

ORIGINAL ARTICLE

Construction of learning environments: A multiple case study in special education settings

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Abstract

Education in segregated settings for pupils with intellectual disability (ID) has often been portrayed as a unified form of schooling. There is a risk of providing a simplified picture of these settings and of what pupils with ID need to learn. This is generally stipulated in policy documents, leaving room for staff in school to interpret curricula and form learning environments. The aim of this study is to explore how four different learning environments are constructed in segregated settings where pupils with ID are educated in Sweden. The study was conducted as a multiple case study, using observations and interviews with teachers and pupils in four special classes for pupils with ID (SCIDs). Drawing on curriculum theory, the four learning environments, in the results named as Alpha, Beta, Gamma and Delta class, respectively, appeared to be characterized by different ideas of schooling, labelled as knowledge-mediating, socializing, functional life skills and caring as well as teacher-centred classrooms. The study contributes to a deepened understanding of the complexity of education for pupils with ID in segregated settings.

KEYWORDS

curriculum ideology, intellectual disability, learning environments, multiple case study, special school

Key points

- Drawing on curriculum theory, teachers' interpretations of curriculum shape different learning environments in different school contexts.
- For pupils, it matters *where* they go to school and *who* are their teachers and peers, due to the school as a learning environment, including how teaching is organized and what is regarded as important knowledge.
- Using Schiro's curriculum ideologies as a theoretical lens, the four classrooms as learning environments are characterized by different ideas on schooling and are labelled as knowledge-mediating, socializing, functional life skills and caring. The labels reflect their respective foci regarding educational purpose.
- Learning environments in SCIDs (Special Classes for pupils with ID) do not differ essentially from learning environments in regular classes when it comes to how teaching is performed, despite higher teacher ratio and access to assistants in SCIDs. It would allow for more collaboration with regular classes and between SCIDs.

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INTRODUCTION

Special schools and special classes for pupils with special education needs (SEN) are part of the educational systems in most countries; they exist more or less in parallel to regular schools (EADSNE, 2013) and cater for a relatively large number of pupils. According to statistics (EASNIE, 2020), a total average of 1.41 per cent of pupils in Europe were educated in special education settings during the school year 2016/2017, which was the time when this study was conducted.

Sweden has a long tradition of educating pupils with intellectual disability (ID) in segregated classes and schools. Sweden is also one of few countries where education of this particular group of pupils has a separate national curriculum, course syllabi and time tables—that is, education is segregated at a national organizational level. For instance, pupils with ID have fewer hours in English as a second language compared to pupils without ID (180 vs. 480) and more hours in domestic science (525 vs. 118). Schooling of pupils with ID is regulated in the Education Act (Public Law 800, 2010) and national curriculum for the compulsory school for pupils with ID (Government Office, 2011). During the academic year 2016/2017, 1% ($n=9994$) of pupils in Sweden aged 7–16 years were educated according to the curriculum for pupils with ID (Official Statistics of Sweden [OSS], 2017). Around 12% of these pupils spent half or more of their time in school in regular classes. Most of the pupils with ID receive their schooling in special classes for pupils with ID (SCIDs), located in regular schools. The teacher ratio in SCIDs was during the academic year 2016/2017 3, 8 pupils per teacher, compared to approximately 12 pupils per teacher in regular school (Official Statistics of Sweden [OSS], 2017).

In this article, we use the concept of learning environment in order to study what is going on in SCIDs. An early, and still usable, definition of learning environment is found in Fraser (1998): ‘Learning environment refers to the social, psychological and pedagogical contexts in which learning occurs and which affect student achievement and attitudes’ (p. 3). We use Fraser’s definition of learning environment, but we also regard the physical and concrete environment as part of the pedagogical context. Prior studies investigating teachers’ involvement in creating learning environments for pupils in special schools show that there are complex challenges for teachers to deal with (Garcia-Carrion et al., 2018; Hedegaard-Soerensen & Tetler, 2016). There is a limited number of studies investigating learning environments, delving more deeply into the complexity of the matter. As several researchers claim (McCormick & Murphy, 2008; Wyatt-Smith et al., 2010), curriculum research distinguishes between intentions set out in policy documents and the ways in which the curriculum is enacted by teachers in everyday classrooms. Policy documents contain abstract ideas which often leave much

room for variation in interpretations for teachers (Ball et al., 2012; Clark et al., 1998; Florian & Kerschner, 2009). In Sweden, teachers in SCIDs as well as in regular schools, have rather large room for interpretation of goals, values and regulations which not always coincide (Göransson & Klang, 2021). For example, the Swedish curriculum states that ‘the education shall mediate and establish respect for the basic democratic values which the Swedish society rests on’ (Government Office, 2011, p. 7, our translation). Teachers form their interpretations according to different values, ideas and objectives with regard to schooling, methods and strategies and how they can best be implemented, which Schiro (2013) calls curriculum ideologies. Research has shown that schools generate their own interpretations of curricula at both regional and local levels (Göransson et al., 2013; Soukup et al., 2007). However, little is known about how teachers in SCIDs interpret and implement the curriculum. Considering this scarcity, the aim of this study is to explore how four different learning environments are constructed in segregated settings where pupils with ID are educated in Sweden.

