

Children's favorite places on the kindergarten playground – according to the staff

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Abstract

The aim of this study was to investigate Norwegian early childhood teachers' perceptions about where on the kindergarten's outdoor playground the children prefer to play, and what characterizes these places. A questionnaire was used to provide quantitative data. 854 Norwegian Kindergarten principals or pedagogical leaders from all over the country have answered the questionnaire. The functional affordance taxonomy is the basis for the question. The finding indicates that early childhood teachers consider places with a feature of nature as the most attractive, and fixed play equipment were the least attractive places for children's outdoor play.

Key words: Kindergarten outdoor-playground, kindergarten- staff consideration, children's outdoor play, loose parts, affordance.

Introduction

More and more countries have shown increasing interest in the kindergartens outdoor playground in the last years. In this article, *we ask staff in various kindergartens where on the outdoor playground the children prefer to play, and what characterizes these places.* Principals or pedagogical leaders in 854 kindergartens from all the Norwegian counties have answered a questionnaire about where children prefer to play in the playground.

The Norwegian kindergarten (Early Childhood Education Institutions) is a voluntary program controlled by a pedagogical framework plan for children aged one to five years. As many as 91% of one to five year old children in Norway attend kindergarten, and 77% of them spend between 33-41 hours a week there (Statistics Norway, 2017).

A registration of the playgrounds in Norwegian kindergartens shows that they differ little in size, design and equipment. Most of them have a combination of fixed play equipment and nature elements (Moser & Martinsen, 2010). The Norwegian authorities give only recommendations on size, design and content of the playground however, the kindergarten have to follow safety regulations (Norwegian Ministry of Education and Research, 2006).

In the Norwegian kindergarten tradition, spending time outdoors has always been considered beneficial for children, whatever the weather or time of the year. Playing outdoors has been associated with a good childhood (Borge, Nordhagen & Lie, 2003). Because children spend a lot of time on the outdoor playground (from now on called playground) all year (Moser & Martinsen, 2010), the activities on the playground are an important part of the children's everyday life. Traditionally the outdoor-time in Norwegian kindergartens has been considered as time for free play with little involvement from the staff (Moser & Martinsen, 2010; Hagen, 2015). The large area and the design of the playground give plenty of possibilities for movement and as well

as in secluded areas where they can concentrate on more peaceful and undisturbed activities.

According to Moser and Martinsen (2010), most kindergarten playgrounds in Norway encompass sites with nature in addition to more traditional play equipment. Nature provides the child with knowledge and experiences with its abilities and limitations in a non-estimating way. Further research confirms the natural environment's strong impact on physical and mental health (Ulrich et al, 1991; Grahn, 1992; Wells & Evans, 2003), for development in attention, observation and logical thinking (Pyle, 2002) and play (Fjørtoft, 2004). Fjørtoft (2004) finds a direct relationship between the complexity in the environment and the complexity in children's play. A varied natural environment with many potential affordances results in more variation in the play.

Affordances in an environment are easily connected to physical challenges. Explorative challenges are perhaps less visible. Fischer and Madsen (2001) report how absorbed and concentrated children are when they work with loose materials. Natural environments provide loose parts for play which due to their open-ended nature prompt children's creativity and imagination (Davis, 2010). Cook, Goodman & Schulz (2011) have studied spontaneous experiments in preschooler's exploratory play. They looked at whether preschoolers recognize affordances in the environment that allow them to isolate variables when there is information to be gained. Their results suggest that children not only have this ability, but can also exercise it with considerable ingenuity. To the extent that children acquire causal knowledge through such exploration, we can make up the beginning of a bridge between play and scientific inquiry.

Research shows that children from the earliest years notice the animals in their everyday lives (Patric & Tunnicliffe, 2011). They seem to have a fascination for small animals like worms, insects, and spiders (Dowdell, Grey & Malone, 2011; Lysklett, 2013). The pleasure, the experiences and the knowledge they gain through such close contact with nature seem to be important.

Hagen (2015) found that the older children showed little interest in the fixed play equipment, but when it was used, it was often in unexpected ways. The three years olds, on the other hand, use the fixed playground equipment as expected. Role play was often connected to the play equipment. Other researchers confirm that areas where children can play undisturbed are popular (Niklasson & Sandberg, 2010; Engdahl, 2014; Storli & Hagen, 2010; Grahn, 1992).

