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Chief Editors:

Claus Bech-Danielsen, cbd@sbi.dk

Danish Building Research Institute, Aalborg University, Denmark.

Madeleine Granvik, Madeleine.Granvik@slu.se

SLU/Department of Landscape architecture, Sweden.

Anni Vartola, anni.vartola@aalto.fi

Aalto University, Finland.

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IMPACT OF SPACE REQUIREMENTS ON OUTDOOR PLAY AREAS IN PUBLIC KINDERGARTENS

ASKILD H NILSEN AND CAROLINE M HÄGERHÄLL

Abstract

Many children spend a great deal of time at their kindergarten. Numerous studies have indicated the importance of relevant outdoor play space in promoting children's physical and cognitive learning. In Norway, few studies on the physical aspects of child care settings have been performed, especially concerning research assessing in what way regulations stipulating outdoor space requirements protect play areas for children. The present study investigates the situation in 2010 regarding space in outdoor play areas in public kindergartens in relation to changes in legislation affecting space requirements. The hypothesis is that changing norms have led to decreasing play area size. The chosen study area was the city of Oslo, the capital of Norway, and the selected material included all public kindergarten premises offering a full-day service. The physical situation registered at each premise was analysed in relation to findings from a document review, to understand previous and current space requirements regarding outdoor play areas. The conclusion is that all legislative changes regarding space requirements in outdoor play areas for kindergartens have consequently led to less play space per child, as well as reduced protection of the outdoor play area.

Key words:

Structural quality, City development, Green structure, Norms, Early Childhood Education and Care (ECEC), Outdoor play areas

1. Introduction

For people in urban areas, the resource constituted by outdoor space is under pressure, and vulnerable groups who cannot get to outdoor areas without assistance, such as the elderly and children, need special attention. Studies have shown that physical surroundings are of particular importance to children's development in areas such as health, language, balance/motor skills, strength, cognitive learning, social interaction and school readiness (Boldemann et al., 2006; Mårtensson et al., 2009; Ulrich, 1986; Fjørtoft, 2004). A review article from 2003 found that school children's level of activity is restricted if the available outdoor space is of poor quality (Thorén, 2003). In addition, it has been found that nature elements and larger outdoor spaces encourage various activities among children (Lindholm, 2001).

Size can be argued to be decisive for the content of outdoor play areas, as all functions require adequate space, and cannot be achieved if there is not enough space. Size is therefore a valuable quality per se. Hence, it is arguably of interest to study outdoor space requirements separate from content, which is more difficult to investigate using empirical methods. When looking at the legislation on outdoor play areas for kindergartens in Norway, the impression is that the outdoor space is almost solely dealt with when addressing play safety, and during some periods the legislation has included explicit space requirements. Statements concerning outdoor spaces express only very general intentions like «Kindergartens shall provide children with opportunities for play, self-expression and meaningful experiences and activities in safe, yet challenging surroundings» (Kindergarten Act 2005-06-17 no. 64, Section 2). In Norway, the word «kindergarten» describes a pedagogic service for children from 1 to 5 years of age and is therefore used here.¹

A comprehensive review of the quality and content of kindergartens in Norway indicated that the physical quality of outdoor facilities has not been addressed after 2002 (Borg et al., 2008). The most recent assessment of quality and quantity did also not investigate the actual state of the outdoor environment at each premises (Winsvold and Gulbrandsen, 2009). Few studies on the physical aspects of child care settings, particularly research assessing the appropriateness of current regulations regarding outdoor space requirements for children, have been performed in other countries (Huntsman, 2008). In Norway, space requirements and norms have been investigated by looking at densification in general, but not by focusing on the situation for kindergartens (Thorén et al., 2000). The aim of the present study was to investigate the actual play space per child in outdoor play areas in public kindergartens in Oslo, in relation to former changes in legislation and norms. Only public kindergarten premises offering a full-day service as of June 2010 were included in the study. The hypothesis is that changing norms have led to a reduced play area size.

1 The international terminology within the field of research on Early Childhood Education and Care (ECEC) uses the word «preschool» to describe a pedagogic service from 3-5 years, while «nursery school» and «day care centre» define a service from 1-3.

Nordic capitals often have a great number of green parks and a well-developed green structure. These qualities are under permanent pressure from urban densification due to the steady inflow of new inhabitants who require more housing and better infrastructure. Different methods of compensating for a lack of space in kindergartens have been applied around Scandinavia, such as installing play spaces on roofs, or bringing children out into nature areas by bus. Oslo can be said to be representative of other Scandinavian capitals, regarding both city development and the systems for early childhood education and care. In Oslo, the strategy used to compensate for small space has been focused on location close to a green structure or added play space outside the property. There is a socio-economical gradient that runs east and west in the city, and an old city centre that has undergone little development.