PRIOR RESEARCH

Research on segregated settings, special schools or special classes for pupils with SEN, often entails comparisons with education for pupils with SEN in regular settings. In order to shed light on research on segregated learning environments for pupils with ID we review such comparative research below.

Szumski and Karwowski (2014) found that pupils with ID in segregated settings received lower scores on school achievement tests compared to pupils with ID in regular education settings. However, pupils with ID in segregated settings were reported to have higher scores for emotional and social well-being than pupils with ID in regular education settings. This result is supported by Klang et al. (2020), who found that teachers of SCIDs reported a significantly stronger focus on supporting pupils’ social participation (e.g., enhancing peer relations and addressing questions of justice and equity), compared to teachers of regular classes catering for pupils with ID. Regarding teachers’ expectations of pupils’ abilities, Klang et al. (2020) found that teachers of regular classes reported higher expectations of pupils with ID (e.g., levels of knowledge involving more cognitive effort) compared to teachers of SCIDs. Similar findings were obtained by de Graaf et al. (2013) who administered a questionnaire to parents of pupils with Down syndrome in segregated classes and regular classes. According to the parents’ responses, the researchers found that pupils in segregated classes spent less time on academic skills than pupils in regular classes.

In a similar vein, Kurth and Mastergeorge (2010) studied individual educational plans (IEPs) for pupils

with autism in segregated settings and regular settings. The authors found that in segregated settings, the IEPs focused rote learning and procedural skills, while in regular education settings, IEPs focused on academic outcomes.

In sum, these studies suggest that there is less focus on academic knowledge and a stronger focus on social support for pupils with SEN in segregated settings than in regular settings.

Nevertheless, the studies give a rather generalized picture of education in segregated settings, since they are most often described in relation to the regular settings and not by virtue of themselves. However, there are studies that specifically examine segregated settings, even if they are few. Such research areas are mathematics instruction and reading instruction for pupils with ID. Two reviews in North American context (Browder et al., 2008; Hord & Bouck, 2012) of research on mathematics instruction identified computation, matching shapes, counting money and telling time as focus areas and found less focus on problem-solving, reasoning, providing proofs and drawing connections. A review of research on reading instruction (Browder et al., 2006) found that studies concentrated more on sight words and less on phonetics, phonologic awareness and reading comprehension.

Regarding strategies for teaching, studies from Europe (Berthén, 2007; Blom, 2003; Ylonen & Norwich, 2012) have reported that teaching pupils with ID involves allocating much time for tasks, thorough preparation, one-to-one teaching and the use of concrete materials to present content. Results from Blom (2003) and Ylonen and Norwich (2012) indicate that the pedagogical approaches are generally the same as those for pupils without ID, but extended and intensified. Another study, on mathematics instruction (Rivera & Baker, 2013) for pupils with ID, identified a teaching strategy consisting of presenting pupils several different ways to solve tasks and teaching contents in various ways. Hord (2023) illustrates how mathematics teaching for students with ID can be supported by using blocks, scratch papers and gestures as ways to offload the students' working memory.

Other aspect considering teachers' strategies in SCIDs are the reported presence of teaching social norms (Berthén, 2007; Blom, 2003). A greater element of 'social training' in the teaching of pupils with ID may be related to the fact that many of these pupils experience discrimination (Mineur, 2013; Valentim & Valentim, 2020).

In sum, these studies show a variation of strategies for teaching pupils with ID. Several of the referred studies are qualitative studies where background effects are sparsely described, but the studies show relevant tendencies for education for pupils with ID. The studies show both similar and contrasting pictures of how the curriculum is enacted, which indicates differences in construction of learning environments and learning conditions. Furthermore, little is known about how curriculum ideologies, policies and beliefs are enacted in regular classes

as well as in SCIDs (Göransson et al., 2020; Wyatt-Smith et al., 2010). Thus, this study aims to explore how different learning environments in segregated learning settings for pupils with ID are constructed and how these constructions create conditions for learning.

THEORETICAL FRAMEWORK

In this paper, we have turned to Dillon (2009) for the concept of curriculum. In his questions about the curriculum, Dillon was inspired by Schwab's (1969) three orders: the nature of the curriculum, the elements of curriculum and the practice of curriculum. In sum, this means that the enacting of the curriculum in a classroom constitutes a learning environment including the physical environment as well as the values and educational ideas of those people populating the classroom. This is in line with Schiro's (2013) categorisation of curriculum ideologies as they illuminate different ideas of schooling and important knowledge. Schiro's work on curriculum ideologies contribute to debates about what is being taught at school and is fruitful for studying how different learning environments are constructed. From a historical perspective, Schiro presents four curriculum ideologies (Schiro, 2013). These ideologies represent different purposes of schooling and different methods of achieving those purposes. The four ideologies are (1) the scholar-academic ideology, which is a 'traditional' view of teaching and learning whereby the purpose of schooling is the transmitting of knowledge; (2) the social efficiency ideology, which emphasizes the training of skills that pupils need in society and that are relevant in a competing and changing labour market; (3) the learner-centred ideology, according to which the purpose of schooling is personal growth and pupils are supported in their development based on their own preconditions; and lastly, (4) the social reconstruction ideology, whereby the main purpose of education is to contribute to a more equal and equitable society and the teacher's mission is to be a mentor in the joint work based on current social issues. In this study, Schiro's theory of curriculum ideologies is used to acquire knowledge of what characterizes assumptions of schooling in the studied educational settings.

