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Chapter

Students' Digital Photo Stories about School Spaces for Safety and Learning

Anneli Frelin and Jan Grannäs

Abstract

This study explores students' photo story input into how to create a safe and sustainable educational environment. Digital photo stories were collected through classroom assignments at a secondary school in Sweden and the software Microsoft Sway. The students made use of photos and texts to describe what they regarded as safe and unsafe places and places that supported or impeded their learning. The results show variations both in the areas that the students viewed as safe and unsafe and the reasons for their choice of area. This means that one area can be depicted as safe or positive by one student, but unsafe or negative by another, which was also the case regarding learning.

Keywords: digital stories, learning environment, participant-employed photography, school safety, student learning

1. Introduction

The chapter is based on a case study of how to create a sustainable and educational learning environment in a newly opened secondary school in Sweden. The purpose is to enhance our understanding of how students view their learning environments, both inside and outside the classroom. The focus is on their experiences of safe and unsafe spaces, along with spaces that support or impede their learning. The theoretical framework draws on a model for studying interaction in learning environments in order to facilitate an understanding of school practices and the connection between the physical spaces in the school buildings, how the school is organized and the pedagogical praxis. Participant-employed photography and digital stories were used to capture the students' views.

Previous studies of positive school environments from a student perspective have highlighted the role and importance of students' relationships with teachers and peers for their learning and well-being [1–4]. They have also indicated the significance of relationships and places outside the more formal classroom settings in school [1, 5–7].

While it is well known that the configuration of the physical learning environment can support or impede student learning [8–10], it is important to remember that pedagogy also plays a key role and needs to be aligned with the particular space in order to

work as intended [11–13]. Learning more about students' perceptions can contribute to the development of effective learning environments [14]. Here, there is reason to consider the educational environment both in and beyond the classroom, as all spaces in school can become learning spaces [15]. Involving students and other groups can yield a wider and more productive view of an educational environment (ibid.).

Although there is a general consensus about the overall features of safe school environments [16], very few studies have addressed the qualitative aspects from a student perspective [17]. However, students have reported feeling unsafe in spaces that are disorderly and crowded, such as canteens [18]. Contributions to a safe environment include physical features such as well-designed and maintained facilities and social features such as a sense of ownership among its users, high intervisibility and the movement of people [19]. Waters et al. use an ecological perspective to identify the components of a school ecology associated with improved connectedness, health and academic outcomes that contribute to a reduction in violence, such as support, student involvement, clear and fair expectations, well-maintained facilities and positive relationships. A number of international studies have demonstrated that safe environments powerfully promote learning [19–22]. This refers to the absence of aspects such as threats and violence and the presence of aspects that students connect to safety, such as a supportive and orderly environment [22–27].

The Swedish School Inspectorate (SSI) conducts a bi-annual survey covering all students in Swedish schools. A recent survey [28] focused on students in Year 9 (aged 15) and their perceptions of safety, the study environment, the prevention of harassment and school rules, and found that most students felt safe (85%), with boys generally feeling safer than girls. However, 23% of the students thought that their school should work more actively to prevent harassment. Those who felt less safe had a more negative view of the study environment in general. More than half of the students (61%) responded that other students were disruptive in the classroom. Students' perceptions of their study environments have also shown a slightly negative trend over the years.

1.1 A theoretical model for studying interaction in learning environments

In this chapter, the theoretical framework draws on a model developed by the Danish architect Ricken [28] in a research programme focusing on architecture, pedagogy and health. The theoretical model builds on the interplay between these dimensions: physical space, school organizing and pedagogical praxis (see **Figure 1**). The model is empirically grounded and based on a case study of four recently built or remodeled Danish schools. Ricken presents a Venn diagram in which the three dimensions overlap to varying degrees, depending on the extent to which they harmonize with each other. In other words, a well-matched design of learning spaces in relation to the pedagogical mission stated in a school's policy documents and its pedagogical practice gives a high degree of overlap in the dimensions in the Venn diagram. Each dimension can, over time, vary in quality and the match can be better or worse. Hence, the model describes a particular point of time in a dynamic process. As the three dimensions are related, they form a learning environment ecology. One of Ricken's strong arguments in the model is that deficiencies in the matching lead to imbalances in the learning environment.