The city of Oslo consists of a patchwork of different urban textures (see Figure 1), and is organized in 15 boroughs and a downtown (see Figure 2). Inner and outer city is defined according to the total built area in relation to the total space available within the administrative borders of each borough. The first 5 boroughs, 1–5, are defined as the inner city. The evolution of the city more or less follows the listing of the 15 boroughs. First the city was established in borough no. 1, and then expanded westwards (boroughs no. 2–5), then northwards (boroughs no. 6–9) which were merged with the city of Oslo in 1948. From 1950 until

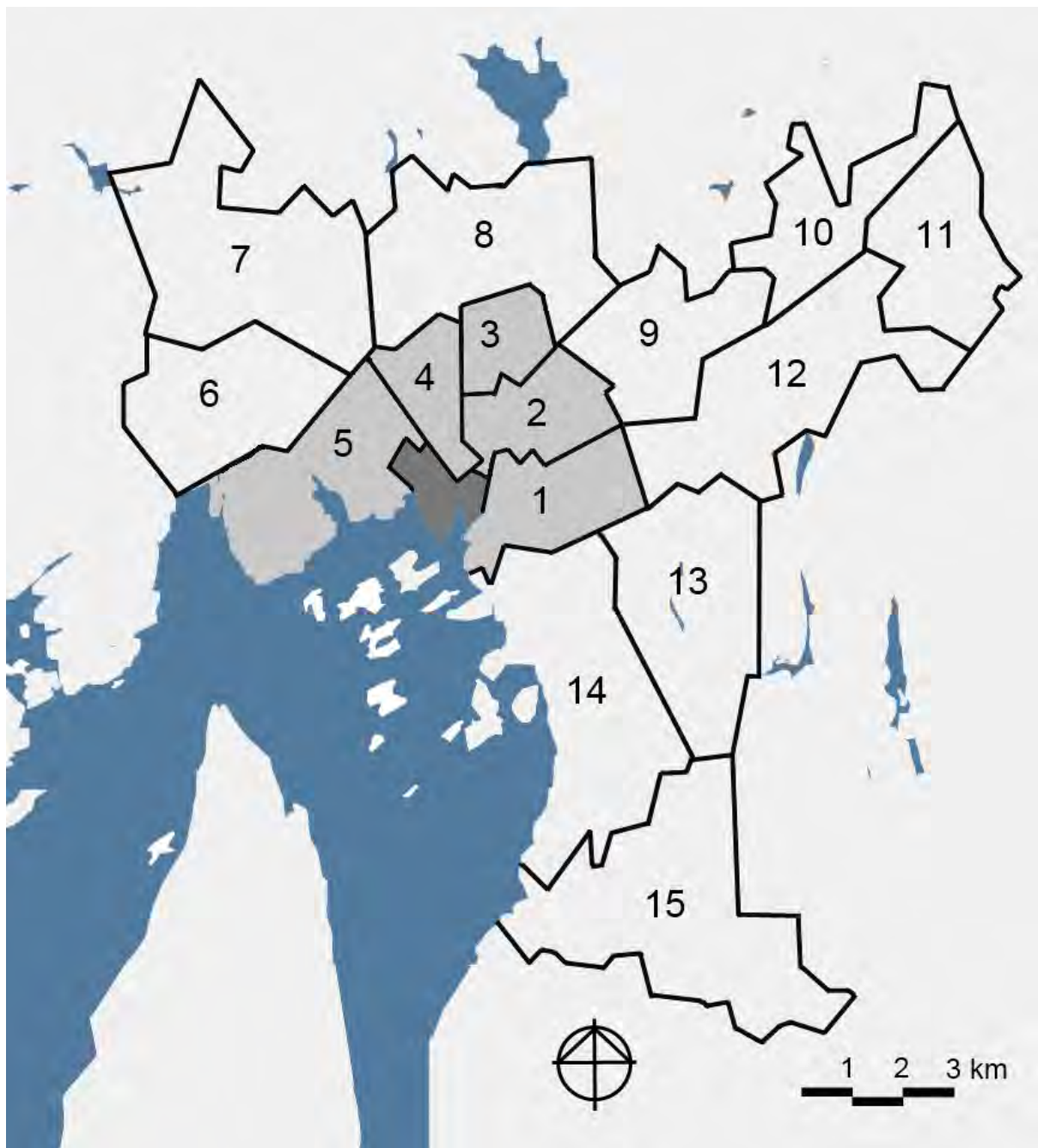
Figure 1. The urban texture of Oslo as seen from downtown towards the north.

