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Time and space in the classroom – lessons from Germany and Sweden

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ABSTRACT

In this study, aspects of space and time in German and Swedish classrooms are observed and compared to characterize differences and similarities in classrooms and lessons in different contexts. The organization and control of individuals and their actions in relation to time and space are analysed using categories derived from *Discipline and Punish* utilizing a model of empirically informed typification analysis. The empirical data consist of field studies conducted by participant observation in German and Swedish classrooms. The type of classroom found in Germany is characterized by fixed boundaries and frameworks. The lessons are uniform, and class time is structured so as to minimize the number of interruptions between different activities. Boundaries are less clear in the type of classroom found in the Swedish material, where the classroom is just one of many places for teaching and learning. The lessons and schedules are less uniformly structured, and a lot of time is spent discussing the plans for instruction.

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Introduction and aim of the study

Teaching and learning in schools are defined by the space and time in which they occur. Drawing on the work of Niklas Luhmann, Bautz (2018) argues that successful educational communication depends more strongly on when and where it happens than other types of communication. Consequently, surveying and structuring time and space are essential aspects of teaching and learning that are ‘[...] independent of the subject or “content” being taught’ (Luhmann, 2002, p. 109 [author’s translation]). However, the use of space and time in teaching varies between contexts, e. g. cultures or epochs. The spatial boundaries are here defined by the classroom, while the temporal boundaries are defined by the lessons’ timing. Spatial and temporal structuring and control of people and their activities are assumed to be integrated principles in modern institutions such as schools and classrooms. This assumption is founded in the theoretical descriptions of *disciplinary order* presented in Foucault’s (1977) book *Discipline and Punish*. Taking Foucault’s disciplinary order as a theoretical starting point allows spatial and temporal organization to be considered in relation to one another, because Foucault shows them to be extensively interwoven.

Wermke, Pettersson and Forsberg (2015) argued in this journal that there is a need to examine ‘which and how spaces are constructed in curriculum work’ at all levels. As shown below, research in this area has largely focused on temporal aspects, with spatial aspects being discussed only implicitly (Böhme, 2009a).

This work presents a comparative analysis of the temporal and spatial boundaries on teachers’ and pupils’ activities found in a number of classrooms in Germany and Sweden. The study focuses on two central research questions based on the concept of disciplinary order: how pupils and teachers and their actions are organized and controlled (1) inside and outside the classroom (2) with respect to the timetable, lesson activities, the use of time and examinations.

References to ‘Germany’ in educational contexts often produce confused reactions because each state of the German federal republic has its own school system, many of which differ in important ways. However, on an institutional and policy level, the states’ school systems are more similar to one another than they are to the Swedish school system. Moreover, the institutional differences between the states seem to have relatively little impact on classroom life, as I have previously demonstrated from a cultural perspective (Billmayer, 2015). The German research literature consulted during this study does not problematize differences between the states’ school systems either. Therefore, this work compares Sweden and Germany rather than Sweden and Bavaria (the German state in which the empirical studies were conducted).

This is the first time that the results of the classroom observations and thus the comparison of the lessons from Germany and Sweden are coming to their own right, although the work and thinking underpinning this project has been ongoing for almost a decade and has been reported in various ways (e.g. Billmayer, 2015). During this time, I have engaged in intellectual reflections and

discussions about my findings with pupils, teachers, student teachers, educational researchers, journalists and politicians from both countries. A recurring question in these debates has been about how the success of classroom work is related to its organization in space and time. Even though this study cannot provide a definite answer to this quest, comparing the results from the two contexts enables some conclusions about possibilities and limitations following different approaches to the spatial and temporal organization of classroom life. The 'Conclusions' section of this article therefore includes reflections on implications that derive from the comparison of the German and Swedish classrooms and lessons in this study.

Theoretical starting point

As mentioned above, scholastic education conducted during lessons in classrooms is understood here in terms of disciplinary order. The theoretical foundation of this approach lies in the concept of *discipline*, whose (idea)historical development is described by Foucault (1977) in *Discipline and Punish*, which is a multifaceted piece of intellectual work. One facet is the abstract, typified, description of the fundamental mechanisms that define a disciplinary organization, derived from the historical development of modern institutions such as hospitals, armies, schools and ultimately prisons. It encompasses techniques for organizing and controlling individuals and their actions using aspects of space and time. Both the spatial and the temporal dimensions are divided into various subcategories that subsume different ways of how space and time can work as organizing principles. For example, the spatial and temporal organization in hospitals differs from how life in barracks is organized, even though the same abstract principles can

be applied to describe them. This dimension in Foucault's descriptions of the different disciplinary techniques allows them to be used as *comparative dimensions* (original: 'Vergleichsdimensionen'; Kelle & Kluge, 2010, p. 92) in the analysis of the empirical data, which will be described below.

