in the study by Wendy Titman (1994) explained, she likes touching flowers because it feels like if they were kissing her fingers. From this example we can deduce how manufactured equipment of bright artificial colors and simple textures can hardly provide any quality sensory stimulation, if at all.

Trees appeared to be most valued for the climbing possibilities (LTL, u.d.; Fjørtoft & Sageie, 2000) as children reason they provide a completely different experience from climbing the prefabricated play equipment (Titman, 1994). Dens bushes were most valued as secret shelters (LTL, u.d.; Fjørtoft & Sageie, 2000) and as children in the interview conducted by Wendy Titman (1994) agreed, cannot just be simply provided but have to be either found or built by children themselves. From these examples we can see how manipulation of the environment brings a different experience of play than provision of standard static play equipment. The greenery, especially wild and unmaintained one, also attracts children by its high variety of resources to be found and used as building materials (Titman, 1994; Moore, 1986). A creation of varying greenery can be for example achieved by changing mowing regime, which can also serve as a good design tool. (LTL, u.d.)

It is especially recommended to use native plant species to interpret habitat typical for local environment (LTL, u.d.; Keeler, 2003; Johnson & Hurley, 2002), which can not only help to encourage wildlife that fascinates children so much, but also serve as an educational platform when teaching children about the natural world and seasonal changes (Woolley & Lowe, 2013).

## **Materials and Loose parts**

Simon Nicholson (1971) for the first time introduced the Theory of Loose Parts calling for a change in design approach for children's play spaces. The main benefit of providing loose elements with no defined purpose is the flexibility allowing open-ended play that is not afforded in most of the built environments including the most common static playgrounds, despite the fact that it heavily influences the quality and richness of play experience (Frost, 1992). Later research confirmed the irreplaceable role of environmental manipulation on the development of children's

competences (Hart, 1979; Frost, 1992; Fjørtoft, 2004), clearly showing how outdoor play spaces with loose and moving elements and variety of materials have much higher play value in a comparison to the static ones (Moore, 1986; Woolley, 2008)

Nicholson further states that “in any environment, both the degree of inventiveness and creativity, and the possibility of discovery, are directly proportional to the number and kind of variables in it”, while this statement is later also supported and developed by other researchers. Moore in her Childhood's domain (1986) indicates how outdoor play environments containing high amount of loose parts and a variety of different materials help to stimulate cognitive, social-cognitive and cognitive-motor play, while (Johnson & Hurley, 2002; Woolley, 2008; Woolley & Lowe, 2013) contribute with findings about the stimulation of imaginative and creative play. These research further indicate how the provision of loose and moving elements provide opportunities for interaction with peers as well as the surrounding environment which leads to its better understanding.

Environments containing soft and touch stimulating elements and materials such as sand or water generate comfortable and calming atmosphere (Zamani & Moore, 2013). From study by (Titman, 1994) we also know that children perceive soft ground cover materials such as grass or sand as much safer than hard surfaces.

By the age of two, children cross from simple functional play onto constructive play with the desire of creation. Standard static playgrounds can hardly provide any opportunities for creative activities, in contrast these can be satisfied by open-ended materials (Frost, 1992) such as sand, water, stones, wood, pinecones, bark, leaves, blossoms or fruits, which can be freely moved, transformed and redesigned, combined or taken apart, stacked or lined up,...used on many different levels. With a wide range of materials of no defined purpose children will be more inventive in their play and have infinite play opportunities manipulating them in any ways their imaginations devise.

Manufactured moveable features such as for example boxes, baskets, balls, wheeled vehicles or different tools can be at some play spaces also provided, however their disadvantage compared to those natural ones consist in the necessity of maintenance and storage in order to prevent loss and damage (McClintic, 2014). While these might be rather suitable for purposes of a kindergarten or school ground, if provided the storage location is crucial with different types of materials serving a particular area of the playground to best accommodate their use (Frost, 1992).

## Nature needs children

Just as the connection between nature and children is important for their own development, it is essential for the natural world itself. Especially nowadays with the growing body of issues regarding the decreasing quality and extent of our natural world it is important to build recognition of these issues among these younger generations. It will be them who will be responsible for the preservation of the natural environment in the future and have to cope with growing threats, which will not be an easy task. If young generations living in urban areas are to develop a positive emotional connection, respect and environmental awareness, it is essential that they experience nature as an integral part of their lives.

Since learning through play is a significant part of children's education and development, playgrounds next to the formal educational environments are equally important when developing environmental awareness. Therefore it is very important that natural environments are a significant part of children's play experience (Freeman, 1995; Fjørtoft & Sageie, 2000).