Research literature has thus given attention to the design and quality of the outdoor environment, concerning children's opportunity to play and be physically active. Much of this research is gathered from researchers' observations and interviews with children (Storli & Hagen, 2010; Engdahl, 2014). Less interest has been taken in the staff's perception of where on the playground the children prefer to play. We think it is important to document the staff's experiences. The staff has a deep knowledge of the children's play, they have a substantial impact on how the time outdoors is spent, and they can influence the children's possibilities to play through equipment, design and rules.

Our research question is:

Where within the kindergarten's outdoor playground do the staff consider that the children prefer to play, and what characterizes these places?

Places are understood as the different sites with its features or play equipment within the playground. We have not defined the term play, but left it to the staff to judge whether the children were playing or not.

Theoretical perspectives

To illuminate the research question we are inspired by Environmental Psychology (EP) where the interaction between humans and environment has been examined. The environment includes both nature and man made environment. The two concepts *Place* and *Affordances* are central in EP (Skorupka, 2012). Place is understood as any physical environment that gives meaning to humans (Skorupka, 2012). In our context, we assert that the playground, with its different opportunities for play is a place, since the playground is well- known to the child and he/ she has a relationship to the playground.

Gibson defines *affordances* as relations between the abilities of the individual and features of the environment (Gibson, 1986; Heft, 1988). Heft (1988) uses and expands the concept. He relates the concept to children who interpret the environment according to its function. Children interpret the environment according to how they can act and how they can use the characteristics of the environment to create play. Other researchers (Kyttä, 2004; Reed, 1993) have developed the affordance concept further. Kyttä emphasises that the concept has potential to be extended to “even comprise emotional, social and cultural opportunities that the individual perceives in the environment” (Kyttä, 2004, p. 181). She highlights the difference between potential and actualized affordance. *Potential* affordances are all the action possibilities visible in the environment, while *actualized* affordances are the affordances that are used. *Perceived* affordances are what the individual thinks an object can do, including suggestions as how to use the properties. This means that the individual’s abilities, experiences and knowledge are essential to how they perceive the environment and how they *actualized* the affordances (Kyttä, 2004).

In education context, Bernstein (1974), who is an education sociologist, highlights the design of the pedagogical rooms’ influences on behavior. He points at rooms or equipment that largely governs how the behavior is meant to be. He denotes rooms with small possibilities of variation, *strongly* encoded rooms. Rooms where it is not obvious how the individual is meant to behave are *slightly* encoded rooms. In such environments, the children have vast possibilities to explore and develop their play. Even though Bernstein’s (1974) theory mostly describes room indoors, we find his theory relevant to playgrounds, because of the playground’s composite design.

As a criticism of playgrounds with strongly encoded rooms, Nicholson (1972) introduced *The theory of loose parts*. He claims that rooms containing loose, ductile material like elements from nature as sticks and stones, or artifacts such as buckets and shovels encourages a more creative and exploratory play. With this in mind, a diversity of playgrounds has been developed, like adventure playgrounds, nature playgrounds and playgrounds with a composite design, where elements from the traditional is combined with other designs (Woolley & Lowe, 2013).

Method

To illuminate our research question: *where within the outdoor playground do the staff consider that the children prefer to play, and what characterizes these places*, we chose a quantitative research design. To retrieve information from many kindergartens we used a web form (Nettskjema).

Sample

An addressed postal mail operator drew out 3100 out of 5490 ordinary kindergartens in Norway (Statistic Norway, 2017). *Ordinary* kindergarten is understood as a public or private enterprise, operated in approved premises and which has an outdoor area specially designed for kindergarten activities. We used the kindergartens geographical location as strata. We first grouped the kindergartens according to in which county they were located, so the proportion of kindergartens in each county was randomly drawn to the sample as in the population. We posted brief information about the project, and a questionnaire to the kindergarten principal e-mail address in June 2017 as well as a reminder in early October that year. 80% of those who responded to the questionnaire were employed as principals and 18% as pedagogical leaders. Most respondents (87%) had experience from work with both the youngest (one to three years) and the oldest (four to six years) children.

854 ordinary kindergartens (28%) responded to the questionnaire. Based on the information about kindergartens in Norway (Statistic Norway, 2017), our sample does not differ significantly from the population (kindergartens in Norway). Half of the kindergartens in the sample had between 50 and 100 children, there were as many private as municipal kindergartens. The location was urban or rural (40% of each), the proportion of kindergartens in each county was almost equal to the population and most kindergartens had no special educational profile. Only 9% of the kindergartens were outdoor kindergartens.

