Students' mathematical identity formations in a Swedish multilingual mathematics classroom

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In this article I explore how students' mathematical identities are formatted in a multilingual mathematics classroom. The study has been conducted in a group of ten multilingual Arabic and Swedish speaking students in grade eight and nine. In the article the focus is on two of the students. Students' mathematical identity formations are effects of exercise of a variety of discourses available in the mathematics classroom. In discourses promoting multilingualism and social relations students' possibilities to positively build upon opportunities in the mathematics classroom seem to enhance and identity formations as engaged mathematics learners is not an obstacle.

Swedish national evaluations as well as international studies such as PISA and TIMSS have shown that several multilingual students with foreign backgrounds [1] fail in attaining the lowest curriculum objectives in mathematics (Johansson & Emanuelsson, 1997; National Agency of Education [3], 2003, 2004, 2007; OECD, 2006). In Sweden as well as in other countries, a large number of multilingual students' low performances in mathematics are often attributed to deficiencies related to individual characteristics and to factors related to the cultural background of the students such as family structure, use of mother tongue in daily life, or even lack of "integration" to a new culture (Khisty, 1995; Adler, 2001; Barwell, 2009; Rockwool fondens forskningsenhed, 2007). The Swedish researcher Runfors (2003) labelled the deficiency discourse "lack of Swedishness".

A deficiency discourse calls for remediation in the students themselves to become more "Swedish", and work as a mechanism to counterforce multilingual students' cultural backgrounds, their families and their languages. Consequently, deficit discourses may affect teachers to

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Norén, E. (2011). Students' mathematical identity formations in a Swedish multilingual mathematics classroom. *Nordic Studies in Mathematics Education*, 16 (1-2), 95–113.

view multilingual students as disadvantaged, and to have low expectations on multilingual students' performance in school. This attributed deficiency is addressed by local authorities and teachers with strategies such as the emphasis in the teaching of the Swedish language as the key to participation and integration in society. As a result, the most common practice in Sweden is that multilingual students are taught mathematics monolingually and Swedish is accordingly then the language of instruction, even if students are not proficient in Swedish. The mathematics classroom is constructed not only as a place to learn mathematics, but also as a place to become more "Swedish". The interplay between the formulation of the attributes and the strategies of remediation result in the formation of strong deficiency discourses on bilingual learners with immigrant background. It is in this way that multilingual students are placed in "predefined identities which are used to determine or forecast their performance in school and higher education and predict obstacles on the way" (Stentoft, 2007, p. 1597).

According to Skovsmose (2007) mathematics education operates as part of social mechanisms, justifying certain forms of inclusion or exclusion. Exclusion is not imposed on students, but "may appear as a consequence of some students' so called low achievement" (p. 81). In Sweden, immigrant students frequently are construed as low achievers (Parszyk, 1999; Runfors, 2003; Haglund, 2005; Jonsson, 2007). See also Lange (2008) who describes the situation in Denmark in similar terms: "[...] educational policy can be seen as drawing upon a notion of deficiency of the immigrant students and their families with respect to linguistic mastery of Danish and integration in Danish culture" (p. 52). Outcomes of Swedish research show that a normalizing discourse promoting monolingualism and Swedish-ness is dominating in multilingual classrooms [2]. The dominating normalizing discourse has negative effects on multilingual students' identity formation and hence their possibilities for learning (Parszyk, 1999; Runfors, 2003; Gruber, 2007). While most of the existing research in this area has a tendency on providing attributionist explanations, some studies disrupt that view and provide alternative readings of the lives, situations, and engagement of multilingual students with mathematics. For example, Haglund (2005) has illustrated that there is a potential for multilingual adolescent students to actively respond to and even resist dominant deficiency discourses. If multilingual students experience social exclusion in school they may invest their efforts in contexts outside school. Haglund's findings provide that the potentials and possibilities for multilingual students to engage in learning at school have to be highlighted. Thus, instead of focusing deficiencies within individual students I challenge deficit discourses on multilingual students, and

propose that multiple discourses in the mathematics classroom are the scene where students engage in identification as mathematics learners. In this article I explore; *how does exercise of various discourses, in multilingual mathematics classroom affect students' mathematical identity formation*?

