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Tradition and innovation. Representations of a “good” learning environment among Swedish stakeholders involved in planning, (re)construction and renovation of school buildings

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ABSTRACT
This study highlights how 20 Swedish principals, school managers and architects involved in planning, construction and reconstruction of primary and secondary school buildings at regional, municipal and local levels represent good learning environments. Drawing on semi-structured interviews, the analysis focuses on how the stakeholders understand the physical, pedagogical and social aspects of learning environments, including the power relations and principles of control that are embedded in their understandings. The findings indicate two orientations when the interviewees discuss good learning environment, an orientation towards clearer boundaries and control in physical, pedagogical and social spaces (strong classification and framing), and an orientation towards weaker boundaries and control (weak classification and framing). The first orientation is directed towards what, in previous research and policy discourses, is described as traditional school design, whereas the second rejects some basic principles of traditional school design and aligns with what is commonly described as innovative school design.

KEYWORDS
Learning environment; school design; physical space; pedagogical space; social space

Introduction
Educational policies at national and supranational levels of how schools are to be built and equipped convey an image what a “good” or ideal learning environment represents. By frequent use of terms such as “new”, “innovative”, “modern” and “new generation learning environments”, they also convey an image of contemporary school design as being in an era of shift (e.g. OECD, 2013, 2017). This implied shift is also recognised in Swedish architecture research. During the last century there have been several shifts from “traditional” to “innovative” school design and the other way around, and contemporary school design represents a clear movement towards the “new” and “innovative” (Bjurström, 2000, 2004).

Still, trends and transitions in school design are hard to predict. This applies in particular to countries – like Sweden – where there are no specific policy programmes
for how schools are to be built. Given the OECD policies mentioned above, schools are expected to provide learning environments that are “open”, “varied and “flexible” (OECD, 2013, 2017), but it is uncertain whether these are also central thoughts in Swedish school policy. The lack of central programmes and guidelines also makes the practice of designing and building schools a rather open question for those involved. This situation further indicates the influence that the stakeholders involved in planning construction, reconstruction and renovation of school(s) actually enjoy in these countries.

This study focuses on, and problematises, ideas that guide and govern the planning and design of new school buildings in Sweden. We highlight how a number of principals, school managers and architects at regional, municipal and local levels involved in contemporary Swedish school design represent good learning environments. We regard principals, school managers and architects as important policy actors who influence the schools that are built in Sweden today – schools that will be used for many decades to come. Furthermore, we consider their ideas about design as closely linked to desirable pedagogies and social relations. By using the term “good” in the interviews and study design, our intention was to get sight of their ideas and priorities in relation to school design, pedagogy and social relations.

The interest in learning environment, for example how the design and material equipment of school environments interact with pedagogical practice, has increased among educational researchers in recent years and is a research field that is developing at a significant rate (Ellis & Goodyear, 2018; Grosvenor & Rosén Rasmussen, 2018; Martin, 2002; Stadler-Altmann, 2015; Tondeur, Herman, De Buck, & Triquet, 2017; Van Merrienboer, McKenney, Cullinan, & Heuer, 2017; Woolner, Thomas, & Tiplady, 2018). Most literature primarily focuses on what is best design and best practice (Blackmore et al., 2011). In a Swedish context, interdisciplinary and educational research projects have focused on schools’ physical environment in relation to student learning, well-being, safety, achievement and motivation (e.g. Alerby, Bengtsson, Bjurström, Hörnqvist, & Kroksmark, 2006; Isling Poromaa, 2016; Lundahl, Gruffman-Cruse, Malmros, Sundbaum, & Tieva, 2017; see also review in Björklid, 2005). Recent projects include post-occupancy evaluation studies (De Laval, Frelin, & Grannäs, 2019), and highlight how school environments are appropriated by their users, how for example teachers respond to buildings in various ways, and how they need to negotiate and compromise with the environments in which they teach. Still, few Swedish studies have concentrated on those who actually design and plan new schools or work with reconstruction/renovation of schools. However, internationally, there is rather extensive research on school design and the design process (e.g. Bojer, 2019; Sigurdardóttir & Hjartarson, 2011), and several publications from the ILETc project address the significance of the design for the subsequent use of the space, and for student learning outcomes (Byers, Imms, & Hartnell-Young, 2018; Imms et al., 2017).