PHOTO: ASKILD H. NILSEN

1990, the expansion was focused towards the east and south, with the remaining boroughs (no. 10–15) being developed in rapid succession. For the past 20 years, city development has focused on transformation of derelict industrial areas along the coast or within the city into densely exploited residential living areas.

Oslo has many private and public kindergartens distributed across a large number of premises. All public kindergartens are owned and administered by one proprietor (Municipal Undertaking for Social Service

Figure 2. Map of Oslo city showing the 15 boroughs. Inner city boroughs 1–5 (light grey), outer city boroughs 6–15 (white). The city centre (dark grey) is not considered a borough. Full names of boroughs are presented in Table 1.



Buildings), which is assumed to take necessary action to implement updated laws and political decisions. This makes public kindergartens in Oslo an ideal setting for investigating the results of the changing requirements found in legislation and norms.

2. Case selection and method

By relating outdoor space requirements and available size of play areas to legal requirements over time, it is possible to detect what impact legislation and norms will have. Only kindergarten premises offering a full-day service (i.e. opening hours 07.30 – 17.00) have been investigated, the presumption being that outdoor facilities are especially important when children are in care for the entire day.

In June 2010, the city of Oslo had a total of 49 296 children under the age of 5. There were 328 public kindergarten premises offering a full-day service for children aged 1–5 years, serving approximately 23 648 children. These 328 kindergartens make up the material for this investigation. The rest of the children, approximately 25 600, were served by public half-day services, various private initiatives, either full- and half-day, or stayed at home with a parent or relative.

Figure 3. Typical play area in a kindergarten in Oslo (The kindergarten at Drammensveien 33)

PHOTO: ASKILD H. NILSEN





The difference in available space in the inner and outer city is an interesting factor when looking at how changes in norms have influenced the size of kindergarten play areas. One would expect premises in the inner city to experience a high degree of competition over various space needs, and therefore to better reveal whether space requirements protect the outdoor play area. To emphasise this argument, we have applied the existing division between inner and outer city in the present study.

The study began with a document review of relevant acts, provisions of acts, white papers, national guidelines, preliminary discussions, and building guidelines from 1950 until the end of 2010 – to understand the history underlying space requirements for outdoor play areas. Only laws dealing with space requirements were included in the study. Legal documents were obtained from the online law database www.lovdatab.no.

To find relationships and draw conclusions, it was important to work with the largest material possible. Hence, all 328 public kindergarten premises were registered. In order to retrieve consistent information for such a large number of locations, we chose to work with online map and database resources covering all of Oslo. Although original plans and registrations on site might have provided more detailed data, that level

Figure 4. Kindergarten in an urban context «green structure» with a public park as adjacent area.

PHOTO: ASKILD H. NILSEN

of detail was not considered necessary for addressing the present study aim. Furthermore, using many different documents and sources would have made comparisons across sites more difficult and taken a disproportionate amount of time. In addition to maps, the following data were collected: address of each premise, year of origin for the buildings and year of latest change, as well as the number of children at each address. Data on address, key personnel and the number of children accepted at the premises were found using the official webpage of the proprietor Municipal Undertaking for Social Service Buildings in Oslo (MUSSB) (www.omsorgsbygg.oslo.kommune.no) as found in June 2010, and through telephone or email contact with the individual kindergartens to obtain consistent and up-to-date information. To understand the complexity (often more than one property makes up one premise), affirm the size of each property and identify the year of origin of the building, the web-based service «Norwegian properties» was used (Norsk Eiendomsinformasjon as, 2010).

The following data were calculated based on maps and data from June 2010: size of property, size of footprint of buildings, size of outdoor area available for the children (play area), size of added play area outside the property and location according to urban context (surroundings). The calculated data were all found on the webpage www.finn.no, offering updated maps provided by the Norwegian Mapping Authority, digital aerial photos from March and April 2009 and a web-based 3d aerial photo service provided by Norkart Geoservice (Sandvika, Norway). By searching addresses and using available digital measurement tools in the maps in combination with aerial photos, it was possible to measure and calculate space. When in doubt, we used the 3d aerial photo service (at www.finn.no) in combination with the street photo surround service based on photos taken during the summers of 2008 and 2009 provided by Google.

All premises were mapped and all sizes calculated using digital measurement devices, all of which are easily accessible and possible to recreate. All maps used and figures collected were the latest available from national official websites. We tested the property size calculation by first digitally measuring and then crosschecking with the official size listed in the web-based service «Norwegian properties». We found deviations of only a few m² in some cases, giving us confidence that the chosen measurement and calculation methods were reliable.

