

Fabrication of newly-arrived students as mathematical learners

EVA NORÉN AND PETRA SVENSSON KÄLLBERG

As a response to recent laws on how to support newly-arrived students' schooling, new policy texts have been released in Sweden. By analyzing policy texts we show how a particular kind of human, "the newly-arrived student as a mathematical learner" is fabricated through discursive processes. We show how the policy texts are framed within an including discourse that encourages multilingualism and views students' mother tongue and backgrounds as resources. However, simultaneously the newly-arrived student is thought of, in a more excluding discourse, as being in need of rescue and as lacking the most valuable asset, the Swedish language.

Lately, Sweden has received a high proportion of refugees in Europe in relation to its population (Migrationsverket, 2016), and in 2017, 24 per cent of the students in compulsory school had a non-Swedish background (Skolverket, 2017). We are concerned about the children and youth who have come to Swedish school recently, the so-called "newly-arrived-students" (from now on NAS/NASSs) and their opportunities for learning mathematics. Concerns around NASSs' schooling and their opportunities for learning are taken seriously. One reason is Swedish immigrant students' low performance in OECD's Program for International Student Assessment (PISA) and their low grades in many school subjects (OECD, 2014, 2015). For example, after Swedish as a second language, mathematics has the highest proportion of students who do not achieve a passing grade when finishing compulsory school. A passing grade in mathematics is needed at the end of compulsory school to be able to apply for a national program in upper secondary school. In 2014, 27% of NASSs were eligible to apply. The Swedish National Agency for

Eva Norén, *Stockholm University*

Petra Svensson Källberg, *Stockholm University*

Education writes: "Because immigrant students have lower average PISA results, it means that increased immigration affects Sweden's average results negative" (Skolverket, 2016, p.6). OECD (2015) points to the number of refugees and the concentration of immigrant students in certain schools, and writes that "there is a risk that differences in student performance among Swedish schools will grow" (p.82). Thus, to improve NASs' academic achievement in all school subjects, policy initiatives were undertaken by the government (Utbildningsdepartementet, 2016, 2017) and four new policy texts were issued. These texts aim at reducing the differences in performance among NASs and students with Swedish backgrounds. The NASs need to quickly advance in their knowledge in all school subjects through teaching designed according to their circumstances and needs (Utbildningsdepartementet, 2015, 2017).

Policy texts hold principles about what is thought of, hoped for, and acted on, and according to Popkewitz (2012) are intended to steer classroom practices. Consequently, a wish for a particular kind of student is expressed in policy texts; so that a desirable student is fabricated.

Our aim is to problematize how the categorization of the NASs and the policies contribute to fabricate these youngsters as a particular kind of mathematical learner. By analyzing the four recently issued policy texts around schooling for NASs, we explore how the NAS as a mathematical learner is fabricated in discourses. In line with Foucault, we think of discourses as a systematic, recurrent and certain way to talk about and understand the world and the human kind (Foucault, 1973). The guiding research questions are:

- How is the newly-arrived student fabricated as a mathematical learner in Swedish policy texts?
- How are discourses related to this fabrication?

By exploring how the NAS is fabricated as a learner of mathematics in the policy texts, we discuss how fabrications may generate inclusion and/or exclusion of NASs in mathematics classrooms and thus impact on their opportunities to learn mathematics in Swedish schools.

We start by presenting how multiculturalism appeared in Swedish education policy in the past. After that we outline research that relates to the categorization of NASs and their schooling. Our theoretical framings are then accounted for and thereafter a methodological section in which the policy texts and our analytical approach are presented. In the results section, we display and discuss the fabrication of the NAS as a particular kind of mathematical learner. We conclude with a discussion of the results.

Sweden and multiculturalism

The general school in Sweden between 1880 and 1980 was an arena with hardly any experiences of "strangers" from abroad who needed "different" teaching. The teaching was focused on creating a community based on equality and unity. "Good welfare", and "a strong state" dominated the Swedish public debate in the period 1930–1990. The talk of *multiculturalism* in Swedish policy texts first appeared around 1975 (Lorentz, 2007). At the same time, media started reporting on ethnic discrimination. Lorentz (2007), for example, reported on immigrants being refused as guests in restaurants. In contrast, the official immigration policy evolved into an integration policy (Jederlund, 1999): "The goal of integration policy in Sweden is equal rights, obligations and opportunities for all, regardless of ethnic or cultural backgrounds" (Regeringskansliet, 2009, p. 1). In 1976, the Parliament decided on the home language reform, which imposed an obligation on municipalities to organize mother tongue tuition in school for immigrant children. The aim of the reform was to build a holistic perspective on immigrant students' development, in addition to children's language development, taking into account emotional, intellectual and social development (Municio, 1987).

More recent educational research indicates that two discourses of multiculturalism exist in contemporary Sweden. One encourages multilingualism and multiculturalism. Another preserves "Swedish-ness" (Runfors, 2003), normalizing the Swedish language and culture as being of primary importance. This discourse entails assimilation and deficit thinking around immigrant students. One example is that immigrant students' low results in school are explained by deficiencies in their Swedish language and lack of Swedish culture (Bagger, 2015; Nilsson & Bunar, 2015; Norén, 2010; Svensson, 2014). When it comes to immigrant students and learning mathematics, Svensson, Meaney and Norén (2014) show how these students' perceptions of their opportunities to learn mathematics are affected by the interplay of various discourses. One discourse that these students had adopted was about the need to be Swedish to succeed in mathematics and, therefore, they had accepted that the desirable qualities were those of being "normal" Swedish students, and not the "other", which is similar to Parszyk's (1999) study, which questions the Swedish school system's slogan: *a school for all*.

The "newly-arrived student"

There is little research on NASS' initial time in school in Sweden and there are no studies comparing Sweden with other countries (Bunar, 2010). International research is in agreement about the positive effects

of mother tongue support for NASs, but most studies carried out have focused on NASs' second language development (e.g. Bunar, 2010; Cummins, 1996; McBrien, 2005; Thomas & Collier, 2002), on social and individual perspectives, including identity formation, power relations in society, and how students' integration is affected by these factors (e.g. Allen, 2006). In addition, some studies have adopted an institutional perspective focusing on transitions and measurements of the importance of migration age for students' achievement (e.g. Christie & Sidhu, 2006).

