



513

Spatial characteristics and configuration of schoolyards – where do interaction occur?

An exploration study of public schoolyards in Stockholm.

MATILDE KAUTSKY

KTH ROYALE INSTITUTE OF TECHNOLOGY, STOCKHOLM

ABSTRACT

Starting from experiences of social interaction and co-presence at two different schoolyards, this paper elaborates on if and how the space of the schoolyard relates to the interaction between parents. Schoolyards are everyday spaces, where parents are co-present regularly, potentially meeting over differences.

This study aims to answer two questions about the spatial characteristics and configuration of the schoolyards through case studies of public compulsory schools in Stockholm. The questions are: Where do interactions occur? How do the schoolyard and school building spaces enable co-presence and social interaction between parents?

To point to the complexity of the questions, three methods are combined to map the schoolyards. First, we analyse the local context and spatial configuration of a bigger sample, then we map characteristics at a selection of ten schoolyards. Finally, we look closer at the micro-scale of the yard through site visits and qualitative observations at four of the schools. The sample selection is based on four criteria; one is the possible diversity of persons belonging to a variety of income groups at the school. The findings show that there is a co-presence and some interaction between parents in schoolyards and the hypothesis is that the size of the yard, the number of co-present persons, and available waiting niches further interaction.

Implications of this ongoing research can approach the importance of the built environment of schoolyards as one part of building a community.

KEYWORDS

Schoolyard, school, social interaction, co-presence, diversity



1 INTRODUCTION

In the book “Palaces for the People”, Eric Klinenberg (2018) shortly describes two different schools as a parent has experienced. At the first, parents are walking or use public transportation, to drop off or pick up the children. Also, this school, apart from actively working on making parents get to know each other, has a place in front of the entrance, where there is enough space for the parents to stop for a while and chat, eventually having a coffee on the corner before heading out for the rest of the day. At the other school, the parents are seldom allowed to get into the school; they drop off or pick up their children at the entrance. There is some space on the sidewalk to stop for a while and talk to other parents, but it is not easy, since the road just next to the sidewalk is busy with traffic, by parents driving their children to and from the school. At this school, the parents do not stay and chat; sometimes they even do not get out of the car. So, in comparing these schools, Klinenberg shows two examples of social behaviour that to some degree is affected by the built environment. Of course, it is above all influenced by the schools’ attitude. What intrigues me is – how do these spaces look, how are they configured, and what kind of materialities (e.g., building materials, topography, smell, noise, light, etc.) do these spaces have? And what are the contexts of these school-entrance spaces? Klinenberg touches upon this, one is in a walkable area, the other in a car-dominated, but this can be extended to typologies, proximity, and accessibility to services. What is outside of the schoolyard entrance, how do the school building and the yard, if any, relate to each other and the surroundings?

Why are social interactions between parents interesting to study¹? The idea is that these minutes of exchange are important to build a sense of community – of ties to other persons, who are not your family or friends, not your colleagues but others with whom you may only share that your children attend the same school for some years. The main point of this paper is to look at the potential of interacting with others and the affordances (Gibson, 1979) of the built environment. The focus is on what the built environment affords visibility and movement (Marcus, 2019) potentially forms social processes.

Schools are important in many ways, and perspectives. Apart from the main activity (i.e., educating children on reading, writing, mathematics, physical activities, and society) they also “play a central role in shaping social identities” (Collins and Coleman, 2008: 281). The school engages several people from different age groups, as a workplace for different professions (from teacher to maintenance), as the everyday space for children, and during certain timespans, their parents and relatives. ‘Education’, in the sense of activity in the school and at the schoolyard, includes both building and learning processes, as well as social processes “[education], plays a

¹ Accompanying the children to and from the school is a guardian. This can be a parent, older sibling, grandma/grandpa or another relative caring about the child. To make the reading easier in this paper, the word parent will be used. I want to stress that this role could be filled by many people close to the child. It is not my wish to add to the load of nuclear family norms pre-existing.



major role in structuring the everyday lives of citizens, both young and old” (Cook and Hemming, 2011: 1). Schools are “places of considerable social and political significance” (Collins and Coleman, 2008: 281), and there are socio-spatial processes taking place in them and spilling out from them (Cook and Hemming, 2011; Collins and Coleman, 2008; Vincent, Neal and Iqbal, 2018a).

The social processes at schools and in schoolyards are affected by spatial relations. There are indicators that the co-presence of pupils from different neighbourhoods is influenced by the spatial form on both local and global levels (Legeby 2013, 285), “schools that are integrated spatially tend to have more neighbourhoods represented at the school” (ibid, 298). Legeby also finds that the population density, both locally to the school as well as within the further context of the school, is contributing to the diversity of pupils, represented by the variety of neighbourhoods they represent. Here, in this paper, schools reaching a diversity of socio-economic groups are studied.

Peponis (2017) addresses social bonds between people by thinking about “how cities can assume pedagogic functions” (Peponis 2017: 246), linking diversity and density in the streets to their connectivity and intelligibility. This, together with Legeby (2013), can link to Wilson looking at what people may learn from each other in different public spaces (Wilson, 2013; Wilson, 2011), to how the street network and the physical context of the schools can allow a diversity of persons from different neighbourhoods. The local context, apart from the diversity and pedagogic possibilities, can enhance (or diminish) the social processes spilling out from the schoolyards. For the social process to not “end” at the gate to the yard or at the car door, the surrounding of the school plays a role. As shown by Vincent et al (2018a) at a school with a park next to it, the parents and children continue their interaction, moving out from the yard into the park before leaving for home. Here the access to the school also plays a role, is the school easily accessed by public transport/bike or walking?

In this initial exploration study (Hammersley and Atkinson, 2007), the relationship between space and the potential for social interaction is studied. This is done by investigating the spaces of and around schools in Stockholm, at two scales. The micro-scale of the schoolyard and the scale of the local context around the school.

The focus is on schools for the youngest children, entering ‘preschool class’ at six years of age. The youngest children are still accompanied to the school by a parent, increasing the likelihood of co-presence and interaction between parents.

Space syntax (Hillier and Hanson, 1984) is used to capture the context of ten schools. Site visits to four schools are followed by limited observations of two of them. During the observations, I was eavesdropping on what the parents talked about and to whom, at the same time making notes about where the parents entered the yard, and where they stay, using a kind of ethnographic



listening (Robinson and Sheldon, 2019). This study should be seen as a first sampling, to be able to work out, change and rework the best ways of observations and putting results (Hammersley and Atkinson, 2007). From the observations in combination with configurational analysis, descriptions of context, and characteristics, I reason around schoolyards and social processes at the end of this paper.

2 BACKGROUND

A schoolyard is a special form of public space in the sense that it is publicly owned, while, during school hours, primarily the pupils of the school, their caretakers, and the staff are allowed at the school premises. After school hours, in most of the schools in Sweden, anyone can spend their time. Another aspect that makes schoolyards differ from other public spaces is time. From the beginning of school life, when the child is six years of age, the parents know that for at least four years from now, they will have a relation to the persons connected to this school, ranging from other children, parents, teachers, and school staff. This time perspective makes the social connections different from the ones that you have in most other public spaces. The strength of doing something twice daily, five days a week, and for at least four years in the same space is that routines and habits are shaped together with others at the school. These habits and routines have the potential in forming new acquaintances, but also include the ‘risk’ of keeping to the same group for the entire time.