The aim of the present study is to investigate whether play area size has decreased as a result of changing norms and regulations. To study changes over time and possibly find trends, it is necessary to relate to a relevant size value. In the present study, the labelling of a site as under or over the norm is related to the legal norms applied only from 1975 to 2006 (this will be further explained in the review of the legal documents, section 3.1).

To investigate whether the urban context affect how the available play area on the premises has been arranged, we decided to also register a parameter; «location according to urban context». This was categorized as either Green structure/park, Between apartment buildings (partially surrounded), Residential area (villas), or In backyard (fully surrounded). The notion is that denser surroundings lead to less play space at the kindergartens.

Another parameter of interest was additional play area which was not part of the actual premises, and hence a less secure resource over time. The calculation of this variable, hereafter called «added space», was included when aerial photos showed a play area outside the property limits, fenced in as a contiguous part of the overall outdoor play area. The legal nature of the added space or property (whether private, public, green structure, park, etc.) was not registered because the use was temporary, or not based on written agreements.

Pearson's Chi-Square 2-tailed test was used for statistical evaluation of results using PASW statistical software version 17.0 (IBM Corp., Armonk NY, USA). Chi square tests are commonly used to study the difference between proportions. In our study, the proportions of kindergartens that consistent with our criteria are compared, e.g., for kindergartens built during different time periods. A p-value of less than 0.05 shows statistically significant differences between kindergartens built during these time periods. A p-value above 0.05 indicates that the observed differences may be incidental to chance.

3. Results

3.1 Changes in national laws

The first time that space requirement for children were stated in official legislation in Norway was in the provision for The Child Welfare Act of 1954. The provision advised an indoor space of 3–5 m² per child in the playroom, and called for an outdoor play area. The size of the outdoor play area was not defined, but it should preferably be in the sun. In 1968, the outdoor space requirement considered reasonable was 50 m² per child gross, including footprint of buildings, access and parking (MFCA, 1968). The first kindergarten act was passed in 1975, and it established this space requirement as a norm. Again in 1977 and 1982, 50 m² is referred to as a norm, emphasizing that the play area itself should be 25 m² per child (MCAA, 1977 and 1982). These requirements made the total size of the property the restricting factor that would limit the number of children at each premise.

As of January 1, 1990, the norm was set repealed, and a new instructive norm was implemented. The requirements for outdoor space were now seen in correlation with the space indoors, making the total size of the building the restricting factor that would limit the number of children

at each premise. It was recommended that the outdoor play area be six times larger than the suggested 4 m² inside, meaning 24 m² per child in outdoor play areas (MCFA, 1990, p.2). In 2006, when a new updated Kindergarten Act (2005-06-17 no. 64) was implemented (MER, 2006), the suggested number of 24 m² was no longer included in the law, but the indoor requirement of 4 m² per child was kept. Despite these changes, the former 24 m² of outdoor space was still referred to in a white paper in 2009 (MER, 2009, p.72) and in, e.g., «Requirements for function and space for public nursery schools in Oslo» used by the Municipal Undertaking for Social Service Buildings to document requirements for new projects (MUSSB, 2007, p.20).

In conclusion, a norm for outdoor space was only part of the legislation during the period 1975–2006, not before or after. Therefore the above-mentioned intervals are used here to investigate whether the legislation influenced the outdoor space. During the studied period, the norm was 50 m² from 1975–1977, 25 m² from 1977–1989, and 24 m² from 1990–2006. When testing whether a premise is over or under the norm, we have chosen 24 m² as our discernment. This size was the norm by law until 2006 and was still understood as an ideal in 2010. By testing the latest norm in relation to the number of children as of June 2010 and relating it to building year, a given size will be found. A more precise method would have been to compare the norm with the number of children and size available at the opening day of all kindergartens, but retrieving these figures proved to be too demanding.

In parallel to the changes in space requirements, the argumentation concerning how to compensate for play areas that are under the norm has also changed. Until 2003, the legal text advised that kindergartens under the norm should be located near or in a green structure, to give children easy access to green open space via short trips (see Figure 4). After 2003, this suggestion is no longer found in the comprehensive document Circulation Q-0902 (MCFA, 2003), which on the contrary allowed for acceptance of kindergartens without any outdoor play area at all. These changes were based on the trust that kindergarten owners were able to evaluate the outdoor space and to determine whether or not the size was appropriate according to the Kindergarten Act, Section 2 (MER, 2005). However, in 2007, the Municipal Undertaking for Social Service Buildings was still promoting compensation for lack of space by striving for locations near neighbouring green structures (MUSSB, 2007,p.20).

