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The outdoor environment in Norwegian kindergartens as pedagogical space for toddlers' play, learning and development

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The outdoor environment in Norwegian kindergartens as pedagogical space for toddlers' play, learning and development

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ABSTRACT: This study examines some characteristics of the outdoor environment in Norwegian kindergartens. Understood as pedagogical space, outdoor conditions may enhance or restrict the youngest children's possibilities for play, learning and development. In 117 of 133 kindergartens (response rate: 87 %) participating in a longitudinal study, the heads of the institution and the pedagogical leaders in these institutions have completed questionnaires. The questionnaires for head teachers and pedagogical leaders covered a wide range of characteristics of the institutions, including outdoor space and organisation of time, everyday life and physical environment. The findings indicate that Norwegian children spend a significant amount of time in kindergarten outdoors, 70% and 31% in summer and winter semester respectively. Norwegian children also have large outdoor areas in their institutions; the average size is 2600 square meters (approx. 47 m^2 pr. child). Head teachers and pedagogical leaders seem to be satisfied with the quality of the outdoor environment in their institutions.

RÉSUMÉ: Cette étude examine quelques caractéristiques de l'environnement extérieur dans des jardins d'enfants norvégiens. Considérées comme espace pédagogique, les conditions extérieures peuvent améliorer ou limiter les possibilités de jeu, d'apprentissage et de développement des jeunes enfants. Dans 117 des 133 jardins d'enfants (taux de réponse : 87 %) participant à l'étude longitudinale, les directeurs et les responsables pédagogiques de ces institutions ont renseigné des questionnaires. Les questionnaires portaient sur de nombreuses caractéristiques des institutions, dont l'espace extérieur et l'organisation du temps, la vie quotidienne et l'environnement physique. Les résultats indiquent que les enfants norvégiens passent un temps significatif dans les jardins d'enfants extérieurs, 70 % et 31 % pour les périodes d'été et d'hiver. Ils disposent également des grands espaces extérieurs dans leurs institutions; la taille moyenne est de 2600 mètres carrés (approximativement 47 m^2 par enfant). Les directeurs et les responsables pédagogiques semblent être satisfaits de la qualité de l'environnement extérieur dans leurs institutions.

ZUSAMMENFASSUNG: Diese Studie untersucht einige Merkmale der Outdoor-Umgebung in norwegischen Kindertagesstätten. Als pädagogischen Raum verstanden, können Outdoor-Bedingungen die Möglichkeit junger Kinder für Spiel, Lernen und Entwicklung einschränken oder fördern. In 117 der 133 Kindergärten (Antwortquote: 87%), die sich an einer longitudinalen Studie beteiligten, füllten Leiter dieser Einrichtungen und pädagogische Leiter in dieser Institutionen Fragebogen aus. Die Fragenbögen für die Rektoren und die pädagogischen Leiter deckten eine weite Spanne von Merkmalen der Institutionen

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ab, einschließend Außenraum, Organisation von Zeit, Alltägliches Leben und physische Umwelt. Die Ergebnisse deuten daraufhin, dass norwegische Kinder viel Zeit im Kindergarten im Freien verbringen, 70% in der Sommer- und 31% in der Wintersaison. Norwegische Kinder haben auch große Außenspielplätze in ihren Institutionen: die Durchschnittsgröße beträgt 2600 Quadratmeter (ca. 47 m^2 per Kind). Rektoren und pädagogische Leiter scheinen zufrieden mit der Qualität des Außengeländes in ihren Institutionen.

RESUMEN: Este estudio examina algunas caracteristicas del ambiente exterior de los jardines infantiles noruegos. Entendido como un espacio pedagógico, las condiciones exteriores pueden mejorar o limitar las posibilidades de juego, aprendizaje y desarrollo de los niños más pequeños. En 117 de 133 jardines infantiles (nivel de respuesta: 87%) que participaron en un estudio longitudinal, los directores y lideres pedagógicos de esas instituciones respondieron cuestionarios. Esos cuestionarios cubrían un amplio rango de características de las instituciones, incluyendo espacio exterior, organización del tiempo, vida cotidiana y medio ambiente físico. Los resultados indican que gran parte del tiempo del niño noruego transcurre al aire libre, 70% en el verano y 31% en el invierno. Los niños noruegos cuentas además con grandes espacios al aire libre en sus instituciones: el tamaño promedio es de 2600 metros cuadrados (aproximadamente 47 m^2 por niño). Los directores y lideres pedagógicos parecen estar satisfechos de la calidad del ambiente exterior de sus instituciones.