These studies show that the categorization of students can play an important role in their education. In Sweden, the categorization includes how the educational system distributes opportunities for students to learn in school among various groups of students, for example, through financial resources.

Theoretical framing

According to Foucault, a discourse unfolds in a discursive practice. In this text, we define discourse as a systematic, recurrent and specific way to talk about and understand the world and the human kind (Foucault, 1973). We view the policy texts as discursive practices (Foucault, 1972), since texts build on existing discourses and are written within certain discursive practices, for example, texts that draw on earlier research on NASs. Practices in institutionalized fields, like making (political) decisions and writing policy texts on how to integrate NASs in school, are also understood in terms of discursive practices. Educational reforms are grounded in and built on a vision of the ideal person that is wanted in society, with policy texts intended to steer curriculum and classroom practices to producing ideal students. Therefore, a curriculum can be considered as reflecting the system's view of the ideal person, who functions in the system (Cummings, 2013). Views on who is going to be taught, what they are going to be taught, how they learn and how education should be organized derive from society's image and wish for the ideal person and becomes goals and values for the school, which then is the role of developing this ideal person (Cummings, 2013). Thus, policy texts also fabricate students (Popkewitz, 2012). Statements in policy texts embody ideas about "how to see, think and act" (Popkewitz, 2012, p.177) on people. These texts, "tell" who a person is and should be to function in the (school) system and thus work their ways into the lives of people and become a way of thinking of oneself (Foucault, 1982). Popkewitz' (2012) notion of fabrication is used to explore how the NAS as a mathematical learner is thought about and acted on and, thus, discursively constructed

through the policy texts. Fabrication "entails simultaneously practices of inventing fictions about people that respond to things of the world (such as adolescence as a certain kind of humans for example); and the making of that "kind" as theories, programs, and cultural narratives, producing people to navigate and order life itself" (Popkewitz, 2012, p. 170). When exploring the policy texts, simultaneously as a certain kind of person is fabricated and what constitutes that kind of person that is wished for, also who is not that kind of person becomes defined since they lack the described desired qualities. In this process, which Popkewitz (2012, 2013) calls a process of *abjection*, inclusion and exclusion are part of the same phenomenon, and can be viewed as "a double gesture", meaning that any move to include brings potential exclusion. To make visible principles that order and shape how NASs are evaluated and to discuss in(ex)clusion of NASs in mathematics classrooms in Sweden, we specifically draw on the construct "abjection" (Rizq, 2013).

In summary, when analyzing the policy texts, we use the theoretical constructs of discourse (Foucault, 1972, 1993) and fabrication (Popkewitz, 2012; 2013). Using fabrication as an analytical tool allows us to attend to the governing¹ (Foucault, 1991) of schooling since the policy texts not only assign labels to students but also "are devised to act on the child, with schemes for remediation and paths of rectification set up to remake the child who is recognized as different" (Popkewitz, 2012, p. 174). The fabrication of human kinds concerns how people think about people, ways of acting on people and particular populations, and for people to act on themselves (Foucault, 1982).

Examining policy texts: methodology

The four recently published policy texts that are designed to direct and support education for NASs in Sweden were analyzed. *General guidelines for the schooling of new arrivals* (from here on *Guidelines*) was issued by Skolverket [Swedish National Agency for Education] (2016) to give recommendations for how to organize and work with education for NASs to meet the requirements in the Swedish education act, the Education ordinance and the Curriculum. The second and third analyzed texts, also issued by Skolverket, are support materials that give examples on how to organize education for NASs and build on the *Guidelines*. The fourth text is a report issued by Skolinspektionen [Swedish Schools Inspectorate] (2014), in which an evaluation on education for NASs is presented. The report was accounted for when developing the *Guidelines*.

Table 1. *The policy texts.*

Text	Short description
Allmänna råd för utbildning av nyanlända [General <i>Guidelines</i> for the schooling of new arrivals] (Skolverket, 2016).	General recommendations for municipalities, principals, teachers and school staff saying how they should organize and work to meet the requirements in the Swedish Education Act, the Education Ordinance and the curriculum. It aims to affect the development in a certain direction and promote a consistency in law. The recommendations must be followed.
Studiehandledning på modersmålet [Supervision in the mother tongue] (Skolverket, 2015). Here named <i>Supervision</i> .	Support material for principals, teachers and supervisors in their work with organizing and implementing student tutoring activities in the mother tongue. Revised in 2015.
Att främja nyanlända elevers kunskapsutveckling – med fokus på samverkan, organisation samt undervisningens utformning och innehåll [To promote NAS' knowledge development – with a focus on collaboration, organization and teaching design and content] (Skolverket, 2012). Here named <i>Promote</i> .	Support material for principals, teachers and officials of the local education departments. The aim is to describe and give examples on how municipalities can promote NAS' development of knowledge and skills with a focus on cooperation, organization and teaching design and content. It has its starting point in the <i>Guidelines</i> .
Utbildningen för nyanlända elever. Kvalitetsgranskning. [Schooling for NAS. Quality report] (Skolinspektionen 2014). Here named <i>Quality report</i> .	A report from an investigation of 10 municipalities in Sweden where the purpose was to examine whether the schools provided NAS the prerequisites to achieve sufficient knowledge in Swedish and simultaneously proficiency in all subjects. It focused on whether the teaching was planned, implemented and adapted to the NAS' abilities and needs, as well as on whether the schools were working on giving the NAS' confidence in their own ability, motivation and influence.

In the discursive practices of which research and policies are a part of, there emerges explicit and implicit statements about NASs in schools (Popkewitz, 2013). Accordingly, we use the concept of NAS to show the making and enacting of a certain kind of mathematical learner in discourses in which principles about what is thought about, hoped for, and acted on are operating.