I am interested to explore how students invest their efforts in school mathematics responding to discourses within the multilingual mathematics classroom, and how their responses affect their identities of becoming engaged mathematics learners. I challenge current understandings of multilingual students in mathematics classrooms in Sweden as disadvantaged. By exploring discursive practices in a multilingual mathematics classroom I uncover how students respond to discourses and how they in these discourses take active agency and position themselves, in order to understand possibilities and potentials for mathematical identity formation. I will use various forms of data from a case study within a larger four-year ethnographic study (Norén, 2010).

The research takes hold of factors and relationships that constitute mathematics education in multilingual settings from a socio-political point of view. The term socio-political is indicating that mathematics education is political as well as social (Mellin-Olsen, 1987; Valero, 2004).

I have set off by addressing factors that have had impact on the research reported in this article. The theoretical context and methodological considerations as well as a description of research methods and analysis will follow.

Theoretical context

From a socio-political point of view discourses about power are part of mathematics education and power is exercised in and through social action. Valero (2007) writes that power is a relational capacity of social actors to position themselves in altering situations through the use of different resources. She continues (p. 226):

> Power is not intrinsic and permanent characteristic of social actors; rather, it is their capacity to participate by taking and defining the positions and conditions for engaging in social practice. Thus, power is not monolithic; it is distributed in social relations and is in constant transformation. This transformation does not happen directly in open struggle and resistance, but through the everyday participation of actors in social practices, and in the creation of their associated discourses.

I view the multilingual mathematics classroom from an analysis of discursive practices built on two theoretical notions, *discourse* (Foucault, 1971)

and *identity* (Foucault, 1988). I use the concept of discourse according to Foucault as a group "of utterances which seem to be regulated in some way and which seem to have coherence and a force to them in common" (Mills, 1997/2004, p. 6). In Foucault's (1972) words discourses are "practices that systematically form the objects of which they speak" (p. 49). My interest lies in how implicit institutional rules and structures are exercised through discourses, and by that discursive practices are produced that enable or disable bilingual students' identity formation as engaged school mathematicians.

Learning mathematics relies on how students position and tell themselves as mathematics learners in the classroom (Solomon, 2007, 2008). Identity is in this article seen as discursive positioning and as produced by intricate networks of discourses. Identity is then viewed as a relational concept, the result of the subject's [the student's] interpellation into discourse, systems of knowledge, and practice which construct objects (Foucault, 1975/88, 1980). In Walshaw's (2007) words, building on Foucault, identity is "created at the intersection of a multiplicity discourses, always crisscrossing each other" (p. 81). Foucault rejected the view on identity, as a person's internal or set essence; instead the self is constituted by a continuing discourse in a shifting communication of oneself to others. In other words identity, or rather identities, is something we communicate and experience in interactions with others, it is not a fixed entity or a set of qualities, and it is a temporary, slippery and shifting formation. Identity formation is a constantly on-going and unstable process of becoming (Grootenboer, Smith & Lowrie, 2006). Mathematical identity formation in the mathematics classroom can then be seen as influenced by competing and sometimes complementing discourses, but also by teachers' and students' positioning. While being active agents in different discourses, students contribute to negotiations about what it means to be a mathematics learner, and to know and do mathematics in the classroom.

As a range of discourses are available to a learner in a mathematics classroom, they can be complied or resisted. Different positions "can be adopted by participants, an extreme being resistance, especially in 'coercive' practices such as schooling" (Lerman, 2001, p. 104). For multilingual students discourses about multilingualism may have an impact on their identity formation since their identities as multilingual may be both empowered and restricted in the discursive practices (Toohey, 2000). Both empowering and restricting processes can be viewed as effects of institutionalized discourse (Foucault, 1971; 1984). The analytical framework in use reveals how exercise of discourses in the classroom in various ways has implications for students' mathematical identity formation.

Research methods and analysis

In this article I focus on a case study, conducted in a group of ten bilingual Arabic and Swedish speaking students in grade eight and nine 2005–2007. The variation of data consists of field notes from ethnographic fieldwork; participant observations, video recordings, formal and informal interviews with students and teachers in one bilingual mathematics classroom. The focuses are mainly on one boy, Amir and one girl, Bassra. They finished compulsory school in June 2007. Their names as all other names in this article are fictive names. The episodes and transcripts for this article are chosen for their explanatory power and are not to reflect any ideal classroom practice. In my analysis I focus on Amir's and Bassra's ongoing mathematical identity formation.

