

IDENTITY IN A BILINGUAL MATHEMATICS CLASSROOM – A SWEDISH EXAMPLE

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INTRODUCTION

In this paper I report shortly from a project where some of the complex relationships between school mathematics and discursive practices in one bilingual mathematics classrooms in a Swedish context were explored. My aim was to *explore how bilingual students' identities are constituted in a bilingual mathematics classroom.*

Mathematical teaching and learning in bilingual and multicultural classrooms has often had a focus on language aspects though from different perspectives, such as psycholinguistics, socio linguistics and sociocultural (see for example: Moschkovich, 1999). Research in bilingual mathematics classrooms (among others: Adler, 2001; Moschkovich, 2007) has claimed that the use of students' first language(s) is a resource for teaching and learning mathematics. In addition researchers in bilingualism have argued for bilingual teaching to support students' learning of a second language as well as subject content learning (Thomas & Collier 1997).

These research findings had a huge impact on a number of Stockholm politicians, principals and official school clerks some years ago. They initiated a bilingual teaching of mathematics project in five schools in the suburban areas of Stockholm. The project was running from August 2004 until December 2006. I evaluated the project and also did additional ethnographic fieldwork in two of the schools for one and a half more years. While evaluating the project I found that multicultural issues in mathematics education couldn't be reduced to just multilingual or cultural issues (Norén, 2008; see also Gorgorió & Prat, 2009). Also bilingual students' identity formation and positioning as mathematics learners called for further study.

THEORETICAL CONTEXT

Identity formation can be seen as a constantly ongoing process of becoming; in this case a "school" mathematician, and as constituted by political and institutional processes, which means neither as an individual nor as a social process (Foucault, 1984). According to Lerman (2000) identities are produced in discursive practices and "[d]iscourse carries with it notions of regulation, of the power/knowledge duality of Foucault, /.../" (2009, p 13). In exploring students' identity formation my research considers the influence of dominant discourses in the mathematics practices, but also students' agency.

DOMINANT DEFICIENCY DISCOURSES

Underlying deficit theories tend to be applied to immigrant students who don't succeed in school mathematics even though most researchers today have moved

beyond the thinking that it is within the students themselves or their families and culture that are at fault (Gutiérrez, 2002). In Sweden immigrant students in school frequently are constructed as deficient. The lack of competence in the dominant language; Swedish, is an explanatory factor for unsuccessful immigrant students and their low achievement in school mathematics. Research studies in Sweden, though not specifically focusing mathematics education, have shown that deficit theories are applied to minority students' failures in school (among others Parszyk, 1999 and Runfors, 2003). In Parszyk's study students identified themselves as "immigrants" and perceived school was not for them, but for the Swedish students. In Runfors study students were continually defined by teachers as the "Other" – the immigrant student – not the ordinary and "normal" "Swedish student. In the defining and categorizing process teachers identified themselves as "well-meaning" and "passionate" about "giving" the students "equal chances". Runfors says the interaction in school circumscribed the children's freedom of action. It is not possible to say how students in Runfors study identified themselves as she did not investigate those aspects. But it is possible to say that there seemed to be little space for the students to identify or position themselves.

OPPOSING DISCOURSES ON BILINGUALISM

According to Lindberg (2002) there are many myths about bilingualism; I call them public discourses on bilingualism as they are what Gee (2008) refer to as people's taken for granted models often reflected through media. Such discourse is that researcher 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. In Swedish research it is reported that Swedish teachers often are adopting such a discourse on bilingualism (Parszyk, 1999; Runfors, 2003). A normalizing discourse that works towards Swedishness, including language, culture, values and habits, is operating within the borders of the institution; the school (Sjögren, 2001).

Contrary, researchers agree on the significance of mother tongue for second language learning and the importance of mother tongue for bilingual students' achievement in school (Lindberg, 2002). The Swedish National Agency for Education (2002) and official policies in general promote bilingualism and multiculturalism.

SOCIAL CLASSROOM PRACTICES

In the project shortly reported in this paper the bilingual mathematics teacher, exercised a reform-oriented (Boaler, 2000) classroom practice where social relationships with students were important. The teacher listened to her students as they, during lessons from time to time brought up experiences from their daily life. It was a social practice, to speak about what happened outside the mathematics classroom and to speak about other things than mathematics in this particular

classroom. One example of this is when one of the students, a boy that I call Amir, enters the classroom a minute after they all have started working with mathematics.

The teacher does not ignore comments from Amir, about his physical education teacher being a racist not giving him a pass grade, though he is late and the lesson is supposed to be about mathematics. The teacher challenges his statement and discusses it with him. When they have discussed it for a while, in both Arabic and Swedish, Amir comes to the conclusion that the PE teacher can not give him a pass grade, as he has not attended the lessons that he should. The teacher asks Amir why he calls the PE teacher a racist when the grade or not has to do with Amir's own decisions, not participating in the sports classes. Amir then says he hopes he can talk with the PE teacher about it and that he really not is a racist. He goes on (Arabic in italics):

I was just so mad when I understood I was not going to get a grade that I called him a racist! I will talk with him and maybe we can agree on me doing additional work. /.../ [saying something to himself, but not hear able,] *I know I will get a good grade in mathematics though /.../* what are we doing today?

The narrative shows Amir's aspirations and his ability to handle a problematic situation he has put himself into by giving a suggestion to solve the situation. The last utterance gives an indication of Amir identifying himself as an engaged mathematics learner and becoming a good mathematician, as he does at other occasions as well.

Social practices in this particular mathematics classroom may position students regarding their attitudes towards their learning of mathematics. Amir didn't lose his face and he felt comfortable in the mathematics classroom showing an awareness of his future possibilities, positioning himself with good grades in mathematics and an eagerness to go on working with mathematics and to learn more.

The teacher's use of the word *habibi* [the Arabic word for my friend, beloved or darling] when calling for individual students' attention on mathematical matters, and when acclaiming a kind of bonding between herself and the students' as they use the same mother tongue in their homes and vernacular life, is an example of how Arabic filled a social function within school mathematics practice. The students performed out of identities as bilingual. Contrary to earlier findings in Sweden neither deficiency discourses on bilingualism nor normalizing discourses towards Swedishness affected Amir's identity formation in this particular mathematics classroom.

CONCLUDING REMARKS

In this short presentation I have tried to elaborate on how bilingual students' identities may be formatted through bilingual school mathematics practices. Students seem to gain self-confidence and take responsibility for their learning of mathematics in a school mathematics practice where in teachers and students can use mother tongues on a regular basis to facilitate meaning making of mathematics. And in

which bilingual students have the space of becoming mathematics learners on the same terms as Swedish speaking students, formatting identities as responsible mathematics learners.

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