# Inclusion – Exclusion: Bullying and the Role of the Physical School Environment

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## Abstract

*The teaching of fundamental values is a major task in the Swedish curriculum. On a concrete level, this implies equal value and inclusion of all pupils. This paper explores the relation between the occurrence of bullying and the physical environment of schools. In earlier research about bullying, the focus was on social climate, interaction between pupils and between pupils and teachers. With few exceptions, no mention is made of locations where bullying actually occurs in the school building or yard. This paper presents syntactical analysis which describes spatial properties and allows connection to behaviour. In this way, the importance of design properties for bullying can be discussed.*

## Introduction

The Swedish school system is rooted in fundamental values of society such as the equal value of all people. Values education is a major task in the Swedish curriculum and many research projects deal with values (Tallberg Broman, Rubinstein Reich & Hägerström, 2002; Åhs, 2002; Roth, 2003; Norberg, 2004). Inclusion of all pupils is a major aim. However, in everyday life in school this is not always the case. The social climate in the school needs constant attention so that conflicts can be dealt with or solved and bullying prevented.

In the study "Attitudes towards the school 2006" (Skolverket) 3-4 percent of all pupils reported that they felt bullied. Since then, a nationwide action against has taking shape in Sweden, starting with an inventory of methods used to prevent bullying.

Earlier research about bullying, has dealt with social interaction between pupils and between pupils and teachers, solving conflicts, exclusion of pupils and methods for prevention of bullying. Focus has been on what happens inside the classroom and the perspective has often been psychological. With few exceptions (Isacsson, Rietz & Svensson: Bliding, Holm & Hägglund, 2002), no mention is made of locations where bullying occurs. When locations are mentioned, their spatial properties are not analysed.

In this paper I explore the relation between the occurrence of bullying behavior and the physical properties of school environments. The aim is to point to possibilities of more efficient supervision or of changes in the physical surroundings, so pupils' well-being and safety can be enhanced, and to study how spatial properties contribute to or hinder the development of social and democratic values.

**Earlier research on bullying**

In 2002 the National Agency of Education made an inventory of types of bullying in schools (Bliding et al., 2002). It showed that 16% of bullying occurs inside the classroom, while the major part takes place before and after lessons, in corridors, near lockers and toilets, in the children's pause areas, and outside the building. For children in grade 5, the most common place is outdoors, for children in grade 8 and 11 it is in the corridors.

Researchers at Centrum för Värdegrundsstudier in Gothenburg, Sweden performed a pilot study of "kränkande handlingar" (bullying behavior) in pupils' informal learning environment (Bliding et al., 2002). They started out from a broader perspective on social learning and its conditions, the social and environmental context. In group interviews with children in pre-primary school, grade 2 and 5, they were asked about places where they felt uncomfortable and which they tried to avoid, and about places where they felt safe and where they liked to go. Pictures were taken of such places by the children from grades 2 and 5, as a starting point for a discussion of the place and what had happened there.

Several places were described as safe by some children and unsafe by others. Unsafe places were often outdoors and relatively far away from the classroom. Three types could be distinguished. The first category consists of places that are designed for physical and motor, often group activity, such as a football field, swings, climbing-frames slides. Other places are those where children themselves are active, such as trees to climb in, a slope. The third type consists of different parts of the school yard or its far edges that are bordered by walls, buildings or fences, for instance behind the dining hall, near the garbage cans, close to the road, behind the gymnastics hall, outside the storage sheds. Also parts of the school building belong in this category, i.e. toilets, the library and the dining hall.

There were different reasons for why the places were judged as unsafe or unpleasant. Fear to be teased, beaten, chased, locked in, pestered, were mentioned in relation to all types of places. Fear and insecurity because no adults were present, were frequently mentioned for both the distant places and those places where older pupils used to be. Dirty and dangerous places were seen as unpleasant.

Boys and girls as well as children of different ages described somewhat different perceptions and experiences but no clear pattern could be found in this small survey. Older children expressed more experience of social conditions in different places. A place like the climbing bars that was seen as safe because it was fun, could also have been mentioned as unsafe because it was dangerous, since you could fall.