Since starting this investigation, I have been told several personal stories, from friends and colleagues, about how they, as parents, are socialising with others at the schools of their children. From waiting together in hallways for their children to finish class/pack together things, and come out, to arranging after school play occasions in the playground just outside the schoolyard. What I have not heard about in these personal stories is when there is a lack of interaction, or when it is avoided or negative. The lack of interaction is discussed in a conversation between Pitter and Costain (Pitter, 2016). They talk about where people may connect over socio-economic differences. It is in a big park while they are parenting, “...using the space at the same time, but *not together...*” (Pitter, 2016: 178)(my emphasis). In other words, in the park, people are co-present while their children are playing together, but the adults are not interacting. In a space where many are co-present, the likeliness for interaction might be lower and this could also be influenced by the shape and size of the space. However, in a different situation, if only two parents are co-present, and their children playing, they might be ‘forced’ to some social interaction (see Koch 2021, for a longer discussion on communication in secluded spaces). Another factor making social interaction demanding is the lack of time, or in Hewitts (2016) words “competing for demands of productive urban citizenship” (Hewitt, 2016: 363). This simply points to the number of activities that many families are having on an everyday basis, making the ‘picking up’ a moment in haste, between the school day and some other activity. Other reasons for this ‘demandingness’ of interaction can be that of different cultural backgrounds. Wilson (2013), writing from a UK context, finds that parents at a multicultural school in Birmingham to



a high degree habitually, both are in the same spaces of the schoolyard, as well as talk to the same persons with similar ethnic or cultural backgrounds. This is also found by Vincent, Neal and Iqbal (2018a), also from a British context, that “cultural and social hierarchies remain largely intact” (Vincent et al., 2018a: 267).

However, there is potential for changing habits, both from within the parents as a group, but also because of the childrens’ play. This is exemplified by Wilson (2013) describing how parents at a school formed a ‘Parents Group’. After a few events, some parents socialize ‘across borders’, changing both their habitual place of occupation in the schoolyard space as well as the persons they are talking to (Wilson, 2013). According to Wilson (2013), there is a need to ‘break’ the habit for some social change to occur.² Important to stress here is that there are differences in British and Swedish parenting cultures³. Implicating that the results from the British studies are not fully translatable to a Swedish situation. Nevertheless, until now there are no similar studies found in a Swedish schoolyard context.

2.1 Social behaviour generally and schools specifically

If looking closer at the routines of day-to-day life that surround the schoolyard, the following description can be made. At a certain time, the children are supposed to be at the school for their first lesson. This makes the parents and the children leave home at a certain time. Using some kind of transport (walking/biking/public transportation/car) to arrive at school. At this point, several others arrive, with the same purpose, the children are dropped off at school. Now, both parents and children are co-present (Giddens, 1984) in the same time-space, be it either at the door of the building or at the schoolyard. Co-presence is a useful concept to describe when persons are in the same space at the same time. In the observations, parents grouped around a binder or the door to the school building, all of them being co-present. From here, parents and children continue with different sets of routines in their daily life. The children attend their school day and the parents go to their daily activities. At a certain time, the parents use some kind of transportation, to go to the school and pick the children up. Again there are some moments of co-presence between parents, them being in the same space-time. And at this point, some waiting may be included (more about the waiting below), opening up for a longer co-presence between parents. Giddens writes that “Anyone entering such a band of time-space makes himself or herself ‘available’ for moving into that gathering.” (Giddens, 1984: 71). The

² An event that probably changed many habits recently is the pandemic. As different to many other countries, Sweden has kept the schools open during the pandemic. But parents are not allowed into school buildings, due to risk of spreading the virus. Through this the importance of the schoolyard increased, together with other local services (Legeby and Koch, 2020). The schoolyard is currently the main spot for dropping off and picking up children, as well as for interactions between school staff and parents.

³ In Sweden stay-at-home parents are less common. This makes a difference in parenting cultures concerning the time parents have when for example dropping off/picking up the children. Another difference is that after-school care is subsidized in Sweden, making many children being picked up around 4/5 pm from the school premises.



gathering, following Giddens definition, between parents at the schoolyard can be short, a ‘hi, hello’, or nodding. To some extent it is possible to describe the timespan when dropping off/picking up the children as a social occasion, Giddens writes “A social occasion provides the ‘structuring social context’ in which many gatherings are likely to form, dissolve and re-form” (ibid), later on dividing social occasions into, ‘unfocused interaction’ and ‘focused interaction’. Where the former is gestures and signals exchanged between co-present persons, the latter is a more concentrated exchange between two persons or more. In the observations, focused interactions were noted, when parents talked about vacation plans, dogs or making playdates for later.

Continuing on the day-to-day routines around school life, the habitual interaction between parents can at some point turn into weak ties (Granovetter, 1973). Weak ties are bonds between acquaintances, and an important resource in society, building a sense of community. Granovetter writes about ‘mobility opportunities’ as work offerings and ‘social cohesion’ (ibid) as people helping each other during a crisis, exemplified by Klinenberg (2018) during a heatwave in Chicago. At schools, there is the potential of forming weak ties, due to the regularity and time parents spend at the school. Here also the school (as organisation) plays a role. The purpose of developing weak or strong ties to other parents during the time of early schooling can be manifold. It is a security for parents, knowing a bit more about the classmates and friends of their children, and also making life easier for children. The ties have the potential to develop a sense of community within the school and of belonging between the parents and children. The ties can as well function as a safety net into the time when the children grow into teenagers. Weak ties are part of building a sense of society.

Leaving the micro-scale of the schoolyard and looking at a greater scale, what weak ties can do for integration Legeby (2013) does not diminish the potential of weak ties, but problematizes them, in the aspect of integrating efforts. Since weak ties to a greater extent are used by more well-off individuals, “interventions that aim to strengthen the local community do not necessarily support the development of weak ties.” (Legeby, 2013: 54).

Looking closer at the part of the daily routine ‘picking up children from school’, we can turn to Kärholm and Sandin, writing about waiting niches. Kärholm and Sandin (2011) describe waiting as a “socio-cultural and material agency” (Kärholm and Sandin, 2011: 4) in situational niches, and that certain spots are better for waiting than others, depending on what kind of waiting is done, and the context of the waiting. The preference for waiting spots is described in Wilson (2013) as well, how they can be part of forming a spatially and ethnically segregated schoolyard. Kärholm and Sandin (2011) describe different modes of waiting, concerning controllability and stability for the waiting person. If following this line of thinking the waiting at the schoolyard could be seen as ‘pre-settled’. It is described as a “temporal endpoint [that] is rule-governed, but above individual control” (Kärholm and Sandin, 2011: 6) – the parents know



when the children finish school, or the school staff knows when the parents have arrived for pick up (through a phone call) but the time it takes for the child to pack the stuff together, finish the things they are doing at the moment, getting dressed for outdoors and saying good-byes can vary and is not controllable by the waiting person. Kärholm and Sandin write that during this kind of waiting a certain kind of sociability can occur, the one of a 'possible break'. The waiting niche is helpful in relating behaviour (choice of waitinglocation at the yard) to characteristics of the built environment.

In this paper syntactical measures are used to describe the local context of the schools and the spaces of the schoolyards. Legeby (2013) describes space syntax that "...may increase the understanding of where patterns of co-presence may appear in an urban spatial network." (Legeby, 2013: 65) thus space syntax may increase the understanding of co-presence and the potential of interaction in schoolyards.

When leaving school premises, the visibility of the school in society can be important for many different reasons. One is, announcing that it is there, this is a place for education (Legeby et al, 2019). The architecture is as well part of this signalling. Another aspect is the place of schools, mostly located in "a favourable location regarding its global and local axial integration" (Bacharel, 2017: 43.14). Bjurström (1999) is adding to this perspective, by thinking about the school as a very substantial built part of society building society.

3 METHOD

The method is based on a combination of three parts. The first is mapping the context of the schoolyard from different aspects concerning the built environment. The second is a close-up of the schoolyard, mapping its characteristics and properties. And the third is observations of parents at schoolyards.

The following text will describe these analyses, concluding with an overview of the selection of case studies.

1. Mapping the local context (desktop) will answer questions about what kind of situation the schoolyards are located in, and what they are related to. How far away are other everyday services? The local context will be mapped through integration analysis, proximity to some services, and accessible population in the school's surroundings.

Method:

Integration analysis is done with an axial map and counting steps. Proximity to services is measured through an axial map and metric distance. Accessible population, or population density, is measured from the schools at metric radii (1000m and 2000m) to the residential population.



