Discursive prerequisites for inclusion in mathematics education

A comparative analysis of governing documents in a Nordic context

JENNY LEVIN AND HELENA ROOS

This study focuses prerequisites for inclusion in mathematics education in Sweden and Norway in a comparative analysis of governing documents, with the aim to identify discursive differences and similarities. Following discourse analysis by Gee, four Discourses were construed – Participation in society, Participation in education, Participation in mathematics knowledge and Participation through perspective. The first three are overlapping between the countries. The fourth is only visible in the Norwegian governing documents. The results show that both curricula address inclusive mathematics education, though in different ways. The Norwegian curriculum frames inclusion as community-driven, whereas the Swedish curriculum prioritizes individual participation.

While the concept of inclusion has gained prominence in mathematics education research and practice (e.g. Kollosche et al., 2019; Roos, 2021, 2023), it remains unmentioned in Swedish governing documents for compulsory education, such as the national curriculum (Skolverket, 2022a) and the Education Act (SFS 2010:800). This is notable given the international adoption of the concept of inclusion following the 1994 Salamanca Declaration by UNESCO, and the more recent adoption in the UN's Sustainable Development Goal 4 which emphasizes equitable and inclusive access to quality education by 2030 (United Nations [UNDP], n.d.). Given that there is no explicit guidance from governing documents, mathematics teachers in Sweden must consider implications for inclusion when implementing the curriculum in their efforts to provide inclusive mathematics education. On the other hand, the Norwegian curriculum does explicitly mention inclusion on several occasions, implying there is a difference between Nordic countries regarding the governing of inclusion.

Jenny Levin, *Malmö University*
Helena Roos, *Malmö University*

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Hence, there is an invitation to perform comparative studies on how governing documents explicitly or implicitly cater for inclusive education. Comparative studies of inclusion in policy documents offer opportunities to identify innovative approaches and practices across educational systems, potentially affecting policy development and supporting more effective, evidence-based inclusive education (e.g. Köpfer & Óskarsdóttir, 2019; D'Alessio & Watkins, 2009). Further motivating the comparative aspect of the study, we are interested in if and how this difference affects discourse regarding inclusive mathematics education at policy level in Sweden and Norway. We adopt a comparative perspective on subject didactics, to understand prerequisites for inclusive education in the case of mathematics, by performing a discourse analysis (DA) on Swedish and Norwegian policy documents for compulsory education.

The study builds on two previous studies on the governing of inclusion, by Roos (2021) and Levin (2024), both applying a shared definition of inclusion as "processes of participation in society, school and subject(s)" (Roos, 2021). This broad definition enables an analysis of how curricula construe discourses of inclusion. Drawing on Ball's (1993) view of policy as discourse, we examine how the curriculum shapes understandings of inclusive education and sets discursive conditions for teachers' practice. In this context, opportunities for participation serve as key indicators of inclusive potential in mathematics education.

Although the DA is done mainly on curricula, additional policy documents, such as the school laws, are referred to occasionally. Subsequently, we use *governing documents* as a collective term for these policy documents, as it describes their political origin and steering function as a group. Governing documents can be viewed as a result of political compromise, fitting several perspectives and ideologies in the same body of text (Englund, 2005), which makes them suitable for critical study through DA. Following this, the aim of this study is to analyse discursive differences and similarities regarding inclusion in mathematics education, in Swedish and Norwegian governing documents for compulsory education. The research questions are:

1. What D(d)iscourses of inclusion in mathematics education can be construed in the governing documents?
2. How do discursive similarities and differences shape the prerequisites for inclusive mathematics education?

Inclusion in mathematics education research

Mathematics educations research focusing on inclusion offers multiple interpretations on how it is defined and applied (Roos, 2019). For example, Roos (2021) introduces *processes of participation* as a definition of inclusion in mathematics. Another interpretation is that inclusion is used to meet diversity (e.g. Bishop et al, 2014; Kollosche et al., 2019; Gervasoni & Peter-Koop, 2020). Inclusion is also interpreted as providing opportunities to access mathematics learning for students with disability (e.g. Tan et al., 2019). Students with mathematical learning difficulties (Scherer et al., 2016), or struggling students (Finesilver et al., 2022), are a target group when highlighting inclusion in mathematics education research. These similar interpretations all have different points of departure. The reason for this might be that inclusion is a complex phenomenon found at many different levels, such as societal-, school-, group- and individual level (Lindenskov & Lindhardt, 2020). Additionally, inclusion can act as an ideology, a way of teaching, or both on these different levels (Roos, 2019, 2021).

Historically, the Swedish school system has promoted a vision of *Mathematics for all*, indicating that mathematics knowledge should be made accessible for every student (Roos, 2019). Although this vision holds a lot of promise, scholars (e.g. Gadler, 2011; Valero, 2013; 2017) have raised a red flag in relation to it, as it historically attributed societal value to those who gained mathematical skills, leading to in(ex)clusion based on mathematical knowledge. Skovsmose (2019) suggests an open approach to inclusion in mathematics – inclusive landscapes for investigation – in which students are given opportunities to get involved in the making of an inclusive space. This means that an inclusive space does not necessarily have a predetermined definition. For example, Roos (2023) showed that three students had negative but individual experiences when it came to testing and how it influenced their inclusion in mathematics education. In an inclusive landscape for investigation, these students might advocate for differentiated assessment. Sjöberg, Silfver and Bagger (2015) also identified individual experiences of grades and testing, where some students experienced it as motivating. Furthermore, students in this study connected good grades to their future possibilities to get a good job and thereby influencing participation in society. Another issue is that of ethical dilemmas and teachers' professional judgment in creating inclusion and equity in mathematics education (Roos & Bagger, 2024). Roos and Bagger (2024) found that teachers are occasionally torn between teaching as the governing system tells them, and teaching for equity and inclusion based on their professional judgment. Consequently, what

governing documents state becomes crucial for inclusive mathematics teaching.