The aim of this study is to contribute knowledge about what a good learning environment represents to these stakeholders, taking into account physical, pedagogical and social aspects of what constitutes a learning environment. Findings will be discussed in relation to the dominant policy discourse on school design in transition from traditional to new and innovative as emphasised in previous research (e.g. Blackmore et al., 2011; Dovey & Fisher, 2014; Loughlin, 2013; Mulcahy & Morrison, 2017).
The context

Looking at Swedish school design from a historical perspective, dialectical communication has existed between modernity and tradition throughout the history of school architecture (Bengtsson, 2011; Bjurström, 2000, 2004). The most obvious shift towards a more radical modern design appeared around the late 1960s and early 1970s and coincided with the breakthrough of a new and more radical pedagogy. Long, two- and three-storey narrow brick schools with long corridors containing rows of classrooms began to be abandoned and replaced by wider, often one-storey buildings with atrium spaces to let light in (Bjurström, 2000, p. 17). They were built to harmonise with the changed pedagogy, largely influenced by John Dewey’s ideas about respecting children’s needs, augmenting their influence, considering their interests and activities as a basis for teaching and learning (1980/1998). Dewey’s critique of the outdated, often authoritarian, teaching culture and his ambition to open up the school towards the community has inspired Swedish educational reforms since the 1960s and has been given spatial expression in newly-built schools, for example by avoiding rows of similar classrooms along long corridors (Bjurström, 2004). Furthermore, school designers at the time wanted to not build schools that looked too much like institutions, but rather to create environments that looked and felt more like “home”, particularly when it came to schools for younger children. They planned and built schools that contained individual units or at least attempted to create more home-like exteriors and interiors, trying to make the students feel a sense of belonging at school (Bjurström, 2004). During the 1970s, some “open-plan schools” i.e. schools with open learning spaces instead of closed traditional classrooms, were built in Sweden (Bjurström, 2017, p. 123) but they did not make a significant impact or start a trend.

In the early 1990s, a new curriculum, Lpo94, was introduced which stated that teachers should be organised in teams and conduct more collaborative teaching. It also emphasised – as part of the school’s democratic mission – individualised learning and flexible teaching methods, including tuned down boundaries between subjects, school classes and lessons.

The new ways of organising teaching, as stipulated in the new curriculum, brought with them the need for differently-designed school buildings. Projects initiated by the Swedish National Agency for Education in order to support implementation of the new curriculum, such as “Skola 2000” [School 2000] (Wallin, 2000), advocated school buildings with units or home base arenas (cf. Sigurðardóttir & Hjartarson, 2016) to create smaller schools within the large main school. Thus, the trend that had already started in the 1970s was strengthened, now with shared spaces and teachers’ offices placed in the units (Bjurström, 2000, 2017, p. 119). The school unit trend has continued into the 21st century, but traditional corridor schools and school buildings that reflect a questioning of the rationality that characterises more traditional school buildings are also being built (Bjurström, 2004, 2017).

Swedish contemporary school design in practice can thus be described as diverse, and one aspect that can influence this diversity is the fact that Sweden has no central guidelines for school design. No central guidelines for school buildings have existed in Sweden since the 1990s. Before the 1990s, central policies and guidelines were in place, including detailed regulations about school buildings (square metres per student,
essential equipment, etc.). However, following a pervasive process of decentralisation of the school system, specific national policy or guidelines for school design ceased to exist. Instead, it has been left to the individual school owner (municipality or private owner) to decide how school buildings should be designed and equipped, on the condition that the legislation and guidelines that apply to the environment in public buildings in general (air, light, security and health aspects etc.) are complied with (Bengtsson, 2011; Bjurström, 2004, 2017).

This lack of national policies and guidelines has been the subject of political debate, and requirements to develop guidelines have been put forward, a requirement that has recently been accepted at government level. In the Government Bill 2017/18:110, “Politik för gestaltad livsmiljö” [Policy for life environment], the Swedish government proposes that the Swedish National Board of Housing, Building and Planning will produce national guidelines in order to help municipalities build “qualitative”, “accessible” and “sustainable” schools (Government Bill 2017/18:110).

In the absence of central guidelines or regulations, we assume that contemporary school design in Sweden largely relies on agreements and compromises between local stakeholders for each individual school building project. Thus, local stakeholders such as architects and school managers at an administratice municipality level and principals involved in planning and building new schools become important “policy actors” (Ball, Maguire, & Braun, 2012) in the process of designing new schools. They form collective units which exert great influence on school building projects, but are still, as we assume in this project, also positioned in local, national and global policy landscapes and communities of practice.