The first step in the analysis process consisted of repeated and careful readings of the texts, independently by the two authors, with the aim of summarizing and organizing texts in the documents into themes. In this first step, key words that often appear in the texts were identified. Examples of such words are: mother tongue, language, develop, resource, knowledge, problem, asset, compensate. One example, *mother tongue*, was mentioned 37 times in the *Guidelines*, 110 times in *Promote*, 96 times in *Supervision* and 26 times in *Quality report*. Mother tongue was mentioned in relation to teaching, teachers, learning, developing, possibilities, support, resource and more expressions. We made wordles²,

finding that the example *mother tongue*³ was the most used expression in Supervision. We also read the texts with the aim of identifying school subjects and to what degree they were mentioned to be able to relate the mentioning of mathematics to other mentioned school subjects.

In the second step of the analysis, the keywords were arranged in four themes and agreed upon by the authors:

- 1 mathematics as the example;
- 2 the importance of mother tongue for learning;
- 3 the importance of acknowledging NASs' background; and
- 4 deficient thinking.

The themes were contrasted to the two opposite contemporary discourses of multiculturalism in Sweden: one which is including in that it encourages multilingualism and multiculturalism and one which is excluding in that it entails assimilation and deficit thinking around immigrants (Parszyk, 1999). Thereafter, through a discourse analysis approach, discourses around schooling for NASs and mathematics evident in the related research literature were explored in each theme. For example, the first theme was related to discourses in which mathematical knowledge is viewed as important and beneficial for individuals and national economies (Valero, 2016). Last, the fabrication of NASs were explored in each of the themes by investigating how the NAS is thought about and what is hoped for the NASs and how the NASs should be acted on to learn in the Swedish school system.

In the following section the results are presented. All policy texts are written in Swedish and so relevant quotes are translated into English by the authors.

The fabrication of the "newly-arrived student"

Starting the analysis, we realized that the Quality report (Skolinspektionen, 2014), has been used as leverage for the Guidelines (Skolverket, 2015) and Supervision (Skolverket, 2016), and in the Quality report there are references to the Promote text (Skolverket, 2012). In the Quality report, the investigation of the 10 municipalities showed that the schools did not provide NASs with prerequisites for achieving sufficient knowledge in Swedish as well as proficiency in other school subjects.

Resultaten visar framför allt att nyanlända elever inte möter en undervisning som präglas av stimulans, utmaningar och individanpassning i tillräcklig grad. Detta beror i första hand på att skolorna

inte tar ett samlat grepp över de nyanlända elevernas utbildning och att denna istället blir enskilda lärares ansvar.

The results show, in particular, that newly arrived students do not meet an education that is characterized by stimulus, challenges and individual adaptation to a sufficient extent. This is primarily due to the fact that schools do not take a holistic approach to the education of newly arrived students and that instead they will be the responsibility of individual teachers.

(Skolinspektionen, 2014, p.5, our translation)

Over all, our analysis of the documents showed that the policy texts build on an including discourse that operates to encourage multilingualism and multiculturalism. However, the opposite discourse, the excluding one which situates the Swedish language as the norm is also evident in the texts when it comes to how the NAS is thought about, for example as a student with deficiencies in the Swedish language. This excluding discourse is in line with previous research in Sweden showing that immigrant students often are viewed as students with deficiencies (Bagger, 2015; Nilsson & Bunar, 2015; Norén, 2010; Runfors, 2003, Svensson, 2014). Each theme is illustrated by quotes from the policy texts to show the two opposite discourses and how the NAS is thought about, hoped for and acted on in these discourses. The quotes are also discussed in relation to discourses on schooling for NASs and mathematics. A concluding discussion follows this section, in which the reasoning in the different themes are summarized and discussed.

Mathematics as the example

Mathematics appears rarely in two of the texts, very infrequently in Supervision and completely missing in the Guidelines, as are the rest of the school subjects. This is because the Guidelines are focused at the general level about how to support NASs in their learning, and the school subjects are only mentioned in relation to the learning of Swedish (Skolverket, 2016, p. 28).

The Quality report mentions mathematics five times, briefly stating that some teachers document if NASs have received mathematics teaching or not before coming to Sweden and that some schools map the NASs' prior knowledge in mathematics. Based on student interviews, it was stated that many of the NASs perceived that their earlier experiences and prior knowledge was not accounted for. Referring to mathematics:

En elev berättar till exempel att "det var lätt för mig att komma in i matematiken här i Sverige eftersom jag kunde mer än mina

klasskamrater". En annan elev konstaterar att "det vi lär oss nu till exempel, det lärde jag mig i [mitt ursprungsland] i årskurs 4".

A student tells, for example that "it was easy for me to get into math here in Sweden because I could do more than my classmates." Another student finds that "we are for example learning, what I already learned in [my country of origin] in grade 4."

(Skolinspektionen, 2014, p.18, our translation)

However, in the Supervision text, mathematics is mentioned 23 times, and occurs in examples on how supervision in mother tongue can be organized, using mathematics as *the* example. The created fictional examples all use mathematics when exemplifying different ways of organizing supervision in the mother tongue.

One example is about Ahmed, a 14 years old student from Iraq. After he had spent two years in Sweden, the fictional narrative states: "Han lär sig snabbt både svenska och andra ämnen och tänker försöka bli läkare i Sverige" [He quickly learns Swedish and other subjects and plans to try to become a medical doctor in Sweden] (Skolinspektionen, 2014, p.17). Ahmed has good knowledge of the subjects he studied in Iraq, for example in mathematics, but he has not received teaching in certain content areas (in comparison to the Swedish curriculum). When the class works with percentage, the mathematics teacher learns that Ahmed does not have knowledge on how to work with percentages. Thus, she concludes that he may not pass in mathematics and addresses this with the Arabic-speaking supervisor. Support efforts are then organized, and together Ahmed and the supervisor work with percentages.

The text about Ahmed is formulated in line with an including discourse since it aims organization of the supervision in the supposed best possible way for Ahmed and acknowledges the importance of using the mother tongue for learning. However, it is first when the teacher notes that Ahmed will not pass that she arranges for him to be able to learn in his mother tongue. That is, when there is a gap in his prior knowledge in mathematics in relation to the other students, and the curriculum, he receives support. He does not receive support on a general basis when learning mathematics in the mainstream Swedish classroom even if it has the possibility to facilitate and support his learning of mathematics. Thus, mother tongue support is used for catching up with Swedish-speaking students and reducing gaps.