Inclusion in special educational research

Inclusion is often utilized in relation to special education (Allan, 2012), and within this field there are further dividing interpretations. Special education often focuses inclusive interventions on individuals in need, and with this follows a possibility of unintentionally excluding individuals who have not been deemed in need by organizational measures, even when the interventions are in line with the curriculum (Magnússon, Göransson & Lindkvist, 2019; Vislie, 2003). Inclusion can also have an intentional focus on all children rather than a focus on individuals in need (Ainscow & Sandill, 2010; Kiuppis, 2013). This perspective acknowledges that students represent diversity in a range of aspects.

Nilholm and Göransson (2014) outline three perspectives on inclusion in special education: placement-oriented, individual-oriented, and community-oriented. Placement-oriented inclusion focuses on students sharing the same physical space, which the authors view as a common but limited interpretation. Individual-oriented inclusion centres student satisfaction and goal achievement, regardless of social integration. Community-oriented inclusion emphasizes shared learning, mutual respect, and a sense of belonging built on trust, routine, and common goals. Nilholm and Göransson (2014) consider the placement-oriented perspective a misconception of inclusion. Similarly, Roos (2023) study on students' voices of inclusion shows that while a placement-oriented view can be successful in terms of inclusion, it is not always the case at an individual level. This implies a margin of error that occurs when assumptions are made about inclusion at an individual level.

In summary, inclusion is shaped by individual, social, and organizational factors. This implies that research on inclusion may address different dimensions and factors, resulting in divergent interpretations and definitions of the concept. In this study, we adopt a broad definition of inclusive mathematics education – one that values diverse forms of processes of participation, both in the classroom and beyond.

Theoretical framework – Discourse analysis

Discourse analysis (DA) stems from a critical perspective and has been developed as a theoretical and methodological approach to reveal societal tendencies that go beyond attitudes and behaviour (Potter & Wetherell, 1987). To do that, DA studies language in use to reveal ulterior informa-

tion, such as ideologies, preconceptions, and hierarchical injustice. This implies that the context in which the language is written or spoken is of utmost importance when interpreting the full extent of the meaning of words. Hence, DA allows us to study language beyond the written or spoken word (Gee, 2014a; Trappes-Lomax, 2004).

In this study, we use DA both as a theory and an analytical tool. We opted to use DA from the perspective of Gee (2014a), as it focuses on language in use as a part of language in society. We deemed this fitting as we are looking to reveal prerequisites for inclusion at policy level by analysing discourses in the governing documents. Gee (2014a) uses two theoretical notions – big (D) discourse and small (d) discourse[1]. Big Discourses are socially accepted ways of using language and other expressions relating to language in society. They consist of broader communication patterns and ideas, influenced by context. Hence, these big Discourses represent linguistic images and norms in society. Small discourses are produced within the context of Discourse and concern linguistic patterns and flow. A small discourse can be interpreted as a comprehensible form of communication, relating to language in use. Big Discourse "analysis embeds little "d" discourse analysis into the ways in which language melds with bodies and things to create society and history" (Gee, 2015, p. 2). By applying DA from this perspective, we can provide insights into views on inclusive mathematics education in Sweden and Norway, created by language in use in governing documents.

Methodology

This study was executed in two parts: firstly, a discourse analysis (DA) of Swedish and Norwegian governing documents and secondly, a subsequent comparison. Below we present the selection of data, the selected tools from Gee (2014b), and the method for discourse analysis (DA) and comparison.

Selection of data – Governing documents

The data is constituted by the curricula for primary education in Sweden and Norway, which were effective at the time of the study. For Sweden, Lgr22 (Skolverket, 2022a) was used, and for Norway, the core curriculum of LK20 and the mathematics curriculum called MAT01-05 (Kunnskapsdepartementet, 2017, 2019) were used. This was supplemented by the education acts – Skollagen (SFS 2010:800) in Sweden, and opplæringslova (1998) in Norway. The regulation for the education act (Forskrift til opplæringslova, 2006) and The Norwegian Directorate for Education

and Training (Utdanningsdirektoratet, 2020) were also selected from the Norwegian governing documents. Quotes from the curriculum have been collected from officially translated documents (Skolverket, 2022b; The Ministry of Education and Research, 2017; 2019).

Swedish governing documents were chosen as the study was executed in Sweden. Norway was chosen for the comparative aspect of the study, taking reliability into consideration, since the first author of the study is fluent in both languages. A selection of chapters from the curricula was made through the lens of DA and inclusive mathematics education, guided by the study's definition of inclusion. Sections that were relevant for the study were selected. The selection from the Swedish curriculum was done by doing a read-through, sieving the text with keywords and -phrases in mind. The selection from the Norwegian curriculum was done by doing a read-thorough and pair-matching chapters that covered the same topics and themes as the ones that had already been chosen from the Swedish curriculum (see Appendix 1).