Keywords: physical environment; outdoor; pedagogical space; play, learning and development

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Introduction

Today kindergartens represent a dominating arena of the life and upbringing of preschool children in Norway. Approximately 89% of all children 1- to 5-years-old, and 97 % of children in the age group 3- to 5-years-old (Statistics Norway 2010), are enrolled in kindergartens.

In this contribution, our main research interest is the kindergarten's outdoor space and its importance as a pedagogical space for children's play, learning and development. Our study is a part of and utilises data from the Behaviour Outlook Norwegian Developmental Study (BONDS) carried out by the Norwegian Centre for Child Behavioral Development (Ogden et al. 2006) in cooperation with Vestfold University College. BONDS is an ongoing longitudinal study that addresses the social development of 1159 children from the age of six months onwards. The purpose of our project is to examine what kind of cultural, social and physical environments Norwegian kindergartens offer children aged one to five, in terms of their development of social competences and, eventually, behavioural problems.

Background – outdoor environment and pedagogical space

Until the end of the 1970s, the kindergarten's physical space, rooms, equipment and furniture were described and discussed in detail in governmental and other public documents. With the introduction of the first national law on kindergartens in the mid-1970s, the importance given to (pedagogical) space apparently changed (Jansen 2000): for example, more attention was given to the staff's work environment (Linge and Wille 1980). Although issues related to physical environment continued to be discussed after the 1970s, the discussion tended to focus on nature and the outdoor environment. In recent years, one can see a growing influence of the Italian Reggio

Emilia pedagogy in Norway and the Nordic countries, among others, implying an increasing interest in space and architecture in early childhood education.

In the last decade, both Nordic and international research literature suggest an increasing interest in topics such as physical environment, space or place regarding children's learning and development (Fjørtoft 2001; Kyttä 2003; Lindstrand 2005; Nordin-Hultman 2004; Rasmussen 2006; Spencer and Blades 2006). Regardless of their backgrounds or theoretical perspectives, these authors seem to agree that cultural and natural environments play an essential role for children's physical and psychosocial development, growth and learning. Yet, as Kampmann concludes (2006), there is still a tremendous lack of research concerning the particular significance of space for educational processes and the pedagogical activities of the staff. In this study we want to provide very basic, but nevertheless lacking, knowledge about kindergarten's outdoor environment as pedagogical space.

Our understanding of the term space includes, on the one hand, the physical environment constituting kindergartens as educational institutions: buildings, architectural design of landscapes, different kind of rooms, fixed installations, furniture and other removable artefacts, as well as elements that contribute to the aesthetic design of the institutions and, not least, all objects and things constituting the natural environment. Additionally to its anchoring in the physical dimension, space is also constituted through the actions and meaning making of those involved in the institutions and the organisation of the educational activities in space and time (see for example Nordin-Hultman 2004). We therefore follow Kampmann's (2006) distinction between a psychosocial and physical understanding by recognising different features of 'spaciousness'.

Nordin-Hultman (2004) argues that attention has to be increasingly directed towards children's opportunities for action in the educational environment, especially when it comes to children with social and behavioral problems. Kindergartens, according to Nordin-Hultman, may need more 'action space' where children can find meaning in activities or play of their own choice.

We argue that kindergarten's outdoor space is essential when it comes to children's social development and learning through outdoor play. Main quality indicators are, in our opinion, that an outdoor area is attractive, challenging and stimulating in terms of opportunities to act, explore and experience in cooperation with others, both children and adults. Several Nordic studies (see Bjørklid 2005; Fjørtoft 2001; Grahn et al. 1997) revealed how very distinct differences in outdoor environments may influence factors such as physical activity and play as well as concentration and physical health. Grahn et al. (1997) found that children's development and learning in kindergarten was strengthened as a consequence of the amount of time spent playing outdoors. The children got more and better opportunities to play without interruptions or distractions and many educational activities such as painting, carpentry, etc, were conducted in outdoor environments.

Thus the time dedicated to outdoor play, the size, richness and suitability of the physical environment, as well as the availability and expediency of installations, equipment and stimulating play zones seem to be important space-related indicators for pedagogical quality.

Research questions

The main purpose of this contribution is to take the first step towards identifying significant physical conditions in kindergarten's outdoor environment that may enhance or

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restrict the youngest children's opportunities for play, learning and development. The study is of an exploratory kind because there is not much research-based knowledge available about Norwegian kindergartens as pedagogical spaces. Whether or not the effect of kindergartens on children's social development can be documented, and in which way, are questions that can be answered in the future, when the overall data collection in BONDS is finished and kindergarten data, family data and child development data has been analysed in relation to each other. Once we reach this point, we can consider specific importance (effect size) of the indoor and outdoor environment space for the development of social competences through statistical analyses.