In Supervision, there are several examples about NASs getting supervision in mathematics in their mother tongue: *Supervision for a shorter period* in relation to a certain mathematical content area and *supervision for a longer period* in relation to the mathematics content and its

subject specific language. Supervision in the mother tongue is suggested as needing to be given: before ordinary lessons to prepare the students; during lessons to support the students; or after the lessons for repetition or follow up.

However, using mathematics as *the* example may be an effect of an interplay of discourses that unfold in the texts through the discursive practices which govern what is possible to express in the texts. Thus, mathematics being the example may be a product of discourses around, for example, immigrant students' lower achievement in mathematics, the importance of mathematics for the individual and society, and mathematical activity being universal. The discourses around immigrant students' low achievement in mathematics remain prevalent in contemporary society, nourished by reports on differences between groups of students in the PISA-tests. Such reports create a "truth" about the immigrant student as a low performer in mathematics in Sweden.

Viewing mathematics as important is a discourse that is present in many countries (see for example, Atweh & Clarkson, 2001; Skolverket, 2004; Civil & Planas, 2010; Svensson et.al., 2014). Mathematical knowledge is, according to the discourse beneficial both for individuals and national economies, providing society with mathematicians, scientists and engineers to be able to participate in the global competition and safe future (Valero, 2016). Thus, mathematical competence is an important indicator for both school success and individual and social progress to become the desired citizen (Valero & Knijnik, 2016). Mathematics being *the* example fabricates the NASs as students that have to be "fixed" since their performance in mathematics is insufficient and mathematical knowledge is important. The NAS will be fixed by supervision in mother tongue when learning mathematics. Supervision in mother tongue helps the NAS to succeed and progress and to become the desired citizen.

A similar rationale can be found in the Promote text, in which the teachers and principals describe different projects, all relating to mathematics (mentioned 19 times, while English is mentioned 7 times). The reason is, as one teacher puts it: "Mathematics was chosen because many newly-arrived students bring mathematics skills to the classroom" (Skolverket, 2012, p. 50). This aspect can be interpreted as taking students' prior knowledge in mathematics into account. However, this may also relate to the common discourse in which mathematics and mathematical activity is viewed as something universal. That is, mathematics is thought of as being "the same" everywhere regardless of the context and the culture. Valero (2016, p. 2) writes:

As math is predominantly thought of as a universal activity, particular inscriptions of math in national or local discussions, coexist with

an abstract, internationalized discourse about what math skills, achievement and even the school curriculum could be played out.

Accordingly, choosing mathematics before other subjects, when authoring the policy texts, as a project for developing strategies to support the schooling of NASs through mother tongue supervision with the argument of the teacher above may be a consequence of the discourse of mathematical activity as something universal or "the same". This is a contrast to how other school subjects are thought of, as more context and cultural dependent. Mathematics being *the* example emphasizes the importance of NASs' progressing in school mathematics. Through these discursive practices the NAS is fabricated as in need of progressing in the learning of mathematics in Sweden to meet the expectations of the desired citizen and to increase Sweden's performance in international assessments like PISA.

The importance of mother tongue for learning

While mother tongue is praised, it is the Swedish language that is honoured to be the most important for teaching and learning. Since 1976 when the Parliament decided on the home language reform, the School act (SFS 2010:800) states that a student who has a guardian with a mother tongue other than Swedish should be offered mother tongue tuition if the language is used in daily interactions in the home and the student has basic knowledge in the language. Following the School act, the first heading in the Supervision is: "Multilingualism – a resource" (Skolverket, 2015, p. 8). Multilingualism is stated to be a resource for both the individual and society, and accordingly the NASs should be thought about as a human being with assets. Research has overwhelmingly indicated, across a number of contexts, in which mathematics education research is one, that students' use of mother tongue is important for learning (Barwell et al, 2016; Schecter & Cummins, 2003). In Sweden, supervision in this context stands for supervision in students' mother tongue. Special people are employed at schools as supervisors in various mother tongues. Therefore, the emphasis in the text can be interpreted as a wish for both increased learning for NASs and a wish for productive citizens since the discourses in the policy texts hold views on for example who is going to be taught and how education should be organized, which derive from society's image and wish for the ideal person (Cummings, 2013), the desired citizen (Popkewitz, 2012). Moreover, the discourse holds that the use of mother tongue facilitates learning, and thus may be interpreted as a way for the NASs to develop to their full potential. Mathematics being *the* example in the policy texts when it comes to supervision in the mother

tongue reinforces the importance for NASs to develop mathematical knowledge to fulfill their potential. It is clearly affirmed in the text that to obtain better results NASs are in need of their mother tongue. Therefore, it is important that the teaching in school affirms students' multilingualism. This message reappears in all recently published texts issued by Skolverket on NASs. In Promote, it is stated:

En annan pusselbit för att skolan ska kunna ta till vara elevens kunskaper och utveckla dem vidare, är att eleven har möjlighet att uttrycka sig på sitt modersmål. Det tar flera år att tillägna sig ett nytt språk så att det fullt ut kan användas inom olika skolämnen. Forskning visar även att kunskapsutvecklingen gynnas av att de begrepp som används i ämnesundervisningen befästs både på elevens modersmål och på svenska.

Another piece of the puzzle for the school to be able to seize the student's skills and develop them further, is that the student has the opportunity to express themselves in their mother tongue. It takes several years to acquire a new language so that it can be fully used in different school subjects. Research also shows that the development of knowledge benefit from the terms used in subject teaching entrenched on both students' mother tongue and in Swedish.