**Theoretical framework**

This study draws on an understanding of learning environments as relational constituted (McGregor, 2004; Mulcahy, Cleveland, & Aberton, 2015). We address the relational perspective by the use of spatial concepts (cf. Kirkeby, 2006), and consider physical, pedagogical and social space as elements feeding into the learning environment. A school is not only a physical building but also a pedagogical and social space. As architect theorists have argued, the architecture of a building works primarily through the organisation of rooms and room relationships as they influence social relations and actions (Hillier & Hanson, 1984), and this also includes pedagogical relations. Thus, the physical, pedagogical and social space combine to produce a school’s total learning environment. Following this, this study highlights physical, pedagogical and social aspects of how a good learning environment is represented in stakeholders’ discussions, including the pedagogical and social relations embedded in the representations.

At one point in the process of analysis (see the section “Study methodology”), a need arose for theoretical concepts to address elements of power relations and control in the data. We chose to use Bernstein’s concepts “pedagogical code”, “classification” and “framing” (Bernstein, 2000, 2003) for that purpose. The pedagogical code demonstrates a complex composition of power and control that emerges from the principles that govern and organise practices in physical, pedagogical and social space (including time) (Bernstein, 2000). Some of these principles relate to what Bernstein conceptualises as
“classification” and “framing”. Classification is a relational concept concerning boundaries between, for example, physical spaces, school subjects or social categories, i.e. how different categories are constructed by being distinguished from other categories. A strong classification indicates well-divided and clear boundaries between, for example, subjects, actors and physical spaces. In contrast, a weak classification indicates less obvious boundaries and distinctions. Any attempt to change the boundaries reveals power relationships. For example, strong boundaries in the teacher-student relationship confer power on the teacher, while weak boundaries indicate that power is relocated from teacher to students.

Further, framing is about the relationships that are established within a given classification regulating, for example, communication and thus interwoven with the classification. Strong framing is expressed through clear and explicit rules and principles for classroom communication and practices, for example, how a teacher is expected to act in the classroom and how the student is expected to act. Weak framing occurs when the rules and principles of learning are merely implicit, for example, when the teacher and student roles are not clearly defined and separated, and when also the students are given influence over classroom practices. Thus, the strong/weak classification and framing and the relationships between them construct what Bernstein conceptualises as a “pedagogical code” (Bernstein, 2000, 2003). In this study, classification and framing are used to analyse the ideas about power and control embedded in the stakeholders’ representations of physical, pedagogical and social school space.

**Study methodology**

The study draws on semi-structured interviews (Kvale, 1996) with stakeholders at a municipal and/or school level who were, in various ways, involved in projects regarding construction and reconstruction of school buildings in primary and secondary school. We contacted them via municipal administration and national networks, and they were selected on basis on achieving geographical spread over the country and including both large and small municipalities. They were all working in different projects independent of each other, thus there was no professional connection between them. At the municipal level, interviews were held with three architects and eight officials/school managers, of which the participants in the latter group had slightly different assignments depending on, among other things, the size of the municipality. However, all of them worked with the design and equipment of school environments of some kind. At the school level, interviews were held with nine principals, all of whom had experience of participating in the planning, construction and reconstruction work of schools where they worked. In total 20 stakeholders (architects, officials/school managers and principals) were interviewed. The clear majority of them were experienced and had worked many years with school environment tasks. In Table 1 below, we present information about the participants, such as profession, main work assignment and the parts of Sweden where they were primarily professionally active at the time for the interview (see Table 1)