School organizing stems from the overarching pedagogical goals as they are expressed in national policy documents, such as national curricula and syllabi, all of which have a major influence on the school's pedagogical praxis and functions and the people working there. These aspects are also governed by employment regulations

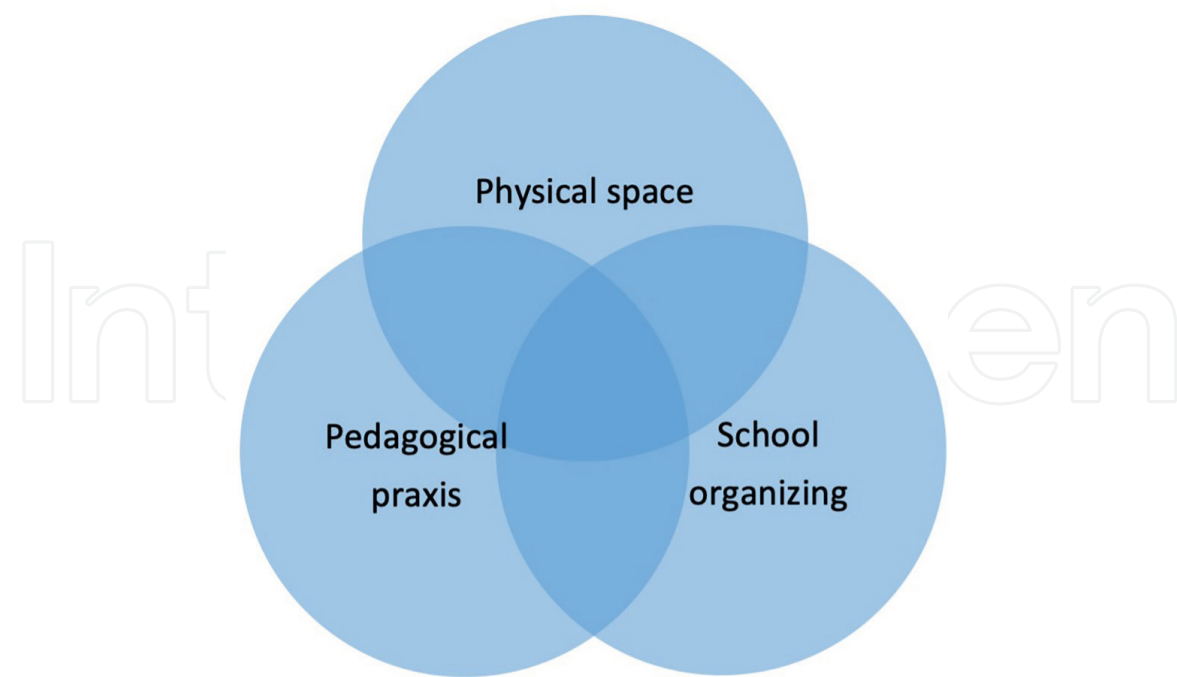


Figure 1.
Ricken's theoretical model: Interplay between dimensions in learning environments.

and schedules that control the flow of people and things and their placement inside and outside the school buildings [5, 7]. By observing the effects of scheduling, how the spaces are used and any possible crowding in parts of the school building during the school day can be visualized.

Pedagogical praxis consists of the enactments of teaching, learning and social interaction that take place in a school. Pedagogical praxis is strongly influenced by the goals that are set for different levels and school organizing. For example, a school's pedagogical programme and the staff's task perceptions, as expressed in both school and staff cultures, are included in this dimension. By observing pedagogical praxis, the creation of aspects such as order and focus can be visualized [ibid.].

Physical space consists of the school building and the things within it. This can include the design of the school, whether the teaching spaces are large or small, the open or closed nature through traffic and how spaces are linked together. It can also answer questions about whether the school has transparent or closed walls and doors, how the light and sound design function and whether there are nooks and crannies, staircases or narrow corridors that could be experienced as safe or unsafe.