Furthermore, to gain a deeper understanding of similarities and differences in the educational settings for students with ID, the study is guided by systematic questions to the nature, elements and practice of curriculum (Dillon, 2009). For his systematic questions, as mentioned earlier, Dillon turned to Schwab's (1969) theory of curriculum, which viewed curriculum development as a complex process influenced by multiple factors. He described a gap between the theoretical and practical modes of inquiry due to inherent differences in problem origins, subject matter and outcomes (Schwab, 1969). Schwab identified five factors of equal importance that should be considered in the

process of curriculum development (Schwab, 1973). These factors, which Schwab called commonplaces, are subject matter, learners, social milieus, teachers and curriculum making. With inspiration from Schwab, Dillon (2009) emphasized the role of the teachers and students in the curriculum discussion. He proposed seven elements, which together describe how the curriculum is constituted and composed: the *teacher* (who?), the *student* (whom?), the *subject matter* (what?), the *milieu* (where and when?), the *aim* (why? to what end?), the *activity* (how?) and, finally, the *result* (what comes of it? who learns what?). This study uses Dillon's questions to analyse the empirical material gathered in four SCIDs and to gain an understanding of the commonplaces (Schwab, 1973) that exist in these environments.

METHODOLOGY

The current study is part of a larger project on teaching and learning for pupils with ID in Swedish schools. The project included two sub-studies—a questionnaire survey (Göransson et al., 2020; Klang et al., 2020) and this multiple case study comprising four different learning environments in four SCIDs. Supported by Yin's (2013) view of cross-case synthesis, the focus in the analysis was to 'retain the integrity of the entire case' (p. 196) in order to gain a deeper understanding of the complexity of the learning environments. Our focus was not to compare the cases primarily,

although similarities and differences are included in the complexity. Ethical approval for the study was obtained from the Swedish State Ethical Board in Uppsala (Dnr 2016/419). The learning environments are referred to as the Alpha, Beta, Gamma and Delta classes, respectively.

Participants

The four classes were selected from a survey of teachers working in SCIDs in Sweden during the academic year of 2016/2017 (see Göransson et al., 2020). The respondents of the survey were offered opportunity to provide contact information and 145 teachers did so. From those 145 answers, a purposeful sample was made in a stepwise fashion with the criterion that the cases should vary in regard to geographic location in Sweden, location in the countryside or nearby a city and in regard to variation in answers related to curriculum ideologies (Schiro, 2013). The four selected classes comprised grades between 6 and 9 (the pupils' age 12–16 years) and all pupils in the classes had been diagnosed with moderate or mild ID.

At the time of the study, the teachers had 5–20 years of experience of teaching in SCIDs. Academic subjects were taught in the 'home classroom' for all the classes, while arts, crafts and sports were taught in other premises adapted for the subject and often involved other teachers than the main staff (see Table 1) but seldom other pupils from regular classes.

TABLE 1 Information on the four participating classes.

	The Alpha class	The Beta class	The Gamma class	The Delta class
Location of the school	South of Sweden, in the centre of a medium-sized town	Middle of Sweden, in a small town 150 km from a big city	North of Sweden, 3 km outside a medium-sized town	Middle of Sweden, in a commuter municipality 30 km from a big city
School level				
Grades and number of pupils	Grades 7–9, 250 pupils, 30 pupils in 3 SCIDs	Grades 1–9, 540 pupils, 10 pupils in 1 SCID	Grades 7–9, 413 pupils, 45 pupils in 7 SCIDs	Grades 4–9, 263 pupils, 16 pupils in 3 SCIDs
Principal	Different for regular classes and SCIDs	Different for regular classes and SCIDs	Different for regular classes and SCIDs	Joint for regular classes and SCIDs
Class level				
Classroom location	In a separate corridor where there is one more SCID	In the same corridor as regular classes	In a separate corridor where there are more SCIDs	In a separate corridor where there are more SCIDs
The pupils	Grades 7–9, 10 pupils	Grades 6–9, 10 pupils	Grades 7–9, 8 pupils	Grades 6–9, 7 pupils
The main staff	2 teachers 1 assistant	2 teachers	2 teachers	1 teacher, 3 assistants
Number of teachers in each class and their education	1 special educ. teacher 1 primary school teacher	1 special educ. teacher 1 preschool teacher	1 special educ. teacher 1 preschool teacher	1 upper secondary teacher
Cooperation with regular classes	Hardly any	Hardly any	Some	Almost every week