Design

A pilot study with a questionnaire was sent to 20 kindergartens in one municipality in Norway in March 2017. Based on feedback from the kindergartens in the pilot study, other comparable studies, public documents, our interests and experience of teaching in the field, we designed the final questionnaire with 20 questions. In the article, we discuss one of them. The question consist of 11 statements (see Table 1), related to where children like best to play in the playground, and respondents rated on a three level scale to what extent they agreed in each of the statements. Many respondents took advantage of the opportunity to provide complementary comments on the topics raised in each statement.

To make the statements we are inspired by Heft's (1988) functional affordance taxonomy and other researchers that have further developed this as well as adding more categories according to their research question and context (Kyttä, 2004; Niklasson & Sandberg, 2010; Engdahl, 2014). We have adapted the taxonomy to our Norwegian context. The category *water* (in Hefts taxonomy) includes also *ice- snow and mud*, because of the changes in season. In addition, one new category is added; *equipment*

that provides speed, height and excitement, because risky play has a central role in Norwegian Kindergartens (Sandseter, 2009).

The data from the web form was registered in Excel. The single variables in the data are analysed using frequency tables and descriptive statistics to show how the devices are distributed on the variables. The table is presented in percentage. We conducted some bivariate analyses, but did not find anything of interest that could highlight our research questions.

Ethical considerations

Our data material consists either of information that can not identify individuals directly, indirectly or via email / IP address or link key, so our data are considered as anonymous (Protection Official for Research, 2018). Services for sensitive data (University of Oslo, 2017) is used to collect, store and analyze sensitive data from web forms. The web form (Nettskjema) is not used for long-term storage of data, and is deleted no later than six months after the last response has been delivered

Representativeness

Explanations why 2246 did not respond to the questionnaire can be that the receiver was not interested in the topics, the scope was too large or that we had wrong e-mail address to the principals. We used random selection in order to achieve the most representative selection to be able to generalize the data from the sample to all ordinary kindergartens in Norway (Johannessen, Tuft & Christoffersen, 2011). It seems as if the sample does not deviate significantly from the characteristics of the population. Another factor that can confirm the representativeness of the sample is the relationship between the size of the sample and the population. With the formula $(1.96 * (\text{sqr}(0.25 / \text{sample})) * \text{sqr}((\text{population selection}) / \text{population})) * 100^1$ we find that with a 95% confidence interval, we have a margin of error of + -3.1%. This means that we can be 95% sure that if all kindergartens had responded, the answers would fall within +/- 3.1% of the responses from the sample.

Validity and reliability

We are not sure whether we have chosen the correct statements or response categories to elucidate our research questions, or how relevant the data represent the phenomena we have investigated (Johannessen et al., 2011). To address these challenges, the question had an open category where respondents could write complementary comments, which about 1/8 of respondents did. Many respondents commented that it was challenging to specify degree of unity because children are unique; they have different interests and different physical skills. Despite these reservations, very few have ticked the alternative *hard to answer*. We therefore assume that the statements largely are recognizable and cover the phenomenon we investigate.

There can be uncertainty about the reliability of the data given by principals (Johannessen et al., 2011). Although many of them do not always have daily contact with the children, practice is often that executives have worked as pedagogical leaders before they become principals. There is also a question whether the respondents

¹ <http://www.spørreundersøkelser.no/kalkulator/>

consider the statements according to experience, observation or assumptions of children's favorite places outside.

A weakness can be that the statements are not differentiated according to the season, age and gender. There is a high probability that the respondents answered according to the summer months, since the questionnaire were answered during the period June to October. There may also be some uncertainty about what the informants put in *totally agree* and *partly agree*. The category *partly agree* may mean that the respondent thought that the answer are context-sensitive, that there are differences between children's gender and age or that they agree sometimes.

On the other hand, the purpose of our research is to get to know the staff in the kindergartens' considerations of where children like to play the most. Then self-reporting will be the most natural method of obtaining this information.

Results

The answers from our respondents concerning where the children prefer to play, are clearly divide into three groups. These are indicated in Table 1 as A, B and C. Group A elements of nature, group B, hard surfaces and fixed equipment, and the last group C, is a mix of fixed equipment that provide for physical challenges and play that is more sedentary.

Table 1. Where within the outdoor playground do the children prefer to play?