Since the language of Foucault is far removed from the classrooms studied in this work, his terminology has been adapted for use in the following analysis. Table 1 lists the original concepts formulated by Foucault on the left, with references to the appropriate pages of his writings (Foucault, 1977) in brackets. The corresponding terms adapted to the language of the classroom are presented in the table's middle column. The rightmost column briefly explains how each category was interpreted during data analysis. Exams and tests, which form a category of their own in *Discipline and Punish*, are treated as particular lesson activities. Foucault also mentions aspects of the body that are related to time and activity; these aspects are disregarded here because the current study focuses on classrooms and lessons. However, these aspects are included in the table for the sake of completion.

Earlier research

The use of space and time in classroom contexts should – in principle – be possible to find in any study conducted in or around classrooms. In order to limit the amount of literature, only such studies that have a focus on the use of space and time similarly as in this work are regarded here. Thorough and repeated searches showed that the relevant literature is primarily associated with the fields of classroom management, classroom discipline and general classroom studies. International (Evertson &

Table 1. Aspects of disciplinary order discussed in *Discipline and Punish* (Foucault), and the corresponding terms used in the current study.

Disciplinary order (Foucault)	Disciplinary order in the classroom	Description
The art of distributions (p. 141)	The Classroom (space)	
Enclosure (p. 141)	The classroom and the outside	The classroom as a more or less enclosed space, distinguished from the outside, where teachers and students meet for lessons.
Partitioning (p. 143)	The classroom's interior	The way in which the classroom is furnished and how teachers and students are positioned relative to each other.
Functional sites (p. 143)	The classroom's functional sites	Places in the classroom that are reserved for certain activities.
Ranking (p. 145)	Ranking in the classroom	How students are placed in the classroom in relation to their achievements.
The control of activity (p. 149)	The Lesson (time)	
Timetable (p. 149)	Lesson timetable	The overall timetable, which structures the school day.
Temporal elaboration of the act (p. 151)	Lesson activities	Activities during the lesson (e.g. class discussion, group work) and the order in which they occur.
<i>Correlation of the body and the gesture</i> (p. 152)		
<i>Body-object articulation</i> (p. 152)		
Exhaustive use (p. 154)	Use of time	How time is allocated to the described activities, the incidence of breaks and interruptions.
The examination (p. 184)	Exams and tests	What kinds of exams and tests occur during lessons, and how they are conducted.

Numbers in brackets refer to pages in Foucault's text (Foucault, 1977).

Weinstein, 2006), German (Terhart, Bennewitz, & Rothland, 2011) and Swedish (Granström, 2007a) handbooks were used as starting points for the literature search to obtain a broad overview of the fields. Studies in these fields (particularly in classroom management) rarely adopt analytical or critical approaches, as noted by Fallona and Richardson (2006), although notable exceptions exist (Ben-Peretz & Halkes, 1987; Boostrom, 1991; Fenwick, 1998; Noguerro, 2003). Instead, most research-based literature in this field resembles the manuals and textbooks used in teacher education, in that they take a 'right' or successful use of time and space in the classroom as a starting point, and the literature offers suggestions on how such correct uses can be established (Bicard, 2000; Canter & Canter, 1992; Charles, 2008; Emmer, Evertson, & Anderson, 1980; Roache & Lewis, 2011; Rüedi, 2007). Even literature that at first glance seems to be descriptive-analytical research in this area tends to lapse into normative rhetoric (Granström, 2006; Thiel, Richter, & Ophardt, 2012; Zaborowski & Breidenstein, 2011). In general, the temporal and spatial organization of life in the classroom is commonly described as a problematic phenomenon, full of contradictory signals. The classroom leadership that teachers must display to maintain order is described as deficient and neglected in teacher training programmes (Granström, 2006; Koch, 2014; Stensmo, 1997a).

There is also a tendency to focus more on temporal aspects (e.g. classroom activities, use of time and exams) rather than spatial aspects, which confirms the need for further research discussed by Wermke et al. (2015). There are publications on school architecture (Bjurström, 2004; Böhme, 2009b; Tanic et al., 2016) and international comparisons (e.g. Alexander, 2001) that mention classroom spaces but make little reference to its programmatic aspects and almost no reference to the classroom level of the curriculum.

While there is a long German tradition of didactic research, there was little descriptive-analytical research about 'what actually happens in our classrooms' (Seidel, 2011, p. 606 [author's translation]) until the beginning of the twenty-first century, as confirmed by Ophardt and Thiel (2008). Qualitative studies published over the last decade have ushered in a change in the situation. Importantly for the current work, existing studies concur that the dominant instructional method in German lessons is class discussion (Bohl & Kleinknecht, 2009; Prediger & Erath, 2014; Schönbächler, 2006; Seidel et al., 2002). A central challenge for teachers' classroom management commonly mentioned in the German context is to reduce the amount of interruption between tasks and to use lesson time efficiently (Thiel et al., 2012). Already more than 30 years ago, Spindler and Spindler (1987) highlighted this as a distinctive feature of German classrooms compared to the American ones considered in their study. They also explicitly describe German classrooms as enclosed spaces. Control,

correction and distribution of homework (Seidel, 2011; Zaborowski & Breidenstein, 2011), as well as different kinds of examination (Terhart, 2008; Terhart et al., 2011), are described as integrated parts of the German lessons.