Preparations and pilot interviews

Following the recommendations of Yin (2013), we used multiple information sources. Observation charts and interview guides were constructed based on the aim of the study, searching for the characteristics of the four classrooms as learning environments. Dillon's (2009) curriculum elements were used as a tool for the observation charts, with categories such as *content* (what was taught?), *form* (how was it taught) and the *roles* of teachers and pupils. A multiple case study involving a group of researchers places special demands on researchers to collaborate (Brantlinger et al., 2005). To reach a common approach, videos recorded in classrooms from an earlier study were used for pilot testing. Two pilot interviews, (one pupil and one teacher in SCIDs), were conducted by each researcher. The video notes and interviews were subsequently discussed by the researchers, and the interview guide and observation chart were slightly altered.

Data collection

During the field research phase, four researchers made 6–9 visits to one school each. As mentioned, data was collected using observations with field notes during lessons. Interviews with pupils were conducted individually and in pairs, depending on what the pupils wanted, with the main purpose to establish safe interview situations. The teacher interviews were conducted individually. All interviews were recorded. Areas of questions in the teacher interviews were background and education, their teaching, purpose of teaching and overall goal of education. The pupil interviews included questions about purpose of education, important knowledge, well-being at school etc. Informal conversations with pupils and teachers were also important sources of information (Table 2).

Data analysis

The field notes were transcribed as soon as possible after each observed lesson, and the interviews were transcribed

verbatim. After completion of the field study phase, the empirical material was compiled and subjected to qualitative analysis by each researcher, both individually and in collaboration, according to Yin's (2013) cross-case synthesis. The analysis was characterized by a process of going back and forth between the empirical material and the theoretical concepts from Dillon (2009) and Schiro (2013).

In spring 2018, a member check (Brantlinger et al., 2005) was conducted by individual follow-up interviews with the teacher of each class to validate the researcher's description and overall understanding of the learning environment. The member check generated minor changes in the results but overall it confirmed the researchers' general conclusions. Thereafter, the descriptions were supplemented and compiled to form four thick descriptions. Thick descriptions are crucial for communicating the study's transferability and, thus, its validity (Ward Schoefield, 2000). The purpose of the analysis was to create ample descriptions in order to present an understanding of how the classrooms are experienced by those who attend them in their daily lives (Geertz, 1973). Compiling these descriptions required extensive collaboration between the researchers, consisting of recurring meetings when the researchers compared and discussed their analyses, as recommended by Yin (2013).

The researchers examined the characteristics of the learning environments and their similarities and differences in the light of Schiro's (2013) curriculum ideologies. It was decided to present the four cases as separate units in order to maintain and illuminate the essence in each case and also the variation between the cases. Questions according to Schiro (2013) such as 'what type of knowledge emerged as important?' guided the discussions. During this phase, the descriptors 'knowledge-mediating classroom', 'socializing classroom', 'functional life skills classroom' and 'caring and teacher-centred classroom' were constructed.

RESULTS

In this section, the four classes as learning environments are presented separately. Dillon's (2009) seven elements

TABLE 2 An overview of the data collection phase in the four participating classes.

	The Alpha class	The Beta class	The Gamma class	The Delta class
Number of field periods	2 periods 3+6 days	7 times 7×1 day	2 periods 5+2 days	6 times 6×1 day
Number of lesson observations	34 lessons 1735 min	15 lessons 750 min	18 lessons 807 min	17 lessons 1010 min
Teacher interviews	2 teachers 97+85 min	2 teachers 40+46 min	2 teachers 60+70 min	1 teacher 58 min
Pupil interviews	6 pupils Duration: 22–54 min Average: 33 min	5 pupils Duration: 10–30 min Average: 18 min	5 pupils Duration: 22–28 min Average: 24 min	3 pupils Duration: 20–22 min Average: 21 min

of curriculum have served as a tool for providing equivalent and comprehensive descriptions and for capturing the essence of the different learning environments as well as characteristic features.

The Alpha classroom—The knowledge-mediating classroom

This learning environment is characterized by structured teaching focusing traditional school knowledge and a striving to resemble regular school. Teaching is usually conducted with all pupils present, although the teaching content is tailored to pupils' individual conditions.

One of the teachers explains, 'it is important that the pupils know how to behave in school and that they get experiences of being pupils'. Taking tests is one of those experiences, according to the teacher. This focus is also reflected in the physical arrangement of the classroom, furnished with 10 front-facing separate desks in rows.

In the Alpha class, lessons and breaks are typically clearly differentiated and the times stated in the schedule are followed. The same general structure is applied in all lessons, which provides predictability. The teacher presents the structure at the beginning of each lesson by showing colour-coded cards containing the words 'learning' (representing the content of the lesson), 'activities' and 'evaluation'. This is followed by some form of modelling or joint solving of a task, for which the teacher often uses guiding questions as a teaching strategy. The pupils are required to answer questions posed by the teacher. The pupils then work individually with adapted tasks, often at a computer, while the teacher and the class assistant help pupils who request assistance. Some of the pupils interact while solving their tasks.