Currently we are only able to present, on a descriptive level, some findings about the outdoor environment in Norwegian kindergartens as pedagogical space for children's play, learning and development. We seek to answer the following three questions:

(1) How much time a day do Norwegian pre-school children spend outdoors?
(2) What size are outdoor areas in Norwegian kindergartens?
(3) How similar or different are Norwegian kindergartens' outdoor environments?

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Method

In 2009 the head teachers and pedagogical leaders of the 133 kindergartens participating in BONDS, located in five Norwegian municipalities, completed questionnaires on pedagogically significant issues for their institution as a whole (head teacher) and the departments at the institution (the pedagogical leaders of these units). As a follow up survey in BONDS, the questionnaires will also be sent out to the institutions in 2010 and in 2011. On the basis of demographic considerations concerning size and population of the five municipalities, the institutions included in this study can be considered as a representative selection of the variety of Norwegian kindergartens.

In addition to the questionnaires, each institution has been visited by a researcher. In connection with these visits, the researcher interviewed the head teacher and conducted an observation of the physical indoor and outdoor environment with photographic documentation. Additionally the head teachers filled out a short questionnaire about the use of computer and information technology in their respective institutions. In this presentation, we confine ourselves mainly to data from the questionnaire; only the data about the size of the institutions outdoor area has been gained through the interviews.

Ethical considerations

The project is in accordance with the generally-accepted values of Norwegian law and other research ethical regulations. The BONDS project as a whole is approved by the Regional Committee for Medical Research, South Norway, and the Ombudsman for Research (Norwegian Social Science Data Services). In the part of the study presented here no observations or other collections of data concerning children are conducted. The information for this publication is obtained through anonymous questionnaires completed by head teachers and pedagogical leaders in kindergartens and no individual or institutional source is identifiable in the data matrix in the data matrix. Participants are explicitly informed that the information collected will be used for this purpose, and not in other contexts.

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Questionnaires

The questionnaires were developed on the basis of a review of theoretical and empirical contributions (see Kampmann 2006; Lamer 2004; Nordin-Hultman, 2004; Pettersen 2002), with respect to available professional considerations and expertise of pre-school teachers and using experiences from a pilot questionnaire study (Martinsen et al. 2009).

The questionnaire given to the heads of kindergartens consisted of 115 questions, 104 with closed response alternatives, six open questions and five questions with the opportunity for complementary comments. These questions were assigned six categories: structural characteristics of the institution, staff characteristics, pedagogical content and methods used, cooperation with parents and management and pedagogical leadership.

The questionnaire given to the pedagogical leaders of the departments (units) in the kindergartens consisted of 104 questions, 97 with closed response alternatives, four open questions and three questions with the opportunity for complementary comments. These questions were assigned seven categories: structural characteristics of the department, organisation of children's everyday life, lunchtime, social relations in the department, collective competency and behavioural support practices.

Data collection and analysis

Data was collected in spring 2009. The head teachers filled out the questionnaire electronically (QuestBack); filling out a paper version was optional. The pedagogical leaders received a paper version of their questionnaire. This procedure was chosen because one could not be sure about the availability of a computer for conducting a net-based questionnaire for the latter group.

The head teacher at each institution collected the questionnaires from the pedagogical leaders in a sealed envelope and sent them to the Norwegian Centre for Child Behavioral Development, where the responses were entered into a SPSS data file by a research assistant.

After controlling for errors in the data, matrices analyses were conducted using the Statistical Package for the Social Sciences (SPSS Statistics 17). Data has been controlled according to its distribution. If the assumption for normal distribution of the data was not met, or if the data was on the level of an ordinal scale, nonparametric analysis has been conducted. According to the research questions, mainly descriptive and correlative procedures have been applied. In cases where it has been considered appropriate, the descriptive measures have been controlled for possibly relevant variables like gender, work experience, type of municipality and organisational model of the institutions.

Respondent group

At 117 of the 133 kindergartens (response rate: 87%) where one or more of the 1159 children participating in the BONDS project were enrolled, the heads of the institution and at least one of the pedagogical leaders of the departments (units) in the institution have completed the questionnaires. The response rate for the latter group was calculated to 71%.

In general the response groups are experienced in early childhood education and appear to be basically well-educated. The low percentage of males engaged in early

Table 1. Respondent groups recruited from 117 kindergartens.