Figure 1: Schoolyard entrances of Top row, Sjöstad (left), Gustav Vasa (right). Middle, Hammarby Norra gate 1 (left) and gate 2 (right). Bottom row, Bäckahagen skola slope between schoolyard and building (left), sign on building (right).



2. Mapping characteristics and properties (desktop and on-site) will answer questions about what kind of space the schoolyard is. The purpose is to map the number of entrances from the street, from the 'outside' to the schoolyard, as well as main entrances to the school building. The shape of the schoolyard, microclimate, greenery, and equipment (like playthings and benches) will be mapped through photos, maps, and some observations.

Method:

Ocular inspection is used together with maps and site visits to map the characteristics and properties of the schoolyards.

3. Mapping interaction and co-presence through observations on-site will capture what parts of the schoolyard the parents use, and how they use them. Concerning the circumstance of the observations, it is cold outside (between 0° C to -14° C), dark in the mornings and the afternoons as well as at the end of term. Spontaneous social interactions or activities outside are probably less frequent this time of year. Another factor making interactions less likely to occur is the ongoing pandemic.

Method:

Observations at site visits together with a list and maps are used to chart interaction and usage. During the observations, the list is filled out, as well as several maps with information about where the parents are, where they wait and what they do. After observations, field notes are written (Mack et al., 2021).

3.1 Data

The information about the schools derives from Stockholm municipality, from a range of three departments, (Appendix 1, Table 1), combined into one dataset. Concerning the accuracy of the data from the municipality, some tests were done, especially concerning the location of the schools, to verify the quality. According to the planning office, there are 274 compulsory schools in Stockholm municipality, about 120 of them are private and 154 are public⁴. Because of different regulations between public and private schools, only public schools are included in this study. Due to the way the schools are mapped and errors in the data set, 143 of the 154 schools are included.

For the integration analysis, an axial map is used, hand-drawn in 2012, updated in 2022. For knowledge about services, like public transportation, parks and squares, Open Street Map, as well as municipal map tool DpMap were used. High-resolution aerial photos and street views (on the internet) are used for mapping the schoolyards' entrances, greenery, and equipment. A list is used at the observations, to enable a structured inventory. For accessible population, address points

⁴ In Sweden there are both public and private (independent) schools, both funded by the municipality. None of them charges for education. The difference is that the public schools are run by the municipality and the private (independent) schools are run by a company or foundation.



and amount of residents at every address are used. The income levels were calculated using the median income of persons on an aggregated level.

Analyses are done with PST (version 3.2.3) in QGIS (Stähle et al, 2005).

3.2 Selection of case studies

To select schools for this study the schools had to fulfil four criteria:

1. Schools with lower grades, for children between six years and ten years of age.
2. Diversity of income levels in the local area of the school
3. Diverse numbers of entrances to the schoolyard.
4. School buildings and yards with various layouts in the plan.

When using criteria one and two a selection of 29 (of 143) schools is made in the first step. When these schools are checked closer, nine schools are removed due to different kinds of data errors.

The 20 schools left have above 100 pupils, reach four different income groups, and are dispersed in the city. They are built between 1886 and 2007, with a majority built during the 1950s (seven schools). Seven schools are built before 1920 and six schools are built after the 1980s. This distribution of construction years is in line with the entire sample of schools.

In the sample of 20 schools, the numbers of entrances are mapped, and they are categorised into groups by the relation between building, yard, and local neighbourhood (See Figure 2 and Table 1). In the following text, this will be referred to as sample 20.

In the sample of the ten schools (sample 10) the local built environment is described through integration analysis, population density, and proximity to services. Their characteristics and properties are described through the greenery, microclimate, and equipment. Six of the schools were asked for permission to do observations. Five schools answered, four of them welcoming observations, one school declining (see Appendix 2).

In the sample of four schools (sample 4) the characteristics and properties of the yard are further explored through site observations followed by a description of possible routes, interface to street, and boundaries.

In the sample of two schools (sample 2) the characteristics of the yard to social processes are noticed in observations. From the observations, maps are drawn of where social interaction occurs in the two schoolyards.



4 RESULTS OF THE SPATIAL ANALYSIS

The results are reported in the following order, starting with the sample of 20 schools and following the sizes of the samples (sample 10, sample 4) concluding with the observations at sample 2.

4.1 Context

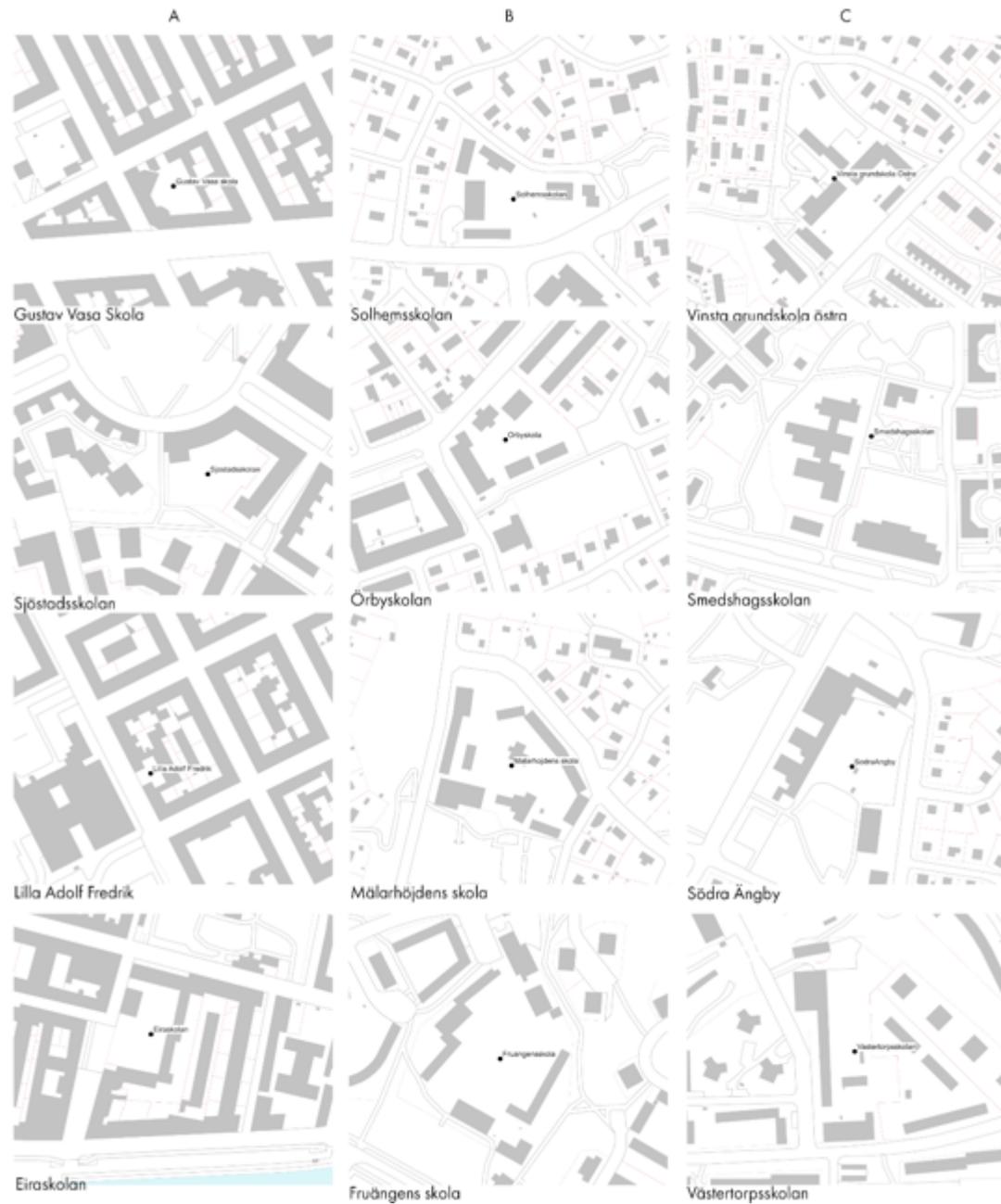




Figure 2: Types A-f of the sample 20 schools. Ranging from “shared facade” (A) to “single buildings along the street” (F), with groups of differently scattered buildings between.