(Skolverket, 2012, p. 10, our translation)

This quote relates an including orientation towards pedagogy since it incorporates an orientation to language as a right (Schechter & Cummins, 2003), in this case a right to continuing learning in all subjects by using the mother tongue. However, it also shows that NASs are considered as in need of developing, that NASs have skills and that it will take them several years to be sufficiently fluent in Swedish. This interpretation, thus fabricates the NAS as a student with insufficient Swedish language skills. In the Guidelines, mother tongue supervision and mother tongue education is explained as important for students' language and knowledge development. Also, the use of mother tongue or the dominant language is stated as being important for the students to gain confidence and motivation and to be able to show their knowledge in different subjects:

När eleven får visa sina kunskaper på sitt starkaste språk, vilka annars inte kan uttryckas fullt ut på grund av otillräcklig svenska, stärker det självförtroendet och studiemotivationen. Det möjliggör också för lärare att få en ökad förståelse för elevens faktiska kunskaper i respektive ämne.

When a student must demonstrate their knowledge in their dominant language, which otherwise cannot be expressed in full due to insufficient Swedish, it strengthens the confidence and motivation to study. It also enables teachers to gain a better understanding of the student's real knowledge in each subject.

(Skolverket, 2016, p.29, our translation)

The examples of these kind of writings in the policy texts are in line with a discourse in which multilingualism is viewed as an asset. In the first sentence, the NAS is thought of as a student that has knowledge in school subjects. However, using the word real in the last sentence indicates that the NAS can be thought of as not having the desired prior knowledge (compared to the Swedish curriculum). So, when pointing out that something is real it can be interpreted as a way of trying to convince the reader that this is the case, that the NAS does actually have knowledge.

In the first sentence, the NAS is also presented as a student with less confidence and motivation to study because of insufficient Swedish. The quote holds an assumption that it is the student's proficiency in the language of instruction that causes less confidence and low motivation. However, there may be other issues that relate to confidence and motivation to study, for example cultural, social and subjectivation aspects. On the other hand, there is a salvation inscribed saying that the use of their strongest language will increase the NASs' self-confidence and their motivation to study will be strengthened. Thus, the NASs are fabricated as students in need of improving their self-confidence and motivation to study. The remedy for this is using their strongest language to demonstrate knowledge. The quote also represents a naïve way of looking at languages as always exchangeable. For example, Barton (2008) has explored how various languages, as well as the culture that a certain language is embedded in, have impact on mathematical talk and consequently mathematical thoughts. Language differences with respect to mathematics talk may not be congruent.

The importance of acknowledging students' background

The policy texts all emphasize the importance of acknowledging NASs' strengths instead of focusing on their deficiencies, which is in line with the discourse in which multilingualism and multiculturalism are viewed as assets:

I all undervisning, i såväl förberedelseklassen som i den ordinarie undervisningsgruppen, behöver lärarna betona elevernas styrkor och utmana eleverna, istället för att påtala brister.

In all teaching, both in the introductory class and in the regular teaching group, teachers need to emphasize students' strengths and challenge students, instead of pointing at deficiencies .

(Skolverket, 2016, p.31, our translation)

Exactly the same sentence is found on page 37. It can be interpreted that emphasizing students' strengths and challenging them has not been the case in Swedish schools, and that teachers have viewed NASs as students with deficiencies. For example, in Sweden Runfors (2003) showed how teachers viewed immigrant students with deficiencies, that is lacking sufficient knowledge in the Swedish language and culture. The quote is formulated in such a way that NASs are considered to be students with deficiencies. It can also be considered to contain a hope that if NASs are challenged and their strengths emphasized, they will succeed in school. In the Quality report, it is stated that a major part of the teaching in regular classes of the investigated schools is not based on NASs' prior knowledge and that the subject content usually is characterized by an unintentionally narrow Swedish cultural perspective (Skolinspektionen, 2014). This may be problematic since this teaching assumes that the NASs are familiar with the specific Swedish and culture. Thus the teaching was unaffected by the presence of NASs in the class. In contrast to the results of the report, the School Inspectorate advocate for viewing NASs as an asset:

Om skolan har fokus på vad de nyanlända eleverna kan eller fokus på vad de nyanlända eleverna inte kan är centralt. En viktig del i detta är om skolan ser nyanlända elever som ett problem eller som en tillgång. För att skapa ett bra förhållningssätt måste synen på nyanlända elever som en tillgång spridas från ansvariga politiker, via förvaltning och rektorer till de undervisande lärarna.

Whether the school has a focus on what the newly-arrived students can do or focus on what the newly-arrived students cannot do is central. An important part of this is whether the school views newly-arrived students as a problem or as an asset. To create a good approach, the perception of newly-arrived students as an asset has to be spread by politicians, through administration and principals to the teachers. (Skolinspektionen, 2014, p.31, our translation)

This builds on the inclusive discourse in which multiculturalism and multilingualism are viewed as assets. In the quote it is stated that the NAS should be viewed as an asset instead of a problem. This indirectly may mean that their language skills should be viewed as assets and not

as problems. This also indicates that teachers currently view NASs as problems, since the view of the NAS as assets needs to be spread to the teachers. This indicates that NASs are considered as needing special attention, fabricating them as students in need and without the desired assets. One example of the special attention needed is the example of Ahmed above. Ahmed is fabricated as having good knowledge of the mathematics he studied in Iraq, but lacks knowledge in important, according to the Swedish curriculum, content areas since he has not received teaching in them, like percentages.

Deficient thinking

In the Guidelines, it is stated that they are written to support the NAS' development, as far as possible. To reach this aim, the school's compensatory mandate is important because it:

innebär att hänsyn ska tas till elevernas olika behov. En strävan ska vara att uppväga skillnader i elevernas förutsättningar att tillgodogöra sig utbildningen.

means to take into account students' different needs. One aim will be to compensate for differences in students' prerequisites to benefit from the education. (Skolverket, 2016, p.13, our translation)

It means that NASs are thought of as students with needs and, since a compensation is required, also as students who lack certain abilities to be able to benefit from education. Within this, there is a hope that NASs will benefit from education by the school's compensatory mandate, which means to compensate for lacking prerequisites. It fabricates the NAS as a particular kind of human, a human with needs and lacking certain abilities to succeed in school.

In relation to allocation of economic resources, it is important that principals take into account the needs of each school and possibly re-allocate economic resources.