	Head teachers	Pedagogical leaders
Total number of respondents (N)	117	285
Respondents' age (years)	42.8 (s = 9.3)	37.4 (s = 7.9)
Experience from work in kindergarten (years)	15.9 (s = 8.0)	11.5 (s = 8.7)
Male (number; percentage)	15 (12.8 %)	13 (4.6 %)
Female (number; percentage)	102 (87.2 %)	272 (95.4 %)
Number of educated preschool teachers	109 (93.0 %)	200 (70.0 %)[a]

Notes. (a) 29 of the respondents didn't answer this question. The remaining 57 had other academic education (teacher; nurse; special pedagogy) or vocational training (child and youth worker).

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childhood education is consistent with the national statistics: in 2008, 7.2 % of the staff in Norwegian kindergartens was male. It is worth noting the fact that the percentage of male head teachers is three times as high as that of male pedagogical leaders. Apparently male pre-school teachers have greater ambitions and/or greater opportunities to become a head teacher.

Results

The presentation of our findings follows the structure given by the research questions formulated above.

How much time a day do Norwegian pre-school children spend outdoors?

The pedagogical leaders were asked to give an estimation of how much time a day children in their institutions spend with outdoor play and activities, during both summer and winter semester respectively. Respondents were asked to write down the estimated percentage of outdoor play. No differentiation was made regarding the children's age. One has to have in mind that the youngest children in Norwegian kindergartens usually take their naps outside, during both summer and winter, placed in their strollers.

Table 2 reveals that a large amount of time in the institutions is dedicated to outdoor play and activities. During the summer semester, according to the pedagogical leaders, over two-thirds of the children's time in kindergarten is outdoor play, and

Table 2. Reported time spent on outdoor play in summer and winter semester (n = 278 pedagogical leaders).

		N	Mean time in %	Std. deviation	Median[a]
Percentage of day consisting of outdoor play in summer semester	Total	278	70.17	13.781	70
	Female	265	69.82[b]	13.874	
	Male	13	75,31[b]	13.098	
Percentage of day consisting of outdoor play in winter semester	Total	278	30.58	13.941	30
	Female	266	30.06	13.743	
	Male	12	36.31	17.839	

Notes. (a) The data does not follow a normal distribution (Kolmogorov-Smirnov test, Z = 2.2478 summer semester; Z = 3.145 winter semester; $p < 0.001$ in both variables); (b) The difference between females and males is statistically significant (Mann-Whitney-test, Z = –2,034; $p < 0.05$).

during winter semester it remains almost a third of the time. Because outdoor activities and play are highly valued in Norwegian society in general, and in early childhood education in particular, it should be emphasised that these numbers are based on self-reported data. There may be a tendency for some overestimation of outdoor time by the pedagogical leaders. Nevertheless, in many areas of Norwegian society it is a tradition to use the short summer even more extensively for outdoor activities; the results may be trustworthy as a result, especially for the period May to August.

Responses to another statement in the questionnaire support these findings: 89% of the pedagogical leaders fully agreed that 'children are usually outdoors every day', while an additional 8.2% agreed 'a little' with this statement. Only one out of the 286 respondents fully disagreed and one person partly disagreed, while six could not take a position on the statement.

The minority group of male respondents reported an even higher amount of time spent outside, but the differences were only statistically significant for the summer semester (see footnote, Table 2). No relation between time spent for outdoor play on the one hand, and the age or experience of the pedagogical leaders on the other hand, could be found. Moreover, there were no significant differences between the various forms of organisation in the kindergartens (within departments; without departments; age homogeneous groups; 'base-organised') and the time spent outdoors.

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What size are outdoor areas in Norwegian kindergartens?

One important aspect of the quality of outdoor environment is the size of the institutions' outdoor areas, specifically within the kindergartens' fences. However, three of the institutions did not have a fence at all, but could still define the size of their outdoor area. Only less than half of the institutions included in this study (representing 53 out of the 117 institutions) could provide necessary information about size. The average size of these 53 institutions was 2619.5 m^2 (s = 1943.2; see Table 3). This must be seen in relation to the rather small average number of children in the 117 institutions (x = 55.6; s = 29.0). Each child therefore has an average of 47.1 m^2 of outdoor area to themselves. By comparison, Statistics Norway (2010) reports that an average Norwegian kindergarten provides each child with 5.5 m^2 of play area indoors. According to national regulations, indoor play areas are defined as those parts of the kindergarten building in which children may play without severe restrictions.