The history of Swedish research in this field differs in many ways from that in Germany. There is a tradition dating back to Husén, Husén and Svensson (1959) of descriptive-analytical research into classroom proceedings that problematizes the use of time and space in classrooms and its consequences. Three separate directions of Swedish research can be distinguished

- (1) Diachronic studies on how order and discipline in classrooms and schools have varied over history (Florin & Johansson, 1993; Johansson & Florin, 1996; Landahl, 2006). These studies focus on how particular forms of the use of space and time and their purpose in the classroom have changed over time.
- (2) Synchronous studies on various aspects of classroom order and discipline in the contemporary Swedish school context (Granström, 2003, 2006, 2007b; Samuelsson, 2008; Stensmo, 1997b; Wester, 2008). Common to these more descriptive studies is a description of classroom discipline in terms of dichotomies, with (for example) teacher-led lessons on one end of the spectrum and lessons involving independent pupil work on the other end.
- (3) Studies that deal critically with order and discipline in the classroom, for example in relation to issues of power and ethics (Bergqvist, 2007; Thornberg, 2008; Westlund, 2004). These studies apply critical perspectives to the different lesson and teaching types discussed above.

As can be seen, a lot of relevant research in Sweden was conducted in the second half of the 1990s as well as the first decade of the new millennium. However, publications of this kind have decreased since then. This can be explained by the major impact that the educational reforms in Sweden at the beginning of the 1990s had on teaching and learning in Swedish classrooms now have been consolidated and become the norm; the co-existence of teacher-led and pupil-centred activities is not an issue any more. Instead focus has shifted towards the concept of *entrepreneurial learning* (e.g. Diehl, 2017; Holmgren, 2018). If this means a change of how space and time in Swedish classrooms are utilized, it will have to be the subject of future research.

Data production and analysis

Classroom observations were conducted by monitoring the classrooms of six teachers from the German federal

state of Bavaria and Sweden for a week each during 2011 and 2012, resulting in about 67 h of classroom observations, which were separated into 1264 short ‘courses of action’, or ‘scenes’, for analysis. Two of the German teachers (a female teacher of German and English and a male teacher of mathematics, business and law) worked at a Bavarian college-prep high school; and two female teachers worked with fifth and sixth graders at a Bavarian middle school. The teachers observed in Sweden were a male teacher of social studies, history and religious education and a female teacher of mathematics and natural sciences for grades 6–9. A key goal when selecting teachers in the study, in addition to various economic and practical factors, was variation among the teachers. The classroom studies were conducted with the full knowledge of those observed about the purpose of this study. The production of the field notes, which were transferred to create detailed observation logs, was carried out and guided by Emerson, Fretz and Shaw (1995). The aim was to create a representation of the observed reality in which the members of the fields would recognize themselves. In that sense, the method was built on ethnographic methods, where there is an inevitable risk that the researcher’s own experiences will bias the results, because ‘the line between what informants and fieldworkers make of the world is not an easy one to locate’ (Van Maanen, 1988, p. 95).

Two major strategies were used to address this problem: one in the field and one at the desk during analysis. The classroom observations were accompanied by

informal, reflective conversations with the teachers outside the classroom about what had been going on inside the classrooms. In other words, techniques adopted from shadowing (Czarniawska, 2007) were used to challenge the researcher’s understanding, as recorded in the field notes, before transforming them into the observation logs that then were used for subsequent analysis.

The field studies focused broadly on lessons and life in the classrooms. The Foucault-derived analytical categories of space and time were only applied during the analysis; they were not brought up in the field. The introduction of these elaborate descriptions of the interrelations between time and space for the purposes of analysis and comparison was the second strategy for addressing possible bias in the empirical data, strengthening the validity of the reported results.

The data were analysed using the model for constructing empirically based ideal types described by Kelle and Kluge (2010) which is built on the concept of the ideal type, as suggested by Max Weber and elaborated by Schütz, 1960. This model allows to compress a broad empirical material – in this case more than 1200 units of analysis – into a concise, but comprehensive result. At the same time, typification can have a ‘[...] *heuristic* function [...] and can be the basis for theory formation’ (Kelle & Kluge, 2010, p. 91 [author’s translation]), i.e. the results of the analysis exceed the pure report of a limited amount of cases.