Group	Statements	Totally agree %	Partly agree %	Disagree %	No such places on our playground %	Hard to answer %
A	Children prefer playing in places where they can play with water, ice, snow and mud	83	15	<1	0	1
	Children prefer playing in places where they find sticks, stones and other material they find in nature	74	22	<1	2	1
	Children prefer playing in the hilly places, such as hillsides and slopes with various types of ground surfaces	67	26	<1	5	1
	Children prefer playing where they can climb	66	31	<1	<1	1
	Children prefer playing in areas	65	33	<1	<1	2

	where they can look for insects and other small animals					
B	Children prefer playing in places with playground equipment that provide speed, height and excitement	34	58	5	1	2
	Children prefer playing in and around the sandpit	31	64	4	0	1
	Children prefer playing on grass suitable for ball- and running games	23	61	8	6	2
	Children prefer playing in areas where they can find secluded places	22	58	16	2	3
C	Children prefer playing on flat hard surfaces for example like asphalt, for example where they can bike or play Chopscotch	13	52	29	5	2
	Children prefer playing on and around fixed playground equipment	9	62	25	2	2

Common for the places the respondents report that children seem to prefer, are elements of nature. A large majority state firmly that the children prefer area with mud and water (83%), and loose material they find in nature like sticks and stones (74%). Closely followed by places with hillsides and different ground surfaces (67%) and sites that provide climbing possibilities (66%). Sites with small animals, like ants, spiders and earthworms, are also valued highly by the respondents (64%). Hardly anyone disagrees here.

In contrast, only a few respondents reported that the most popular places seem to be hard surfaces for biking (13%), and fixed equipment on the playground area (9%). A substantial percentage of the respondents disagree, however, in the statements (25%-29%).

In between these two extremes, the table shows that 34% totally agreed that the children preferred playing in places with equipment that provide speed, height and excitement, like a slide and a climbing wall. Almost the same proportion of respondents totally agree that the children prefer playing in and around the sandpit, on lawns suitable for ball games and running games (23%) or where they can find secluded areas (21%). Here we find some disagreement in the statements (4%-16%).

Discussion

What characterizes the most popular places that children prefer to play?

Several respondents comment that the most attractive places are by far places with traits of nature for example:

We see that there is a completely different play when the children are playing in the areas with natural materials. They use more imagination and creativity when the material is not defined.

This coincides with research where children themselves has expressed their fondness of places with variation and diversity (Engdahl, 2014; Mårtensson, 2004).

Almost all playgrounds in our survey have areas with natural elements (Table1). We have no information about the size and the diversity within these areas, but we know that 5 % has no hilly areas with various types of ground surfaces and only 2% has no area where they find sticks, stones and other nature material.

The preference for areas with natural elements may reflect the effect of relaxation and well-being that Searles (1960), and many after him, points at. Few children can resist the attraction of water. Water, ice, snow and mud is always fascinating, the making of waves, blocking its stream, directing its flow, feeling the movement of the water on your skin, and see the mud splatters your clothes. Besides, the water produces sounds. The recognition of this as not merely joy, but important for motor, sense and language development, are endorsed by many authors (Chalufour & Worth, 2005; Crosser 1994; Tovey, 1993).

Other popular places are areas where they find loose parts like sticks and stones. This is in compliance with Bernstein's slightly coded rooms (1994) and Nicholson's theory of loose parts that state; "The degree of inventiveness and creativity and the possibility of discovery are directly proportional to the number and kind of variables within it" (Nicholson, 1972, p.30). As indifferent adults it is easy to look upon sticks and stones as untidy, dirty and possibly dangerous. Young children, however, still have an ability to contemplate these most familiar things knowing they might transform into chilling wonders. Loose parts like sticks and stones give an excellent opportunity for children's creative exploratory play, and an opportunity for the staff to keep the familiar wonderful.

Climbing and tumbling in hilly areas with slopes, rocks and various types of ground surfaces seems to be another favorite for the children. This confirms Rasmussen's findings (2004) that children seek high places, and Frost (2004) who claims that children up to the age of six are very motivated for climbing, even if climbing involves a risk of being hurt or not mastering the situation.

One of the respondents commented on this: *Children prefer to play where they find, both mental and motoric challenges.*

Tumbling and climbing give the children a variety of challenges both mentally and physically (Frost, 2004; Mårtensson, 2004). However, Sandseter (2009) reports that children and staff in Norwegian kindergartens sometimes are of different opinion regarding whether the children are allowed to climb.