Meryem, the bilingual mathematics teacher, referred to in this article, has an Iraqi engineer degree, and a Swedish mathematics and technology teacher degree. Meryem has been teaching mathematics monolingually in Swedish for about ten years and bilingually in Arabic and Swedish for about two and a half years. The students in the group where Amir and Bassra are participants all have origins from the Middle East, and Arabic is there first language. In ninth grade they have had bilingual mathematics instruction carried out by Meryem in Arabic and Swedish for almost two years. Amir has had Swedish mathematics instruction most of his school years in Sweden before he took part in bilingual teaching of mathematics. Bassra arrived to Sweden four years ago. At first she was taught only Swedish, one and a half years ago she started to participate in the bilingual group.

The analysis has parallel focuses in the sense that the official policies on mathematics education and language constitute a first layer, the institutional "voice". The voices of the institution are recognized in official documents and earlier research (Norén, 2010). The discursive practices; interactions, activities and communications in the classroom constitute a second layer, interviews with teachers and students a third layer. Firstly discourse categories have been construed from an analysis of official policies and earlier research concerning multilingual students in Swedish school contexts, with respect to the framework of discourse. Secondly the discourse categories have helped me interpreting the various voices with respect to the framework of identity. The voices of teacher and the students are considered in relation to the construed discourses and my reading of transcribed expressions from video recordings, interviews and from my field notes.

Discourses on multilingualism

In Swedish educational policies, steering documents and research studies, there is evidence of various aspects of discrimination and exclusion. Language is a key issue, exemplifying a discriminatory practice where focus on the Swedish language constitutes a boundary between exclusion and inclusion. There are different approaches to how to deal with the issue of language diversity in schools. One discourse applied is "Swedish only"; another is recognizing and encouraging bilingualism. The dominant discourse, a voice of the institution, normalizes "Swedish only" (Runfors, 2003). It reflects every-day opinions and unscientific myths about multilingualism (Lindberg, 2002). I construe the every-day opinions as discourses referring to people taken for granted models; they are often dominant and reflected through media. Such discourses are that researchers do not agree on the advantages of using students' mother tongue in educational situations in a second language learning environment and that the use of mother tongue should have a negative influence on the learning of a second language. Contrary, says Lindberg (2002), researchers agree on the significance of mother tongue for second language learning and the importance of mother tongue for multilingual students' achievement in school. It is also shown that a distinction between additive, when languages complement and support each other, and subtractive second language learning, when the second language is learned on the expense of the first, mark the importance of the sociocultural conditions that characterize multilingual children's upbringing. Researchers also report on multilingualism and its positive effects for cognition (Lee, 1996).

Another dominant and taken for granted discourse is that it is easy for children to learn a second language, but research show that it takes more than five years to develop a second language to an academic school level (Thomas & Collier, 2002). Another taken for granted discourse is that languages should be kept apart, but researchers mean that bilinguals often use their languages complementary (Jørgensen & Holmen, 1997) and can benefit from code-switching [4] (Grosjean, 1982; Heller, 1988; Wei, 2000; Jonsson, 2005).

Students' resistance towards dominant discourse

I will now turn to classroom data, and analysis.

One voice of the students in this article is their resistance to every-day-discourses about immigrant students often represented in media. At different occasions both Amir and Bassra, as well as other students, responded to, and adopted positions as engaged mathematics learners, while resisting dominant discourses predefining them as disadvantaged

immigrant students. One significant example of this is from one morning in May 2006, when there were articles in the morning papers [5] referring to the OECD (2006) report "When immigrant students succeed in mathematics". The headlines indicated the opposite of the title of the report: "Immigrants don't know mathematics", "Immigrant students worse at mathematics". The ten students acted the same way; they were upset when referring to the articles. Some of their voices were:

1. Amir: What will people say?
2. Bassra: All immigrants read Metro!
3. Susan: We are good at mathematics!
4. Amir: It's not true!