Interviews were conducted by three researchers over the phone and recorded. They lasted for 45–70 minutes. Throughout the interviews the interviewing researcher used the concept “learning environment” without defining it to the participants. We used the
| Identity number | Profession, gender | Level of activity | Location          | Main assignment                                                                 |
|-----------------|-------------------|------------------|------------------|---------------------------------------------------------------------------------|
| ID01P           | Principal (male)  | Local            | Central Sweden   | Directing school(s), and involved in planning construction/reconstruction/renovation of school(s) |
| ID02P           | Principal (male)  | Local            | Central Sweden   | Directing school(s), and involved in planning construction/reconstruction/renovation of school(s) |
| ID03P           | Principal (male)  | Local            | South Sweden     | Directing school(s), and involved in planning construction/reconstruction/renovation of school(s) |
| ID04P           | Principal (male)  | Local            | South Sweden     | Directing school(s), and involved in planning construction/reconstruction/renovation of school(s) |
| ID05P           | Principal (male)  | Local            | South Sweden     | Directing school(s), and involved in planning construction/reconstruction/renovation of school(s) |
| ID06P           | Principal (female)| Local            | South Sweden     | Directing school(s), and involved in planning construction/reconstruction/renovation of school(s) |
| ID07P           | Principal (male)  | Local            | South Sweden     | Directing school(s), and involved in planning construction/reconstruction/renovation of school(s) |
| ID08P           | Principal (female)| Local            | North Sweden     | Directing school(s), and involved in planning construction/reconstruction/renovation of school(s) |
| ID09P           | Principal (male)  | Local            | North Sweden     | Directing school(s), and involved in planning construction/reconstruction/renovation of school(s) |
| ID10SL          | School manager (female) | Municipality | Central Sweden   | Directing school(s), and involved in planning construction/reconstruction/renovation of school(s) |
| ID11SL          | School manager (female) | Municipality | Central Sweden   | Planning construction/reconstruction/renovation of school(s)                       |
| ID12SL          | School manager (female) | Municipality | North Sweden     | Planning construction/reconstruction/renovation of school(s)                       |
| ID13SL          | School manager (female) | Municipality | South Sweden     | Administering projects related to various aspects of learning/school environment   |
| ID14SL          | School manager (male) | Municipality | Central Sweden   | Planning construction/reconstruction/renovation of school(s)                       |
| ID15SL          | School manager (male) | Municipality | Central Sweden   | Leading school development projects related to various aspects of learning environment |
| ID16SL          | School manager (male) | Municipality | North Sweden     | Planning construction/reconstruction/renovation of school(s)                       |
| ID17SL          | School manager (male) | Municipality | South Sweden     | Planning construction/reconstruction/renovation of school(s)                       |
| ID18A           | Architect (female) | Regional/ National | Central Sweden | Designing schools                                                              |
| ID19A           | Architect (female) | Regional/ National | South Sweden  | Designing schools                                                               |
| ID20A           | Architect (female) | Regional/ National | Central Sweden | Designing schools                                                               |
term in our questions without defining it, as our intention was to get sight of both explicit and implicit interpretations of what a (good) learning environment meant to them without telling them beforehand that we were interested in physical, pedagogical and social aspects of learning environments. Examples of interview questions: “How do you perceive a good learning environment?”; “What do you find important when it comes to learning environment in schools?”; “What do you see as important design-wise when you renovate or build new schools?”; “In terms of classrooms, what should they look like and what functions should they have?”

All three researchers participated in transcribing the interviews, and the analysis was conducted as a joint process. Even though we understand physical space, pedagogical and social space as being intertwined (see the section “Theoretical framework”), we began the analysis sorting participant statements into three groups, one group of statements that referred to physical space, another of statements that referred to pedagogical space, and a third of statements that referred to social space. Statements that obviously referred to two or all three of these spaces were sorted in both/all three space categories. In a second analytical stage, we worked with coding and thematising data within in each space category (Schreier, 2012), and identifying recurrent concepts that we present and discuss as key concepts. Note that these were not concepts that we asked for their interpretations of in the interviews, but concepts that the participants themselves used when we asked them to describe a good learning environment. In a third analytical stage, we examined their understandings and uses of key concepts, e.g. what meanings did they assign them, and what perceptions of social and pedagogical relations were embedded in their talk? In this phase of the analysis, we identified two orientations in how the stakeholders talked about social and pedagogical relations that aligned with how they talked about physical space. These differences/orientations related to perceptions of power relations and control – an orientation towards rather strict social and pedagogical relations and another towards weaker relations. In order to scrutinise these orientations and variations more carefully and complete the analysis, we turned to Bernstein’s concepts “pedagogical code”, “classification” and “framing”. They were used to analyse differences in perceptions of boundaries and control in physical, pedagogical and social space, i.e. to differentiate between strong and weak boundaries and control in physical, pedagogical and social space (strong classification and framing respectively weak classification and framing).

Quoted interview data have been translated into English. When reporting on findings, longer quotes are marked with an identification number referring to participant (see Table 1).

Throughout the project we have considered the ethical guidelines from the Swedish research council (Vetenskapsrådet, 2017). For example, when asking individuals to participate, we provided them with rich information about the study, including its overall purpose, and that they would remain anonymous. They also received information that their participation was voluntary and that they had the right to cancel their participation at any time.

Findings

Four concepts were central in all the interviews concerning what the stakeholders considered to be a good learning environment. These key concepts were variation and
flexibility (in relation to physical space), active and self-directed learning (in relation to pedagogical space), and safety (in relation to social space). All interviewees used these concepts. However, there were differences in how they interpreted and used the concepts, and we identified two orientations in terms of classification and framing: one orientation indicated strong classification and framing and one orientation indicated weak classification and framing. These differences in orientation did not relate to professional category, i.e. to whether the interviewees worked as principals, school managers or architects. Instead, the differences cut through these groups. In fact, the two orientations were distributed fairly evenly within each professional group, albeit with a slight tendency towards the orientation towards weak classification and framing in all three groups.