Especially children in 5th grade regarded safe places as places where adults were close by, such as the staff room. There seemed to be a difference between the larger schools and the smaller one, in that children in the large schools more clearly mentioned the need of the presence of adults. In the report this is interpreted as due to the larger area for children to move in, and the larger possibility of unwanted behavior to occur without adults noticing it.

The findings of this study tell us about the reasoning of the children and of the conditions they found themselves in. The need of adults' presence is clear. However, we do not get information about the physical differences in the schools. They are described in gross terms as size of the school and of the yard, and different layout and design. Does bullying occur in all football fields and around all swings? Or does it depend on their position in the total environment? The report gives no information about spatial properties of the places where older pupils dominated and were experienced as dangerous. The distant and far away places are mentioned. We need to know more details in order to discuss how more visibility could be achieved so that adults could supervise them. In order to learn something about the design of the school and its yard, an analysis of the physical preconditions of the school environment is necessary. Only then can children's perceptions be understood.

**Earlier research on school environments**

Most school buildings in Sweden now in use, were built after 1950. Earlier research has described examples of new and remodeled schools, reflecting current trends in teaching, learning and school building (Bjurström, 2000; Bjurström & de Jong, 2006a, 2006b). Each building and site is a unique entity with specific relations to the neighbourhood. The shape of school buildings and its transition system leads to a natural flow of movement in and out and through the building. Often the spatial configuration defines which groups can meet in time and space. When there are meeting places, large enough so no crowding arises, the social climate may become friendlier. A sense of community may be enhanced instead of distance and alienation.

Based on the space syntax theory (Hillier & Hanson, 1984), social and spatial relations are seen as connected: "social structure is seen as inherently spatial, while the configuration of inhabited space has a fundamental social logic" (Bafna, 2003, p.18). Spatial organization does not determine behavior, but it offers possibilities and obstacles for e.g. movement and meetings, play and learning, teaching school subjects, bullying as well as conflict solving.

Using syntactical analysis based on graph theory, several spatial properties of the layout of buildings and schoolyards can be measured and compared, and the occurrence of desirable and unwanted behavior can be analysed in relation these properties (Bjurström & de Jong, 2006b, de Jong 1997, 1999). In that way, the relevance of design properties in relation to incidences of bullying can be described and discussed. From earlier research about syntactical analysis, we know that regularities of behavior may occur in places with special characteristics. Knowledge of spatial properties can be used in prevention of bullying through changes in the design or, when that is not possible, surveillance in places where bullying might occur.

**Space syntax analysis of school yard and building**

The analysis can be performed starting out from axial lines, i.e. the straight lines of vision or movement that can be drawn through the open spaces inside or outside the school building (Bafna, 2003). Lines are numbered and a list is made of lines and their connections. A computer program calculates the rank order of most central to most

isolated lines (integration-segregation), and the connection between each line and crossing, neighbouring lines (control value). The lines with 10% and 25% highest and lowest values are marked into the axial maps of the site or building, which gives a good overview of the spatial structure.

The analysis can also take convex spaces as its point of departure, i.e. spaces where each point is visible from every other point. This is often used in buildings because of its strong connection to social grouping.

In this study, a school building was analysed with convex spaces as units, in order to captures possible social relations and preconditions for inclusion and exclusion in different parts. For the school yards, axial analysis was used. Due to the occurrence of sloping parts in school yards, visibility and movement are not equally possible in all directions. In drawing axial lines pathways were followed unless there was an open area without obstacles. Although you can see across a play area, I have assumed that you do not walk straight across a sandbox or a slope.

**Bullying in relation to spatial properties**

In two schools in south-east Sweden, pupils have been asked about their experiences of the school yard as part of the school's work with social climate and prevention of bullying. In Svarteskolan, this was part of a yearly questionnaire to the pupils about their well-being in school. The information I used was from 2007. The pupils got a simple map of the school site where they could mark unpleasant places (Figure 2). In Sövestadskolan, teachers in the lower grades had a discussion in 2005 with their pupils about unpleasant places, which then were marked out on a site plan. The older pupils marked their answers on a map themselves and discussed with their teacher, who compiled the material (Figure 6). In both schools, the pupils were informed about the results, so they became aware of positive and negative aspects of their physical school environment.