In their discussion following the reading of the articles they positioned themselves as "good at mathematics" (3), and that there were false statements in the headlines (4). The headlines in the papers can be interpreted as a rhetorical argument concerning power relations in society, and school. Statements like "Immigrants don't know [...]" and "Immigrant students' worse [...]" support deficiency discourses and give immigrant students a passive voice. Amir, Bassra and the other students did not accept a passive voice. They brought the headlines of the papers to the mathematics classroom, to oppose the dominant discourse, by negotiating their identities as engaged mathematics learners. Meryem, the teacher was tacitly agreed to negotiations of identities in the mathematics classroom.

I interpret the tacit agreement of bringing in issues from outside the mathematics classroom, as part of a social relational discourse. A voice of the teacher is her exercise of social relational discourse. Meryem said at different occasions; in interviews and more informal talk that she found social relations important as they also helped student focus on mathematics in the classroom (Norén, 2010).

The students expressed comfort in their social relations with Meryem. Amir articulated it in this way:

> She is just like us, coming from another country, speaking Arabic. She understands me better than Swedish teachers, having relatives in Baghdad. I want to work well in the classroom, and I have opportunities to learn a lot, while she is teaching. But she also let us talk about other things. I like that. She is a teacher, but also an older friend.

The social relational discourse, as expressed in the quote above, did sometimes compete with the school mathematics discourse in this particular

classroom, but mostly the discourses seemed to work parallel and influenced the practice so that students' opportunities to build positive attitudes towards their learning of mathematics enhanced (Norén, 2010).

Discursive practices and discourses in the classroom

The uses of the different languages were influenced by various and from time to time competing discourses. An example of two competing discourses is when Meryem exercises "Swedish only", while instructing two girls, at the same time as she is regulating Amir's behaviour using Arabic. The exercise of various discourses had impact on students' identification as engaged mathematics learners. The following episode illuminates this.

In the excerpts from a lesson, in grade nine, on linear functions, Meryem is exercising a discourse promoting multilingualism, using Swedish and Arabic to explain, conceptualize and contextualize linear functions. At the same time she is exercising a regulating discourse, when restricting actions of two boys, in Arabic. Amir is one of the boys.

Meryem is instructing two of the girls, Bassra and Susan, on functions and their graphs, since they have asked her for extra help and further explanations. The girls are sitting close together with blank papers and pens of different colours in front of them. The other students are working in small groups solving mathematical problems from a text book. Amir has just helped the girls by drawing the x- and y-axes in a coordinate system on one paper in front of them. I interpret Amir's helpfulness as an indication of him positioning himself as an engaged mathematical learner and in this case he takes the position of a teacher. The teacher, Meryem is now starting to draw the graph of the function expressed $y = x$ on the paper in front of the two girls. The two boys, Amir and Joseph, are interrupting Meryem and her interaction with the girls by starting to talk out loud and not focusing on the mathematical task they are supposed to. Two different interactions are going on at the same time. The boys and the girls claim attention from Meryem for varied reasons. Meryem seems to try to divide her attention between the groups of students even though she is sitting next to the girls. She says [Arabic in *italics*]:

4. Meryem: [to Amir] *This is not good, you don't do it like this, it's not neat, not straight*! [She is referring to the x- and y-axes, that Amir draw. The axes were not straight]
5. Amir: I do as you do [usually]
6. Bassra: It has already passed ten minutes [of the lesson]

7. Meryem: *It's not neat, and you have to keep quiet*!
8. Amir: Yes, yes, I keep quiet now!
9. Bassra: Don't take notice of them!
10. Meryem: [to Amir] *If you don't want to work you just have to walk out … you and Josef.*

Bassra is positioning herself as engaged in her learning of mathematics, taking responsibility (6) and asking Meryem, her teacher, not to notice the boys' actions (9). She wants the attention from Meryem, as she is the one who can explain to her. Bassra says out loud and shows clearly that Meryem doesn't have to take notice of the boys. She positions herself as a busy mathematics learner and does not want the boys to disrupt that identity. In the excerpt Meryem speaks Arabic when turning to Amir, regulating his actions (4, 7, 10). Amir is seeking affirmation from Meryem (5, 8). When she doesn't pay more attention to him, he and Josef place themselves in front of the white board covering it with mathematical symbols and graphs. Amir has taken the initiative to the activity; I interpret Amir's action as an act of engaging in mathematics, though not the kind Meryem wants him to (10).