The analysis consists of four steps (see Figure 1): Step 1 is the identification and construction of comparative

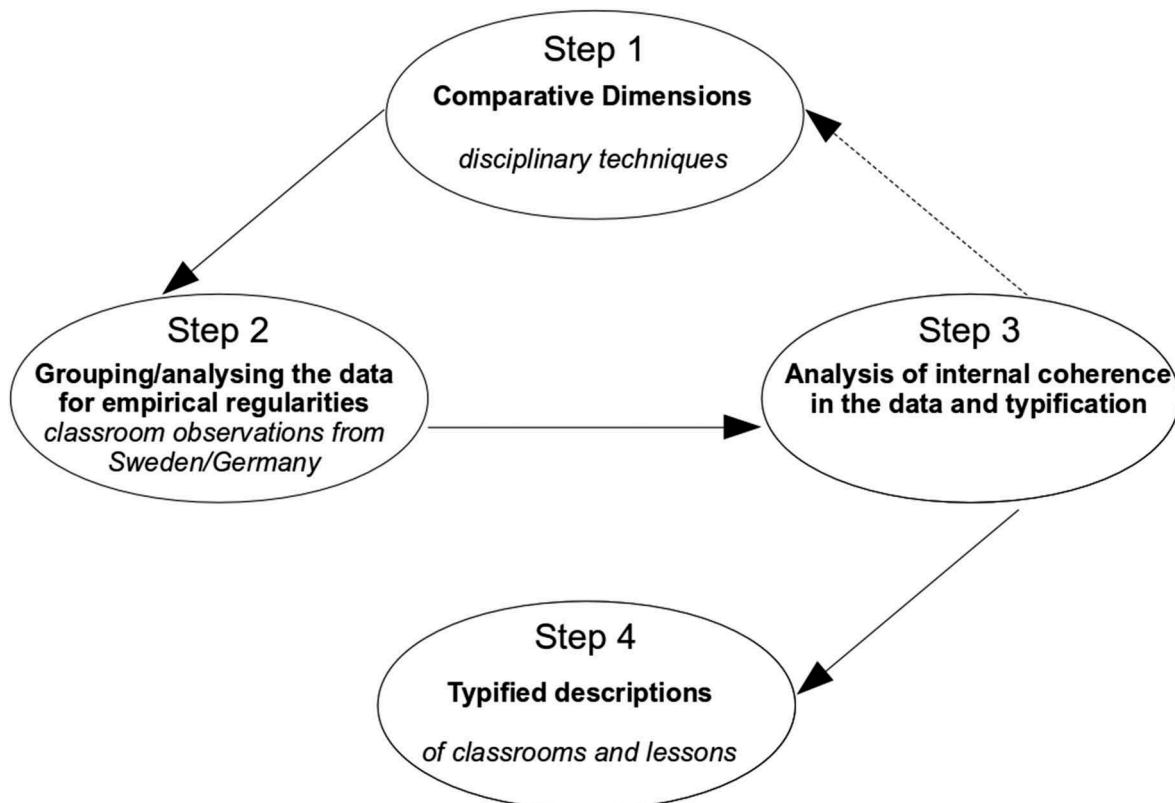


Figure 1. Model for the construction of empirically based ideal types as described by Kelle and Kluge (2010, p. 92). The current study’s utilization is marked using italic letters.

dimensions, relevant for the study. Step 2 consists of grouping and analysing the data for empirical regularities, utilizing the categories from step 1. Step 3 is a further analysis of internal coherence in the data and a first step of typification, which is completed in step 4. The observation logs were sorted, categorized and interpreted – country by country – using the above-listed categories derived from *Discipline and Punish*. The *adequacy* – a term used by Schütz (1960, p. 256ff) to measure an ideal type's validity – of these categories as comparative dimensions has been described above and is underpinned by Florin and Johansson (1993) who utilized the Foucauldian categories in a similar, though less extensive, way for data analysis. The fact that the observations came from different classes and teachers was ignored in favour of typification country by country. The resulting typified descriptions of life in classrooms from Germany and Sweden are more abstract and general in their style than descriptions of single cases or ethnographic tales would be. They are presented in the next section. Subsequently, the resulting typified descriptions' reliability in relation to the national contexts will be discussed utilizing earlier research, as suggested by Schütz (1960).

Typified descriptions of classrooms and lessons

In the following sections, the results are presented using the same order of categories as shown in Table 1; the German material being presented first in each section, and the Swedish material second. Two categories mentioned in Table 1, *The classroom's functional sites* and *Ranking in the classroom*, are not discussed because no observation data could be assigned to them. However, some earlier studies have discussed ranking (cf. Johansson & Florin, 1996; Landahl, 2006).

The classroom and the outside

The entrance to the *German* classrooms, i.e. the classroom door, was only open for passage twice during each lesson, at the beginning and the end, with the exception of occasional bathroom visits that pupils made with the teacher's permission. Both teachers and pupils were bound to the classroom during lessons; neither had reason to leave. Even shorter breaks within the 90-min-long lessons were limited to the classroom. The classroom's enclosure was connected to the timetable, which is discussed later. If a lesson concluded before the scheduled time, pupils had to wait inside the closed classroom until either the school bell or the teacher released them.