Two teacher students (Rietz & Svensson, 2000) studied conflicts and bullying in a school with a questionnaire to 3$^{rd}$ and 5$^{th}$ grade pupils. I have made a syntactical analysis of the physical layout of that school as it was presented in their report, and relate their findings to physical properties. Unfortunately, I have no personal information about the physical aspects of the school.

So this paper presents a syntactical analysis of the physical layout of two schoolyards and a school building, and relates physical properties to the pupils' indications of unpleasant places.

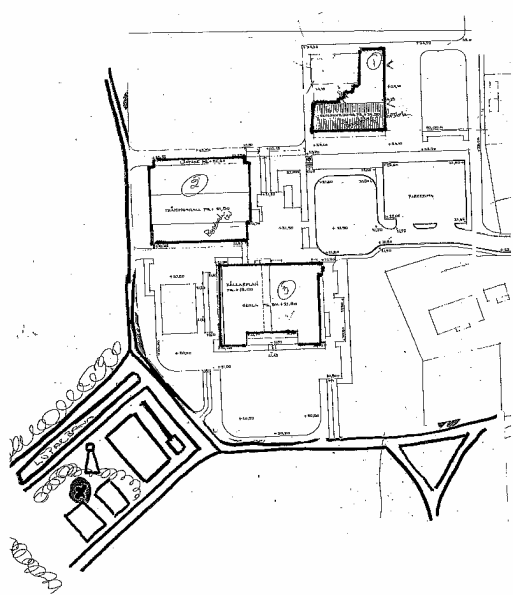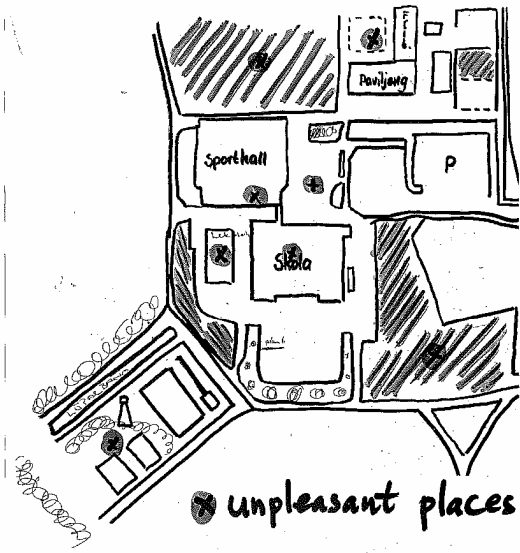**Figure 1. Site plan of Svarteskolan**
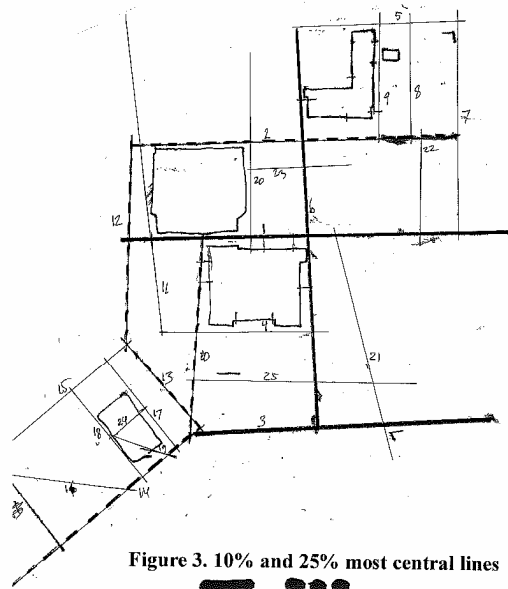