Data analysis

To construct discourses and Discourses, Gee (2014b) developed a toolkit consisting of 28 tools. Each tool poses different questions to analyse texts, where some focus linguistic elements like grammar and choice of words, and others focus underlying aspects such as motives. The toolkit serves as a guide, and the user's preferences determine which tools to apply and in what order, making the method unique to each study. The tools allow for analysis operating on two interconnected levels – the textual level and the societal level – and thereby provide insight into how texts function both locally and in larger social contexts. This methodological approach helped us examine how curricula evoke inclusion. It also enabled us to explore political and critical dimensions, shedding light on in(ex)clusion in the governing documents.

For this study, six tools were chosen. They have been used in a three-step process for data collection and analysis (table 1).

Table 1. *Selection of tools and their application.*

Step 1: Tools for linguistic analysis	
#8 Vocabulary Tool	Investigates word types and how they contribute to the message.
#12 Stanza Tool	Investigates stanzas and how they are grouped into larger blocks of information.
Step 2: Tools for interpretation	
#7 Doing and Not Just Saying Tool	Interprets the text to find possible underlying motives.
#9 Why This Way and Not That Way Tool	Interprets choice of words and grammatical choices.
#11 Topic and Theme Tool	Interprets topics and themes to see how they relate to each other.
Step 3: Tools for deduction	
#27 Big "D" Discourse Tool	Construes discourses and Discourses - Big "D" Discourse: linguistic image in total. - Small "d" discourse: language in text.

As Lgr22 does not mention inclusion explicitly, the tools in step 1 were chosen to help identify words and phrases that indicate an inclusive process, as well as in which contexts these words and phrases are used. Together, these two tools enabled us to look at how words and stanzas related to each other and thereby mediated messages regarding inclusion. Step 2 aimed at creating an overarching image of what is being (and not being) communicated. The tools in this step were chosen to be able to read between the lines, aiming to detect possible motives, contradictions and precepted messages. This helped us construe the small discourses. In step 3, Discourses were construed by applying the *Big "D" Discourse Tool*. This tool sheds light on what is being communicated and fortified at a societal and political level.

The analysis was a process that alternated between a detail-perspective (language in use) to construe discourses, and an overarching perspective (language in society) to construe Discourses. The comparative analysis was based on the D(d)iscourses that were construed in step 3 of the DA, meaning that the D(d)iscourses from the curricula were construed in Lgr22 and LK20 separately before the comparison was made. Ultimately, the comparative analysis is not part of the DA, but more so an analysis of the results of the DA, aiming to identify discursive similarities and differences.

Discourses of inclusion in mathematics education

Below, the Discourses *Participation in society*, *Participation in education*, *Participation in mathematics knowledge* and *Participation through perspective* are unravelled. The presentation of each Discourse is structured as follows: firstly, a presentation of the discourses within the Discourse in the Swedish and Norwegian governing documents respectively. Secondly, an overarching comparison of the D(d)iscourses, followed by a deeper dive into some discursive nuances. A summary of the results is presented in table 2 (p. xx).

Participation in society

The Discourse Participation in society is comprised of the two discourses *democracy and citizenship* and *humanity and equity* in both curricula, and an additional discourse – *history and cultural heritage* – is construed in LK20 (Norway). The Discourse is mainly based on the values that form the base of the school systems. There are several similarities between Lgr22 (Sweden) and LK20 (Norway) in this aspect, as exemplified by the two discourses that were construed in both curricula. There is a shared mission to teach and raise individuals who can participate and thrive in a democratic society, with references to human rights, the UN Convention on the Rights of the Child, and school acts. When it comes to mathematics, Lgr22 states that mathematical knowledge "increases the opportunities to participate in society's decision-making processes" (p. 56), while the Norwegian curriculum for mathematics (MAT01-05) mentions mathematical knowledge in relation to working and participating in societal debate as an adult (Kunnskapsdepartementet, 2019). LK20 also focuses on democracy and citizenship as an interdisciplinary theme, in which mathematics is meant to contribute to an understanding of nature and day-to-day life. One distinct difference is that the notion of inclusion is mentioned explicitly on several occasions in LK20 while it is

never mentioned in Lgr22. For example, in LK20 it is stated that "When developing an inclusive and inspiring learning environment, diversity must be acknowledged as a resource." (p. 17).

In Lgr22, the discourse democracy and citizenship is contributed to from the very first line, which is "The school system is rooted in democracy" (p. 5). Furthermore, it is construed from wordings of democratic practices such as transparency regarding information, and students' possibilities to contribute to their own education as individuals and as part of a group. Similar activities are mentioned in LK20, which also adds another element to the understanding of democracy – it is not to be taken for granted and is "in constant need of protection and reinforcement" (p. 5). Society and democracy evolve through challenges and with new generations, which is conveyed more clearly in LK20 than in Lgr22. There is common ground in a zero tolerance for discrimination, although a slight difference in focus. Lgr22 focuses on gender and ethnicity, where the latter is mentioned in relation to internationalization and cultural diversity. LK20 also focuses ethnicity as a ground for discrimination but divides the focus into three parts – cultural diversity, indigenous people and national minorities. As this focus is deepened, the discourse history and cultural heritage is construed in LK20. Through teaching, all schools shall make sure that students "gain insight into the indigenous Sami people's history, culture, societal life and rights" (p. 6), and this is seen as part of a democratic upbringing. The notion of inclusion is utilized in this discourse, in a way that states its relevance both at an individual and a societal level:

> School shall give pupils historical and cultural insight that will give them a good foundation in their lives and help each pupil to preserve and develop her or his identity in an inclusive and diverse environment. (The Ministry of Education and Research, 2017, p. 5)

The discourse humanity and equity is based on how students are expected to act in relation to other individuals and the world. Terms like respect, solidarity, freedom of speech, diversity and cooperation contribute to the construction of the discourse in both Lgr22 and LK20. Values are based on Christian and humanitarian tradition in both curricula, but there are slight differences in the constituents of the discourse in Lgr22 and LK20 respectively. The importance of non-confessionalism in school is more apparent in Lgr22, while LK20 highlights the importance of environmental sustainability and friendship more.

Participation in education

In Lgr22, the Discourse Participation in education comprises of the two discourses *good learning environment and community* and *adaptation and support*. In LK20, the Discourse comprises of the three discourses *inclusive learning environment, community and friendship* and *adaptation and support*. In both Lgr22 and LK20, the primary focus is principles for the organization of education. Some overarching similarities have been identified. For example, a positive learning environment benefits all students in terms of knowledge and personal development and is based on individual needs. Teachers are expected to care for the students, continuously work to strengthen the common learning environment, and create opportunities for participation. In both curricula, mathematics is viewed as a subject that has the potential to support the development of children's communicative skills and confidence, which can be beneficial for their sense of belonging within the community.

The notion of inclusion is only utilized in LK20, where it describes the vision for a positive learning environment (as seen in the discourse inclusive learning environment). The Swedish vision for a good learning environment is focused on the wellbeing and development of the individual student, and a sense of belonging within a community is seen as a contributor to this (as seen in the discourse good learning environment and community). LK20 dives a little deeper into community, friendship and social belonging, and thus, a separate discourse of community and friendship is construed in LK20. It is described that "When we are acknowledged and are shown trust, we learn to appreciate ourselves and others" (p. 18). An inclusive learning environment is seen as safe community, built upon mutual friendship and care – "Just as each pupil contributes to the environment in school, so will this environment contribute to the individual's well-being, development and learning" (p. 12). A similar string of text can be found in Lgr22, where a good learning environment is described as a "vibrant social community that provides security and fosters a willingness and desire to learn" (p. 10). While teachers have the main responsibility for a positive learning environment in both Swedish and Norwegian schools, it is seen as a common interest where responsibility is shared with students. The distinction between the discourse community and the discourse friendship and inclusive learning environment is that the inclusive vision extends beyond school in the former. Communication, empathy and other qualities that support friendship are meant to strengthen the community, both during the time of education and in the future lives of the students. The Norwegian vision of an inclusive learning environment applies to both the individual student and the group of students as a community, and measures are meant to

benefit both. The focus in Lgr22 is mainly oriented towards the learning environment of individual students, where one way to create opportunities for participation is through social inclusion.

The discourse adaptation and support is construed in both curricula, and they are based on the same core value – that every child has an equal right to education. Swedish and Norwegian schools must provide equal access to education, development and knowledge, and equal education is based on individual conditions and needs with an aim to create opportunities for participation. Consequently, not every student is taught the same way. While the sentiment is shared, there is a slight difference in how it is applied. In Lgr22, it is stated that "Educational equity does not mean that education should be the same everywhere or that school resources should be allocated equally" (p. 6). In LK20, it is stated meeting students' needs for in-depth learning "requires knowledge about how pupils learn and what they know from before, and requires close follow-up of each pupil." (p.18). The message in Lgr22 is that education might look different for every student, while the message in LK20 is that education will look different for every student.

Participation in mathematics knowledge

The Discourse Participation in mathematics knowledge comprises of two discourses in both curricula. In Lgr22, the discourses *knowledge and abilities* and *assessment and grades* are construed. A discourse of *assessment and grades* is also construed in LK20, alongside a discourse of *competence*. There are a few apparent differences within this Discourse, with notable findings in the discourse of assessment and grades. For instance, the importance of grades is more underlined in Sweden than in Norway. In Lgr22, it is stated that grades express "the extent to which the individual pupil has met the national grading criteria for a particular subject" (p. 18), and every subject has a set of grading criteria that cover several pages. LK20 puts forward a perspective that is more focused on formative assessment with an aim to support learning and development, and assessment situations are seen as dilemmas where the positive outcome should be weighed against the possible negative outcome – "School and the teachers must balance the need for good information about pupils' learning and unwelcome consequences of different assessment situations." (p. 19). Grades are used in the Norwegian school system, but the actual curriculum does not contain information about grading scale and guidelines for assessment.