Pupils sometimes use their own initiative during the lessons, and this is usually noticed and positively reinforced by the teacher. However, this does not generally affect the structure or the content of the lesson. Class community is not a prominent focus, and group work is very rare. One of the teachers comments, 'learning from each other... we have not been so good at teaching that'. The teacher in this classroom could be described as a knowledge mediator and the pupils as individual recipients.

Education in Alpha class is organized according to a subject teacher system, with one specialist teacher for mathematics and natural sciences and one for Swedish language and social science. The teachers teach their subjects independently, and interdisciplinary teaching does not occur. There are usually one teacher and one class assistant present during the lessons. The content of the lessons is generally the same for all pupils and is rarely based on pupils' experiences. Adaptations of materials are based on individual pupils' prerequisites.

Both the teachers and the pupils identify learning as the purpose of school. The teachers emphasize the

importance of knowledge but also believe that pupils in SCIDs do not need deep knowledge: 'a superficial level is enough [...] so that they can cope reasonably well in their adult life'. One pupil comments, 'I came here to learn. I want good grades', and other pupils talk about what they want to do as adults. 'I want to work in a garage', says one, while another comments, 'my dream is to be a singer-songwriter'.

One teacher stresses the importance of being 'extremely clear and very patient' when teaching the class. She highlights the pupils' cognitive level as a starting point, noting that 'they do have a 15-year-old's experience of life [...], but many of them are cognitively at the level of an 8-year-old'. The pupils describe that they enjoy school and like their teachers, noting that 'they are usually kind'. One pupil reflects on the importance of being listened to by adults: 'If I were a principal I would always listen to pupils, because I think it should be good here in school [...] If I were a principal I would not just listen to the teachers because they are adults [...] no, I would listen to the teachers and the pupils too'. However, some of them are critical of being treated as if they were small children or 'disabled', as one pupil comments: 'This is a regular school. They [the teachers] should not, like... take care of us as if we are disabled'. Most pupils in the class socialize only with other SCID pupils.

The Beta classroom—The socializing classroom

This learning environment is characterized by teaching as a shared activity. Interaction between pupils is encouraged and assignments are adapted based on the pupils' individual preconditions. Curriculum knowledge is incorporated into the lessons, together with a concern for the pupil-teacher relationships and the pupils' experiences.

A prominent characteristic of the Beta class is the use of group work. All the lessons involve some type of dyad or group discussion, such as playing table games, creating patterns in mathematics or taking turns in reading in Swedish. Eight small tables and chairs form a circle in the Beta classroom, inviting pupils to see and interact with each other during lessons.

From a Beta perspective, a good teacher is responsive to pupils' needs, which entails being able to abandon the initial lesson plan. Formal teaching competence is not prominent in the teachers' perceptions of the teacher role. Rather, emphasis is placed on the importance of creating relationships, 'having an open dialogue so that you show your understanding of a pupil's situation; you can give a hug, listen and make time for conversation'. This teacher role is also evident in the pupils' descriptions of their teacher as 'kind and supporting of those who need her support'.

Two teachers with responsibility for different subjects teach the class. The teachers teach their subjects, but

they also co-teach to be able to differentiate instruction in their class. There are generally no teacher assistants in the classroom.

According to the teachers, the pupils are described as active participants. One teacher talks about ‘winning the respect of pupils’ and ‘finding the key to every pupil’. Though active, the pupils are also described as having difficulties. One of the teachers describes the goal of teaching with regard to pupils as ‘being as independent as possible, but also being aware of one's difficulties’. The pupils, on the other hand, talk about their hobbies and interests when describing themselves. One pupil says, ‘I like football and chopping firewood’, and another states, ‘I like woodwork’.

Knowledge of subject matter in curriculum documents is emphasized, but this is adapted to pupils' prerequisites. The lessons are characterized by a high level of differentiation. Each task introduced by the teacher incorporates several levels of difficulty. The teacher also believes that relating the subject matter to pupils' everyday experiences is important. The lessons usually begin with the teacher stating the goals outlined in the curriculum documents, but as the lessons proceed, the teacher relates the content to pupils' experiences. For example, during a media literacy lesson, the teacher actively engaged the pupils in judging the reliability of media sources by asking the pupils to identify the web editors in a sample of web pages. In another lesson, the teacher took a recipe for muffins used in class the previous day and asked the pupils whether they would believe the recipe if it stated 1 decilitre of salt instead of 1 teaspoon of salt. Pupils, on the other hand, describe knowledge as the focus of lessons and commenting, ‘we work in booklets’ and ‘you should count and the like’.

The purpose of education, according to the teacher in the Beta classroom, is to support the pupils to become independent adults and citizens in a democratic society. One teacher emphasizes the importance of ‘being a good citizen and respecting that people are different’. The pupils have more specific aspirations for the future: ‘I will be a farmer and drive tractors’, one pupil says, while another states, ‘I'd like to be a technician like my father’.