The discourse exercised brings attention to what usually is considered as "noise" or "impossibilities" (Biesta, 2005; Valero & Stentoft, 2009) in studies of mathematics classrooms. Dominant discourses, reflected through media, taking an identity of multilingual students as disadvantaged for granted may exclude students and position them as "noisy immigrant students" in school contexts. A discourse of "noisy immigrant student", drawing and writing on the white board, not focusing mathematics in the text book, seems available to Amir. Simultaneously he is enabling a discourse of an "engaged mathematics learner", drawing and writing mathematics on the white board. These two discourses, exercised in this particular multilingual mathematics classroom, work complementary. At the same time as Amir is engaging in a discourse of a noisy immigrant student, he is also engaging in mathematics.

While Amir and Josef head for the white board Meryem takes a new paper and draws a new coordinate system. Bassra again shows that Meryem does not have to notice the two boys. Meryem turns to the girls, supporting them again, now in Arabic (11), and she tells them not to notice the boys (13):

11. Meryem: *This is okay, this is the function.*
12. Bassra: So, you just ... [one can still hear the boys]
13. Meryem: ... ignore them ...

Meryem reminds the girls how to draw a graph and what to call the objects. She is also asking them questions (14, 16), and the girls are answering (15, 17):

14. Meryem: We have worked with functions before. What do we call this one? [pointing to origo with her pen] if this one ... if it goes right through here? [using her pen, pretending to draw a graph]

15. Bassra: Origo.

16. Meryem: And if a line goes right through ... this [draws the graph of $y = x$, now code switching to Arabic but it is impossible to hear what she is saying, pointing to the graph and the axes]

17. Bassra: So ... right in bull's eyes! Half of it ... so ... a whole one ... is the same as y ... equals y

18. Meryem: You seem to know about this [turning to Bassra]

Meryem is supporting Bassra's position as an engaged mathematics learner (18). As Bassra is aware of mathematics as an important subject for her future plans, to head for an ordinary program in higher secondary school, she is willing to engage. Without a pass grade in mathematics this will not be an option to her.

Bassra show familiarity with the function for the graph (15, 17). Meryem draws the graph for $y = 0{,}5x$ in the same coordinate system, with a different coloured pen. Bassra immediately grasps what Meryem is doing (19) and gets enthusiastic (21):

19. Bassra: Then this one [pointing to the second graph] is half on that one [pointing to the first graph].

20. Meryem: What do you mean? Half on that one? *Half on that one?* [Meryem wants Bassra to clarify her description]

21. Bassra: This is the whole one [pointing enthusiastically to the $y = x$ graph] this one is half of that one [pointing to the $y = 0{,}5x$ graph]

The two boys are obviously still "noisy", disturbing Meryem and the girls, while at the white board. Meryem again tells them to keep quiet in Arabic. Amir responds to Meryem by asking:

22. Amir: Why are you telling me off?

Meryem tells Amir and Josef in Arabic that they have to wait because she has to help the girls. Amir and Josef go on writing and drawing on the whiteboard.

Through the action with the two girls Meryem seems to control Amir's actions through Arabic in a discourse of regulation (4, 10). Amir seems to listens more carefully when she is speaking Arabic to him, and takes more notice about what she says (5, 8). By demanding attention from Meryem both Amir and Bassra exercise power relations.

The dialogues with the two girls in the excerpt are mostly in Swedish. But when emphasising Bassra's statement: Half of that one (17, 20, 21), and relating to the different slopes of the two graphs in the coordinate system, Meryem uses Swedish and Arabic. When discussing this in an interview and in informal talk Meryem says she thinks it is important that the girls learn mathematics in Swedish as they soon will go on to monolingual instruction at upper secondary school. The girls say they have participated in Swedish monolingual mathematics instruction for several years before taking part in the bilingual teaching of mathematics and are used to "do mathematics in Swedish". Even so the girls favour that Meryem is using Arabic to connect to colloquial speech, everyday life and to explain concepts; it makes them feel more "comfortable". This I construe as an indication of competition between the discourse "Swedish only" and a discourse that promotes bilingualism; the use of both Swedish and mother tongue in the mathematics classroom.