Ett betydelsefullt instrument för ökad likvärdighet i utbildningen är att elever ges stöd och stimulans samt att resurser fördelas utifrån elevernas olika förutsättningar och behov.

An important instrument for greater equality in education is that students are given support and incentives, as well as the resources allocated based on students' different abilities and needs.

(Skolverket, 2016, p.16, our translation)

The quote's message is framed within the including discourse. However, basing the allocation of resources on students' abilities and needs puts NASs in a vulnerable position. The allocation of resources is bound to their lack of fluency in Swedish for learning. Another quote in the Guidelines is fabricating the NAS in the same way, saying that a NAS needs a long time to be able to conquer the language knowledge required. This can be interpreted to mean that the NAS does not have the required skills in the Swedish language to succeed.

Det krävs ett medvetet arbete under lång tid för att en nyanländ elev ska kunna erövra de språkliga kunskaper som fordras i skolans olika ämnen.

It takes a conscious effort for a long time, for a newly-arrived student to be able to conquer the language knowledge required in the different school subjects. (Skolverket, 2016, p.28, our translation)

In summary, NASs are fabricated, in the Guidelines, as in need and with deficiencies because they lack the required skills in Swedish. Thus, to compensate for difference does not seem to include use of mother tongue, but to develop skills in the Swedish language, "the language required" as it is expressed in the quote above, and this will take "a long time". In the Quality report it is mentioned that according to many teachers and principals, it is most important to the NAS to learn the Swedish language when starting school in Sweden. This is in contrast to the advocated, including discourse, in which use of mother tongue for teaching and learning of mathematics is promoted, alongside Swedish. Consequently, a discourse that values Swedish as the norm is operating alongside the including discourse, thus fabricating the NAS as a deviant student because of a lack of sufficient Swedish language skills. The NASs may also lack knowledge in important areas of (Swedish) mathematics, as in the example of Ahmed.

The same kind of reasoning is discernable in the Quality report. According to the report many teachers and principals declare that it is:

viktigast att de nyanlända eleverna lär sig det svenska språket den första tiden i skolan.

most important that the newly-arrived students learn the Swedish language during their introductory time in school.

(Skolinspektionen, 2014, p. 7, our translation)

Consequently, most teachers in introductory classes, where many NASs spend their first time in Swedish school, are Swedish as second language teachers, teaching Swedish to NASs (Nilsson Folke, 2017).

Spending much time in introductory classes may make students lose, or not develop further knowledge in other school subjects, like mathematics (Nilsson & Axelsson, 2013). At the same time, students' mother tongue becomes constructed as less valuable (Warren, 2013). Thus, the excluding discourse emphasizing "Swedish" is discernable in the policy texts. It becomes obvious what is important and desirable according to teachers and principals, namely for the NAS to gain skills in the Swedish language. The NASs are therefore not fabricated only as students with assets, but also as students with deficiencies and thus fabricated as students who besides lacking certain knowledge in mathematics (percentage) lack the most important asset, the Swedish language.

Discussing the newly-arrived student

Policy texts govern, they direct people in a specific direction inscribing the desirable and thus "inscribe differentiation and ordering on groups of people" (Valero & Knijnik, 2016). Therefore, our analysis has given us the possibility to show how policy texts fabricate "the NAS as a mathematical learner" through a process of abjection. The policy texts are framed by including discourses that encourage multilingualism, which views students' mother tongue as assets. However, at the same time the NAS is thought of as having deficiencies, in need of skills in the Swedish language and of progressing in the learning of *the* mathematics in order to succeed in the Swedish school system and to become the desired citizen. This double gesture makes both including and excluding discourses discernable through naming, labeling and inscribing the "NAS" as having assets (e.g. their mother tongue) but not having desired assets (e.g. Swedish language skills and mathematical knowledge as pronounced in the Swedish curriculum). This process designates hope and fear. Hope for brighter futures for the NASs, and fears of disruptions in raising the results in mathematics and other subjects in school. The discourses in the policy texts govern people by creating desired human beings, in this case NASs, as motivated and willing-to-learn students that can advance fast in their learning of mathematics when using their dominant languages.

Taking Ahmed, as an example of a NAS, his prior knowledge in mathematics is acknowledged and viewed as an asset, but this is in relation to the Swedish mathematics curriculum. Focusing on that he has not yet received teaching in percentages, we interpret as putting Ahmed in a vulnerable position, in regard to the curriculum in Sweden. Comparing his mathematical knowledge from Iraq to what is emphasized in the Swedish curriculum may make parts of his prior knowledge invisible. The mapping and the focus on his prior knowledge is done in light of

the Swedish curriculum as the norm. Consequently, the mathematics he knows from schooling in Iraq may be invisible or not valued in the Swedish school system.

Paradoxically, the compensatory mandate in Swedish school generated to fulfill a commitment to the equality of "all students" may insert inequality. We argue that the analyzed texts embody cultural theses about who the "NAS" is, and should be, and thus who is not that kind of human being, fabricating the immigrant student who when compared to the Swedish student can be categorized as a deviant student. The NAS is fabricated as a student with prior knowledge, but also as a student in need that has to be fixed because of deficiencies in the Swedish language and in various areas of mathematics, like percentage, to be able to succeed in the Swedish school system and society. Further, the fabrication of the NAS suggests that the NAS should be a self-confident and motivated student who progresses in schooling by using their dominant language, i.e. their mother tongue, even though this is not often the case in practice (Skolinspektionen, 2014). Simultaneously, as the desired NAS is fabricated the opposite is defined. Since discourses govern conduct (Foucault, 1991), a possible interpretation may be that these fabrications work their ways into the lives of the NASs through for example the way teachers act. Teachers are the ones who the policy texts are aimed at and thus when teachers enact the intentions of the policy texts, NASs may be disciplined to the certain discourses that fabricate them as a particular kind of student, and thus gain ways of thinking about themselves (Popkewitz, 2013). This enables categorizations of the NASs, imposed by others and by themselves, which may generate feelings of inclusion and/or exclusion. For example, the students who perceive that they do not match the fabrication or "description" since they lack the described and desired qualities and characteristics of the fabricated desired NAS may experience feelings of exclusion, which most likely have an impact on how they perceive their opportunities to learn mathematics. Policy texts with good intentions aim at including *all* students, but through a process of abjection (Popkewitz, 2012, 2013), any move to include always brings potential exclusions. This double gesture of inclusion and exclusion is an effect of power relations (Foucault, 1982), which are not always visible and thus if not uncovered have the possibility to exclude the NAS from becoming the desired mathematics learner in the Swedish school system, that is a student who possess the highest valued language, the Swedish language.