The Gamma classroom—the functional life skills classroom

This learning environment is characterized by useful knowledge, especially for the pupils' future lives. All pupils are generally present, except when leaving for specific lessons in first language or sign language. Spontaneous interaction between pupils sometimes occurs during individual work and mostly when the teacher is occupied assisting another pupil.

This classroom is based on structured and well-planned teaching. One of the teachers says, ‘Yes, I think

it is important to be well-planned. It is hard to come to a group and think ‘what shall we do here today?’ No, one must plan and have a long-term plan about what to do.’ The lessons usually begin with teacher-led conversations introducing the lessons' topics. The teacher tries to engage the pupils in conversations, but they tend to be quiet. She explains, ‘it is really hard to make them talk and bring their own questions and make conversation.’ After 15–20 min, the pupils are usually instructed to work individually. During these sessions, the teacher approaches the pupils, regardless of whether they have asked for help.

The physical environment is typical of a primary school classroom, with information and posters on the walls. The desks are arranged in rows facing the whiteboard. Since some pupils have hearing devices, a serially connected cord runs between the desks. Each desk has a microphone, which the pupils are asked to use when talking. Two teachers work in the class: the main teacher, who is responsible for the pupils' academic development in all subjects, and an assistant teacher who is responsible for the pupils' social relations.

One teacher explains that a good teacher ‘has patience. I think that is the most important. [...] and to take time for the pupils. Meet the pupils. Get to know them’. She appears to be kind, thorough and decisive. During one lesson, the teacher approached a pupil lying on his desk and she said ‘Hello’ in a slightly demanding voice. After a while he got up and giggled and asked to use the calculator but the teacher persisted mental arithmetic.

The lessons are dominated by practical work, such as calculations, reading, physical activities, sewing and cooking. The teacher explains that ‘there is a lot of repetition too. I feel that one must give feedback, go back to what one has worked with previously, repeat [...] in order to confirm [...] knowledge.’ The pupils have various study materials, which are differentiated based on the teacher's assessment of what is suitable for each pupil. The pupils have traditional textbooks but also material created by the teacher, such as a news book for social science. Lessons are concluded in different ways, although the last lesson of the day ends with two routine questions: ‘what have you learnt today?’ and ‘what has been positive today?’ Only the pupils answer these questions.

The pupil–teacher relationship is characterized by traditional roles, with the teacher leading and asking questions and pupils following and answering. One teacher describes the pupils as ‘insecure [...] they think they must always say the right thing’. The pupils appear docile, shy and quiet, although they sometimes question the teacher's actions. In one lesson, the teacher's phone rang. She answered, saying ‘I am alone here’. After the phone call ended, one pupil asked ‘why did you say that you are alone? You are not’.

The Gamma classroom is characterized by a focus on functional life skills and purposeful knowledge that

will be useful for the pupils' future lives, enabling them to be as independent as possible. The teacher explains the importance of 'maths, to be able to deal with money, the clock, time. [...] to be able to read [...], to be able to manage life'. One of the pupils expresses a similar view: 'Because I need it when I am grown up, I think. To be able to live on my own and all that stuff'.

The Delta classroom—A caring and teacher-centred classroom

This learning environment is characterized by the centrality of the teacher, who is responsible for designing the teaching. Pupils' well-being and their social situations are prioritized over subject matter and knowledge development. The teaching has a basic structure but entails significant flexibility on the part of the teacher, depending on what happens in the classroom, corridors and schoolyard. One-to-one teaching is common, and the development of pupils' knowledge and their social abilities are regarded as individual projects.

The teacher seems keen on being available for the pupils. She circulates within the classroom and has 'small talks' with the pupils individually. She says, 'I'm always here for the pupils'. Pupils describe her as 'nice and cute' and say that 'the teacher sometimes listens'. The teacher sees her goal as to care for the pupils, which includes their physical and mental well-being.

The teacher considers the pupils' development of social abilities central to her teaching. The teacher comments, 'it is important, central content [in the curriculum] and knowledge, but our task is so much more'. Her teaching appears to be influenced by her own experiences of what the pupils need in the moment. Emotions and intuition seem central to her teaching design. The purpose is to make the pupils feel good and do well in life. Social skills appear to be taught through discussions when conflicts arise. She exclaims, 'There is always something going on in school that you have to sort out. Talk. Time passes./.../ They need this.' The teacher wants the pupils to recognize the importance of personal training and personal hygiene.

One teacher and three assistants work in the class, although the teacher usually chooses which assistant should join her lessons. The Delta classroom has a whiteboard where the teacher stands when lecturing. The pupils sit in individual desks facing the whiteboard. At the back of the classroom, there is a table, chairs and a sofa, which are used for group work and during breaks by pupils.

Lessons are mostly teacher-led. There is a fixed start to the day and a day schedule displayed on the whiteboard. However, departures from the schedule are frequent. Learning is generally the pupil's individual project. The focus of the teaching is on *doing* (e.g., working in books). The teacher uses a reward system

with praise (stars and verbal praise) and negative consequences aiming at the pupils as a group and individually.