The municipalities that the institutions belong to have been divided into large urban centre represented by one municipality, small urban centre represented by two municipalities and rural represented by two municipalities (see Table 3). The assumption was that the availability of outdoor areas for children's play may vary according

Table 3. Outdoor area for the total 53 institutions and for subgroups based on the type of municipality.

	Number of institutions	Mean square meters	Std. deviation	Minimum square meters	Maximum square meters
Total	53	2619.53	1943.24	102.00	8000.00
Large urban centre	24	1806.67	1537.13	102.00	5424.00
Small urban centre	16	3500.25	1949.70	432.00	8000.00
Rural	13	3036.23	2130.58	321.00	7400.00

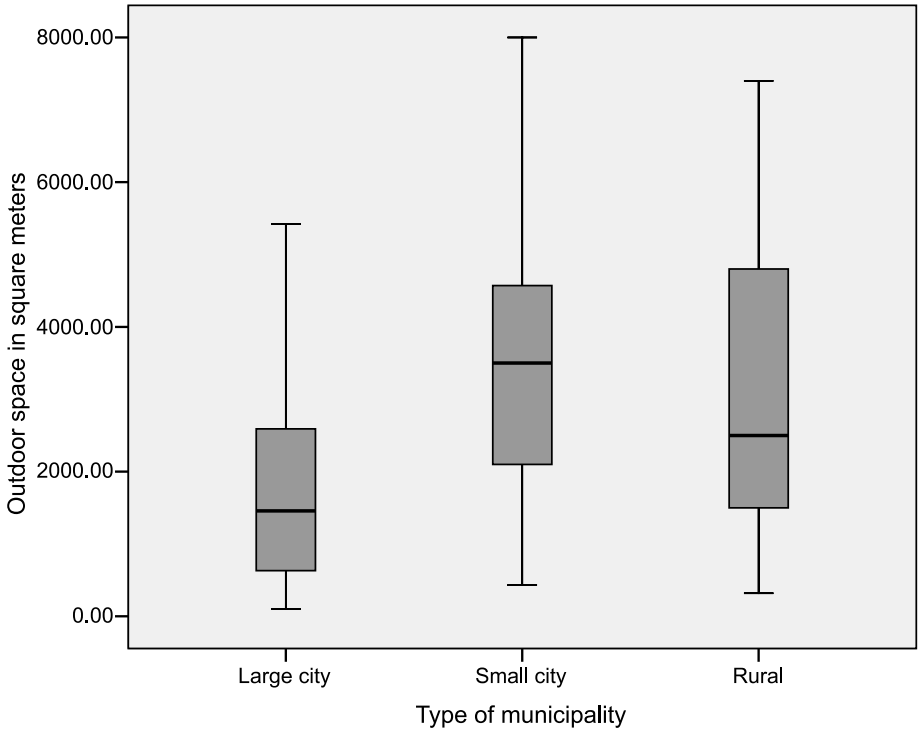

Figure 1. Differences in size of outdoor areas divided into three types of municipalities.

to the municipality type. Institutions in rural areas may provide the largest outdoor areas, with size of outdoor areas decreasing in the small cities and decreasing further in large cities. Figure 1 presents a graphic illustration of outdoor space size among these three types of municipalities.

The statistical analysis revealed differences in the size of outdoor space between the three types of municipalities (ANOVA, $F = 4.602$; $df = 2$; $p < 0.05$). Surprisingly, the post-hoc analysis showed that only the difference between large and small urban centres was of statistical significance (confirmed by Scheffe post hoc analysis, $p < 0.05$) and that there were no differences between the rural and the two other municipality types.

How similar or different are Norwegian kindergartens' outdoor environments?

It has often been claimed that Norwegian kindergartens are quite similar in terms of properties such as outdoor environment and installations, furniture and equipment. Several aspects of the institutional characteristics of the outdoor environment were included in the questionnaires for head teachers; here we only want to present four main aspects: the frequency of objects and toys, apparatuses and installations; the existence of secret places; children's opportunity for independent organisation of their playing; and specific moments for the 1- to 3-year-olds' in relation to older children.

To get a picture of what kind of play and activities the kindergartens' outdoor areas could inspire children, one has to examine what kind of objects and toys, apparatuses and installations children encounter. The authors of this study compiled a list of

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Table 4. Most and least frequent objects and toys, apparatuses and installations children have available in the kindergartens outdoor area (head teachers of 117 institutions).