References

- Allen, D. (2006). Who's in and out? Language and the integration of new immigrant youth in Quebec. *International Journal of Inclusive Education*, 10, 251–263.
- Atweh, B. & Clarkson, P. (2001) Internationalization and globalization of mathematics education: toward an agenda for research/action. In Atweh, B., Forgasz, H. & Nebres, B. (Eds.), *Sociocultural research in mathematics education: an international perspective* (pp. 77–94). New York: Routledge.
- Bagger, A. (2015). *Prövningen av en skola för alla: nationella provet i matematik i det tredje skolåret* (PhD thesis). Umeå university.
- Barwell, R. (2016). Tensions in teaching mathematics in contexts of language diversity. In R. Barwell, P. Clarkson, A. Halai, M. Kazima, J. Moschkovich et al. (Eds.), *Mathematics education and language diversity: the 21st ICMI study* (1st ed.) (pp. 175–192). Heidelberg: Springer.
- Barton, B. (2008). *The language of mathematics: telling mathematical tales*. New York: Springer.
- Bunar, N. (2010). *Nyanlända och lärande: en forskningsöversikt om nyanlända elever i den svenska skolan*. Stockholm: Vetenskapsrådet.
- Christie, P. & Sidhu, R. (2006). Governmentality and "fearless speech": framing the education of asylum seeker and refugee children in Australia. *Oxford Review of Education*, 32 (4), 449–465.
- Civil, M. & Planas, N. (2010) Latino/a immigrant parents' voices in mathematics education. In E. L. Grigorenko & R. Takanishi (Eds.), *Immigration, diversity and education* (pp. 130–150). New York: Routledge.
- Cummings, W. K. (2003). *The institutions of education: a comparative study of educational development in the six core nations*. Didcot: Symposium.
- Cummins, J. (1996). *Negotiating identities. Education for empowerment in a diverse society*. Ontario: California Association for Bilingual Education.
- Foucault, M. (1973). *The order of things: an archaeology of the human sciences*. New York: Vintage Books. (first published in 1966)
- Foucault, M. (1993). *Diskursens ordning: installationsföreläsning vid Collège de France 2 december 1970* (översättning Mats Rosengren). Stockholm: Brutus Östlings bokförlag Symposion. (först publicerad 1971)
- Foucault, M. (1972). *The archaeology of knowledge: and the discourse on language*. New York: Tavistock publications limited.
- Foucault, M. (1982). The subject and power. *Critical inquiry*, 8(4), 777–795.
- Foucault, M. (1991). Governmentality. I G. Buchell, C. Gordon & P. Miller, (Eds.), *The Foucault effect: studies in governmentality* (p. 87–104). University of Chicago Press.
- Gutiérrez, R. (2008). A "gap-gazing" fetish in mathematics education? Problematizing research on the achievement gap. *Journal for Research in Mathematics Education*, 357–364.

- Jederlund, L. (1999). In transition: from immigration policy to integration policy in Sweden. *Scandinavian Review*, 87, 1.
- Lorentz, H. (2007). *Talet om det mångkulturella i skolan och samhället – en analys av diskurser om det mångkulturella inom utbildning och politik åren 1973–2006*. Lund University.
- Migrationsverket (2016). *Statistik 2016*. Retrieved from <https://www.migrationsverket.se/Om-Migrationsverket/Statistik/Oversikter-och-statistik-fran-tidigare-ar/2016.html>
- Municio, I. (1987). *Från lag till bruk: hemspråksreformens genomförande* (Stockholm studies in politics). Stockholm: Centrum för invandringsforskning.
- Nilsson, J. & Axelsson, M. (2013). "Welcome to Sweden": newly arrived students' experiences of pedagogical and social provision in introductory and regular classes. *International Electronic Journal of Elementary Education*, 6(1), 137–164.
- Nilsson, J. & Bunar, N. (2015). Educational responses to newly arrived students in Sweden: understanding the structure and influence of post-migration ecology. *Scandinavian Journal of Educational Research*, 60(4), 399–416.
- Nilsson Folke, J. (2017). *Lived transitions: experiences of learning and inclusion among newly arrived students* (PhD thesis). Stockholm University.
- Norén, E. (2010). *Flerspråkiga matematikklassrum: diskurser i grundskolans matematikundervisning* (PhD thesis). Stockholm University.
- Norén, E. (2015). Agency and positioning in a multilingual mathematics classroom. *Educational Studies in Mathematics*, 89, 167–184
- OECD (2014). *PISA 2012 results in focus: what 15-year-olds know and what they can do with what they know*. Retrieved from <https://www.oecd.org/pisa/keyfindings/pisa-2012-results-overview.pdf>
- OECD (2015). *Improving schools in Sweden: an OECD perspective*. Retrieved from <http://www.oecd.org/edu/school/Improving-Schools-in-Sweden.pdf>
- Parszyk, I. M. (1999). *En skola för andra: minoritetselevs upplevelser av arbets- och livsvillkor i grundskolan* (PhD thesis). Stockholm University.
- Popkewitz, T. S. (2000). Reform as the social administration of the child: globalization of knowledge and power. In N. C. Burbules & C. A. Torres (Eds.), *Globalization and education: critical perspectives* (pp. 157–186). London: Routledge.
- Popkewitz, T. S. (2012). Numbers in grids of intelligibility: making sense of how educational truth is told. In H. Lauder, M. Young, H. Daniels, M. Balarin & J. Lowe (Eds.), *Educating for the knowledge economy? Critical perspectives* (pp. 169–191). London: Routledge.
- Popkewitz, T. (2013). The sociology of education as the history of the present: fabrication, difference and abjection. *Discourse: Studies in the Cultural Politics Of Education*, 34(3), 439–456.