Categories

Sample 20 is organized according to the layout in the plan. Based on the shape of the school building and the position of the yard in relation to the building, six groups are formed (Table 1 and Figure 2). These range from high enclosure to low enclosure with one building in the middle of the plot, or several buildings scattered around.

The configurative analysis is done with sample 10. They show that all of the schools have high integration values, or are close to. The local integration (R6) of the schools shows that a majority of the schools are quite central in their neighbourhood (Table 1 and Figure 3). One school is in a highly integrated place, and three schools are located more segregated. Comparing the local integration of the schools to the global (R50) and the neighbourhood (R16) it is possible to see that most of the schools stay on similar levels of integration throughout the three radii. In Figure 4 it can be seen how Mälärhöjden is off the global integration core which in Stockholm runs in a centre-north west direction. The other schools are in proximity to the global integration core.



Table 1: Construction year, yard size, amount of pupils and entrances, types, enclosure and observations.

School	Construction Year	Yard size (sqm)	Amount of Pupils	Yard sqm/pupil	Entrances yard - outside (amount)	Type	int r6	int r16	int r50	pop density 1km	pop density 2km	Enclosure	average parents observed	average traffic through gates
Hammarbyskolan Norra	1943	7932	369	21	3	C	1,829	0,872	0,404	4167	19111	0,663	24	16
Gustav Vasa skola	1886	1982	435	5	1	D	2,290	1,119	0,432	14533	432777	0,954	16	14
Sjostadsskolan	2006	4697	961	5	2	D	1,904	0,890	0,414	5947	16289	0,623		
Vinsta grundskola (Ostra)	1967	10071	361	28	8	F	2,058	0,984	0,447	1644	7666	0,419		
Malarhöjdens sko	1905	7233	1172	6	9	G	1,539	0,829	0,374	1526	9810	0,875		
Backahagens skola	1954	11333	686	17	7	B	1,530	0,852	0,397	4731	14139	0,653		
Hammarbyskolan Sodra	1950	13968	742	19	6	G	1,879	0,937	0,414	5129	17984			
Arstadalskolan	2005	2934	361	8	3	A	1,545	0,802	0,413	3991	11708			
Enskede skola	1915	11804	908	13	5	C	1,804	0,968	0,421	2989	12902			
Solhemsskolan	1912	7742	464	17	6	E	1,807	0,996	0,460	1547	7432			
Eiraskolan	1958	3218	572	6	2	D	1,820							
Fruangens skola	1957	12056	647	19	6	G	1,634							
Langbrodalskolan	1915	8192	588	14	7	A	1,832							
Lilla Adolf Fredrik	1908	478	394	1	1	D	2,308							
Orbyskolan	1903	6634	654	10	7	E	1,799							
Smedshagsskolan	2007	5595	342	16	3	F	1,646							
Sodra Angb	1946	11212	775	14	8	F	1,871							
Sturebyskolan	1951	21460	1126	19	6	B	1,34							
Tullgardsskolan	1994	6003	404	15	7	F	1,966							
Vastertorpsskolan	1950	7004	552	13	4	G	1,670							

The integration analysis shows a tendency that is in line with the findings of Bacharel, Heitor and Alegre (2017) as well as the selection criteria of the case studies. The schools are in a locally and globally more integrated place.

A school that diverges is Mälarhöjden, having low integrations values both locally and globally, but still has a catchment area including several income groups. This can be explained both by the school (as an organization) and by the local context. The neighbourhood Mälarhöjden is close to two other neighbourhoods with varying income levels.

Services, like local squares and public transportation, are reached within 1-2 steps for about half the sample (4 out of 10). Half of the sample reaches a local square within 3-4 steps and one school in the sample has more than 5 steps to it. At many of the schools, there is a bus stop right outside the premises, but in one case the school is more embedded in the housing area, the bus stop being about 300 meters away.



Figure 3: Local integration (r6) of ten schools.

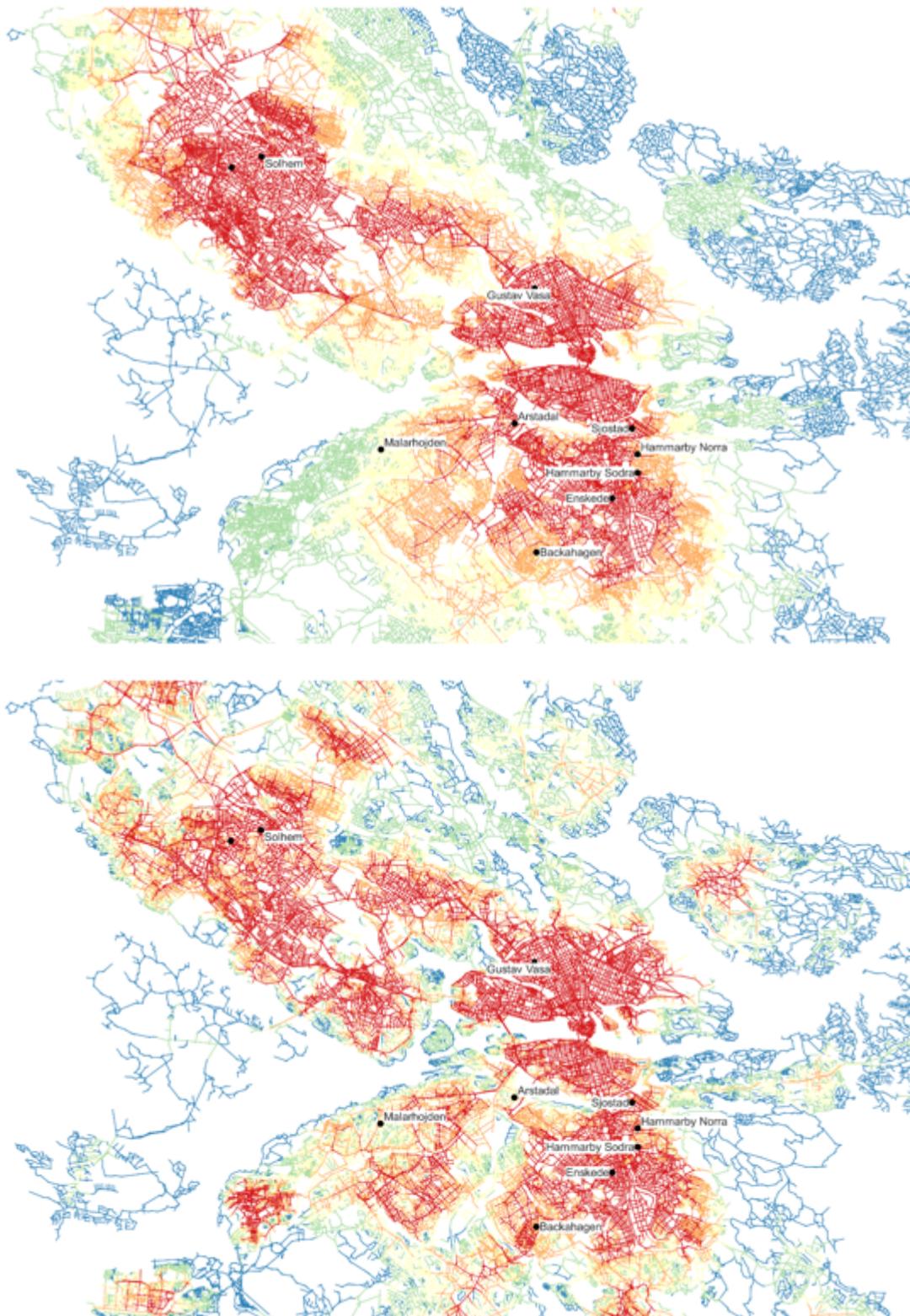


Figure 4: The above map shows global integration (R50) and the below map the local neighbourhood (R16) of the sample 10 schools. Both maps show how the school of Mälärhöjden stands out for being the least integrated school, and Gustav Vasa as the most integrated school.