The outcome focuses mostly on what the pupils have accomplished, such as their achievements in the mathematics books. The teacher talks about formative assessment rather than grades and tests.

The teacher sees the pupils as needy but unaware themselves of what they need: 'I see just about every pupil and their needs'. The teacher and the assistants are always present at lunchtime. The teacher explains, 'When I eat in the canteen [...] I eat with my eyes on all the pupils. When I get up, I'm always last.' The teacher explains that her work is decisive for the pupils' schooling and wider life. The teacher describes the pupils as 'sweet', 'nice', 'happy', 'sad', 'good', 'polite', 'well behaved' and 'small'.

Relationships are built primarily between teachers and individual pupils. Group interactions between pupils are rarely used as a teaching resource. Conversations between the pupils take place during planned activities when the teacher calls for discussion, for example, during mathematics teaching. The pupils listen to the teacher and do what she tells them to do. They rarely question or oppose the teacher. According to the pupils, the purpose of schooling is 'to learn things', such as 'math and stuff'.

The class regularly interacts with pupils from regular classes during organized activities. The teacher comments, 'Our pupils are completely integrated. It's just like a regular school.'

Four learning environments shaping prerequisites for learning

The following section presents an overall perspective on the four classrooms as learning environments. During the analysis of the characteristics of the learning environments, significant similarities and differences emerged. Schiro's (2013) different curriculum ideologies and Dillon's (2009) elements of curriculum are used to highlight these similarities and differences, as part of the complexity of the learning environments.

In all the classrooms as learning environments, the teachers appear to be the engine of the teaching, with pupils' initiatives and experiences seldom influencing the teaching. This teacher role is in line with a scholar academic or social efficiency ideology (Schiro, 2013). There is some variation between the four learning environments, but the overall picture is that the pupils influence the teaching to a small extent.

The teachers' expectations of the pupils seem to influence how the teachers design their teaching. In various ways, the teachers describe the pupils' shortcomings, abilities and disabilities (e.g., 'insecure', 'sweet', 'can barely read') and describe the goal of education as somewhat limited (e.g., 'being as independent as possible', 'only requiring a superficial level of knowledge'). Analysing the

teachers' expectations of the pupils' learning possibilities in the light of Dillon's (2009) elements of curriculum and Schwab's (1973) concept of curriculum, raises questions about obstacles for learning and possibilities regarding who the pupils have the chance to become in the different learning environments.

Regarding all four learning environments, there are differences in how the teachers treat the content and how they understand the concept of knowledge in relation to their pupils. In the Alpha class, knowledge appears to be objective, constant and external; it is taught, and the pupils are expected to learn it. Thus, the Alpha class corresponds best to the scholar-academic ideology (Schiro, 2013). In the Beta class, teaching content is regarded as open to influence from the pupils, which implies that knowledge is constructed in the interaction between teachers and pupils. This relates to the learner-centred ideology (Schiro, 2013), but is somewhat contradictory as the teacher in the Beta class has an aspiration that the pupils should influence the teaching content, but the relationship is nevertheless characterized by the teacher leading and the pupils following, and the pupils do not seem very active in decision-making. In the Gamma class, teaching content is centred on its usefulness for the pupils' future and on enabling them to be as independent as possible in everyday life, which is akin to Schiro's (2013) social efficiency ideology. Teaching in the Delta class emphasizes the pupils' well-being and social abilities. Knowledge is developed based on the teacher's judgement of what the pupils' need momentarily, and this influences what knowledge becomes important for the pupils. As in the Beta class, teaching in the Delta class mostly adheres to the learner-centred ideology, although it is expressed differently in the two classes. In the Delta class the teacher's focus is on the pupils as individuals and in the Beta class the focus is more on the pupils as a group. The social reconstruction ideology, whereby pupils are expected to learn how to contribute to a more equal and equitable society, was hardly visible in any classroom. According to this ideology, Schiro (2013) suggests teaching that involves group discussions between the pupils, 'during which teachers elicit from them their thoughts and feelings' (p. 168). Group discussions were part of teaching in the Beta classroom, although pupils' thoughts and feelings seemed not to play a central part of the teaching. As shown, different views of knowledge shape different learning environments and, consequently, determine what is possible for pupils to learn.

DISCUSSION

The discussion is structured in three parts. First, the study's limitations and benefits are discussed. Further the results in relation to prior research and theory are presented, followed by the implications of the study. Finally, the study's main contributions are highlighted.

When interpreting the conclusions drawn in this article, it should be considered that the empirical material was collected during a period of 6–9 days in each environment. It could be argued that this short period is insufficient to grasp the complexity of the learning environments. For example, pupils' voices might have been further explored if more time had been devoted to the empirical phase. However, combining observations and interviews has provided useful insights into how these learning environments were constructed. The objective was to provide a picture of the variety and richness of each environment (Geertz, 1973) and compare them. The comparisons shed further light on the characteristics of each individual environments, which is in line with the essence of a multiple case study (Yin, 2013).