In the following, we present and discuss interviewee material around the key concepts divided into three sections: physical space, pedagogical space and social space. As the variations in data concerned differences in how the interviewees envisioned boundaries and control, we concentrate reporting the results on these variations.

Physical space

As demonstrated by Blackmore et al. (2011), much literature on school design and design of classroom settings focuses on designs characterised by flexibility and mobility of structures in order to facilitate pedagogies that accommodate individual students’ needs and personalisation of space. Similar design ideas were reflected in this study. One key concept when the interviewees spoke about physical space was variation. It was argued that teachers need different kinds of premises when they teach, depending on what and how they teach: “teachers should be able to choose the premises based on what they are working with” and “teachers need premises and equipment that enable different working methods” (ID12SL). One underlying idea was that different spaces provide different opportunities, and are therefore differently suited to different activities – where some rooms are suitable for lectures, others are more suitable for student collaborative work, individualised work, etc. This, in turn, was motivated by the various student needs: “Teachers must have the opportunity to cater for students with different needs” (ID18A). Thus, statements about diverse and varied physical space had strong links with the idea of individualised learning and individualised working methods:

Students have different preferences so the school needs to provide different spaces so that they can experience both safety and challenges; variation in space is important. (ID20A).

Scrutinising their talk about variation, different meanings of “variation” were discovered. Some interviewees talked about variation in terms of combining classrooms with breakout spaces: they considered the traditional classroom with space for around 30 students as the dominant type of learning environment in school, but with breakout rooms to supplement the classrooms. This favouring of two main types of learning environments indicates an orientation towards rather strong classification in physical space (Bernstein, 2000). Interviewees oriented towards this direction favoured the idea that there should be as many classrooms in one school as there are school classes, and the variation they envisioned was access to breakout rooms. Thus, they talked about a diverse learning environment but favoured what they called “traditional” or “rather
conventional” school design. As one of the interviewees emphasised: “We plan for ordinary classrooms, not open spaces” (ID01P).

Other interviewees argued for richer variation in terms of many different kinds of learning environments, with the aim of disentangling education from the traditional classroom as the dominant type of learning environment in schools. The argument was that building schools with as many classrooms as there are school classes, “force[s] teaching into a certain group size of students […] and restricts diversity” (ID20A). They argued for various room sizes, small rooms, larger rooms, open spaces including rooms the size of an “ordinary” classroom, which indicates weak classification of physical space in school design. This was expressed in comments such as “no boundaries between the school’s indoor and outdoor environment” and “erase spatial boundaries” (ID20A). Further, one way to weaken boundaries was to build transparency into the building based on glass walls, glass doors and open transparent spaces. The main argument was that they wanted all the spaces in school to be seen and used as learning spaces, i.e. “teaching and learning is happening everywhere” and “all the spaces in the school should serve as teaching and learning areas” (ID14SL).

Flexibility was another key concept when the interviewees talked about the physical space, a central feature also in contemporary Islandic school design and school buildings for the 21st Century (cf. Sigurdardóttir & Hjartarson, 2011). In our study, the stakeholders used the term flexibility in the meaning of “being changeable” (cf. Dovey & Fisher, 2014) – that teachers should have the opportunity to change their learning space to suit their teaching activities. By “changing”, the interviewees who were oriented towards strong classification in physical space mostly referred to changing furniture within fixed walls e.g. flexible furniture in the classroom:

*It should be possible to change each classroom to suit the teacher’s needs […] it should be functional for the class you have in front of you and for the teacher standing there* (ID01P).

The basic idea in this reasoning was that a classroom should be furnished with student benches and chairs as in the traditional classroom, however with possibility to refurnish in order to fit the teaching situation and the classroom activities, as one of the interviewees explained: “By adapting the furniture, you can help the students to succeed better” (ID04P). This also included fitting individual student needs: “to change and use space according to individual [student] needs” (ID18A). There were both those who argued for individual desks and chairs, but also those who felt that chairs and desks did not necessarily need to be individual: “free the students from the chair and the bench and let them use a diverse learning environment” (ID17SL).

The interviewees who were orientated towards weak classification of physical space talked about flexibility in terms of flexible furniture, but also in terms of removable walls to be able to change the size of learning environment: “[…] to split classrooms, or have access to different furniture options, for example, the option of creating a room within the room, creating rooms within the classroom” (ID09P). Furnishing the classroom with screens was also mentioned: “[a classroom] should contain [moveable] boundaries, created by screens, for example, creating islands, a space for everyone […]” (ID08P).