**Figure 2. Unpleasant places in Svarteskolan**



**Figure 3. 10% and 25% most central lines**
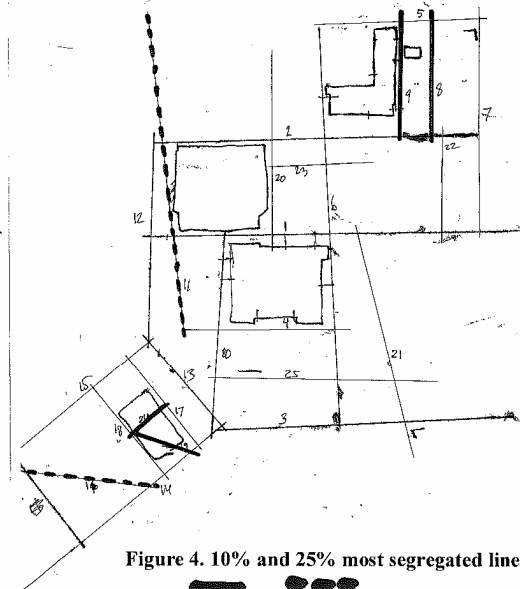
**in the yard of Svarteskolan**



**Figure 4. 10% and 25% most segregated lines**

**in the yard of Svarteskolan**

**Description of Svarteskolan**

The school was built in 1975 and has 146 pupils. It is situated in a small village at the end of a blind road with a parking place, and is surrounded by grass clad slopes (Figure 1) and villas. There is a fence where the school bus turns and stops, to prevent accidents and regulate queuing behaviour. The school consists of a compact school building, six classes surrounding a common library hall, and has a sports hall with changing rooms for boys and girls in a separate building. The basement of the school building is used for after school activities for the school children. On one side of the parking place there is a day care center and an after school leisure time center.

There are no fences around the yard but it is surrounded by asphalt-paved walking and biking paths leading from the railway station to the residential area around the school. There are play facilities such as sandboxes with swings and slides for young children close to the day care center and next to the classrooms for the younger grades. There is a football field on grass behind the sports hall and a small basket ball field on asphalt south of the school building. Somewhat apart from the school there is a fenced in hockey rink, a running track, a place for shot-put and a long-jump track. In this area there are a number of hazel wood bushes with small paths through them as traces of use by the children. It is easy to hide in these shrubs and they are difficult to supervise when they have leaves. The area with water and trees behind the asphalt area is used by children of the neighbourhood outside school hours.

**Spatial properties and unpleasant places in the yard of Svarteskolan**

Figure 1 shows that the main school building and the sports hall are in the center of the school yard. The yard has an irregular shape with the south-east area with sports grounds and bushes.

The axial map in Figure 3 shows the 10 and 25% most central, integrating lines. They cover most parts of the school yard; they go in between the buildings and are connected to many of the entrances. The most central line goes between the school building and the sports hall, and the second one connects the main building and the smaller building. Figure 4 shows the 10 and 25% most segregated lines which are at the outer, peripheral parts of the school yard.