The more physical structures in an area, the higher the diversity of organisms. Small animals like ants, spiders, woodlice or worms are, however, present in all playgrounds. They may easily be overlooked, but not by even the youngest child (Patric &

Tunncliffe, 2011). Native animals like spider and worms are the animals all age groups mention most frequently indicating the children's interest (Bartoszeck et al., 2014). Patric and Tunncliffe (2011) comment that not everybody encourages encounters between children and insects, and some teachers do not allow the children to approach them. Bad feelings about spiders, insects and other animals are common, and can be explained in terms of evolution. Some animals must be avoided. However, a general rejection may contribute not only to children's "Nature Deficit Disorder" (Louv, 2010), but also to the insight that what interests the child is of no value and interest to the important adults.

What characterize the places with moderate interest?

The next cohort is a mixed group of four places that seem to have only moderate interest (34% - 22%), a considerable fall from the popular places. We recognize the affinity for play equipment that provide height, speed and excitement is low (34%). Hence, one explanation can be that the play equipment, afford limited challenges or the respondents' experience that few children seeks mental and physically challenges. The sandpit with fewer motoric challenges is connected to the youngest children. The sandpit is often criticized for pacifying the children, but with buckets, shovels and cars it can invite to creativity and construction games and thus have more potential affordances. Ball - and running-games are physically and motoric demanding. Grass is obviously better than tarmac, but the affordances on a flat area seem to be limited.

Rasmussen (2004) claims that it is important for children, spending most of their awake time in the kindergartens, to have the possibility to construct their own places. We find it somewhat unexpected that the respondents hardly point to such places. One interpretation can be that such places may be little obvious for the staff and they can be anywhere on the playground. Children perceive other affordances than adults. Moreover, it is easier to get attention for children in movement, than for calm children in secluded places. Our results differ from other research showing that secluded places are popular (Engdal, 2014; Niklasson & Sandberg, 2010).

What characterizes the less attractive places the children prefer to play?

The low score in favour of flat, hard surfaces where they can bike or play hopscotch (13%) and places on and round fixed playground equipment is striking (9%). In contrast to the other places, we find a substantial (29% - 25%) disagreement here. Even though the fixed play equipment main purposes is to stimulate children desire for motor challenges, it seems like it do not corresponds with children's choices for places to be physically active and challenge their motor skills.

Flat areas with hard surfaces might invite to physical activities like running, biking skipping and ball games. These activities are somehow dependent on available equipment and initiative from the staff. Another explanation might be that the fraction of youngest children is high in Norwegian kindergartens. These plays are less widespread among the youngest children. Our respondents answer spans from one to six-year-old children.

This is a clear message: that the respondents do not consider fixed play-equipment as attractive places for children's play. Fixed play-equipment is characterized by mono-functionality giving less room for variation and creativity (Gitz- Johansen, Kampmann & Kirkeby, 2001). This supports Nicholson's (1972) criticism of playgrounds and coincides with the definition of strongly encoded rooms. The exploration of this

equipment takes little time, and lasts for the whole duration of the child's stay in the kindergarten. Hagen (2015) found that the youngest children were most busy with the fixed play–equipment, while the interest diminished with increasing age.

Summarizing considerations

This article discusses Kindergarten staff' considerations of where within the outdoor playground children prefer to play and what characterizes these places. Information is gathered from staff in 854 kindergartens from all the Norwegian counties.

The staff points to fixed play-equipment and flat, hard surfaces as the least popular places. Places with natural elements like loose and malleable parts as water, snow and mud, sticks and stones, invertebrates and a variation in topography, are considerably more popular. We emphasize the potential affordances in these places, supporting children's explorative play, where senses, fantasy, creativity and motor skills can be stimulated. This coincides with Nicholson's theory of loose parts and the definition of strong and slightly encoded rooms (Nicholson, 1972).

It seems however, that the tradition of fixed playground equipment and a flat, hard substrate is mandatory for those who design playgrounds. Research indicates that children, architects and developers have different ideas of the ideal playground (Jansson, 2013). Our results indicate that kindergarten - staff who observe the children every day, have different ideas compared to those of the developers. There seems to be general agreement between former research and our results that developers of kindergartens should protect natural areas in the playground to support children's investigative play, physical activity play and general wellbeing.

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