Ricken [28] argues that the interplay between physical spaces, pedagogical praxis and school organizing forms an overarching frame for how spaces are used in relation to student agency and students' possibilities for action. What the potential learning environments offer is a space for bodily, social and physical affordances. Affordances, as described by Gibson [29], say something about the relation between that which is perceived and the perceiver, which in turn plays into how meaning and possibilities for action are created. However, at this point a distinction needs to be made between offered affordances and perceived affordances. For example, the physical affordances offered in an alternatively designed teaching space—such as furniture or technology—might not be interpreted by the teacher and student as meaningful or as meeting their needs and thus remain unused. Regarding social affordances, a crowded space could be interpreted and conceived differently by individuals.

2. Research design

The case school, Maple Grove, is a newly opened secondary school (Years 7–9, with students from 13 to 15 years of age) and centrally placed in a large Swedish municipality. After being modernized, it opened as a secondary school in 2015. Thus, in the first intake the students were all new to the school. The fieldwork was conducted over the course of one school year [30, 31].

The data used in this chapter consists of participant-employed photography complemented by digital stories [23, 32] collected in the spring of 2016 during the students' second term at the school. About half of the students forwarded their assignments to the researchers. A total of 17 students participated in the data collection—11 males and 6 females. Eleven of the students were in Year 8 and the other six in Year 9. According to Banks [33], visual research methods are appropriate for the study of youth and their contexts. Digital stories (using the software Microsoft Sway) were collected by means of classroom assignments. The analyzed photo stories are derived from one Year 8 and one Year 9 class. In the assignment, the students were asked to describe safe and unsafe places in the school and the places they regarded as positive or negative for learning. They were instructed to use a combination of photos and texts and to ask anybody featured in the photographs for their consent before using them in the assignment. The photo stories were delivered to the researchers via links sent by email and where emailing was voluntary. For ethical reasons, the photos in the chapter are blurred.

The analysis in this study is based on the theoretical model for studying interactions in learning environments and also draws on Banks' [33] distinction between the form of a visual image and its content. This means that the photos taken by the students have been read externally (form: what we see in the photo) and internally (content: the message that has been sent to us). In addition, thematic analyses were conducted on the digital stories, which involved repeated readings from beginning to end (vertically) and then comparisons of the different stories (horizontally). In the coding process, keywords and key sentences were marked in order to categorize the content of the digital stories and develop prominent themes [34, 35]. The coding process was conducted in two steps: first, by the two researchers reading and coding the digital stories separately, and second, by comparing the coding in order to achieve trustworthiness in the presented themes.

3. Results

Two themes emerged in the students' digital photo stories: their views of the spaces that they felt safe or unsafe in and the spaces that they described as supporting or impeding their learning. The frequencies of the students' views of places they found safe and unsafe, respectively a good place for learning, are presented in **Table 1**.

3.1 Safe and unsafe places

In the central areas of the school, the more trafficked areas are often characterized by intense flows of people buzzing and bustling through them. In the research literature, safe spaces are usually described as places in which people are mobile. Our results show that although some students enjoyed such places, especially those where adults were present, others felt unsafe when surrounded by too many people and subjected to too much noise.

	Grade 8		Grade 9	
	Boys	Girls	Boys	Girls
Safe and unsafe places				
Corridors	iiiiiii	iii	ii	i
Intense places	iiiiii	ii	i	ii
Quiet places for retreat	iiii	iii	ii	ii
Spaces for learning				
Silence	iiiiiii	iii	i	i
Teacher-centred pedagogies and flexible learning environments	iiiiiii	i	i	i

Table 1.
Frequencies of student views.

3.1.1 Corridors

Even though the school management and administrators tried to stagger the breaks and lunch breaks, crowding nevertheless occurred in certain parts of the school building. In some areas the physical space was insufficient in terms of how the timetable contributed to flows of people and things over the course of a day. Places that were designed for mobility, such as corridors, were described as unsafe by some of the boys (see **Figure 2**). A boy in Year 9 explained: “... you never really know what might happen. Sometimes someone might be bullied or beaten. That’s not OK. They should make the corridor safer than it is.” The use of the word “might” does not make it clear whether something like that had already happened in that particular corridor.