Amir from time to time enables a discourse of a noisy student and performs as "a noisy" student in the classroom, as in the excerpt above. The writing and drawing on the white board can be interpreted as such noisiness. I understand this as though he is moving into a discourse also available to him, investing his effort in contexts not promoted by the teacher or even outside school (Haglund, 2005). What usually is considered as "noise" in studies of mathematics classroom interaction (Valero & Stentoft, 2009) is in this case study also an exercise of a discourse of engaging in mathematical activities; writing and drawing mathematics on the whiteboard. I interpret Amir's noisiness as a way to take the position of an engaged mathematics learner or the role of a teacher while writing on the white board. An interpretation is that exercise of social relational discourse in this particular classroom made it likely for Amir to withdraw from noisiness and engage himself in learning mathematics.

Swedish and Arabic – complementing

While regulating students Meryem mostly speaks Arabic, as in the excerpt above. She says that the Arabic language makes the students listen when "things not are running as they should" in the classroom. "Amir, especially, pays attention a lot better when I speak Arabic", but I have noted that all students listen more carefully when Arabic is used for regulating their actions. This is a similar finding to Setati's (2005) where students' mother tongue often functioned for regulating students but also was the language of solidarity in non-mathematical discourses.

When students are using Arabic, and when they talk about the language, they say "my language" and "our language". All the ten students say they appreciate Meryem's code-switching and her mathematical

explanations; ”she is explaining so that we understand mathematics”, ”I learn more in this classroom than when I had a mathematics teacher speaking Swedish all the time”. The positive evaluations from the students are not just a language matter; it is the whole situation of being multilingual students in a bilingual learning of mathematics environment – a certain school mathematical discourse, valuing and including students' linguistic experiences. The students perform out of identities as multilinguals, and are then enabling a discourse of additive multilingualism. The discourse supports their identities as multilinguals and is not an obstacle of becoming engaged learners in mathematics.

Students' mathematical identities formation

In this classroom two students' mathematical identity formations have been explored in relation to intricate networks of discourses in the multilingual mathematics classroom. The range of discourses exercised affect Amir's alternation between his identification as a ”noisy immigrant student”, or/and as an ”engaged mathematics learner”. Within discourse exercise there is space for social as well as power relation negotiations between teacher and students. Amir and Bassra have opportunities to perform identities out of various discourses. In contrast to earlier research in multilingual classrooms in Sweden (see for example Runfors, 2003, and Haglund, 2006, though their studies are not focusing mathematics education, but multilingual students), where institutionalized classroom discourse often implicitly works normalizing ”Swedish only” and ”Swedishness”, neither Bassra nor Amir are normalized towards Swedishness in this particular mathematics classroom. In contrast to Parszyk's (1999) study, where multilingual students often experienced school was not for them but for others [the Swedish students], Amir and Bassra, as well as the other students, out of their experiences, acknowledged school was for them. Through exercise of discourses available in the multilingual mathematics classroom they had space to format identities as engaged mathematics learners and identities as multilinguals simultaneously.

However Amir is also, from time to time, engaging in a discourse of a ”noisy” student in the mathematics classroom. His actions do not have to be related to deficiencies within himself, his family or his cultural background; his actions can be related to the discourses that are available.

In the excerpt from the linear function episode Bassra, is positioning herself as an engaged mathematics learner, in relation to Meryem but also to Amir, and the discourses available. In relation to Amir she may be complying with a discourse within school mathematics being like the teacher, which Walkerdine (1998) describes as a powerful female

strategy. Both Bassra and Meryem tell Amir to keep quiet, and they tell each other to "ignore" the boys. This may be a way for Bassra to share the teacher's authority and identify herself as clever in mathematics. Also Amir's sometimes "noisy" actions can be interpreted as a way to share the authority of the teacher [6]. Amir is drawing a coordinate system to help the girls and he is performing mathematics on the white board.

Concluding remarks and discussion

In this article I explored how exercise of various discourses in a multilingual mathematics classroom affect two students' identity formation as engaged mathematics learners.