The current intentions stated in the Kindergarten Act concerning outdoor play areas are formulated rather openly, for example «Kindergartens shall provide children with opportunities for play, self-expression and meaningful experiences and activities in safe, yet challenging surroundings» (Kindergarten Act no. 64, Section 2). Planners and landscape

architects are not asked to apply any measurable or definite requirements for outdoor play areas in their efforts to provide the best possible outdoor facilities for children. The same situation is found in the corresponding provisions of acts, white papers and national guidelines (MCFA, 2005; MER, 2005, 2006 and 2009).

3.2 Empirical data

To investigate the situation as of June 2010, regarding space in outdoor play areas in public kindergartens in Oslo, all 328 public kindergarten premises in the city (providing places for 23 648 children) offering a full-day service were included in the study. An overview of the population, estimated number of children, and number of public nursery school places in the 15 boroughs of Oslo are presented in Table 1.

Table 1. Number of Public Nursery School Places in relation to inhabitants

<i>Location</i>	<i>Number of inhabitants*</i>	<i>Estimated number of children</i>	<i>Number of public kindergarten places</i>
Oslo in total	586 860	49 296	23 648
Inner city	206 070	15 284	7 872
01 Gamle Oslo	42 569	4 044	2 099
02 Grünerløkka	45 647	3 560	2 085
03 Sagene	34 286	2 811	1 834
04 St.Hanshaugen	32 254	2 096	639
05 Frogner	50 396	2 771	1 215
Outer city	379 451	33 928	15 776
06 Ullern	30 250	2 601	1 301
07 Vestre Aker	43 457	3 867	1 613
08 Nordre Aker	46 287	4 119	1 652
09 Bjerke	27 632	2 901	1 026
10 Grorud	26 074	2 294	1 406
11 Stovner	29 746	2 498	1 124
12 Alna	46 603	4 194	2 003
13 Østensjø	45 577	4 010	2 167
14 Nordstrand	46 419	3 899	1 835
15 Søndre Nordstrand	35 768	3 541	1 649

* Source: Statistics Norway (www.ssb.no). Number of inhabitants in Oslo in total and according to borough, 1 January 2010, and Number of inhabitants in Oslo according to age and borough, children aged 0-5, 1 January 2010

The number of kindergarten places in each borough is not related to the number of inhabitants due to the differing age mix and uneven distribution of private kindergartens around the city. As seen in Table 1, the general ratio of children between inner city and outer city was 15 284: 33 928, or roughly 1:2. The same ratio was found for the number of public kindergarten places, 7 872: 15 776 or 1:2. The coverage (in percent) of public kindergarten places shows no significant trend, but must be understood as a result of a dynamic interaction between public and private supply.

Table 2 Play areas over or under the norm of 24 m² per child in relation to (2 a) location in inner or outer city, (2 b) building year or latest change and (2 c) urban context.

2 a. Play areas over or under the norm of 24 m² per child in relation to location to inner or outer city, pr June 2010

	Under norm % (N)	Over norm % (N)	Total % (N)
Outer city	32.0 (73)	68.0 (155)	69.5 (228)
Inner city	60.0 (60)	40.0 (40)	30.5 (100)

2 b. Play areas over or under the norm of 24 m² per child in relation to building year or latest change

	Under norm % (N)	Over norm % (N)	Total % (N)
<1975	25.0 (16)	75.0 (48)	19.5 (64)
1975–2006	40.1 (65)	59.9 (97)	49.4 (162)
>2006	51.0 (52)	49.0 (50)	31.1 (102)

2 c. Play areas over or under the norm of 24 m² per child in relation to urban context, pr June 2010

	Under norm % (N)	Over norm % (N)	Total % (N)
Green structure/park	39.6 (76)	60.4 (116)	58.5 (192)
Between apartment buildings (partially surrounded)	37.9 (36)	62.1 (59)	28.9 (95)
Residential area (villas)	43.3 (13)	56.7 (17)	9.2 (30)
In backyard (fully surrounded)	72.7 (8)	37.2 (3)	3.4 (11)

The distribution of kindergartens over and under the norm of 24 m² per child in inner and outer city is presented in Table 2 a, in relation to building year or latest change in Table 2 b, and in relation to urban context in Table 2 c.

The results show a significant difference ($\chi^2(1, N = 328) = 22.575, p = .000$)² in the distribution of «under norm» and «over norm» in relation to location in the inner and outer city, as seen in the data presented in Table 2 a. The inner city made up 30.5% of all premises but 60.0% of these were under the norm of 24 m² per child, while in the outer city the situation

2 A p-value of less than 0.05 is considered statistically significant.

was opposite, only 32.0% were «under norm» of the total share of 69.5%. The argument for looking at «building year or latest change» as presented in Table 2 b is the assertion that the current total size of the building is the restricting factor limiting the number of children at each premise. We found that the number of «under norm» play areas has increased significantly ($\chi^2(2, N = 328) = 11.035, p = .004$) over time. One quarter (25.0%) of kindergartens built before 1975, before norms were part of the legislation, have «under norm» play areas. In kindergartens built after 1975, when there were norms available, play areas have decreased in size over time, and the situation in 2010 shows 51% «under norm» play areas.