If a pupil was absent from class because of illness, it was recorded in a special notebook. In the college-prep high school, a couple of pupils from each class

were tasked with maintaining these notebooks. In the middle school, this duty was assigned to one pupil for the entire school who, along with the teachers, was expected to take charge of the absence reports in the morning. The school secretary made a note in the notebook if the absent pupil's parent had called in school to explain the absence. If a pupil was missing in class who had not been excused, the pupils responsible for the absence notebook reported the unauthorized absence to the secretary for further investigation. On days of exams and tests, it was particularly important for the teachers that all pupils attended class to reduce the necessity of repeating the test for the absent ones.

The *Swedish* classrooms seemed more open than their German counterparts. This was partly due to architectural differences: all the Swedish classroom doors and some of the corridor-facing classroom walls had windows, allowing people to look into the classroom and out into the corridor. This was especially interesting because those windows must have been installed some time after the school was built in the nineteenth century. That is to say, at some point during the second half of the twentieth century, the classrooms were literally 'opened up'. This is confirmed by research on Swedish school architecture (Bjurström, 2004). The classrooms were also physically more open to the outside than the German classrooms because the classroom doors were permeable while lessons were in progress, not only in the beginning and end. Pupils and teachers could come and go during the (scheduled) lessons for various, more or less obvious reasons, e.g. to get a book from the school library, make a phone call in the corridor or greet to say hello to a friend or colleague. Consequently, there was quite a lot of movement in and out of the classroom at certain times, especially when the pupils were working independently. This had its limits, however. When pupils 'behaved badly' in the corridor by shouting or running, or if they disturbed other classes in their work, they were recalled to the classroom.

Other teachers could enter the classroom during lessons and either participate in the ongoing activity or take a group of pupils with them for part of the lesson to perform separate activities. The Swedish teachers shared responsibility for some lessons; the two observed teachers held a weekly information meeting on Monday mornings (which is described below) to facilitate this sharing.

The classroom's interior

The *German* classrooms were furnished with desks arranged in rows facing the blackboard with space for two pupils to sit side-by-side. In front or slightly to the side of the blackboard was the teacher's desk. The

numbers of rows and desks per row depended on the number of pupils in the class. Most classrooms seemed crowded, as if they had originally been designed for smaller classes, particularly in the classrooms of the college-prep high school. The middle school classrooms were more extensively decorated with things like personal knick-knacks than those in the college-prep high school. The teachers in the middle school were more strongly affiliated with a single class and one classroom, which apparently prompted them to spend more time and effort on ornamentation.

The pupils took their seats at the beginning of the lesson and remained there for its duration except during the short breaks and bathroom visits mentioned above. Every pupil had an assigned seat, and the seating order was determined by the teacher rather than the pupils. Only the teacher moved around in the classroom during classes, checking on how the pupils were coping with their tasks and whether they were paying attention. The use of desks for two pupils allowed activities to be performed in pairs, as described in the section on lessons activities.

The furniture in the *Swedish* classrooms resembled that in the German ones, and was arranged in a similar fashion. Most of the desks faced the teacher's desk and blackboard, but in some classes two desks were paired such that the pupils faced one another. The classrooms seemed less crowded, allowing different positionings to be adopted for different activities. Here also, the pupils were assigned seats; changes had to be approved by the teacher. The relatively free movement in and out of the classroom was mirrored inside: on certain occasions, both teachers and pupils moved quite a bit inside the classroom, which somewhat counterbalanced the fixed seat assignments. Pupils moved around during independent work periods or when they needed new writing materials (which were stored in the teacher's desk or a cupboard); they could either help themselves to these materials or be helped by the teacher.

Lesson timetable

In general, the *German* school timetable ran from 7.45am to 5.00pm, Monday to Friday, with most lessons being held between 8.00am and 1.00pm. Not all classes and levels had lessons every afternoon. The school day was divided into 45-min-long lesson periods whose beginnings and ends were marked by a 'gong' from the loudspeakers. After the second and fourth lessons, the entire school was granted a 20-min break. Lunch time was scheduled between 1.00pm and 2.00pm. The teachers taught different subjects and classes during the days. The teachers at the college-prep high school moved between classrooms from lesson to lesson, whereas the middle school teachers had more lessons

with the same classes, and moved to other classrooms less frequently. The majority of lessons were double passes, so teachers changed classes after the breaks. The general timetable and division of the school day was very even and applied to the whole school.

The timetable became especially apparent when a pupil or teacher diverged from it. Pupils who were late for classes in the morning or after breaks were warned by the teacher. Having to open the closed classroom door after classes had started seemed to embarrass the pupil in question. When a teacher started a lesson before the scheduled time or went over time, pupils reacted with displeasure.