I have illuminated some aspects on how multilingual students' mathematical identities may be formatted trough discursive practices in the classroom. The discursive practices described and analysed in this article expose how identity formations are affected by interplays between different discourses available in the classroom. Some discourses work parallel in this particular bilingual mathematics classroom; a social relational discourse and a mathematical discourse, a discourse promoting multilingualism and a mathematical discourse, a solidarity discourse and a regulating discourse. Amir and Bassra both engage in identification as mathematics learners. They seem to gain self-confidence and take responsibility for their learning of mathematics to some extent built on social relations between the teacher and themselves. Within discourses promoting monolingualism and Swedishness Amir and Bassra may have become marginalized (Boaler, 2002), in the same way as reported in other Swedish studies where deficiency discourses were dominant.

Discourses reflecting positive attitudes towards social relations, the exercise of power relations and the multilingual "atmosphere", including language, culture, values and habits, give space for students' to positively build upon opportunities in the classroom and enhance their identity formations as engaged mathematics learners. Possibilities for their future are constituted in the processes of becoming engaged mathematics learners. When mathematical identity formation is not an obstacle, the future doesn't seem to be an obstacle. Bassra and Amir, as well as the other students in the group, got approve or pass grades in mathematics, and were able to head for ordinary programmes in upper secondary school.

The relations are complex and not easy to grasp, but the outcomes from this study give indication of possibilities to broaden the use of language in Swedish multilingual classrooms. In this particular classroom, discourses of solidarity, social relations and additive bilingualism encouraged identity formation of students' becoming engaged school

mathematicians. A discursive practice in which teachers and students can use mother tongues on a regular basis seems to facilitate meaning in becoming engaged mathematics learners. Consequently bilingual students have the space of becoming mathematics learners on the same terms as Swedish speaking students, when their mother tongue is used parallel to Swedish, supporting identity formations as mathematical and multilingual learners.

The advantages of speaking the same languages and having the same cultural background in a learning context can be one explanatory factor for Amir's or Bassra's potential of becoming engaged mathematics learners and to aim for ordinary secondary school programmes. This is in a discourse that promotes multilingualism. What is won when multilingual student's mother tongues are used is acknowledgement of languages and identities close relationship to identity formation (Toohey, 2000). Bilingual students speak and use more than one language, and belong to more than one culture. Those conditions have to become acknowledged in Swedish schools, for the benefit of bilingual students' identity formation as engaged mathematics learners. Another explanatory factor to Amir's and Bassra's positioning is that the teacher, Meryem, is an enthusiastic mathematics teacher, and that she is expecting good performances from her students, in their learning of mathematics. She does not acknowledge multilingual students as disadvantaged A third explanatory factor is that Meryem does not exercise deficiency discourses in the classroom.

Identity is a fragile formation, which never can be taken for granted, and "impossible to capture and difficult to predict" (Valero & Stentoft, 2009, p. 109). The identity formation of students in this article as becoming engaged mathematics learners open for a broader perspective than pre-defined identities construed from view points where deficit discourses are applied to minority students. A conclusion is that multilingual students in mathematics classrooms not can be positioned as "immigrant students" or defined as disadvantaged, to decide their performance in school or predict obstacles on the way. Within the particular multilingual mathematics classroom in this article multilingual students were not positioned as disadvantaged. They were engaging in identification as mathematics learners. Within various discourse exercises Amir and Bassra took active agency; they were making choices and acted accordingly in the mathematics classroom.

The study indicates that discursive practices and power relations within any multilingual mathematics classrooms are possible to change for the benefit of multilingual students' mathematical identity formations.

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Notes

1 Are also called multicultural students by some researchers

2 A multilingual mathematics classroom is a classroom where two or more languages are used overt or tacit (Barwell, 2009). In this study Swedish and Arabic were used overtly.

3 In Swedish: Skolverket.

4 Code-switching is by Heller (1988) defined as "the use of more than one language in the course of a single communicative episode" (p. 1), also quoted in Jonsson (2005. p. 104). Wei (2000) says "code-switching is an extremely common practice among bilinguals and takes many forms" (p. 16).

5 The 16th of May 2006 in Svenska Dagbladet, and the 17th of May in Metro, two different morning papers. Metro is free and available at all subway stations.

6 Høines (2002), with reference to Bakthin, uses the concept of an *authoritarian teacher* voice to describe a pattern of communication where a student steps into a teacher's role. Also Alrø & Skovsmose (2002) note the same phenomenon when a student, Malene, takes action without the teacher being present and becomes the teachers advocate.

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