Some interviewees also talked about flexibility from a long-term perspective, discussing the school as an organisation in a state of constant change, and that local schools need to be built in order to address changes such as “reducing personal density” (ID20A); “the
premises can involve different types of organisation” (ID14SL), i.e. both in teamwork organisation situations and organisation based on one class, one teacher. They should also be easily “adaptable”, i.e. built so that they can “easily be adapted to other municipal activities, if necessary” (ID14SL) (cf. de Laval et al., 2019).

**Pedagogical space**

Ideas about school design are linked to desirable teacher pedagogies and learning philosophies (Blackmore et al., 2011). In this study, a key concept concerning pedagogical space was active and self-directed learning. Similar ideas are reflected in research on e.g. innovative learning spaces (e.g. Bradbeer et al., 2017; Byers et al., 2018. These and other studies point to a positive connection between new types of learning spaces and a change in pedagogy towards a more student-centred teaching approach and more active pedagogies. All the interviewees in our study supported a pedagogical approach directed at active learning and perceived students as active, creative and rather autonomous learners. In line with this they regarded it as important to “[...] be in dialogue with the students, give them confidence and reassure them that they can work independently” (ID09P) and that students are to be given “influence” at school. Altogether, their talk about active learning and student independence expressed rather weakly classified and weakly hierarchical teacher-student roles, and in that sense weak framing in pedagogical space. Students were not regarded as very dependent on the teacher, but as having influence over classroom practices and in charge of their own learning. The weak framing was reflected in comments that teachers should encourage students to “try things out”, to be “creative” and develop “entrepreneurial skills” and that students “don’t need reassurance all the time but can continue working [by themselves]” (ID09P). Furthermore, learning was emphasised as both an individual and a social process. For example, they talked about the students as individuals with “individual needs” and interests and emphasised the need for learning environments that enabled teachers “to engage with the student on his/her cognitive level” (ID06P). They emphasised the need for “seeing the individual and his or her strengths, seeing where the learning process can start, what we can build on” (ID05P). Furthermore, they promoted learning environments that encourage cooperation and “collaboration between students”: “learning together is an incredibly important part of the process, peer learning is crucial” (ID15SL).

Common to all interviewees was also an understanding of the learner as “a co-producer of knowledge” (ID05P), an understanding that is in harmony with the idea of self-directed learning rather than instruction. They expected students to actively construct and produce rather than being passive recipients of knowledge. This also included regarding the students as being partially responsible for their learning and education, as expressed by this principal: “[as a student] you shouldn’t think that someone else will learn things for you” (ID07P). These and other statements indicated a pedagogy in which students are expected to experiment with modifying themselves and their own learning process as a form of sophisticated practice of self-regulation and self-navigation (cf. Mulcahy et al., 2015).
Still, the interviewees regarded the organisation around teaching in order to achieve active learning somewhat differently. When scrutinising their statements on how teaching should be organised, we noted different orientations concerning how they envisioned classification between teachers: some advocated a one teacher, one classroom model and others team teaching. Interviewees in this former group tended to see the teacher’s work as mainly individual, and thus characterised by rather strong classification between teachers. One principal stated: “The teacher is, in many ways, a solo artist in the classroom” (ID01P). They substantiated their thoughts on organisation of teaching, teaching methods etc. with what they claim teachers want and do. They described teachers as being rather “traditional” or “conservative” when it comes to teaching methods and that schools therefore need to be designed to suit the “one teacher, one classroom model”: “In general, teachers are traditionalists, they do things roughly the same way they’ve always done them” (ID04P) and “They want to continue in the same way, with their own class and classroom” (ID09P).

Interviewees in the second group emphasised weaker classification between teachers in that they argued for team teaching and teacher collaboration. They talked about project-based teaching or thematic teaching and thus formulated an alternative to the one teacher one classroom model. This is how one principal presented his ideas about the organisation of teaching:

[…] a team of teachers around the student group. Not that each group has just one teacher, more like several adults around a group of students. And the size varies, for example, if a teacher wants to give a brief lecture on maths, it’s not a problem to do this with 60 students […] But when you are engaged in project work, it may be necessary to have five teachers […] (ID07P).