The timetable in the *Swedish* school generally ran from 8.00am to 4.30pm, Monday to Friday, and so was quite similar to the German timetable, although afternoon classes were much more common in the Swedish cases. On Monday mornings at 8.00am, the teacher teams affiliated with the same classes planned activities for the coming week, and sometimes planned for more distant events. Organizational issues, pupil-related questions and other matters were discussed during these meetings. The meetings were followed by similar gatherings involving the teachers and their classes. During these gatherings, the teachers discussed organizational and pedagogical issues with their pupils; some of these discussions were based directly on the discussions in the teacher team meeting. The other lessons varied in length between 50 and 120 min. The timing of the start and end of each lesson differed from class to class rather than being synchronized across the school. According to the teachers, this was partly done because the school canteen could not accommodate all the pupils at once. All pupils in Sweden are entitled to a free school lunch, which is therefore an integrated part of the school day. The irregular lengths of the lessons and the irregular division of lessons during the days often led to confusion among teachers and pupils, even though my visit took place well into the school year. Teachers sometimes finished or started lessons ahead or behind the schedule, and pupils could continue their work in the classroom after the scheduled conclusion of the lesson. In one case, a pupil was so engaged in their work and conversation with the teacher that they almost missed out on their lunch break and only left after several reminders from classmates who passed the open classroom door.

Lesson activities

Most *German* lessons consisted of a limited repertoire of different activities that recurred every lesson in a similar order. The lessons began with teacher and pupils greeting each other, usually with the pupils standing up. In the middle school, this ritual was only performed on

the first occasion when the teachers and pupils met during the day. This was followed by an individual oral homework quiz for one or two pupils and a review of the written homework for the whole class. New topics were then introduced by the teacher, or work was continued on previously introduced subjects. This work consisted mainly of teacher-led class discussion. During these discussions, the pupils made notes in their books, usually copying what the teacher was writing on the blackboard.

Pupils were occasionally asked to complete shorter tasks taken from textbooks or on copied papers distributed by the teacher. In addition to individual work, it was common to work in pairs or groups, but only for limited times during the lessons. At the end of the lessons, the teacher announced the homework to be completed before the next lesson. Homework usually consisted of some written tasks, some reading on the topics discussed in the lesson, and even continuing on the subject. It was meant to be done outside the lesson, mainly at home, so school time extended into leisure time.

The lessons were ended by the teacher, who wished the pupils goodbye. Only when a lesson was dedicated to a special activity such as a test was one or more of the described elements dropped or shortened. Otherwise, the order of activities was almost identical in every lesson. The different tasks started and finished without any introduction or detailed instruction by the teacher; the pupils simply knew what to do from experience.

The *Swedish* lessons involved a larger repertoire of activities, and their order was less consistent than in the German lessons. After the lesson was initiated by the teacher, which could involve more or less formal rituals, the teacher continued by introducing and explaining the lesson's activities and tasks. These introductions consumed quite a lot of the time allocated for the lesson and sometimes covered activities planned for longer periods, e.g. the coming week or fortnight rather than just the current lesson. The planned activities for the week were always visible somewhere in the classroom, usually on the blackboard. The entire week's homework was introduced during the Monday morning meeting, and was clearly displayed on a specially marked blackboard in the classroom.

Other common lesson activities included homework quizzes and reviews, class discussion, lectures given by the teacher, group work, lab work and independent work. Independent work tasks were either assigned for completion during the lesson or for pupils to work on over longer periods of time. The deadlines for handing in these tasks were sometimes several weeks in the future, and it was common for multiple tasks to be going on in parallel. Therefore, although homework was not always

assigned at the end of a lesson, the pupils probably had to spend some of their leisure time on school work unless they were able to complete all their work during classes. However, it was difficult to determine how much of the work was done at school and at home, and the relative amounts of schoolwork and homework presumably differed from individual to individual. Pupils who managed or chose to do their work at school would not have to spend as much time on it at home and vice versa.

A specific lesson activity: exams and tests

At the beginning of most *German* lessons, one or two pupils were orally quizzed on the content of the last lesson and homework. The teacher chose these pupils and asked them a couple of mainly factual questions. If a pupil did not know the answer or answered too slowly, the question was offered to the whole class until the correct answer was given. These oral quizzes rarely took longer than 5 min and were more common in the high-school prep school than the middle school. They were graded immediately, and the pupils often asked for their grade at the end of the lesson. Such examinations are about being able to reproduce knowledge in a specified way and moment. They also tested whether the examined pupil had spent time on schoolwork at home, read the assignment or memorized the annotations. The oral quizzes thus also measured the pupils' efforts.