Most frequent >70 %			Least frequent < 70%		
	Have	Don't have		Have	Don't have
Sandpit	100 %	0%	'Bird's nest swing'	20 %	80 %
Sand toys	98 %	2%	Obstacle course	25%	75 %
Tables and chairs	97 %	3%	Stilts	28 %	72 %
Balls	97 %	3%	See-saw	29 %	71 %
Toy cars	96 %	4 %	'Natural hut'	31 %	69 %
Swings	95 %	5 %	Swing rope	32 %	68 %
Tricycles	94 %	6%	Climbing wall	35 %	65 %
Slide	93 %	7 %	Soccer goal	38 %	62 %
Playhouse	90 %	10 %	Forest	56 %	44 %
Toboggan	87 %	13 %	Large play cars or boats (installations)	61 %	39 %
Bike trailer	80 %	20 %	'Scooter'	64 %	36 %
Water toys	78 %	22 %	'Swing' animals (installations)	64 %	36 %
Climbing trees	70 %	30 %	Balance equipment	69 %	31 %

objects, toys, apparatuses and installations on the basis of observations of a number of institutions, personal experiences and a pilot study. Additionally, if head teachers were unable to find objects, toys, apparatuses or installations of their kindergartens on the list, they could add these as a response to an open question.

Almost all institutions have sandpits, sand toys, tables and chairs, balls, toy cars, swings, tricycles, slides and playhouses. On the other hand, less than a third of the institutions had swing ropes, huts made of natural materials, see-saws, stilts, obstacle courses or bird's nest swings (a swing with a 'basket' that several children can sit in). In an international perspective it may be surprising that 70% of the institutions offer climbable trees to the children and in one third of the institutions children have access to climbing walls outdoors.

Of the 177 head teachers, 24 wrote that they have reserved special areas in natural environments outside the kindergarten. Four of them reported that they have a specific area containing a hut, campground or campfire within the fence of the kindergarten. Otherwise, the respondents did not mention too many other objects, toys, apparatuses or installations in their institutions that were not included in the list in the questionnaire. Some of these were: turf and huts, rope ladders, play petrol pumps, fireplaces, excavators, basketball equipment, a variety of sensory panels and a carpentry bench. Additionally, blankets, building blocks, ring games, ropes and tractors were mentioned as more or less mobile objects for outdoor play.

Secret places are a part of the physical environment that could not easily be visually controlled or approached by the staff and represent an important quality for children's play, both indoors and out. Secret places are well known as small, hidden areas that add a particular value to children's playgrounds. One may say that secret places, in the children's opinion, do not really exist for the staff because these hidden areas are only known to themselves. Particularly meaningful play is according to the children often going on in these places.

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Table 5. Secret places in kindergarten's outdoor environments (N = 117 head teachers).

	Agree a lot	Agree a little	Neither/nor	Disagree a little	Disagree a lot
Outdoor areas have 'secret places' where children can play undisturbed	53.0%	27.4%	11.1%	7.7%	.9%

Above 80% of the head teachers agree that the outdoor area has such secret places where children can play undisturbed, 11% are not sure and 8.6% rather disagree that there are such places. In general secret places are seen as important for children's experience of independence and control.

Table 5 shows, in this respect, two further aspects of children given control over taking charge of their everyday lives in kindergartens' outdoor space regarding their opportunity to organise themselves.

Apparently Norwegian children are given some opportunities to independently organise their play by making equipment and toys available without assistance from staff; only 4.3% of the head teachers disagree with this statement. On the other hand, the head teachers state that staff, to some degree, must be involved to ensure that specific equipment (e.g., bicycles, buckets, balls, etc) is available for children's outdoor play. In almost half of the institutions some assistance from the staff is necessary to provide this equipment.

When it comes to the age of the children, two questions focused on whom the youngest children are playing with and where, especially on whether or not specific areas are reserved for the very youngest.

Seventy-two out of 114 respondents who answered the question about 1- to 3-year-olds playing together with children older than 3-years confirmed that this was the case

Table 6. Children's independent organisation in outdoor play (N = 117 head teachers).

	Agree a lot	Agree a little	Neither/ nor	Disagree a little	Disagree a lot
Children themselves can pick up equipment/toys/ materials that can be used in outdoor play	61.2%	31.0%	3.4%	3.4%	.9%
Staff must be involved for that equipment may be used in outdoor play (e.g., bicycles, buckets, balls, etc)	12.0%	35.0%	12.0%	23.9%	17.1%

Table 7. One- to three-year-olds' outdoor play in relation to older children and specifically reserved areas.