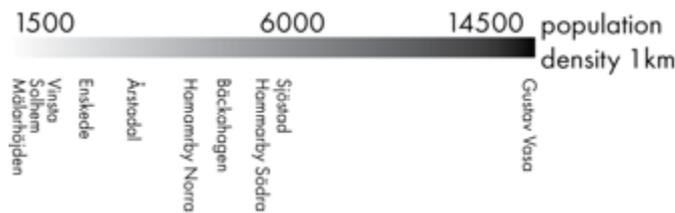


Figure 5: Population density (1000m walking distance in the axial network to population, from schools).

In sample 10, one school location is in proximity to high population density, five within medium, and four within low (Figure 5 and Table 1). The suburban schools in single-family housing areas (Enskede, Vinsta, Solhem, Mälärhöjden) are within lower densities and have longer distances to the local square.

4.2 Characteristics and Properties

The characteristics of the schoolyards are described through the number of entrances to the yard from the outside, greenery, microclimate, and equipment in sample 10. The number of entrances are varying from one to nine (Table 1). On a scale of permeability to the surroundings (Figure 6), it is possible to see a concentration around three to five entrances. This does to some degree correspond to the local context, Gustav Vasa with one entrance is located in the inner city and Mälärhöjden with nine entrances is located in a single-family housing area. Looking at the schools Bäckahagen and Hammarby Södra, the correspondence is rather to the idea of how the surrounding living environment functions. Both these schools are in areas with multi-family housing in a “house-in-park” typology.

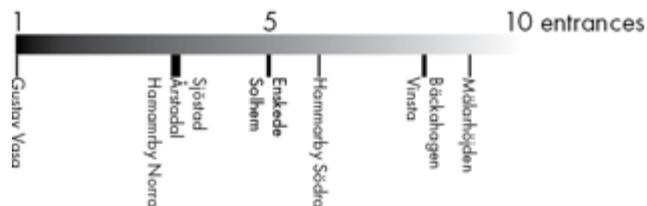


Figure 6: The fade indicates the permeability (less colour, more entrances) and the thickness of the line indicates the number of schools.

Concerning the greenery and microclimate in sample 10, most of the schoolyards have none or low greenery. Only one school is standing out, Bäckahagen situated almost in a park. To some degree, the greenery corresponds to the microclimate. The schoolyard with the least amount of greenery (Gustav Vasa) has buildings on all sides and a great part of the yard is shadowed by them. Half of the other yards in the sample are to the south, with the building in the northern part of the plot. Two yards are in the east with the building to the west. One yard is fragmented with buildings and outdoor space in every direction, this is also the one in a park-like surrounding, Bäckahagen.

Concerning play equipment, for climbing, balancing, and spaces for ball games, the entire sample of schools has it. The variations regard if there is a sandpit and swing, or not and the amount of

the equipment. In the observed schools, Gustav Vasa has one climbing frame, and Hammarby Norra has three in different places in the yard.

5 OBSERVATIONS – THE SCHOOLS AND THEIR ENVIRONMENT

Four schoolyards are visited on an observation on 3rd December 2021. One in the inner city, and three to the south, outside of the city centre. Two of the schools are visited again on 7th and 9th of December 2021. Below is a description of the characteristics of the built environment of the schools in sample 4. Followed by records of social interaction in sample 2, Gustav Vasa and Hammarby Norra. These are qualitative and an initial mapping, sampling potential interaction between parents.



Figure 7: Sample 4, from more to less building as a fence (from left to right) and enclosure of yard (E) in %.

Co-presence and interaction are structured (Hanson, 2000) at the schoolyard, to some extent due to how the built environment is organized through different means (enclosed yards, closed/open doors, specific entrances to the yard, signs). Between the street surrounding the school and the schoolyard, a structuring emerges, through the gate to the yard not anyone enters, the persons' present share some 'belonging', like being a parent or staff of the school.

The possible routes (Hanson, 2000: 98) to the schoolyard entrances in the four cases are more than one (Figure 7). To all of these entrances, there are at least two directions to enter from, none of them is at a dead-end. Two of the schools (1 and 2) have a direct interface (Hanson, 2000: 98) to the streets, the school building constituting the street. In one of the cases (3) parts of the yard constitute the street while the school building is positioned in the plot as 'far away' as possible from the street. In the last case (4), the school building and yard are spread out in a park-like surrounding with several walk- and bike- paths accessing it, almost crossing the yard, but with no direct connections to a car street.

The boundaries between the schoolyard inside/outside (Hanson, 2000: 99) are to different degrees comprised of buildings and fences with gates in the entire sample. It is possible to arrange the four schools on a scale (1 to 4), from more to less building as a fence, as well as more or less fenced. In three of the four cases (1 to 3) the building together with fences acts as a boundary. In one case (4), there is no fence or change in building typology from the surrounding housing. Here the boundary is more subtle, with a small slope between the walkway and the schoolyard and a sign on the building (Figures 1 and 7).

The enclosure (Minoura, 2016) of the schools ranges from 95% (Gustav Vasa) to 62% (Sjöstad), with three schools having similar enclosure (62-66%) even though their typology differ. Gustav Vasa, December, 3rd, 2021. Afternoon (15.30-16.15). The weather is cold.

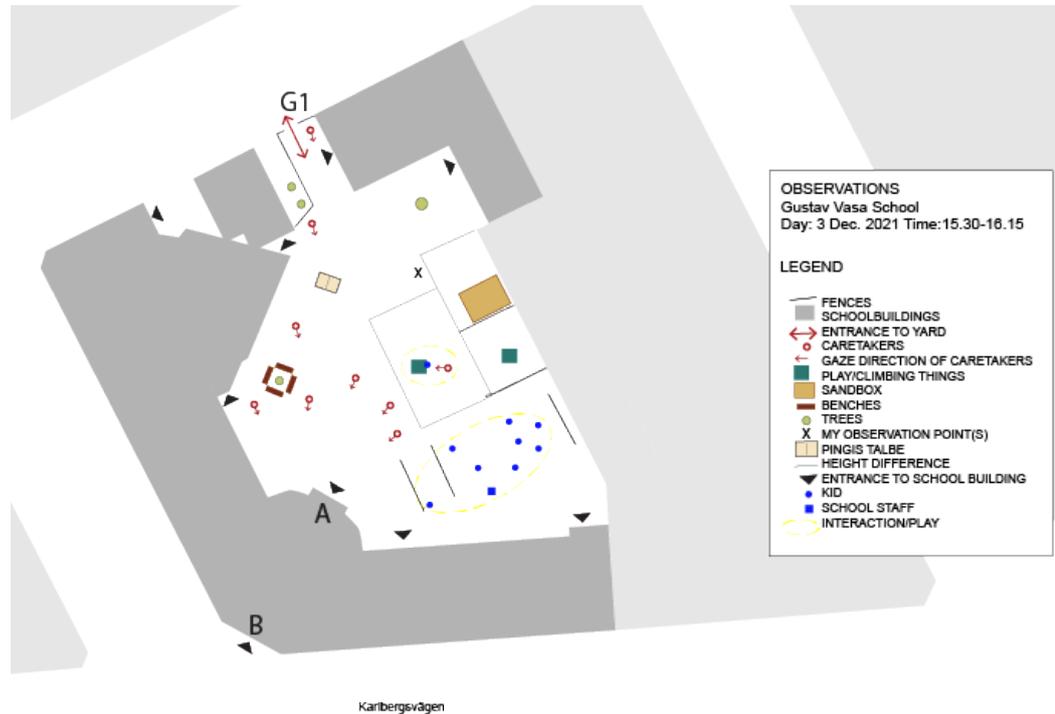


Figure 8: Gustav Vasa plan, observations Friday afternoon (no scale).