Whereas the oral quizzes focused on individual pupils (a different pupil in each lesson), the homework reviews involved the entire class. The homework was not graded, but the pupils were expected to make corrections to their work themselves. The pupils did not get marks on that, but the teacher documented the cases in which pupils had forgotten their homework, which eventually led to some kind of sanction. This also controlled whether or not the pupils had spent time on schoolwork at home. The aim of the examination was also to determine whether or not the pupils managed to do the tasks correctly, for example if they solved the equations or wrote the English verbs in the correct tense.

There were also announced tests and unannounced written quizzes that focused on the pupils' knowledge and involved the whole class. Like the oral quizzes, the unannounced quizzes tested the pupils' knowledge of the last lesson's and homework's content, whereas the written tests examined content the pupils had learned over a longer period of time or since the last test. Before the written tests, the teacher invested an entire lesson on summarizing the content to be covered in the test and answering questions from the pupils. These questions were restricted to content and factual knowledge rather than the structure or aims of the test. When returning the

completed tests, the teacher presented the correct answers before showing the results and grade distribution to the pupils.

Homework and control of its completion were less integral to *Swedish* lessons than to those in the German classrooms, but when it occurred, it was done in similar ways. Homework quizzes were both oral and written. For oral quizzes, the pupils first wrote down everything they knew about a couple of topics, after which the teacher led a discussion about what the pupils had remembered. The whole class participated in these discussions; there occurred no individual oral quizzes. If a pupil gave an incorrect or unexpected answer, the teacher first asked follow-up questions before inviting another pupil to contribute. During written quizzes, the pupils were required to answer a number of questions on paper. Instead of discussing the answers, the teacher collected the papers for correction after class. These examinations were about reproducing specific knowledge at a certain time, but there was no clear coupling between them and grading. Homework, which consisted of tasks the pupils had completed outside the lessons, was also gathered by the teacher and corrected and commented on outside class. The pupils received their corrected papers back in a subsequent lesson, but not necessarily the one immediately after the quiz. There were no collective homework reviews; reviewing homework was entirely the teacher's responsibility. These reviews evaluated both the time spent on schoolwork outside classes, as in the German context, and the pupils' success in completing the tasks correctly.

The written tests in Swedish classes examined similar aspects to those observed in the German case. The teacher invested a lot of time explaining both the content covered by the tests and their grading criteria. This was done with reference to tangible examples and on a more abstract level using aims and criteria from the curriculum. The teacher then used those criteria and aims to explain how the test had been graded. The pupils received their results and corrected tests back first, and used them to follow the teacher's explanations.

Use of time

The *German* lessons consisted mainly of class discussion. This meant that the teachers led the dialogue with the pupils, and determined both the starting point and the theme of the discussion. The teachers also steered the course of the discussion by accentuating certain pupil contributions and suppressing others. In addition, the teachers decided who should contribute: to get permission to speak, pupils had to raise their hands and wait for the teacher to call on them. During the class discussion, the teacher made

notes on the blackboard or showed pictures from an overhead or digital projector. The pupils had to simultaneously be attentive and participate in the discussion, follow and understand the teacher's presentations and manually copy notes from the blackboard or projection into their exercise books. The middle school pupils were seemingly given more time for writing than the college-prep school pupils. In both schools, the teacher dictated longer texts rather than writing them on the blackboard. These parallel ongoing activities mirror the previously discussed continual succession of activities without any breaks or need for introduction. The use of time in the German lessons therefore seemed to be very intense, and created a feeling that there was 'no time lost'. Exams and quizzes also had a time-intensive element; oral quizzes and written tests had to be completed in a predetermined amount of time. To complete the test within that time frame was thus one of the abilities under evaluation.

The *Swedish* lessons were not clearly dominated by one type of activity. As mentioned above, the course of the lessons was less uniform than the German ones, and teacher-led activities alternated with individual work. The teacher-led activities were more intense and quicker than the other parts, and were quite similar to the German class discussions in that respect. However, such activities were only performed a couple of times in the Swedish lessons. If the teacher made notes on the blackboard, the pupils usually did not copy them into their exercise books, which were rarely used. Instead, pupils used their mobile phones at the end of the lesson to take a picture of what the teacher had written. Although the high level of individual work gave the impression of a less intense use of lesson time, the teacher was keen for the pupils to use their time efficiently, and urged them repeatedly to focus on their tasks. Pupils were able to choose where and when they completed their individual tasks. The use of lesson time was equally individualized, with every pupil choosing how much they concentrated and how efficiently they worked insofar as the environment in the class and the behaviours of other pupils permitted concentrated work. The teachers made efforts such that pupils did not interrupt with each other's work.