When we compare this structure with the unpleasant places that were marked out by the pupils (Figure 2), we see that of the six outdoor places, two are on segregated lines (near the hazel shrubs and on the sandbox with play equipment), and two are in outer parts of the school yard: in the football field behind the sports hall and the grass area south-east of the school. One place is the waiting place for the school bus where there is a fence to the street. And the last place is on the sandbox with play equipment near the small building. There are no entrances leading out onto this play area. No unpleasant places are on the most central integrated lines.   The pupils also marked the dressing rooms of the sports hall and the central library space in the main school building as unpleasant.
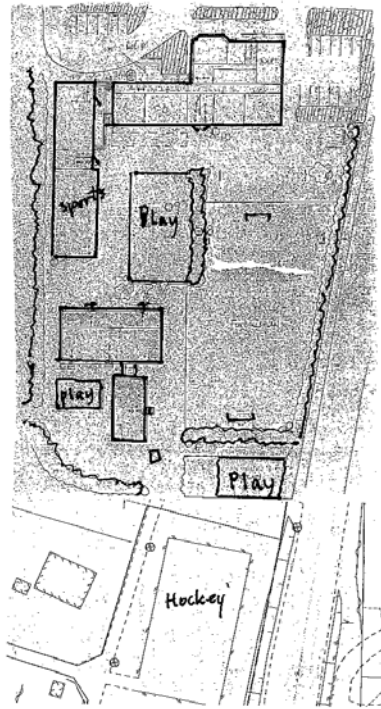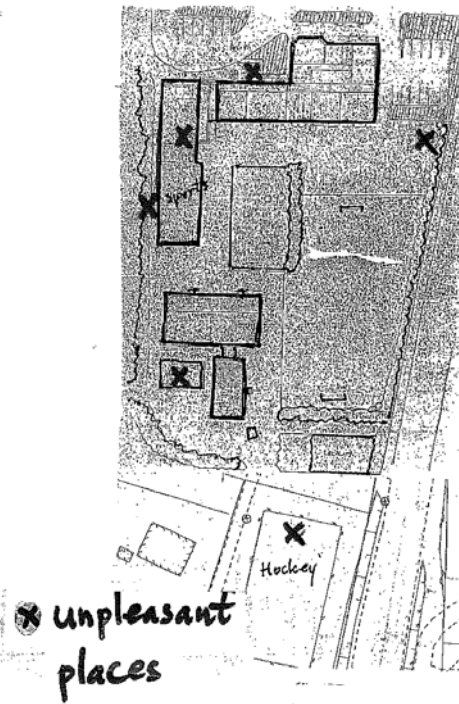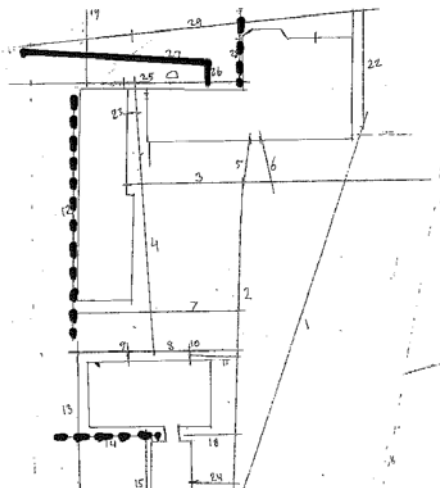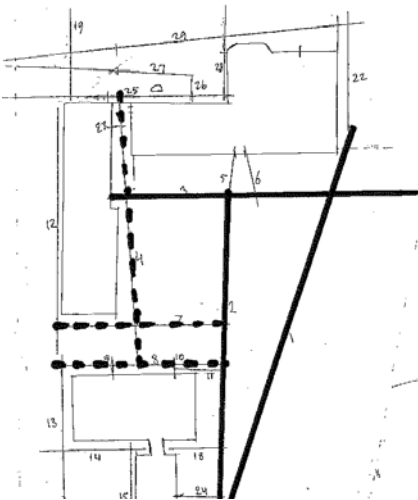
Figure 5. Site plan of Sövestadskolan



⊗ unpleasant places

Figure 6. Unpleasant places in Sövestadskolaı

**Description of Sövestadskolan**

The school was originally built in 1953 and rebuilt in 1998 and has now around 130 pupils. It is situated at the end of a small village, next to the main road that leads lorries from the ferry in Ystad further north to Stockholm. There is a residential area in front of the school and one small row of houses behind it.

The bottom floor of the main building consists of spaces for the staff, a dining space and the head master's office. On the first floor are classrooms and a small aula. There is a separate building with a sports hall and crafts spaces, changing rooms for boys and girls are located in the basement. There is a small building for children in the lower grades and a pre-primary school class. It also contains an after school center. There is a fence on the side of the main road and between the parking place and the school yard, and also near the school bus stop to regulate queuing behaviour (Figure 5).

The school yard is in between the school buildings and the walking path from the residential area that passes a fenced-in hockey rink, continues straight into the school yard. Bicycle parking is at the edge of the school yard next to a sandbox with swings and a see-saw. There is a football field on grass that easily changes into mud and in front of the main building there is a small basket ball field on asphalt. They are separated by a hedge from the sand box with climbing structures. There is also a sitting group with wooden benches and a table. In several other places there are benches in the yard as a border to the sand boxes with play equipment. Behind the small building for the younger children there is another sandbox with play equipment and a slide on the slope that is the border of the school yard.

**Spatial properties and unpleasant places in the yard of Sövestadskolan**

Figure 5 shows the main school building and the sports hall are on the outer sides of the school yard, forming a border to the north and west, with the yard in front of them. The hockey rink is situated at the south edge and is actually outside the school yard and in the residential area. In the east is a fence that closes off the school yard from the busy road.