The characteristics of the built:

The yard is enclosed by buildings on all sides, between 3-5 floors. One of the sides is primarily closed, it is the back of a multi-family house. The main building of the school encloses two other sides of the yard, and a recent addition (2 floors of a pavilion type) together with a two-floor sports hall and the not so wide entrance to the yard (G1 in Figure 8) makes the fourth side of the yard. In the yard, there is some climbing equipment, a table-tennis table, a sandbox, fences, and goals for different kinds of ball games. Also, a big sign was painted on the housing façade, stating that it is forbidden to play ball against that wall.

I saw how caretakers stand in the yard, gazing in one direction, towards what looks like the main entrance (A). When the caretakers arrived at the yard, they called someone inside the school, telling them that they are there. Then they stood in one position, waiting for the child to come out of the school building. None of them was talking to each other.

My feeling when entering the yard is of observation, there is nowhere to hide in the yard, and you cannot see if someone is looking at you from some of the windows. I cannot find a corner for just being and observing without being observed back here. The possibility to see who is entering the yard, without being seen is high, both from the school and the street.

Gustav Vasa –December 7th, 2021. Morning (7.45-8.15) Weather is very cold (-14 degrees Celsius).



Yard entrance (G1):

During the morning observations, I saw parents and children entering the yard together. Parents were stopping at the table-tennis table, signing a binder (that the children have arrived at the school). The binder was organized by a school staff wearing a yellow vest. Around the binder and the school staff, a small queue was forming, parents waiting to sign the binder. This was a place of gathering. During my observations, I was standing a bit further away, so I could not hear if there was small talk going on, it seemed like the parents were waiting in silence. At about 8.15, when the parents were walking slower after leaving their children and there were fewer persons in a haste passing the yard entrance, I could observe two parents talking to each other about a dog one of them was caring for.

School building entrance (B):

At the entrance of the school, towards Karlbergsvägen, the parents were stopping a few meters away from the door, saying goodbye to the children and looking at them while they were pressing the code to open the door. At this entrance, I also saw several of the staff enter.

Hammarbyskolan Norra – December 9th, 2021. Afternoon (15.30-19.40) Weather is cold and grey.

The characteristics of the built:

The yard is enclosed by the school building, 2-4 floors high, on two sides with a freestanding building for sports in the opposite corner. When entering Hammarby Norra for my first observations I find that the yard is shared by two schools and one preschool. The yard of the preschool is fenced off from the bigger yard. The children of the two schools have no fences parting the yard but seem to play in different parts of it during the observations. The yard of the two schools can be described as having one bigger central part, with two smaller parts to the west and east. All three parts have their entrances (G1-3, Figure 9). The two smaller parts make the interface to streets on different sides. Two buildings are visually blocking the view from the big part of the yard to the street, intersecting them is G2. These buildings are used for housing, a grocery store, health facilities as well as a hairdresser.

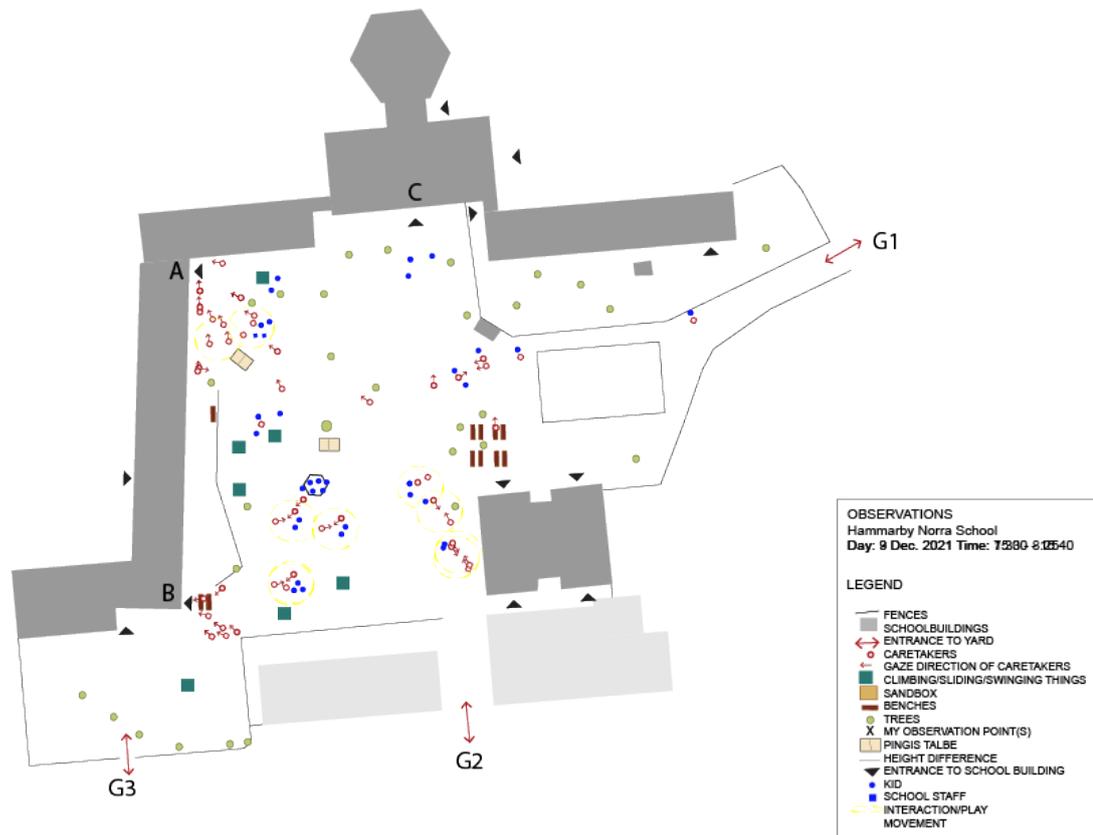


Figure 9: Hammarby Norra plan, observations on Thursday afternoon. All observations during the afternoon put together in one figure, show a pattern of preferred waiting niches. (No scale)

When I walked through G2 (Figure 9) into the schoolyard, I overheard an ongoing conversation between two adults, one on the way out together with a child, and the other on the way in, probably to pick someone up. They talked about someone not present in the yard, having a cold. Inside the yard, some parents stood close to the main entrance (A), they gazed towards it but also moved around a bit, maybe because of the cold. Two parties of adults and children entered on one side (G1) and then left on the other (G3). There was an ongoing conversation between two adults while their children played in a climbing thing. One parent swung a child, quite close to the entrance. At least two waited at the entrance (B), one walked around, probably to keep warm, two talked to each other but stood quite far apart. Another parent sat alone on a bench under the pines in the middle of the yard. More interactions played out, like parents talking to each other while the children were playing. They played until one parent, told: “We have to leave now”. The little group of five walked together towards G2 and left the schoolyard. Other interactions occurred on the way in/out to the yard at G2 as well as during the waiting.

Hammarbyskolan Norra – December 3rd, 2021. Morning (7.40-8.45) Weather is cold and grey. *This morning, most parents entered in haste through G2 and then went to a table-tennis table amid the yard, signing a binder. Close to the table-tennis table, two school staff stood, greeting the parents and children. Some parents went directly to the main entrance (A) and waved*



goodbye there, the children went into the school building. No social interaction between parents was observed. On the slope next to the staircase leading to the entrance (C) several children were playing in the snow. These children belonged to the other school, the staff looking after them having no yellow vests like the staff from Hammarby Norra.

The feeling of being uncomfortable when making observations at Gustav Vasa in the afternoon can be connected to the fact that I, as an observer, do not behave according to the rhythm of the schoolyard and school day (Koch, 2021). I do not pick any children up, I do not call the school staff telling them I am there. This sense of being an outsider is even stronger when I visit Gustav Vasa in the morning. At this point, the parents drop the children off and then leave the yard. There is no waiting, no one standing around, except for the staff with the binder and the parents around there. This makes me avoid entering the yard in the morning, standing on the street on the opposite side of the yard instead. Still visible from the yard, but not in focus.