The interviewees oriented towards weaker classification between teachers wanted to move away from the school class of around 30 students as a basic form of organising teaching and thus move away from “ordinary classrooms”. Instead, they wanted teacher teams to shoulder collective responsibility for larger groups of students and provide them with a greater variety of rooms suitable for teaching and learning activities of various kinds, including both lecturing and student individual work: “When student groups are put together based on individuals’ needs, they vary in size, then you don’t really need ordinary classrooms.” (ID19A). Actually, building non-traditional buildings was seen as a way to make teachers teach in a more non-traditional manner:

[…] If we build environments that support modern learning, for example, glass walls and the right kind of furniture, we then sort of direct teachers to teach in a more modern way (ID11SL).

Social space

Ideas about social relations and “social space” are crucial in design processes (Kirkeby, 2006), and the primary key concept concerning social space in this study was safety. The interviewees advocated quite large schools (for financial reasons) but with a design that created small units or departments within the school, which they regarded as creating a learning space that was more socially-secure than an ordinary large-scale school. This idea was consistent throughout the data material, and highlighted an understanding of the mutual construction of physical and social space (cf. McGregor, 2004). The main
argument was that a small unit creates a sense of belonging to a group of students and teachers. This was expressed in comments such as:

 [...] the solution is to create schools within the school, to make clearly-defined parts of the school, so that students and staff working in one part feel that they belong to that part, that they feel it is their school. And that the students and staff in the other parts feel the same about their part, so that they don’t get to meet so often, and don’t get the feeling of being in a large school with, say, thousands of students. (ID09P).

Furthermore, for safety reasons, they wanted to avoid long corridors within and between the various units.

Among interviewees who oriented towards strong classification in physical and pedagogical space, safety was further associated with home classrooms. They favoured “every class should have a classroom of its own” (ID16SL), at least in primary school, where the individual students spend most of their school time, with the argument that this creates a sense of social safety and belonging. Having a classroom of your own was considered to be particularly important for younger students. They believed that specific classrooms where the individuals spend most of their time helps students (and teachers) to identify their place in school and that this identification makes them feel secure. Furthermore, some argued for predefined placements in the classroom, i.e. that every student should have his/her own place in the classroom. As one of the interviewees stated:

All students should have their own workplace, their own table and chair. Younger students should have a desk with a lid so they don’t have to go to a cupboard or a shelf to find their stuff. All their material should be easily accessible (ID16SL).

Thus, emphasis was placed on the need for learning spaces to be socially secure and home classrooms and predefined places within the classroom were regarded as a way of achieving this.

Safety was also associated with the need to control and supervise the students, something that Kirkeby (2006) conceptualises as “behavior regulating space”. Among the advocates for stronger classification of physical and pedagogical space, the traditional classroom with its fixed walls was considered important for gaining social control over the students. As one of the interviewees explained:

The physical environment greatly influences the relationships between teachers and students, and social control is easier to achieve [...] if you work in strict classes in a classroom with a class teacher or a subject teacher (ID15SL).

How the teacher was positioned in the physical space was also perceived as important for social control. Small portable desks for teachers to be placed in the middle of the classroom was for example mentioned to give teachers better overview over students than when placed in the front of the classroom.

Among the advocates for weaker classification of physical and pedagogical space, another interpretation of security came up, and this was security in terms of freedom: “the freedom to move around” and the freedom for the individual student to choose where to sit. It was argued that every child should have the “freedom to choose where they feel safe”, “the possibility of finding their own place”, “not being bound to
a specifically-designated place” but “being able to find your own safe place” or “move around”, “in order to create space within the space”.

This group of interviewees were inclined towards what we interpreted as more indirect control and supervision of students. They argued for glass walls and transparency, arguing that safety could be built into the school buildings by constructing “sight lines” and avoiding separate spaces. They also favoured indoor environments with “glass walls”, glass windows”, for example, between the classroom and the group room so that the teacher could have an overview of the group room when working in the classroom. A core idea that permeated these ideas was that the teacher should both see the students and simultaneously being visible him/herself: “being seen and being able to see makes both students and teachers feel safe and secure” (ID14SL). One of the interviewees stated: “Transparency makes all teaching and all student activities visible”, “you shouldn’t be able to hide anywhere” and “as a teacher you should be seen and be able to see” (ID02P). Thus, glass walls and sight lines were intended to expose the teachers so that they were seen everywhere, which was intended to make students feel safe but also, as we interpret it, make them supervise themselves, a kind of self-regulating practice (teacher may show up at any time and not always when expected).