	All the time	Sometimes	Never	Total
When the 1- to 3-year-olds are outdoors, how much are they together with children older than three?	72	42	0	114
	Yes	No		Total
Do 1- to 3-year-olds have their own physically enclosed outdoor area?	25	88		113

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nearly all the time, while 42 head teachers assumed that this happens sometimes. Not one of the respondents stated that this is not the case at all. Obviously Norwegian kindergartens provide their youngest children with the opportunity to play with older children. The differences between the kindergartens with different organisational models are not statistically significant, yet it looks like there is slightly more age segregation in kindergartens that are base organised or without departments.

Only 25 out of 113 respondents (22%) reported that the 1- to 3-year-olds have their own physically enclosed outdoor area. One may assume that a combination of having the opportunity to play with older children as well as having the possibility to be together with children of the same age in a restricted area and having control to decide independently which of the arenas is the most preferable, and is an important condition for the youngest children's play, learning and development.

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Discussion

Our findings indicate that Norwegian pre-school children spend a significant amount of time in kindergarten outdoors in both summer- and wintertime (three quarters and a third of the day respectively). These results are to some degree in accordance with the results of a recent study conducted by Lysklett (2005), although his findings are based exclusively on outdoor kindergartens. Thus the outdoors arenas are seemingly an important pedagogical space in terms of children's play and learning. We join Lysklett in asking the fundamental question of what these children are doing when they are outdoors. However, we do not actually have sufficient knowledge about how this time is used as a resource for and incorporated in purposeful educational activities. Based on our practical experience we will assume that most of the time in general is spent on free play and that most of the staff-controlled, purposeful educational activities may still be conducted indoors.

Grahn et al. (1997) identified outdoor time as an important indicator for quality in early childhood education. On the basis of their own and other studies, they claim that a higher amount of time spent outdoors provides better opportunities for more and undisturbed play, which again leads to better conditions for children's learning and development.

The fact that children in summer spend more than two-thirds of their time in kindergarten outdoors must be related to the quality of this environment. In this respect, size can be seen as one important quality indicator. According to our data Norwegian kindergartens offer relatively large outdoor space to their children, almost 50 m^2 per child. Furthermore, one of four kindergartens has access to specific natural spaces outside their fences which are used on a regular basis and thereby underline what great value is attributed to the outdoors in Norwegian pre-school education.

Contrary to our assumptions our findings indicate that children in small cities may enjoy the largest outdoor areas for play in Norwegian kindergartens, while, as expected, kindergartens in large cities provide the smallest outdoor areas. Two aspects one should have in mind when interpreting these results are: firstly, there are massive variations within each of the three types of municipalities (see Table 3 and Figure 1). Secondly, the kindergartens in rural municipalities may have somewhat smaller outdoor areas within their fences; nevertheless, they will normally have a variety of natural environments easily accessible directly outside the fence.

The size of the outdoor area may also be considered a basic prerequisite for the existence of secret places. The availability of such protected places, where a child can

be on its own or together with only one or two other children, a place where they may find silence and peace by withdrawing from others, may be quite necessary for mental health and wellbeing in a busy kindergarten life. Even if a very small minority of head teachers assess such places as rather dangerous and therefore deliberately try to avoid having them, secret places are in general seen as pedagogically valuable in Norwegian early childhood education.

The opportunity to unwind from playing and being together with many others will give children the chance to focus on their own experiences, intentions and needs, and to recuperate and prepare for further togetherness and play with others. According to Grahn et al. (1997), a lack of such places may result in the children feeling restless, needing to move from place to place to find peace, or protecting themselves mentally by playing alongside rather than with other children. Research on Swedish playgrounds (Grahn et al. 1997) showed that children have more difficulties in finding the balance between intensive, rough-and-tumble play and a calmer, more focused and restorative form of play when there is a shortage of such secret places.

Secret places provide children with a sense of control over their play and institutional life in general, which increases their opportunities for varied and meaningful activities, as well as the experience of active participation altogether acknowledged as an important indicator for quality in early childhood education (Nordin-Hultman 2004).

In general our findings indicate a relatively rich and varied, but nevertheless fairly uniform, composition of the outdoor environment in Norwegian kindergartens. It appears to be a rather ordinary phenomenon in Norwegian kindergartens that children themselves can pick up equipment, materials and toys they actually want to use in their outdoor play.

An important question related to an inclusive early childhood education is whether the outdoors are equally suitable for all children, regardless of age, gender, ethnicity and sociocultural background.