At Hammarby Norra, I do not experience the same sense of being an outsider or in the wrong place. This yard is bigger and has more things and trees to ‘hide’ behind. There are more entrances, and it is not possible to overview the yard for a person at once. Does this point to the difference in control and ownership of the yard (Minoura, 2016)? An aspect in favour of that interpretation is that at Hammarby Norra the principal asked me to register at the reception on the days I was making the observations. At Gustav Vasa, no such formalities were required. This points to the possibility that what the structure of the building does not control (in who enters the yard or not) is controlled by the staff of the school. This could potentially affect the parents’ behaviour, if they feel more watched at Gustav Vasa, is there less spontaneous interaction?

During the observations, the preferred spots for waiting at both schools are close to the main doors of the school buildings (Figure 10).

At Gustav Vasa, the observations give an impression that the preferred spots for waiting are dispersed, there is no single spot –but that the properties of the niche are at a distance from others waiting, but still possible to view the door (A) (9-18 persons every time slot, a total of 42 persons during 1 hour). Only a few parents wait further away, almost at the gate to the yard, but two of these have small dogs accompanying them, implicating that the chosen waiting spot can be more because of the dog, than any other consideration.

At Hammarby Norra, the parents are as well dispersing, not being too close to each other, however here the architecture is different. The main entrance (A), (3-9 persons every time slot, a total 24 of persons during 1 hour) is in an inwards pointing corner, with trees, a slope, and climbing things on one side, occupying maybe one-third of the possible space to wait in. This ‘pushes’ the parents closer together on one side, also making some of them stand in the ‘pathway’ almost. (The pathway is a trace in the snow, showing where most persons have

walked, however not marked by built objects). At this waiting spot, I observe some interaction, parents talking to each other while waiting. The other place for waiting (B) (4-11 persons every time slot, in total 25 persons during 1 hour) is in an outwards pointing corner. At this corner, the parents either chose to wait close to a fence diagonal to the building corner, or they chose the benches placed outside the door. And some wander around, between the benches and some climbing things. This waiting space is less defined if compared to the (A) at the main entrance and the (A) at Gustav Vasa. At (B) in Hammarby Norra, I observe more interaction. Many of the other observed persons in the yard (average 9) are moving close to or through this waiting space. The parents from the other school primarily wait between (C) and G1 (1-6 persons every time slot, total 9 persons during 1 hour), along with a façade and beneath some pines.

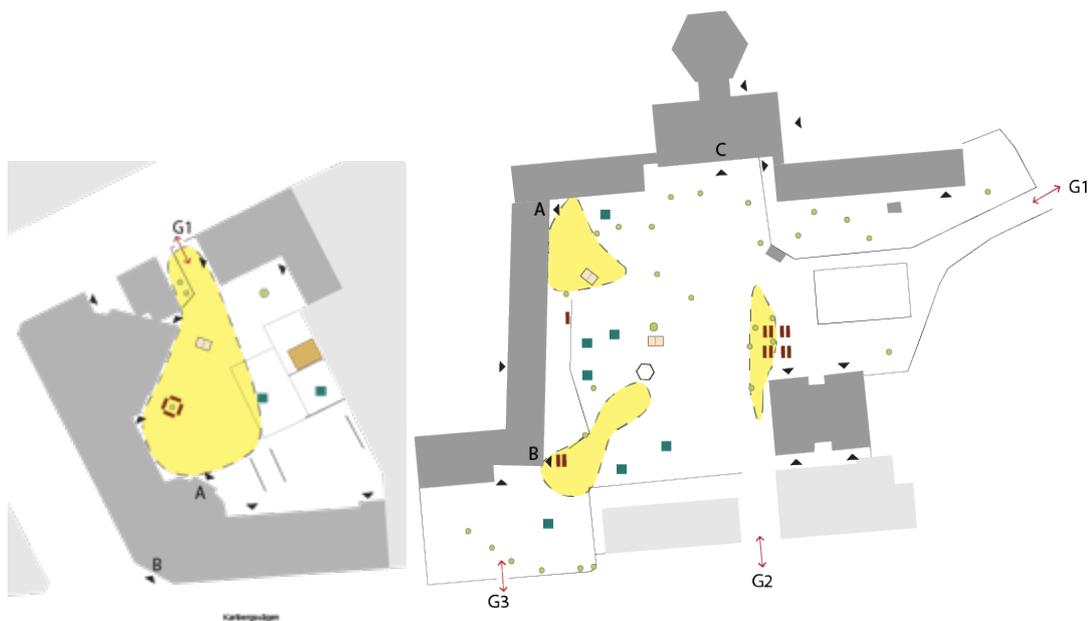


Figure 10: Preferred waiting spots at both Gustav Vasa (left) and Hammarby Norra (right).

Most of the interaction at Hammarby Norra takes place where both waiting and movement meet or places with both in and out movement close to playing equipment, where parents are on the move towards somewhere outside the yard and the children stop for some more play. In this moment of pause, they interact with someone on another route. From the observations, I think that the two schools sharing a yard at Hammarby Norra have different ethnic groups attending them. I observe no interaction between them during these two occasions.

There are on average 24 persons in the yard at Hammarby Norra at the same time, and at Gustav Vasa, the average is 14 persons. Could this significant difference in amount be part of the observed differences in interaction? Strangely, due to the size of the yard, Gustav Vasa felt more crammed with waiting persons than Hammarby Norra.

6 DISCUSSION AND CONCLUSION

Co-presence is observed in the schoolyards, since several parents, school staff and children are in the same space and time. Both the yards where observations were conducted are convex with few hiding places. Gatherings were observed mainly around the table-tennis table and the binder, at the entrances to the yard or close to them, and close to the entrances of the building.

The functional objects of the table-tennis table and the binder contributes to parents gathering and eventually interacting, together with the school's staff administrating it. These objects are moveable and dependent on time and the ways the schools are organized. The affordance of these elements will transpire, independent of where in the schoolyard they are placed.

Concerning the local neighbourhood and the characteristics of the schoolyard, there is a correspondence between the number of entrances, population density and integration value. With more entrances, the population density, and integration value are lower, as well as the opposite. These findings can point in the direction of how the building is perceived to function as well as 'dangers' to be controlled – with potential 'strangers' and much traffic close to the school, the perception can be more fences and fewer entrances are needed for the children to be safe.

In the yard where hardly any interaction took place during the observations, there is a smaller space for the parents to wait and only one entrance to it, implicating that there might be fewer spots for waiting with a clear spatial indication (Kärrholm and Sandin, 2011). This yard is more one continuous space, with less play equipment, making the possible interruption of habit (Wilson, 2013) by children wanting to play probably less frequent. The school is located in a highly integrated context, with services around the corner, and a high population density.

The other yard, where several social interactions were observed, is quite different. The parents wait for the children in at least three different spots, and within these spots there are differing spatialities, performing as waiting niches (Kärrholm and Sandin, 2011). Concerning the possible 'habit interruptions' (Wilson, 2013), there is a range of play equipment, seemingly exciting enough for children who want to stop and play some more with their friends, 'forcing' the parents to stay, and open up for interaction. There are three entrances to the yard and some services close. The population density is in the middle (of comparing these ten schools in the case studies). However, in the yard of Hammarby Norra it was observed how people belonging to different groups (ethnicity/other) are in the same space, but not interacting, similar to what Pitter (2016) describes – people in the same space but not together. Possibly this can be explained by what Wilson (2013) and Vincent, Neal and Iqbal (2018a) discuss – that habits and hierarchies remain intact to a great extent, even though the parents are co-present. Here further observations have to investigate if there is interaction going on between the groups on other occasions, or if this is part of patterns of avoidance.

In the small yard with only one entrance, where 'everything' is visible, I hardly see any spontaneous interaction, even if the parents are in the yard at the same time, and close enough to see facial expressions (Goffman, 1966) or hear someone talk. However, at the yard with three



entrances and greater space between the buildings, where it is possible to keep a distance, I observe several interactions. Can the possibility of choice play a role here? In the yard with interaction, the size and possible waiting niches open up a choice for the parents of where to wait.