Figure 2.
A place experienced as unsafe: Corridor (boy, Year 9).

However, due to its features and lack of adult presence, the place was experienced as unsafe (with negative potential). What the results revealed was that some places had not been fully taken into account when organizing the location of the school staff during the course of the school day.

The students' experiences of the corridors varied, although the material does point to differences between the girls and the boys. For example, one boy described the corridor in a positive way as a place that he liked to spend time in and where he could talk to students from other classes. In contrast, a girl in his class described the same place as unsafe and worried about the difficulty of getting to her locker: "I constantly think that I might suddenly being pushed, which makes me feel unsafe." She was also worried about getting involved in or witnessing fights between other students and pointed to the lack of presence of teachers in the corridor as a problem.

From the perspective of interplay between the physical space, school organizing and pedagogical praxis, this is a good example of an unbalanced status of the learning environment, in that the corridor was experienced as too cramped and did not allow students to move easily between the locker areas and to and from the classrooms. It also shows that the school staff had not fully interpreted this space and the social interaction that was likely to take place there. The feedback from the photo studies was that such spaces were perceived negatively by some students, especially the girls.

In the analyses of the photos, the girls who described the corridors as unsafe places showed boys gathering in groups and blocking access to classrooms and lockers. The placement of the furniture in this area also made the passage narrower and contributed to making access to the lockers more difficult. Crowding in the corridors also occurred when the students moved between classrooms for their lessons. The furniture in the corridors was rearranged. Interestingly, when the boys photographed the same corridors as the girls, no people were present.

3.1.2 Intense places

Again, looking at the interplay of the dimensions in the learning environment, there are also examples of balanced spaces. The busy main corridor/hall with an adjoining library, café and dining hall was described in positive terms by students who appreciated meeting their friends there. This was also a place in which teachers and other adults were often present and where students had easy access to the staff for informal chats. However, the intense movement of students in these areas at various times of the day was also experienced by some students as difficult. The café area at the end of the corridor was managed by a café host, who was also responsible for looking after and caring for any students who needed extra attention. There was a lot of mobility in this area because it connected the main building and an annexe housing classrooms and the dining hall.

An intense area that was experienced by the students as safe was the adjoining reception area (see **Figure 3**). The receptionist was often accompanied by other adults there, such as teachers, student coaches and assistants (see **Figure 4**). The students commented on the fact that it was densely populated by adults: "I chose this place because I feel safe here and there are always staff or teachers to turn to if something happens" (boy, Year 9). Another boy expressed that more adults were present in other places in the school and argued that there would be less trouble and noise if that was the case here as well.



Figure 3.
A place experienced as safe: Main corridor/hall (boy, Year 9).



Figure 4.
A place experienced as safe: Reception area (boy, Year 9).

The dining hall was yet another intense place, especially at lunchtime when the students arrived for their meals over a short period of time in the middle of the day.¹ Here, in this crowded place, with its constant movement and noise, some students felt unsafe (see **Figure 5**).

One place where I don't feel very safe is the dining hall /.../ which is often very crowded and noisy. As there are lots of people there at the same time, there's a lot of movement, which can easily make people anxious. Besides, the lunch break is rather short, so if you want to do something more than eat during the break you have to hurry. (Girl, Year 8)

¹ The Swedish Education Act, 2010:800 requires that cost-free and nutritious school meals are provided for all students aged 7–16. For more information, see https://ec.europa.eu/jrc/sites/jrcsh/files/jrc-school-food-policy-factsheet-sweden_en.pdf



Figure 5.
A place experienced as unsafe: The canteen (girl, Year 8).

The dining hall thus became an assemblage of furniture, restaurant equipment, different staff functions and students all flowing together in an intensive period of the day. It was also assumed that the organization and logistics worked well.