The organisation of outdoor areas as well as access to toys and equipment was rated as quite suitable from the head teacher's point of view. Availability of tools and materials and the design of outdoor areas are crucial to children's meaning making. According to Nordin-Hultman (2004, 74), whether and how the staff understands and acknowledges the importance of the physical (and social) environment depends on the prevailing discourses and the categories used as analytical tools. Nordin-Hultman refers to Rinaldi, who claims that children's things (materials, tools, etc) are not only objects that they handle, but that these things also interact with children so that they become subjects in relation to the children. In this way, spaces, materials and tools provided for children in kindergartens mainly reflect the staff's attitudes to what is considered suitable for children relative to their age and the staff's assumptions about meaningful activities for children. Children in kindergartens that offer greater variation in space, equipment, materials and toys, will experience an environment that is more stimulating and appealing to their independent activities and play. Thus, some children may be excluded from meaningful outdoor activities because their environment is not rich enough or because it is difficult for the children themselves to get access to and use toys and materials in the kindergarten's outdoor space.

Through the increasing institutionalisation of childhood, children are to a greater extent dependent on the staff's values and expertise in relation to the need for rough and risky play (see Sandseter 2009). Our results provide no information about how staff relate to exploratory and risky outdoor play. But both the size and the time spent

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outdoors and the fact that natural areas are used by many institutions indicate that kindergartens to a certain extent give children opportunities for play and exploratory activities as a basis for valuable experiences.

The fact that almost three-quarters of the institutions give their children access to climbing trees and climbing walls might suggest that the staff appreciates risky play. Often children are the experts at finding the level of challenge that fits their skills (Sandseter 2009), but this still depends on the environments that provide the challenges leading to excitement and coping experiences.

Over a quarter of the kindergartens report that they have specific areas for children 1- to 3-years-of-age; this means that there is a certain inherent opportunity for progression in challenges regarding the use of outdoor areas. For kindergartens where the youngest children have their own separated playground, it may be challenging enough to move from their safe area into the arenas of play for older children. When the children get older, their interests widen, and motor skills develop, they will possibly want to explore 'more of the world' and, as a first step, they will be able to use parts of the outdoor area that allow more energetic play and challenging physical activities.

An environment that allows children to relate to it in various and continuously changing ways may be of high significance for their experiences, learning and development. Our study reveals that almost all children in Norwegian kindergartens to some extent can pick out toys and materials they want to use in outdoor play themselves. Loose materials and a variety of toys that children can carry around and use without limitations in the kindergarten's outdoor area can help ensure high-quality play activities over time. What materials or toys the children can freely use will thus influence how children use them and develop their play activities.

Traditional toys such as buckets and spades can to some extent have different meanings attributed to them depending on the context in which they are used. Toys and materials of natural or neutral character, such as stones, bushes and acorns, give children truly greater opportunity to determine the possibilities and limitations. A virtually unlimited access to play with natural materials as well as more pre-determined games may result in more imaginative and creative play. Children can choose to ignore the traditional uses of predetermined objects and freely decide how they can be used in other contexts (Grahn et al. 1997).

Our study shows a relatively high proportion of kindergartens have an overabundance of relatively traditional installations and toys. Less than a third of the institutions provide more nature-related installations like swing ropes in trees, natural shelter, obstacle courses, etc., that are continuously available for the children. Thus one can assume that the children experience relatively large variations and differences in the kindergarten's outdoor settings, to the degree that it can affect their play and thus their learning and development processes as well.

In practice, our results may be used for conscious and knowledge-based reflections about the significance ascribed to outdoor environments. Being outdoors in itself may not be a sufficient pedagogical value and provides learning and development in accordance with the national guidelines. For that reason, one should be careful that a major focus on being outdoors *does* not become a kind of hidden curriculum. That may lead the pedagogical staff to less considered prioritisations of some themes and subjects while others may not get the attention and time they deserve. Some subjects from the national framework plan, such as nature and science, could be most easily realised outdoors; other subjects, such as emergent literacy, may be generally but not exclusively better suited to an indoor setting. Therefore, further practice-oriented studies

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should be conducted on a comparative basis to analyse how the main goals and subjects defined in the Norwegian framework plan are worked with in different spaces.

In order to assess richness and availability of spaces and materials, more qualitative, in-depth studies are required, as well as quantitative documentations of what children are actually doing in institutional outdoor contexts. Only further well-designed studies can bring forward necessary knowledge to determine whether or not the outdoor environment per se has an inclusive or exclusive function and whether or not different types of environments are more or less beneficial for specific groups of children. In the meantime, according to Faber Taylor and Kuo (2006, 136), we still have to wait for methodologically profound studies that confirm preliminary findings that 'contact with nature is supportive of healthy child development in several domains – cognitive, social, and emotional'.

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