The Swedish grading scale is F through A, where E is the lower limit for an acceptable level of knowledge (Skolverket, 2022a). Hence, the grade F

is used to describe an insufficient achievement. The Norwegian grading scale runs 1 through 6, where 1 is the lower limit for an acceptable level of knowledge in compulsory school (Forskrift til opplæringslova, 2006, § 3-5). Consequently, there is no grade that describes an insufficient achievement. Another difference is that the Norwegian school system applies an additional grading scale for order and behaviour, which is motivated by a desire to promote social development and contribute to a safe environment (Forskrift til opplæringslova, 2006, § 3-4). The grading scale for order and behaviour is G (good), Ng (quite good) and Lg (not good). The grade G represents a standard level, where Ng represents an apparent deviation from the standard, and Lg represents an extraordinary deviation (Forskrift til opplæringslova, 2006, § 3-6).

The discourses knowledge and abilities (Lgr22) and competence (LK20) are based on the respective views on what knowledge is and its indicators. In Lgr22, knowledge is described as "a complex concept that can be expressed in a variety of forms – such as facts, understanding, skills and familiarity – all of which depend on and interact with each other" (p. 9). In LK20, knowledge is described as "being familiar with and understanding facts, concepts, theories, ideas and relationships in various subject fields and topic areas" (p. 13). The view on knowledge is similar, however there is a difference in exposition. In Lgr22, five mathematical abilities and a set of core contents are presented. These are to be interpreted and implemented by mathematics teachers in a way that makes it possible for students to show competence, by applying abilities in core contents. The Norwegian curriculum for mathematics (MAT01-05) presents competence aims as a combined entity, which can be divided into core elements and basic skills. To put it simply, the exposition in Lgr22 and MAT01-05 can be interpreted as running in opposite directions along the same line. Both policies aim to create opportunities for students to develop mathematical knowledge that can be implemented and utilized in different ways, in different mathematical areas.

Participation through perspective

The Discourse Participation though perspective is characterized by a thoughtfulness that fortifies through choice of words, phrasing and an understanding point of view. This Discourse is only construed from LK20, and it is different from the other Discourses as it is predominantly construed from the linguistic analysis (step 1), rather than the interpretation (step 2). It highlights both the joy and the struggles within three perspectives that are represented by the discourses *to be a teacher*, *to be a human being* and *to be a child*.

The discourse to be a teacher is characterized by an understanding of the complexity of the profession. The following passage describes this complexity:

> In specific teaching situations teachers will face tensions between different purposes and values. They must always strive to balance between consideration of individual pupils and consideration of the entire group, between supporting and demanding, between the work in school here and now and the work to prepare for the future. (The Ministry of Education and Research, 2017, p. 23)

While the complexity is conveyed clearly, it is paired with a sense of trust. Teacher autonomy is valued – "Complex educational issues rarely have fixed answers. School staff must therefore have acceptance for and have the opportunity to apply their judgment skills in the exercise of their profession." (p. 22). This creates space for teachers to develop professional confidence.

A perspective on humanity is brought forward in the discourse to be a human being. This perspective puts trust in the students' contribution to mankind's common concerns:

> Children and young people will need to deal with the today's and tomorrow's challenges, and our common future depends on the coming generations and their willingness and ability to protect our world. (The Ministry of Education and Research, 2017, p. 9)

This quote also exemplifies linguistic choices that emit a sense of community, for instance by describing the future as our common future. Words like we, our and us are used to portray emotions that all humans can relate to, for example that "We may all experience that we feel different and stand out from the others around us" (p. 5).

The discourse to be a child highlights childhood and every child's right to be just that – a child. While Norwegian schools prepare children for participation in education, work and society, the curriculum also states that "children and young people are living in the here and now, and school must recognize the intrinsic value of childhood and the adolescent years" (p. 10-11). Childhood is considered an important time of life for the development of a positive image of self and a secure identity.

Summary

To get an overwiew of the D(d)iscourses, a summary is presented in table 2 below.

Table 2. *A summary of the D(d)iscourses construed in Lgr22 and LK20.*

Swedish curriculum (Lgr22)	Norwegian curriculum (LK20)
Participation in society	
Democracy and citizenship	Democracy and citizenship
	History and cultural heritage
Humanity and equity	Humanity and equity
Participation in education	
Good learning environment and community	Inclusive learning environment
	Community and friendship
Adaptation and support	Adaptation and support
Participation in mathematics knowledge	
Knowledge and abilities	Competence
Assessment and grades	Assessment and grades
Participation through perspective	
	To be a teacher
	To be a human being
	To be a child

The governing documents for Swedish and Norwegian primary education share overarching traits of inclusion and consequently, similar Discourses were construed. However, the discursive constructions of inclusion differ. The Discourse of Participation in society is largely similar (e.g. value basis) and presents some differences in emphasis on certain aspects (e.g. discrimination grounds). Here, the discourse of history and cultural heritage in LK20 illustrates how governing documents in Norway go into details that might be of relevance for inclusion at an individual level. This is one of the discourses where the notion of inclusion is utilized and made relevant.

In the Discourse of Participation in education, the role of the teacher as the main facilitator of an inclusive learning environment is brought forward in both curricula, though a major discursive difference emerges as inclusion is mentioned explicitly in LK20, while it is not in Lgr22. For

community, Lgr22 focuses on how individual students benefit from it as it affects their learning environment, resulting in a single discourse of good learning environment and community. In LK20, two separate discourses are construed from the same topic, where the discourse of inclusive learning environment explicitly focuses inclusion as the foundation of a beneficial learning environment, and the discourse of community and friendship is construed separately, as the current and future relevance of community and friendship is elaborated on in further detail.