3.1.3 Quiet places for retreat

Students who felt unsafe in the school's crowded and busy corridors creatively sought out and appropriated places of retreat that were not necessarily designed for that purpose (see **Figure 6**). For example, some students took photos of the unused stairwells in the wings. One student wrote that:

I like spending time by the stairs on the top floor /.../ because it's quiet and my friends and I can be on our own there. We usually sit on the steps and listen to music and talk. As we have both long and short breaks, it's nice to chill out a bit in the longer breaks instead of sitting in the corridor, where it's often quite noisy, because there are usually lots of people in the corridor outside our own classroom. (Girl, Year 8)

Other retreat places featured in the photos were corners with high-backed chairs or furniture that provided some sense of privacy, as well as furnished nooks and crannies. Thus, the furniture, the location, or both, helped to provide positive experiences.

I like it here. It's close to the science classroom and when there are no lessons it's quiet, which I enjoy. All the loud and rowdy people are not here. Most of the time I hang out with my friends, because that's the best. It's chaos in a corridor, which is really very tiresome. (Boy, Year 8)

What became apparent in the students' digital stories was that during the breaks, some students experienced the noise and movement in the corridors and other common spaces and other sensory impressions as stressful. For this reason, they needed to seek out places of retreat where they could work quietly or talk with their friends (see **Figure 7**).



Figure 6.
A place experienced as safe: The stairwells (girl, Year 8).



Figure 7.
A place experienced as safe: A furnished nook near the science classrooms (boy, Year 8).

3.2 Spaces for learning

The students pointed to spaces such as breakout rooms connected to the classroom and teacher-centred pedagogies as positive, safe and contributing to enhanced

learning. Also, the indoor climate of temperature and light was important for how the pupils perceived the learning environment.

3.2.1 Silence

Several students talked about the importance of silence for feeling safe, as well as being a vital prerequisite for their study and learning in class. Most students regarded the classrooms as safe places, although they experienced insecurity and stress if the corridors outside the classrooms were noisy and crowded. “I can work well here and not be disturbed. I also feel safe because there is always a teacher nearby to call on if something happens. It’s quiet here too and help is available if needed” (boy, Year 8).

It would therefore seem that the classrooms close to the central stairway are more exposed to noise than the more peripheral ones. This is partly a result of how the timetable regulates the flows of students between lessons in different parts of the building and partly due to the fact that there is only one central stairway in the building that the students are allowed to use. The classrooms in the wings are separated from the corridors by a small hallway, which means that there is less disturbance there due to less movement and noise.

3.2.2 Teacher-centred pedagogies and flexible learning environments

The students mostly described the science classrooms in a positive way. Science is one of the subjects in which students are taught in groups of 15, rather than 30. The quiet learning environment also added to the students’ positive experiences of feeling safe (see **Figure 8**). The students commented positively on the science teachers’ enforcement of classroom rules:

I like the science classrooms because it’s always quiet there. There aren’t so many people outside the classroom and we often divide ourselves up into two groups so that we have a lot of help and a good working atmosphere. For me that means that it’s quiet enough for everyone to work undisturbed. (Boy, Year 8)



Figure 8.

A place experienced as positive for learning: Science classroom (boy, Year 8).



Figure 9.
A place experienced as positive for learning: Breakout room (girl, Year 8).

What the example shows is that the school organizing and pedagogical practice match with the support of the teaching space.

Other places described as positive learning environments by both the boys and the girls were the smaller breakout rooms (see **Figure 9**).

I learn things better in the turquoise breakout room, because I can concentrate more easily when it's quiet. I've always been curious about everything that happens around me. In the classroom I can easily lose focus. Therefore, it can be nice to sit in a breakout room with fewer people than in a large classroom. (Girl, Year 8)

Some of the students were very particular about the physical features that helped them to learn, such as the number and placement of windows and the temperature in the room. One boy in Year 9 wrote: "I've just chosen this place that works well for me. I feel very open and focused here due to the very nice windows, space and seating. It's very quiet here. In the physics lab you'd never suffer from heatstroke." The content and equipment in the science rooms offered activities with tactile features, where the artifacts seemed to stimulate the students' interest. It also became clear that some of the artifacts were dangerous and required teachers to be strict about what could and could not be done there. This was experienced by the students as contributing to their emotional safety.