Schools play an important role in society and they are part of several people's daily routines and everyday interactions with 'strangers'. However, there are difficulties making interactions over cultural and/or class differences, overcoming lack of time, perceptions of openness, and avoiding anxieties (Hewitt 2016). Potentially, there are positive outcomes from being co-present and interacting, at the schoolyard with other parents. Koch, Bergström and Marcus (2012) describe, that being co-present in space, through just seeing someone, makes it easier later on, in another space, with more 'strangers', to start to talk to that person that you have seen at least once before. This makes it possible if parents bump into each other elsewhere, they might start a conversation, bridging the diversities.

Coming back to Klinenberg (2018) and his experiences as a parent at different schools, the observations in Stockholm show that the affordances of the built environment make a difference. But as pointed out at the beginning of this paper, is that what the schools do, through inviting parents to participate, or what parents themselves do, as Wilson (2013) describes, will make more difference than the space itself. Socialization over differences and social interaction, in general, is not straightforward, including 'complex feelings'. As Vincent, Neal and Iqbal put it, the complex feelings "are not easily erased by installing a rain shelter or benches" (Vincent et al., 2018a: 207). Future research needs to clarify these circumstances and add data about the diversity of persons at the schools, as well as a detailed analysis of the shape of the schoolyards through isovists, elaborating on the affordances of the yards.

The schoolyard as a potential place for interaction, of meeting and making bonds over boundaries, is connected both to the local context and the micro-scale of the yard. The context offers the potential that there are a diversity of persons attending the school. The hypothesis is that on the micro-scale the size of the yard, the number of co-present persons and available waiting niches further interaction. Continued samplings have to follow this up and clarify the best-suited observation methods. If these social interactions develop into friendships across different backgrounds (Vincent et al., 2018a), that lasts also after the children have grown up, or if they lead to weak ties (Granovetter, 1973) between parents, is another story!



7 REFERENCES

- Bacharel T, Heitor T, Alegre A (2017) School-Place as a collective urban entity. The case study of Lisbon. In: *11th International Space Syntax Symposium Lisbon*, Lisbon, pp.43.41-43.15.
- Bjurström P (1999) in Stahle O (1999) *Arkitektur och skola : om att planera skolhus*. Stockholm: Arkitekternas forum för forskning och utveckling ARKUS: Byggförlag.
- Collins D and Coleman T (2008) Social Geographies of Education: Looking Within, and Beyond, School Boundaries. *Geography Compass* 2(1): 281-299.
- Cook VA and Hemming PJ (2011) Education spaces: embodied dimensions and dynamics. *Social & Cultural Geography* 12(1): 1-8.
- Gibson J J (1979) *The Ecological Approach to Visual Perception*. Hove: Psychology Press.
- Giddens A (1984) *The constitution of society: Outline of the theory of structuration*. Cambridge: Polity Press.
- Goffman E (1966) *Behavior in public places: notes on the social organization of gatherings*. New York: Free Press.
- Granovetter MS (1973) The Strength of Weak Ties. *American Journal of Sociology* 78(6): 1360-1380.
- Hammersley M and Atkinson P (2007) *Ethnography: principles in practice*. 3rd ed. New York: Routledge.
- Hanson J (2000) Urban transformations: a history of design ideas. *URBAN DESIGN International* 5(2): 97-122.
- Hewitt T (2016) Rethinking Encounter: intercultural interactions between parents in Australia's culturally diverse primary schools. *Australian Geographer* 47(3): 355-370.
- Hillier B and Hanson J (1984) *The Social Logic of Space*. Cambridge: Cambridge University Press.
- Klinenberg E (2018) *Palaces for the People how social infrastructure can help fight inequality, polarization, and the decline of civic life*. New York: Crown.
- Koch D (2021) Relative rhythms, urban oases, and spatial resilience / Exploring syntaxes of seclusion, solitude, and tranquility. *Journal of Design for Resilience in Architecture and Planning* 2 (special issue): 56-73.
- Koch D, Bergström A and Marcus L (2012) Configuring Academia: Academic entities and spatial identities. In: *8th International Space Syntax Symposium* (eds Margareta Greene JR and Andrea C), pp.8147:8141-8147:8121.
- Kärholm M and Sandin G (2011) Waiting Places as Temporal Interstices and Agents of Change. *Trans Internet-Zeitschrift für Kulturwissenschaften* 18.
- Legeby A (2013) *Patterns of co-presence: spatial configuration and social segregation*. Doctoral thesis, monograph, KTH Royal Institute of Technology, Stockholm.
- Legeby A, & Koch D (2020). Il cambiamento delle abitudini urbane in Svezia durante la pandemia di Coronavirus/The changing of urban habits during the Corona pandemic in Sweden. *FAMagazine* 52–53: 198–203
- Legeby A, Koch D, Miranda Carranza P (2019) Schools at 'Front Row': Public buildings in relation to societal presence and social exclusion. In: *12th International Space Syntax Symposium*, Beijing, pp.287-282:281-287-282:219. Beijing Jiaotong University.
- Pitter J (2016) in Pitter J and Lorinc J (2016) *Subdivided: city-building in an age of hyper-diversity*. Toronto: Coach House Books
- Mack J, Tollmar Grillner K, Lopez EM, et al. (2021) Green Space Reading Group 18 November 2021 ed. KTH Royal Institute of Technology, Stockholm.
- Marcus L (2018) Overcoming the Subject-Object Dichotomy in Urban Modeling: Axial Maps as Geometric Representations of Affordances in the Built Environment. *Front. Psychol.* 9:449.



- Minoura E (2016) *Uncommon Ground: Urban Form and Social Territory*. Doctoral thesis, monograph, KTH Royal Institute of Technology, Stockholm.
- Peponis J (2017) On the pedagogical functions of the city: a morphology of adolescence in Athens, 1967-1973. *The Journal of Space Syntax* 7(2): 219-251.
- Robinson K and Sheldon R (2019) Witnessing loss in the everyday: Community buildings in austerity Britain. *The Sociological Review* 67(1): 111-125.
- Ståhle A, Marcus L and Karlström A (2005) Place Syntax: Geographic accessibility with axial lines in GIS. In *Proceedings of the 5th Space Syntax Symposium Delft*, Delft.
- Vincent C, Neal S and Iqbal H (2018a) *Friendship and Diversity Class, Ethnicity and Social Relationships in the City*. Cham: Springer International Publishing.
- Vincent C, Neal S, and Iqbal H (2018b). Living in the city: school friendships, diversity and the middle classes. *The British journal of sociology*, 69(2), 352–371.
- Wilson HF (2011) Passing Proximities in the Multicultural City: The Everyday Encounters of Bus Passengers. *Environment and Planning A: Economy and Space* 43(3): 634-649.
- Wilson HF (2013) Collective life: parents, playground encounters and the multicultural city. *Social & Cultural Geography* 14(6): 625-648.



8 APPENDIX

8.1 Table of data

Table 1, data sources.

WHAT	FROM WHO	NAME/WHERE	WHEN
Size of schoolyard and building	Education office and SCB (UTBF)	Friytor2019_grundskolor	2019
School type (public/private) and number of students	Planning office (SBK)	Grundskolor	2019
Building year	SISAB (property manager of schools)	Database online	2021
Population, on address points	Planning office	TEFAT	2018
Income on DeSo level	SCB, open geo-data	Pop_income	2019
Axial map	SAD/Spacescape/KTH	Axial_map	2012/2019

8.2 Emailed schools

A request for making observations was sent to six schools, on the 23rd of November 2021.

Table 2, emails to schools.

SCHOOL NAME	ANSWER	OBSERVATIONS
Gustav Vasa	Yes	Friday 3e Dec, Tuseday 7e Dec
Mälarhöjden	No	-
Hammarbyskolan Norra	Yes	Friday 3e Dec, Thursday 9e Dec
Sjöstadsskolan	Yes	Friday 3e Dec
Bäckahagens skola	Yes, but ongoing constructions	Friday 3e Dec
Vinsta grundskola, Östra	No answer	-