Until 2003, the legal text advised that kindergartens under the norm should be located near or in a green structure. In Oslo, 58.5% of all play areas are located close to or in a green structure or park, as shown in Table 2 c. Of these 58.5%, the share of «under norm» was not significantly different from other premises ($\chi^2(3, N = 328) = 5.173, p = .160$), with the exception of play areas in back yards. Nevertheless, the figures indicate an increase in «under norm» play areas correlated with general density in the built environment.

Table 3. Play areas over or under the norm of 24 m² per child according to building year or latest change in relation to urban context (3 a) Green structure/park or (3 b) other

3 a. Play areas with urban context Green structure/park (N=192)

	<i>Under norm % (N)</i>	<i>Over norm % (N)</i>	<i>Total % (N)</i>
<1975	28.1 (9)	71.9 (23)	16.7 (32)
1975–2006	35.4 (35)	64.6 (64)	51.6 (99)
>2006	52.5 (32)	47.5 (29)	31.8 (61)

3 b. Play areas with urban context In between apartment buildings, Residential area, In backyard (N=136)

	<i>Under norm % (N)</i>	<i>Over norm % (N)</i>	<i>Total % (N)</i>
<1975	21.9 (7)	78.1 (25)	23.5 (32)
1975–2006	47.6 (30)	52.4 (33)	46.3 (63)
>2006	48.8 (20)	51.2 (21)	30.2 (41)

To investigate the factors in more detail, we tested for «over norm» or «under norm» as a function of building year or latest change in relation to urban context Green structure/park (see Table 3 a), and found a significant difference between time periods ($\chi^2(2, N = 192) = 6.726, p = .035$). The share of «over norm» premises has always been predominant. Among kindergartens built before 1975 with a surrounding Green structure/park, the majority (75%) are over the norm. Compared with Table 2 b (the city in general and regardless of urban context), the share of «under

norm» was not much different from what we see in Table 3 a (Kindergartens with Green structure/park as urban context), indicating that the advice to locate «under norm» kindergartens near or in a green structure has not had an impact.

Looking at the remaining types of surroundings (see Table 3 b) (Between apartment buildings, Residential area, In backyard), there is a significant difference ($\chi^2(2, N = 136) = 6.914, p = .032$) between time periods, with a larger number of «under norm» kindergartens among those built after 1975 compared to those built earlier.

Table 4. (4a) Play areas with or without additional space according to inner or outer city and (4b) Play areas with additional space, over or under the norm of 24 m² per child in inner or outer city

4.a Play areas with or without additional space in inner or outer city (N=328)

	<i>Add. space % (N)</i>	<i>No add. space % (N)</i>	<i>Total % (N)</i>
Outer city	15.8 (36)	84.2 (192)	69.5 (228)
Inner city	13.0 (13)	87.0 (87)	30.5 (100)

4.b. Play areas with additional space, under or over the norm of 24 m² per child in inner or outer city (N=49)

	<i>Under norm % (N)</i>	<i>Over norm % (N)</i>	<i>Total % (N)</i>
Outer city	33.3 (12)	66.7 (24)	73.5 (36)
Inner city	84.6 (11)	15.4 (2)	26.5 (13)

Many kindergartens have additional space located outside the regular property, as an extension of the play area. We wished to investigate whether this was used as an alternative to compensate for small premises, but found no significant difference ($\chi^2(1, N = 328) = 0.426, p = .514$) in distribution of additional space as a function of inner or outer city location; see Table 4 a. On average, about 14% of the play areas were under the norm in both the inner and outer city. However there was a significantly larger proportion of «under norm» play areas with additional space in the inner city ($\chi^2(1, N = 49) = 10.085, p = .001$); see Table 4 b. In play areas in the outer city, the additional space is more often on top of already spacious play areas, and was used to compensate for «under norm» premises in about one third of the cases. In contrast, in the inner city, the additional space seems to compensate for «under norm» play areas in about 85% of the cases. Additional space seems to be more important in the inner city to compensate for «under norm» play areas than is location near or in a green structure, as seen in Table 3 a.