In the Discourse of Participation in mathematics knowledge, a similar view on knowledge is found, while the application of assessment and grades represent a discursive difference. Swedish governing documents underline the importance of grades, while Norwegian governing documents present a dilemma perspective on assessment. Discursive differences are found in the grading scale, where a failing grade is only prevalent in Lgr22. The Norwegian governing documents present a separate grading system for students' behaviour, while Swedish governing documents only assess subject knowledge.

The Discourse of Participation though perspective is only construed in LK20, mainly from the use of inclusive language which fosters a sense of understanding and community.

Discussion

While inclusion is a democratic principle (UNDP, n.d.), it is notably absent from Swedish compulsory school policy, and the concept itself is contested (e.g. Nilholm & Göransson, 2014). In the Swedish school debate, references such as the Swedish Minister of Education's call to "move away from harmful inclusion" illustrate how the term has acquired negative connotations. At the same time, even well-intentioned visions of inclusion may generate unintended forms of in(ex)clusion (Popkewitz, 2008; Valero, 2017). For instance, this study shows that social participation is central in Norway's (LK20) explicit view on inclusion, as it is closely tied to friendships and community. This potentially has excluding effects on students who do not have easy access to community or friendships, for example those affected by social-, geographical-, neuropsychological- or linguistic barriers. In contrast, Sweden's Lgr22 lacks an explicit framework for inclusion but emphasizes student participation. This resonates with Skovsmose's (2019) notion of inclusive landscapes for investigation where students are involved in the making of inclusive spaces.

Teachers are brought forward as facilitators of inclusive mathematics education in both Lgr22 and LK20. Roos (2023) shows that mathematics teachers sometimes face dilemmas where there is a misalignment

between their professional judgement and the governing documents, on how to teach for inclusion. Governing documents can act as more or less of an aid for teachers when they face these dilemmas. The Norwegian LK20 can be helpful in creating prerequisites for inclusive mathematics education by using the notion of inclusion and giving both explicit and implicit examples of what it means, while simultaneously placing trust on teachers' autonomy in decision-making.

Drawing on Nilholm and Göransson's (2014) model of inclusion, LK20 reflects a community-oriented perspective while Lgr22 highlights the individual-oriented perspective, where the community perspective also comprises the individual perspective. Lgr22 portrays community as support for the end goal, which is the growth of the individual. In LK20, community is seen both a means for individual growth, and a collective goal. Both curricula point towards placement-oriented inclusion, as defined by Nilholm and Göransson (2014), though research shows this perspective alone does not ensure full participation (Roos, 2023). This may result in teachers receiving triple, possibly counteractive, messages from governing documents regarding what inclusive mathematics education may entail. Such ambiguity can create conceptual confusion, ultimately undermining the realization of inclusive mathematics education.

The results show that in total, five more discourses of inclusion were construed from LK20 than from Lgr22, implying that prerequisites for inclusive mathematics education are shaped differently in Sweden and Norway respectively. The discourses that were construed from Lgr22 are largely represented in LK20, and the additional five discourses in LK20 are construed from details and nuances that set unique prerequisites for inclusive mathematics education. For example, the discourse history & cultural heritage can be seen as significant in strengthening the position of minorities in Norwegian society. Another example is the Discourse Participation through perspective, which is construed mainly from linguistic nuances. Using inclusive words like we and us foster relatability, portraying the curriculum as written by members of the community which is also the target audience. These nuances align with the notion of community as stated by Nilholm and Göransson (2014) and reinforce inclusive values through both ideology and linguistic choices. All discursive nuances on inclusion present opportunities for mathematics teachers to realize an inclusive ideology in their mathematics teaching. As Roos (2019) shows, successful inclusion is achieved when an inclusive ideology aligns with inclusive methods.

A discursive difference of inclusion between the curricula is in assessment. Lgr22 emphasizes grades and assessment situations, whereas LK20 focuses formative assessment and assessment dilemmas. In Sweden, stu-

dents often associate grades in mathematics with future societal inclusion, linking their academic success to career opportunities (Sjöberg, Silfver & Bagger, 2015). By emphasizing assessment, the Swedish system inadvertently sets conditions for exclusion. Another distinction is the presence of a failing grade (F) in Swedish schools, where Norwegian compulsory schools lack such a designation. This prompts the question of why Sweden upholds a failing grade, where Norway does not? Simultaneously, Norway implements a grading scale for behavior that Sweden does not. How so? The empathetic tone of the Norwegian curriculum (as seen in the Discourse Participation through Perspective) seems at odds with this behavioural grading system.

In conclusion, the discursive similarities and differences identified at policy level illustrate how prerequisites for inclusive mathematics education are constructed somewhat differently in the neighbouring countries of Sweden and Norway. Although often regarded as educational "siblings" within the Nordic region, these differences may have significant implications for how inclusion is realized in mathematics classrooms. Consequently, we encourage further attention to how the visions for inclusive education articulated in the governing documents are enacted in mathematics classrooms. Furthermore, we wonder how this enactment is perceived by students, in relation to their own opportunities for participation in present and future mathematics education.