**Discussion and concluding remarks**

This study aimed to contribute to knowledge about what a “good” learning environment represented to a number of stakeholders involved in Swedish school building projects, taking into account physical, pedagogical and social aspects of what constitutes a learning environment. Four concepts were identified as central in the stakeholders’ talk: variation and flexibility (in relation to physical space), active and self-directed learning (in relation to pedagogical space), and safety (in relation to social space). When analysing how they talked about these key concepts we identified two orientations: an orientation towards clearer boundaries and control in physical, pedagogical and social space (strong classification and framing), and an orientation towards weaker boundaries and control (weak classification and framing). These orientations did not depend on the interviewees’ professions or occupations – both orientations were found among the three profession groups. With Bernstein (2000, 2003)) we interpret them as orientations towards two different pedagogical codes, in our context a traditional school design code and an innovative school design code. The important watershed between these two codes appeared to be linked to ideas about the traditional school class (approx. 30 students) as the overall organising principle of education and schooling – whether the interviewees envisioned the school class as being the overall organising principle of education or favoured an organisation of students into larger units with flexible divisions within the unit. Depending on this orientation, they tended to see the need for traditional classrooms differently – whether there should be many of these classrooms or more varied room sizes, as well as the opportunities to also assemble groups larger than 30 students for teaching activities. As described by Bjurström (2017), one way of escaping the “untouched trinity: the classroom, class and single teacher” is to avoid building ordinary classrooms (Bjurström, 2017, p. 118, our translation). Furthermore, the two orientations seemed to entail somewhat different approaches to
the organisation of teaching, and different forms of social control, more obvious and direct control vs. more sophisticated and indirect forms of control.

Overall, the findings emphasise that the interviewees’ ideas about what constitutes a good learning environment are situated in a larger discourse on appropriate school design and learning environments, mediating a transition towards “new”, “innovative”, “open”, “varied and “flexible” learning spaces (cf. Blackmore et al., 2011; Dovey & Fisher, 2014; Loughlin, 2013; Mulcahy & Morrison, 2017). The stakeholders used a vocabulary that aligned with policy discourse (e.g. OECD, 2013, 2017) (in the analysis presented as “key concepts”). However, they put different meanings and values into the words, and the analysis of their talk revealed both advocates for innovative school design and advocates for more traditional school design. This finding challenges descriptions (in policy documents and literature) of one overall trend in Swedish school design – a trend towards innovative school design. Drawing on the findings from this study we find it more accurate to epitomise Swedish school design as two parallel tides, one directed towards traditional school design, and another striving away from and sometimes rejecting some basic principles of traditional school design. Furthermore, the findings demonstrate that policies are enacted at various levels and that policy processes are complex and sometimes ambiguous (cf. Mulcahy et al., 2015).

We are not advocating any of these orientations or codes. We see the advantages and disadvantages of both, but more importantly we understand physical, pedagogical and social space as being generated collectively and as impacting each other (cf. Mulcahy et al., 2015). Consequently, physical space needs to be designed in line with how it is to be used. This interplay of spatial dimensions was consistent through the interview data. The stakeholders regarded the design of physical space as forming an important aspect of educational practice, and as something that influenced teaching practices as well as social relations – that a certain way of organising teaching required a certain type of physical space, and that a certain design of physical space could hinder or enable certain types of social relations. For example, one of the interviewees wanted to “avoid doors and doorsteps” in the school building in order to “develop more democratic relationships at school” explaining: “[…] a classroom door signals that there are different pedagogical and social relations inside and outside the room” (ID20A).

This close relationship between physical, pedagogical and social spaces indicates that stakeholders involved in planning and (re)building schools are to be regarded as important policy actors, not only concerning the physical school environment but also concerning socio-educational relations and pedagogy. The stakeholders’ representations not only produce models for school buildings, they also influence pedagogy and forms of learning. The new learning spaces they plan, construct and build provide environments that are more suitable for certain pedagogy and certain social relations than for others. As advocated by architecture theorists such as Hillier and Hanson (1984), it is not that a particular physical and spatial organisation or configuration automatically lead to a particular social or educational configuration, but it creates opportunities or obstacles. In that sense, school design and architecture contains, in itself, a policy agent (cf. Mulcahy, 2016). Consequently, the stakeholders’ roles as policy influencers in contemporary Swedish school design and pedagogical practices must be further explored. Further research is also necessary as concerns teachers’ uses of the learning environments in which they teach, including the role of user participation in the design process as a tool to improve the final design, i.e. teachers as co-
designers of school buildings (cf. Bojer, 2019; Könings, Bovill, & Woolner, 2017). The teachers were not present when the principals, school managers and architects in this study talked about their ideas about school design – the stakeholders interviewed substantiated their own ideas and thoughts and arguments with teachers’ “doings” and “beings”. But the teachers’ own voices have not been considered, and must be further researched.

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No potential conflict of interest was reported by the authors.

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