Table 5. Average gross size of property per child (m²) over time, inner and outer city

	<i>Outer city, m²</i>	<i>Inner city, m²</i>
<1975	62.1	39.7
1975-1989	50.3	32.0
1990-2006	50.4	39.4
>2006	40.5	27.5

From 1975 to 1989, the legal specification for property size was 50 m² gross (total property including footprint of buildings, access and parking) per child. In 1990, the focus shifted when total size of the building was made the restricting factor limiting the number of children at each premise. We found that, in the outer city, the norm of 50 m² gross per child was still applied during the period 1990-2006, while the norm had changed to 24 m² play area per child. After 2006, the gross size decreased by about 10 m². In the inner city, the existing urban density has probably prevented achieving the stipulated average gross size at any given time, but even in the inner city the average gross size decreased by ca. 12 m² when space requirements were lifted.

4. Discussion

The difference in density in the inner and outer city is pronounced, and the historic background shaping this difference is familiar. Thus, we were not surprised to find the general marked variation between the inner and outer city regarding the proportion of play areas under the norm: inner city 60.0%, outer city 32.0%. However, the coverage of public kindergarten places is similar in the outer and inner city, though it varies across boroughs. Of the kindergartens built before 1975, 75.0% have «over norm» play areas. This can be explained by the major expansion of the city into former spacious farmland starting in 1948, as well as by the new consensus on including kindergartens when planning new developments, as found in official maps from the time (Rolfsen, 1960,p.42).

In 1975, the first Kindergarten Act was implemented, requiring 50 m² gross property size per child. Until 2006, specific space requirements were pronounced, but we found, to our surprise, that the mean play area per child has steadily decreased over time, and that the number of «under norm» premises has increased. For kindergartens built after 2006, 51.0% had play areas under the norm of 24 m². We also found a decrease in average gross size per child for kindergartens built after 2006 (see Table 5).

In 1990, the Kindergarten Act was changed so that the size of the space inside the building would limit the number of possible places, not the

total or gross size of the property. This change gave existing kindergartens having small outdoor play areas but with excess space indoors an opportunity to expand and add more places. We argue that this legal change reduced the status of outdoor areas in the kindergartens. We find support for this claim when we look at the empirical data. Today, premises with especially spacious outdoor play areas per child are often paired with listed or heritage buildings with restrictions preventing change or alterations to the buildings. Even though the buildings are old, these premises often have the most spacious outdoor play areas per child, but requirements for conservation of buildings preclude adding more places.

From 1975 until 2003, there was a legal encouragement to compensate for «under norm» outdoor play space by locating kindergartens close to a green structure. Our investigation found no convincing evidence supporting implementation of this guideline. The increase over time in «under norm» premises with a green structure in the vicinity was not significantly different from the overall increase in «under norm» premises. On the contrary, we found that the shares of «over norm» premises close to a green structure have always predominated. Of the premises located near green structures or in parks, 39.6% were under the norm. 28.1% of kindergartens built before 1975 were under the norm, as were 52.5% of kindergartens built after 2006. One plausible explanation is the struggle to find relevant premises and the increasing need for more places. Many kindergarten projects have been built using green structures and parks as building grounds rather than as a compensation; one of many factors contributing to the general net loss of green areas in Oslo of 4 470 000 m² from 1994 to 2006 (Thorén and Due, 2010). The current trend is to have more children at each premise (Borg et al., 2008), but the outdoor play areas are not being expanded accordingly. Perhaps this can be explained by a reluctance to engulf more land than is strictly necessary if the premises are already located in a green structure.

Planners have found a solution to the challenge of some «under norm» premises. Rather than implementing the advice to locate premises close to a green structure, we discovered that in both the inner and outer city, around 14% of premises have additional space extending the play area. It was especially interesting to discover that about 80% of premises with «under norm» play areas in the inner city and located near green structures or in parks have additional play space. Even though this works as compensation, added space is most often a temporary solution, while the addition is often based on loose agreements rather than legal foundations.

In 2005, the Norwegian Association of Local and Regional Authorities and the Government decided on a binding joint agreement to establish full national coverage of child care facilities by the year 2007. This meant

a tremendous pressure to quickly establish new places. In February 2008, the city of Oslo still had many thousands of children on waiting lists (Dregelid, 2008). The same year, 1561 new places opened (MUSSB, 2008) and 2780 new places were established in 2009 (MUSSB, 2009), even though many of them were temporary premises. Thus, the goal of full coverage was achieved by 2009, just in time for implementation of a law stipulating the right for all children to have a kindergarten place. These political decisions placed great pressure on both planners and available land.