Discussion

The findings of this study are consistent with earlier studies conducted in Germany and Sweden. However, those earlier studies focused primarily on things treated as temporal aspects in this work, i.e. lessons rather than classrooms. The dominance of class discussion as a way of teaching in Germany is mentioned several times in the literature (e.g. Bohl & Kleinknecht, 2009; Prediger & Erath, 2014;

Schönbächler, 2006), as are the central roles of homework, tests and marking (Seidel, 2011; Terhart, 2008, 2011; Zaborowski & Breidenstein, 2011). The lesson's uniformity makes it unnecessary for the teacher to reserve time for explaining the upcoming lessons content and course (Seidel et al., 2002). Being able to teach without interruption between different tasks and activities is described as a distinction between novice and expert teachers (Ophardt & Thiel, 2013; Thiel et al., 2012).

The occurrence of different types of activities, shifting between teacher-centred class discussion and pupil-centred individualism, is described in several Swedish studies (e. g. Granström, 2003, 2007b; Stensmo, 1997b). It has also been noted that the proportion of independent work has increased in Swedish lessons in recent decades (Bergqvist, 2007; Granström, 2006); a report from 1986 described class discussion as the predominant form of teaching in Sweden (Lundgren, 1986). However, it is possible that another shift towards teacher-centred learning is in progress (Håkansson, 2015). The somewhat unclear temporal boundaries of the lessons in Swedish schools are also mentioned by Wester (2008), who states that lessons often start and finish before or after they are scheduled to, creating confusion among teachers and pupils as observed in the current study. In conclusion, it can be stated that the typified descriptions of life in the classrooms in the current study align well with what is known about life in other German respectively Swedish classrooms.

Conclusions

Unlike the Swedish type of lessons, the German lessons are very predictable for participants and outside observers. The structure of the current lesson and the expectations placed on the teachers and pupils are very clear. Social order is founded on the ability to foresee others' behaviour and knowing how to behave oneself in specific situations (Becker, 1982). Highly predictable lessons therefore tend to appear more orderly to both outside observers and lesson participants. Such predictability is necessary if the goal is efficient use of time without unintended breaks or long periods of introduction (Spindler & Spindler, 1987; Thiel et al., 2012). The lessons' uniformity implies that it is the pupils – as individuals and as a class – who must adapt to the lesson, not vice versa. This study has shown that shifting frameworks, due to variation in lesson length and activity sequencing, can confuse both teachers and pupils. This leads to an uneven – and possibly – inefficient use of time, necessitating long introductions. However, the type of lessons found in Sweden allow teachers to adapt their content and structure to suit the requirements of the class or

individual pupils differently than the type found in the German parts of the study. By introducing and explaining the tasks at the start of each lesson, teachers allow the pupils to participate in the lesson and engage in their learning in a different way than when everything is in the teacher's hands.

To make lessons such as those observed in Germany function, the classroom must be closed off from the outside world during the lesson. Any kind of disruption, such as movement in and out of the classroom, would lead to unintended breaks. Testing, which is a major part of the German lessons, also requires a closed door. The tests are designed to assess the pupils' knowledge, and use of outside sources is forbidden, which is reflected in a common ban on mobile phones. The intimacy established by working in a closed classroom with a consistent group of people facilitates that the individuals can cope with the extensive testing and marking, since only the people present in the classroom witness these moments of success or failure.

Interestingly, the Swedish pupils were not tested, controlled and graded in front of the whole class; instead, the teachers graded the pupils' homework and homework quizzes privately, outside the classrooms, creating intimacy between pupil and teacher instead of an intimacy between the members of the classes. In other respects, the Swedish classrooms observed in this study were readily accessible (visually and physically) to other pupils and teachers, reducing their intimacy. Other teachers could enter and participate in lessons to better adapt them to individual needs. Consequently, the Swedish classrooms did not accommodate only one class and teacher; their personnel shifted. It was mainly independent work periods that made it necessary for the pupils to be able to move inside and outside the classroom, forming groups, collecting materials or gathering information. This challenges the claim made in the introduction about the relevance of space and time for educational communication.

Closed classrooms put the teacher in charge of what happens during lessons and prevent outside interference. This emphasizes the teacher's role as being in charge of and responsible for her/his classroom and lesson. This can create a feeling of independence and autonomy, but it also puts great pressure on the teacher that some may struggle to manage. The teacher is also limited in their choices because the range of possible activities and sequences is restricted; a teacher cannot simply decide to open up the classroom door and let the pupils work by themselves if the rest of the school expects silence in the corridors. There might be a 'wish to experiment with more free choice, but it is coupled with the "knowledge" that it won't work' (Spindler & Spindler, 1987, p. 11) as of long-lived traditions (Doff, Komoss, & Sørensen, 2017).

Open classrooms eliminate such problems, but they also mean that the teachers' work is under surveillance by colleagues and other pupils, which can affect teachers' confidence and experience of autonomy. However, colleagues can act as resources and helping hands to make work easier. Although independent work is supposed to be pupil-centred, it actually depends on the teacher to give instructions, supply materials and structure. Both in the German and in the Swedish kind of lessons, the teacher thus plays a key role in the pupils' learning in relation to space and time, though from different points of departure.

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