It has been proven that a positive childhood experience of playing in a natural environment would encourage and strengthen the knowledge and understanding and therefore also appreciation for the natural world. Furthermore Lester & Maudsley (2006) report that a close contact with the natural environment, especially in the formative years, can shape a positive attitude that will persist into adulthood and even possibly increases the likelihood of living an active life outdoors later in adulthood.

A research by Wendy Titman (1994) showed how children who experienced a transformation of their kindergarten yard into a much greener place have shown much stronger emotional connection and the desire to protect and care about the place themselves. Children have particularly shown their interest in trees by actively taking care of them, while one of the children has argued that trees create all the air for us and without them we couldn't live. Another fact that children also recognized was the importance of nature for animal life, as the greenery brought the place to life.

Recent research has however brought a disturbing insight into the declining knowledge of children and teenagers about their surrounding natural environment. A study from the UK for example revealed that almost half of the children surveyed have struggled to distinguish the bee from the wasp, as well as the most common trees (LTL, u.d.). There are raising concerns that children's shrinking experience of the natural world and therefore diminishing emotional connection and knowledge about it could lead to a growing ignorance.

## Discussion

The purpose of this paper was to study a quality of public urban outdoor play environments and discuss benefits of integrating natural environment features within these settings to enrich children's play experience and to promote their positive development.

## Methodology

This bachelor thesis was written as a theoretical review based on literature studies. The literature resources range from theoretical framework to experimental studies and cover a period of around four decades of research in this field. An aspect limiting the amount of utilized sources was limited time range and language availability. The fact, that some of the probably relevant literature has only been written in another language than English (Swedish or Norwegian language in many cases), and therefore prevented me from its evaluation, might have created a bias of information.

## Results

To encourage children's positive development (physical, social, emotional and cognitive), we should provide them with an opportunity to play in diverse and stimulating environments so they could practice their physical and social skills, create, experiment and explore their environment, gain self-confidence and self-efficacy. Many studies however indicate that current play provision in urban areas is mostly concern with little more than few gross motor activities, while there is no opportunity for constructive play, which is essential for stimulating other developmental aspects than just physical skills. It has been many times proven that access to play spaces including diverse elements of natural environment (landform, vegetation, materials and moving/loose parts) promotes many benefits to all aspects of child's development as these settings offer high affordances for children to engage in a more constructive and sustained play behaviour. It has been also proven that these environments are largely favored over traditional types of playgrounds by children themselves, as they better reflect their needs and preferences.

It is not an intention of this thesis to claim that purely natural environments are the only suitable solution to provide children with opportunities for quality unstructured play. Manufactured playground equipment can also support play and be beneficial if appropriately designed, yet alone it does not make a playground, no matter how ingenious it is. As traditional and contemporary playgrounds constitute a majority of public urban outdoor play provision today, it is mainly important to consider ways, in which these settings could be developed in the future and enriched by the elements of natural environment.

## Suggestions on future research

- Most of the research regarding this topic is concentrating on kindergarten or school grounds rather than public space and therefore only play within the group of children of same or very similar age is observed in these studies. That largely influences children's play behavior. While a lot of research takes into consideration different gender or disabilities, the interaction between different age groups hasn't really been of a primary interest so far.  
---> In what way could natural playscapes encourage sustained play activities and interaction between different age groups of children as well as between the children and adults?
- The resources are limited by a very narrow location since this topic has so far been only further discussed in Northern America and Europe. These countries have rather a similar mentality and background (compared worldwide) which might be a reason why the opinions mostly agree. Much of the research and literature refers to the same few experts such as Roger Hart, Ingunn Fjørtoft, James J. Gibson, Harry Heft, Robin Moore, etc.  
---> Will the point of view change once the discussion of this issue reaches other parts of the world?
- It is especially recommended to use local vegetation species (LTL, u.d.; Keeler, 2003). Is it then acceptable to use exotic vegetation in some cases like for example in the theme playgrounds like 'safari'? What if children will adopt this as a standard for their natural environment?  
Similarly, we could think about the landform. Is it appropriate to use for example a distinct topography in the area, where this type of landform is not common, even though it enriches the experience of play?  
---> It would be interesting to carry out research on this topic to see in what way would this affect children's perception of their environment.
- In most of the related literature published by experts, standard playgrounds are negatively judged for their inadequacies, both in terms of functionality and aesthetics. However, during past decades, they became a picture of children's play space for many people and therefore are somewhat expected. (Woolley, 2007; 2008)  
---> To what extent would be this type of play space acceptable if refined by the natural elements? How much space could be kept to the standard equipment and how much space should be given to the natural elements in order to create a balanced combination promoting health, knowledge and positive skill development, but also a positive acceptance from public?

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