In implementation of the revised Kindergarten Act in 2006, space requirements were lifted. In the legal material studied, the common argument is that a legally binding minimum space requirement would not be applicable due to the great variations in urban density, climate and terrain around the country. There seemed to be consensus that a fixed standard would be inappropriate to apply as a minimum requirement for all kindergartens, but that space should instead be negotiated by the owner in each individual case. In preliminary documents on the changes of the Kindergarten Act of June 2005, the Directorate of Health noted that by not requiring a minimum outdoor play area space per child, there was a high likelihood of weakening children's rights and creating prominent local variations in quality, i.e., variations in size of the outdoor space (MCFA, 2005). The present study documents the result of the foreseen effect pronounced by the Directorate of Health. Our investigation does not find that the trust given to kindergarten owners to evaluate the appropriateness of the outdoor space has been used to prevent the decrease of play space. The lack of a specified norm or minimum requirement for play space per child has most likely contributed to a trend towards less play space per child.

The planning and building of new kindergartens used to be administered by each individual borough, and performed with the sole intention of meeting local needs. After 2006, the responsibility was transferred to one central unit, the Municipal Undertaking for Social Service Buildings in Oslo. Two years later, the change went even further by looking at the whole city as one big region for nursery school planning, independent of existing administrative borders. One of the arguments for doing so was to make it easier to find relevant properties to develop and serve the needs of the whole city. Although space requirements and «green» compensation was still promoted by the public proprietor, we find no improvement of the situation regarding more outdoor play area space per child. Kindergartens built after 2006 with «under norm» play areas are not more likely to be located next to a green structure or park. Perhaps the motivation for changing administrative routines was not to improve outdoor play areas, but to establish more efficient planning routines to meet the demand for full coverage of kindergarten places?

The present study shows that legal requirements for outdoor play space at kindergartens most likely did provide status and protection from the decrease of play space per child. A similar situation can be seen regarding schools in Norway, where there have never been any clear requirements for outdoor play space. A report from 2003 (Thorén, 2003) calls for the implementation of space requirements for outdoor space surrounding schools, in order to prevent the ongoing decreasing of play space and weakening of children's rights.

5. Conclusion

The proportion of kindergartens with play area per child under the norm increased over time. About 25% of kindergartens built before 1975 and 51% of those built after 2006, had a play area of less than 24 m². During this period the legal confinements protecting the play area were lifted. The results of our study suggest that specific legal requirements are crucial to securing outdoor play space for children attending kindergarten. The idea that planners should be able to give priority to space requirements without support from the law is not supported by our findings. Without legal protection, space requirements seem to lose out in the general competition for land in urban areas or, as in the case of Oslo, such requirements are subordinate to the aim of achieving full kindergarten coverage within a short time period.

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List of illustrations

1. Map of Oslo and the 15 boroughs; Figure 1.
2. 3 photographs of authors.



Biographical information

Askild H Nilsen, PhD-student

Place of work:

Norwegian University of Life
Sciences, Department of Landscape
Architecture and Spatial Planning

Address: P. O. Box 5029, 1432 Ås

Telephone number: +47 64 96 53 00

E-mail:

askild_hjelkerud.nilsen@umb.no

Askild H Nilsen achieved his master's degree in landscape architecture at the Norwegian Agricultural University in 1995. He has mainly performed planning and construction administration for various projects in the Oslo region. From 2002 – 2009 he held an own office under the name Nilsen Landskap, where he was involved in planning and construction administration for approximately 10 new public kindergartens in Oslo. He is now a PhD-student at the Norwegian University of Life Sciences.

Brief account of current research:

A preliminary question «What influence space requirements for outdoor play areas in kindergartens in Oslo? « led to the document review of legal requirements and the establishment of a register of current state, which in turn unveiled the main variable «Space requirements in outdoor play areas».



Biographical information

Caroline M Hägerhäll
Professor/Landscape Architect
MSA
Department of Landscape
Architecture and Spatial Plan-
ning, Norwegian University of Life
Sciences, Ås, Norway and Depart-
ment of Work Science, Business
Economics and Environmental
Psychology, Swedish University
of Agricultural Sciences (SLU),
Alnarp, Sweden
Address: P. O. Box 88, SE-23053
Alnarp, Sweden
Telephone number: +46 40 415000
E-mail: Caroline.Hagerhall@slu.se

Caroline M Hägerhäll achieved her master's degree in landscape architecture at the Swedish University of Agricultural Sciences, SLU in 1993 and the doctoral degree in landscape architecture in 1999 at the same university. She has worked as a planner at The County Administrative Board in Scania and as a researcher at The University of Sydney, the Swedish University of Agricultural Sciences and The Norwegian University of Life Sciences. She currently holds a professorship in the environmental psychology of landscape architecture at SLU.

Brief account of current research:

Caroline Hägerhäll's main research focus is perception and experience of outdoor spaces and natural patterns as well as the connection to preference, restoration and health and well-being.