The aim of this study was to explore how different learning environments are constructed where pupils with ID are educated, under the assumption that curricula are interpreted and constructed in various ways (Ball et al., 2012; Clark et al., 1998; Florian & Kerschner, 2009). The results confirm this assumption by showing that teaching and the concept of knowledge are treated in different ways and with different emphasis. For example, in the Alpha class, pupils' academic skills are strongly emphasized, indicating that previous researchers' picture of a homogenous special school for pupils with ID that focuses on social skills and well-being needs to be nuanced and problematized. Interpreting the results from the pupils' perspectives highlights issues regarding equal rights to and within education (UN, 1989, 2006). For the pupils, it *does* matter where they go to school and who their teachers and peers are, as these factors shape the conditions for learning. The pupils' comments on why they were in school show that they have different views and that their views also differ from those of the teachers. For example, pupils in the Alpha and Delta classes explain that the reason for attending school is to learn. Other pupils speak of being able to live independently (Gamma class) and professions they aspire to, such as becoming a farmer or a technician (Alpha and Beta classes). Since little research exists on pupils' perspectives in special education settings (for exceptions, see Mineur, 2013; Valentim & Valentim, 2020) and since the number of pupils interviewed in this study is small, it is difficult to draw conclusions. However, it is clear that pupils have different goals and expectations regarding their schooling and that these cannot be generalized or predicted in advance. Drawing on Schiro's (2013) ideas about schooling, the results illustrate that different ideological perspectives on teaching and concepts of knowledge may render consequences for pupils' opportunities to learn (Fraser, 1998).

Regarding the 'how' of teaching, which relates to pedagogical actions, individual teaching, including one-to-one and teacher-led whole-class teaching, was found to be common in these learning environments. Group work and teaching as a shared activity was prominent in only

one class (Beta). These results are consistent with previous research, which has reported a prevalence of one-to-one teaching (Berthén, 2007; Blom, 2003). However, supporting pupils in classroom dialogue was rare in the studied learning environments, which mostly involved teacher-led classroom teaching and direct instructions to each pupil. Thus, it is important to consider the long-term consequences that such lack of group work or classroom dialogues might have for pupils' learning and development.

As discussed above, the educational setting, including a number of peers and adults in the classroom and the level of difficulty of the teaching content, has a significant influence on pupils. Prior research indicates that the teaching of pupils with ID in special education settings has a lower academic focus and expectations on pupils than the teaching of pupils with ID integrated in regular classes (de Graaf et al., 2013; Klang et al., 2020; Kurth & Mastergeorge, 2010). The assessment standard in SCID, which require a lower level of difficulty in teaching materials compared to the standard in regular school, may be reflected in the teachers' statements about the pupils and the purpose of education for pupils with ID in the present study. The Alpha class teacher commented that '...many of them are cognitively at the level of an 8-year-old', and the Delta teacher described the goals of schooling as maximizing pupils' well-being and enabling them to do well in life. These results indicate generally low expectations of learning outcomes for pupils with ID.

The four learning environments do not differ essentially from those of regular classes, when it comes to how teaching is performed, the furnishing of the classrooms or how the inside and outside learning environments are used. This is noteworthy as the allocation of resources differs greatly between regular classes and SCIDs. As shown in Table 1, the teacher ratio and access to class assistants are high in the studied classes compared to what is usually seen in regular classes. Therefore, there are prerequisites for organizing the learning environment differently in these SCIDs. For example the classes could have a higher degree of collaboration with regular classes as well as explorative teaching strategies and group work. A possible interpretation is that the idea of a 'regular curriculum' constitutes a norm of reference which might govern how curriculum is constructed in SCIDs. A pupil in the Alpha class commented 'this is a regular school' and the teacher of the Delta class claimed, 'It's just like regular school'. These statements could be understood as a strive for resembling a regular school.

To conclude, this study makes several notable contributions to the field. First, the cross-case design sheds new light on differences and similarities among SCIDs. While special education settings have been studied before, they have often been examined in comparison with regular settings, which has resulted in a rather general picture of special settings and of what goes on in them.

This study contributes to a more nuanced and deeper understanding of the complexity of education for pupils with ID in segregated settings. The voices of pupils represent a small but important contribution. Through this study, further studies exploring pupils' voices in segregated settings and in SCIDs, have shown to be even more urgent. Lastly, since the findings of this study are understood through the lens of Schiro's (2013) curriculum theory, the study contributes to the discussion of what knowledge is important for pupils with ID and other pupils in special education environments.

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CONFLICT OF INTEREST STATEMENT

No potential conflict of interest was reported by the author(s).

DATA AVAILABILITY STATEMENT

Data not shared.

ETHICS STATEMENT

All the procedures in the study was conducted in accordance with the Helsinki Declaration of ethical principles for research involving human subjects. Informed consent from teachers, pupils and pupils' parents was obtained prior to the start of the study. Confidentiality was assured in data collection and data analysis. The study was conducted with permission from the Swedish State Ethics Board (Dnr 2016/419).

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