- Regeringskansliet (2009). *Swedish integration policy*. Retrieved from <http://www.government.se/contentassets/b055a941e7a247348f1ac6ade2fd876/swedish-integration-policy-fact-sheet-in-english>
- Rizq, R. (2013). States of abjection. *Organization Studies*, 34(9), 1277–1297.
- Runfors, A. (2003). *Mångfald, motsägelser och marginaliseringar: en studie av hur invandrarskap formas i skolan* (PhD thesis). Stockholm University.
- Schecter, S. R. & Cummins, J. (2003). *Multilingual education in practice. Using diversity as a resource*. Portsmouth: Heinemann.
- SFS 2010:800. *School Act* (10 kap. Grundskolan). Retrieved from http://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/skollag-2010800_sfs-2010-800
- Skolinspektionen (2014). *Utbildningen för nyanlända elever. Kvalitetsgranskning*. [Schooling for newly-arrived students. Quality report]. Stockholm: Skolinspektionen.
- Skolverket (2004). *Nationella Utvärderingen 2003* [The national evaluation 2003]. Stockholm: Skolverket.
- Skolverket (2012). *Att främja nyanlända elevers kunskapsutveckling – med fokus på samverkan, organisation samt undervisningens utformning och innehåll* [To promote newly-arrived students' knowledge development – with a focus on collaboration, organization and teaching design and content]. Stockholm: Skolverket.
- Skolverket (2015). *Studiehandledning på modersmålet* [Supervision in the mother tongue]. Stockholm: Skolverket.
- Skolverket (2016). *Allmänna råd för utbildning av nyanlända* [General guidelines for the schooling of new-arrivals]. Stockholm: Skolverket.
- Skolverket (2017). *Siris data base*. Retrieved from <https://www.skolverket.se/skolutveckling/statistik/sok-statistik-om-forskola-skola-och-vuxenutbildning>
- SOU 2016:38. *Samling för skolan. Nationella målsättningar och utvecklingsområden för kunskap och likvärdighet*. Stockholm: Utbildningsdepartementet.
- Svensson, P. (2014). *Elever med utländsk bakgrund berättar: möjligheter att lära matematik*. (Licentiate thesis). Malmö university.
- Svensson, P., Meaney, T. & Norén, E. (2014). Immigrant students' perceptions of their possibilities to learn mathematics: the case of homework. *For the Learning of Mathematics*, 34(3), 32–37.
- Thomas, W. & Collier, V. (2002). *A national study of school effectiveness for language minority student' long-term academic achievement*. Santa Cruz: Center for Research on Education, Diversity and Excellence. Retrieved from http://www.crede.ucsc.edu/research/llaa/1.1_final.html
- Utbildningsdepartementet (2012). *Uppdrag att svara för utbildning* (Regeringsbeslut I:44). Retrieved from <https://www.regeringen.se/regeringsuppdrag/2012/05/u20114343s-m.fl/>

- Utbildningsdepartementet (2015). *Uppdrag att genomföra för att stärka utbildningens kvalitet för nyanlända elever och vid behov för elever med annat modersmål än svenska* (Regeringsbeslut I:2). Retrieved from <https://www.regeringen.se/regeringsuppdrag/2015/06/uppdrag-att-genomfora-insatser-for-att-starka-utbildningens-kvalitet-for-nyanlanda-elever-och-vid-behov-for-elever-med-annat-modersmal-an-svenska/>
- Utbildningsdepartementet (2016). *Exempel på hur regeringen arbetar för att stärka nyanlända elevers förutsättningar i skolan* (Promemoria). Retrieved from <https://www.regeringen.se/49f5b0/contentassets/1c7b1f8ed5d840919bfe46abf4875df6/exempel-insatser-for-nyanlanda-elever.pdf>
- Utbildningsdepartementet (2017). *Uppdrag att genomföra insatser för att stärka utbildningens kvalitet för nyanlända barn och elever och vid behov för barn och elever med annat modersmål än svenska* (Regeringsbeslut I:1). Retrieved from <https://www.regeringen.se/regeringsuppdrag/2017/02/uppdrag-att-genomfora-insatser-for-att-starka-utbildningens-kvalitet-for-nyanlanda-barn-och-elever-och-vid-behov-for-barn-och-elever-med-annat-modersmal-an-svenska/>
- Valero, P. & Knijnik, G. (2015). Governing the modern, neoliberal child through ICT research in mathematics education. *For the learning of mathematics*, 35(2), 34–39.
- Valero, P. & Knijnik, G. (2016). Mathematics education as a matter of policy. In M. Peters (Ed.), *Encyclopedia of educational philosophy and theory*. New York: Springer.
- Warren, A. R. (2013). Mother tongue tuition in Sweden-curriculum analysis and classroom experience. *International Electronic Journal of Elementary Education*, 6(1), 95.

Notes

- 1 Governing is a Foucauldian term, which means that practices (mentalities, rationalities, and techniques) are organized through which subjects are governed. Here it means that policy texts govern how NASs might be viewed, and acted upon in school.
- 2 Graphical representations of the frequency of words in a text document.
- 3 *Mother tongue* is one word in Swedish: *modersmål*.

Eva Norén

Eva Norén is senior lecturer in mathematics education at the department of mathematics and science education, Stockholm University. Her main research interest is multilingual students in mathematics classrooms. She defended her PhD thesis, *Flerspråkiga matematikklassrum* [*Multilingual mathematics classrooms*] in 2010. She has also researched gender issues related to mathematics teaching and learning. Since 2017 she is involved in a development and research project on programming in subject didactics.

eva.noren@mnd.su.se

Petra Svensson Källberg

Petra Svensson Källberg has a doctoral degree in mathematics education from Stockholm University, the department of mathematics and science education. She works at Pedagogisk Inspiration, a department which works with school development and research in the municipality of Malmö, Sweden. Her main research interests concern socio-political issues in mathematics education and are related to multilingual and multicultural issues in mathematics education.

petra.svensson@mnd.su.se