4. Discussion

This chapter builds on a case study of how to create a sustainable and educational learning environment in a newly opened secondary school in Sweden. The purpose has been to enhance our understanding of how students view their learning environments, both inside and outside the classroom. Furthermore, the focus is on the students' experiences of safe and unsafe places, along with spaces that support or impede their learning. We used a theoretical model to study interaction in learning environments in order to facilitate an understanding of the school's practices and the connection between the physical spaces in the school buildings, how the school is

organized and its pedagogical praxis. The research design of asking the students to describe places in their school by using digital stories consisting of photos and stories opens up alternative ways of obtaining information and facilitating an in-depth understanding of how students perceive their learning environment.

The results show variations in the areas that students view as safe and unsafe and the reasons for this. It became clear that one area could be depicted as safe by one student and unsafe by another. The students also point to safe and unsafe places in the school buildings that the architects, interior designers and school staff have not fully considered in their original designs.

Regarding the physical space and school organizing dimensions, the results show that students gather in certain places, mostly due to the scheduling of breaks and lunchtimes, which points to the management of time as a co-creator of people flows [29]. For an in-depth understanding of learning environments, it is valuable to plan and test how the design of a school building works in relation to the timetable and the organization of the school and to create a staff culture that works in the spaces [10, 11]. The descriptions show how different spaces are used in unintended ways [36]. The significance of “taking place” as a materialized practice, where the movements and sounds of students influence other students, has been highlighted.

Here the results show that a high intensity of student movement and a low staff presence contribute to students perceiving different spaces as unsafe. This aligns with previous research [18] and can be interpreted as resulting from crowded and intense places due to the school’s organizing and affordances in the physical spaces. For some students, the situation is experienced as stressful due to the overstimulation of bodily, visual and auditive sensations. Seeking out quiet and empty spaces to retreat to can be viewed as negotiating space to meet a need for retreat. The results thus show the value of creating retreat spaces for students. However, the appropriation of space seems to depend on the intensity and presence of adults, and here there is reason to consider the ways in which different groups of students are allowed to “take place”. What kind of lessons are learned if some students continuously take centre stage, while others are left on the periphery?

Ricken [28] argues that the affordances offered by the physical space, the school organizing and the pedagogical practice create conditions for student agency and, by extension, students’ learning experiences. The results here show that especially girls express discomfort in certain spaces and situations in the school building, and that they display agency by managing the situations in accordance with their perceived affordances of the building, organizing and praxis. In the light of these results, it would seem that the configuration of different spaces in school needs to be problematized and improved.

When it comes to the relation between physical space and pedagogical praxis, to the same extent that students describe the spaces they experience as unsafe and negative for learning, they also point to those that they experience as safe and positive for learning. The results show that smaller student groups and access to breakout rooms are appreciated by the students. In these environments, the teacher-centred pedagogy is most prevalent. We would like to highlight the tendencies that indicate that student-centred pedagogies create more movement and noisier environments, often as a result of poor acoustics [10, 11]. Achieving a match in an existing environment with new types of organizing and pedagogical praxis may either mean creating smaller groups to accommodate for the changes or remodeling to improve the acoustic quality. Failing to consider these factors may impact students’ sense of safety, health and learning.

5. Conclusions

Studying a school and how to create a sustainable and educational learning environment has proven to be a rather complex endeavor. In this chapter, the focus has been on the students' experiences of safe and unsafe places, along with spaces that support or impede their learning.

How the learning environments are perceived by the students can be traced to the design of the physical space, the organizing of the school and the ways in which pedagogical praxis is expressed. The learning environment is perceived in varying ways, and there are variations in both the areas that the students viewed as safe and unsafe and the reasons for their choice of area. This means that one area can be depicted as safe or positive by one student, but unsafe or negative by another, which was also the case regarding places for learning.

From a potential safety perspective, it is possible to avoid ill-considered designs that create narrow passages and noisy spaces. In addition, flows of students and staff (i.e., the organizing) are crucial for how the flows play out during the school days. The school staff's task perception and practice are decisive for who, where, how and when the various staff functions match the physical space and the organizing. However, to create a sustainable and educational learning environment is still possible.

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Conflict of interest

The authors declare that they have no competing interests.


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