References

Ainscow, M., & Sandill, A. (2010). Developing inclusive education systems: the role of organizational cultures and leadership. *International Journal of Inclusive Education*, *14*(4), 401–416. https://doi.org/10.1080/13603110802504903

Allan, J. (2012). The inclusion challenge. In T. Barrow, & D. Östlund (Red.) *Bildning för alla! En pedagogisk utmaning* (pp. 109–120). Högskolan Kristianstad.

Ball, S. J. (1993). What is policy? Texts, trajectories and toolboxes. Discourse: *Studies in the Cultural Politics of Education*, *13*(2), 10–17. https://doi.org/10.1080/0159630930130203

Bishop, A., Tan, H., & Barkatsas, T. N. (Eds.). (2014). *Diversity in mathematics education: Towards inclusive practices.* Springer.

D'Alessio, S., & Watkins, A. (2009). International comparisons of inclusive policy and practice: Are we talking about the same thing?. *Research in Comparative and International Education*, *4*(3), 233–249.

Englund, T. (2005). *Läroplanens och skolkunskapens politiska dimension.* Daidalos.

Finesilver, C., Healy, L., & Bauer, A. (2022). Supporting diverse approaches to meaningful mathematics: from obstacles to opportunities. In Y. P. Xin, R. Tzur, & H. Thouless (Eds.), *Enabling mathematics learning of struggling students* (pp. 157–176). Springer.

Forskrift til opplæringslova. (2006). *Forskrift til opplæringslova (FOR-2006-06-23-724)*. Lovdata. https://lovdata.no/dokument/SF/forskrift/2006-06-23-724

Gadler, U. (2011). *En skola för alla – gäller det alla? – Statliga styrdokumentets betydelse i skolans verksamhet* (Nr 51/2011) [Doktorsavhandling, Linnéuniversitetet]. Linnéuniversitetet.

Gee, J. P. (2014a). *An introduction to discourse analysis: Theory and method*. Routledge.

Gee, J. P. (2014b). *How to do discourse analysis: A toolkit* (2nd ed.). Routledge.

Gee, J. P. (2015). Discourse, small-d, Big D. In K. Tracy, C. Ilie, & T. Sandel (Eds.), *The International Encyclopedia of Language and Social Interaction* (Vol. 3, pp. 1–5). John Wiley & Sons. https://doi.org/10.1002/9781118611463.wbielsi016

Gervasoni, A., & Peter-Koop, A. (2020). Inclusive mathematics education. *Mathematics Education Research Journal*, *32*, 1–4. https://doi.org/doi.org/10.1007/s13394-020-00315-0

Kiuppis, F. (2013). Why (not) associate the principle of inclusion with disability? Tracing connections from the start of the "Salamanca Process". *International Journal of Inclusive Education*, *18*(7), 746–761. https://doi.org/10.1080/13603116.2013.826289

Kollosche, D., Marcone, R., Knigge, M., Penteado, M. G., & Skovsmose, O. (Eds.). (2019). *Inclusive mathematics education: State-of-the-art research from Brazil and Germany*. Springer.

Kunnskapsdepartementet. (2017). *Overordnet del – verdier og prinsipper for grunnopplæringen*. Fastsatt som forskrift ved kongelig resolusjon. Læreplanverket for kunnskapsløftet 2020. https://www.udir.no/lk20/overordnet-del/

Kunnskapsdepartementet. (2019). *Læreplan i matematikk (MAT01-05)*. Fastsatt som forskrift. Læreplanverket for kunnskapsløftet 2020. https://www.udir.no/lk20/mat01-05?lang=nob

Köpfer, A., & Óskarsdóttir, E. (2019). Analysing support in inclusive education systems–a comparison of inclusive school development in Iceland and Canada since the 1980s focusing on policy and in-school support. *International Journal of Inclusive Education*, *23*(7–8), 876–890.

Levin, J. (2024). *Förutsättningar för inkluderande matematikundervisning – En komparativ diskursanalys på policynivå* [Examensarbete, Malmö universitet]. Malmö Universitet.

Lindenskov, L., & Lindhardt, B. (2020). Exploring approaches for inclusive mathematics teaching in Danish public schools. *Mathematics Education Research Journal*, *32*, 57–75.

Magnússon, G., Göransson, K., & Lindqvist, G. (2019). Contextualizing inclusive education in educational policy: The case of Sweden. *Nordic Journal of Studies in Educational Policy*, *5*(2), 67–77. https://doi.org/10.1080/20020317.2019.1586512

The Ministry of Education and Research. (2017). *Core curriculum – values and principles for primary education and secondary education*. https://www.udir.no/lk20/overordnet-del/?lang=eng

The Ministry of Education and Research. (2019). *Curriculum for Mathematics year 1-10 (MAT01-05)*. https://www.udir.no/lk20/mat01-05?lang=eng

Nilholm, C., & Göransson, K. (2014). *Inkluderande undervisning – vad kan man lära av forskningen?* (FoU skriftserie nr 3). Specialpedagogiska skolmyndigheten.

Opplæringslova. (1998). *Lov om grunnskolen og den vidaregående opplæringa* (LOV-1998-07-17-61). Lovdata. https://lovdata.no/dokument/NL/lov/1998-07-17-61/KAPITTEL_1#KAPITTEL_1

Popkewitz, T. S. (2008). *Cosmopolitanism and the age of school reform: Science, education, and making society by making the child*. New York: Routledge.

Potter, J., & Wetherell, M. (1987). *Discourse and social psychology: beyond attitudes and behavior*. London: Sage.