The axial map in Figure 7 shows the 10 and 25% most central, integrating lines. The most integrating lines are in front of and in between most of the buildings. Most of the school yard is covered by integrating lines. However, not many entrances are on integrating lines. The most segregated, isolated lines are behind the sports hall and at several other edges of the yard (Figure 8).

When we compare this structure with the unpleasant places with conflicts or bullying, that were marked out by the pupils (Figure 6), we see that most are on segregated lines: behind the sports hall, in the sand box play area behind the small building, at the bus stop and at the hockey rink. Also the place with benches in the corner near the school's car parking was mentioned, which however is on an integrated line and should be easier to supervise. As it is at the outer side of the yard it seems to be neglected, supervision is missing.

The pupils also mentioned the dressing rooms in the basement of the sports hall as unpleasant.

**Description of school A**

The school is located in a small village next to a residential area. It was built in the 1970s and rebuilt in the 1990s. The school consists of a main, compact building with a small inner court for grades 1 to 5. At the other end of the school yard there is a school building for grades 6-9 and the schools share the use of a sports hall, dining hall, as well as rooms for art and crafts (Rietz & Svensson, 2000, pp. 21-22). In the school yard there are a tennis court, a football field as well as areas with gravel and asphalt.

A questionnaire was given to pupils in grade 3 and pupils in two groups from grade 5, about places where they experienced well-being, conflicts and bullying. Some interviews were made with pupils from grade 3 and also the teachers of these three groups of pupils answered a questionnaire. More conflicts than bullying is reported by the pupils, and grade 5 reports more of both than grade 3. The rooms and places mentioned most often are the cloakroom, the classroom, the corridors and the toilets. Also the dressing rooms in the sports hall are mentioned by the pupils in grade 5. At the same time, almost just as many or more pupils report well-being in all of these places.

**Spatial properties and unpleasant places in school A**

The school building has classrooms at the outsides and in the center there is a library and study area, which borders to the inner court. There are entrances for pupils at the north and south sides of the building. Pupils from grade 3 use an entrance with toilets and cloak room that they share with other pupils, while grade 5 has an entrance mainly used by them without toilets. These are located in the next corridor. The places mentioned by the pupils are in the part of the building close to their classrooms: classrooms, cloak rooms, toilets (Figure 9) and corridors (Figure 10).

The convex analysis of the building shows that the toilets for grade 3 as well as part of their cloakroom are in the most segregated part of the building (Figure 11). Also, parts of the classrooms are segregated in relation to the whole of the building. The corridors outside the classrooms for grades 3 and 5 belong to the most integrated and central parts of the building. Figure 12 shows that the corridor is rather narrow especially where the toilets are located. The two groups in grade 5 have their entrances close together and crowding in this space may be one cause of conflicts.

There is no information available about conflicts and bullying in other parts of the school. But the integration map in Figure 12 shows that most of the corridor system belongs to the most integrated part. Figure 11 shows that toilets on the east side are segregated and that group spaces in most classrooms are more segregated. This may serve the purpose of providing a quieter work place, but it may also give rise to unpleasant situations among the pupils.

**Conclusions**

The types of spaces indicated by the children are similar to what Bliding et al. reported, activity spaces and special spaces. The syntactical analysis of the physical properties of the school yards shows a tendency of isolated places being more often unpleasant for pupils. Two of the indicated places in Svarteskolan were on the most segregated lines, and four of the ones in Sövestadskolan. Also, play areas close to the buildings with windows overlooking them, but without contact with entrances, were unpleasant. Absence of entrance doors means that there is no chance of adults coming out and seeing what children are doing.

The study of school A showed that both distant and central spaces could be unpleasant. Narrow corridors and crowding seem to be important factors.

Thus, many of the findings of Bliding et al. are confirmed, but we can be more precise about some physical properties that may become the scene for conflicts and bullying. Also, with regard to lines of movement and vision, certain places are giving better opportunities for over viewing the yard than others. This is important to know so that surveillance can be directed towards such places. For children the presence of adults is positive and gives a feeling of safety.

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