Roos, H. (2019). Inclusion in mathematics education: An ideology, a way of teaching, or both?. *Educational Studies in Mathematics*, *100*(1), 25–41.

Roos, H. (2021). The governing of inclusion - Policy in Swedish school regulations and mathematics education. *Utbildning & Demokrati*, *30*(1), 75–96. https://doi.org/10.48059/uod.v30i1.1552

Roos, H. (2023). Students' voices of inclusion in mathematics education. *Educational Studies in Mathematics*, *113*, 229-249. https://doi.org/10.1007/s10649-023-10213-4

Roos, H., & Bagger, A. (2024). Ethical dilemmas and professional judgment as a pathway to inclusion and equity in mathematics teaching. *ZDM Mathematics Education*, *56*, 435–446. https://doi.org/10.1007/s11858-023-01540-0

SFS 2010:800. *Skollag*. Utbildningsdepartementet. https://rkrattsbaser.gov.se/sfst?bet=2010:800

Scherer, P., Beswick, K., DeBlois, L., Healy, L., & Moser Opitz, E. (2016). Assistance of students with mathematical learning difficulties: How can research support practice? *ZDM Mathematics Education*, *48*(5), 633–649. https://doi.org/10.1007/s11858-016-0800-1

Sjöberg, G., Silfver, E., & Bagger, A. (2015). Disciplined by tests. *Nordic Studies in Mathematics Education*, *20*(1), 55–75.

Skolverket. (2022a). *Läroplan för grundskolan, förskoleklassen och fritidshemmet*. Skolverket.
Skolverket. (2022b). *Curriculum for Compulsory School, Preschool Class and School-Age Educare*. Skolverket.
Skovsmose, O. (2019). Inclusions, meetings, and landscapes. In D. Kollosche, R. Marcone, M. Knigge, M. Godoy Penteado, & O. Skovsmose (Eds.) *Inclusive Mathematics Education. State-of-the-Art Research from Brazil and Germany* (pp. 71-84). Springer. https://doi.org/10.1007/978-3-030-11518-0_7
Tan, P., Lambert, R., Padilla, A., & Wieman, R. (2019). A disability studies in mathematics education review of intellectual disabilities: Directions for future inquiry and practice. *Journal of Mathematical Behavior, 54,* 100672. https://doi.org/10.1016/j.jmathb.2018.09.001
Trappes-Lomax, H. (2004). Discourse Analysis. In A. Davies, & C. Elder (Eds.). *The Handbook of Applied Linguistics*. (p. 133–164). Blackwell Publishing.
United nations [UNDP]. (n.d.). *Goal 4 – Quality education*. https://www.undp.org/sustainable-development-goals/quality-education
Utdanningsdirektoratet. (2020). *Kjennetegn på måloppnåelse – matematikk 10. trinn*. https://www.udir.no/laring-og-trivsel/lareplanverket/kjennetegn/kjennetegn-pa-maloppnaelse-matematikk-10-trinn/
Valero, P. (2013). Mathematics for all and the promise of a bright future. In B. Ubuz, Ç. Haser, & M. A. Mariotti (Eds.), *Proceedings of the eighth congress of the European Society for Research in Mathematics Education (CERME 8)*. Middle East Technical University and ERME.
Valero, P. (2017). Mathematics for all, economic growth, and the making of the citizen-worker. In T. S. Popkewitz, J. Diaz, & C. Kirchgasler (Eds.), *A political sociology of educational knowledge: Studies of exclusions and difference* (pp. 117–132). Routledge. https://doi.org/10.4324/9781315528533-8
Vislie, L. (2003). From integration to inclusion: focusing global trends and changes in the western European societies. *European Journal of Special Needs Education, 18*(1). 17–33. https://doi.org/10.1080/0885625082000042294

Notes

1. Small discourses are written with a lowercase "d," while big Discourses use an uppercase "D."

Appendix 1

Selection of chapters from the Swedish and Norwegian curricula.

Swedish curriculum	Norwegian curriculum
Values (Lgr22)	Values (LK20)
Fundamental values and mission of the school (chapter 1)	Core curriculum Core values of the education and training (chapter 1)
Overall objectives and guidelines (chapter 2)	Principles for education and all-round development (chapter 2) Principles for the school's practice (chapter 3)
Mathematics (Lgr22)	Mathematics (MAT01-05)
Mathematics: Aim (chapter 5.5)	Relevance and central values Core elements Interdisciplinary topics Basis skills
Core content Proficiency assessment criteria and grading criteria	Competence aims and assessment

Jenny Levin

Jenny Levin is a part time postgraduate student in Mathematics Didactics at Malmö University, Sweden, and part time mathematics teacher in upper secondary school. She is interested in inclusion in mathematics education, currently focusing on prerequisites set by curricula in the Nordics, and their indications at other levels of the educational systems.

jenny_levin@hotmail.com

Helena Roos

Helena Roos is an Associate Professor in Mathematics Education at Malmö University, Sweden. Her research focuses on special educational needs in mathematics, inclusion, and students' opportunities to learn mathematics. She is particularly interested in students' perspectives on mathematics teaching and learning, as well as sociopolitical dimensions of mathematics education. More recently, her work has focused moments of inclusion and equity and specific mathematics difficulties.

helena.roos@mau.se