

IMMIGRANT STUDENTS' PERCEPTIONS OF THEIR POSSIBILITIES TO LEARN MATHEMATICS: THE CASE OF HOMEWORK

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In Sweden, students are classified as immigrant either if they were born abroad or if both their parents were born abroad. A report by the Swedish National Agency for Education (2011) stated that there is a strong connection between students' result on national tests in mathematics (in grade nine), their parents' level of education and their immigrant status. In some socially deprived areas in Sweden, the majority of students do not gain sufficient qualifications to go to upper secondary school [1]. As a consequence, immigrant students in Sweden are often described in wider society as students who do poorly in school and as "problems".

The influence of public discussion, such as in the media, has only recently begun to gain the attention of mathematics education researchers (Lange, 2008; Lange & Meaney, 2014). Learners are surrounded by such discussions and thus are likely to be affected by them, especially if they are positioned in deficit ways (Lange, 2008; Norén, 2010). One prevalent discourse played out in the media is the relationship between students' achievement in mathematics, their lack of "Swedishness" and their insufficient Swedish language skills (Norén, 2010; Runfors, 2003). This deficit discourse is prevalent in media reports in Sweden. For example, on the 16th May 2006, the minister for education was cited in a newspaper commenting on an OECD report, which showed that first generation immigrants in Sweden had the lowest achievement in mathematics among the studied countries (Stanat & Christensen, 2006). The minister situated immigrant students as being in most need of learning Swedish and implied that learning mathematics in their mother tongue would enable them to overcome this deficit:

The students maybe learn mathematics somewhat faster, the problem is that they do not learn Swedish, and then they will not integrate. The math will follow if they learn the Swedish language. (Our translation) [2] (For additional examples, see [3].)

There is, therefore, a need to investigate how the discourses of wider society affect immigrant students' possibilities to learn and achieve in mathematics. Discourses that position immigrant students as a certain kind of person are what Gee

(2011) calls "Big D" Discourses. "Big D" Discourses are wide and include language and social practices, such as ways of thinking, evaluating, acting, and interacting. On the other hand, "little d" discourse refers to language in use and is linked to an individual's everyday activities. The ways that students talk about themselves, Gee would label as "little d" discourses. In this article, we examine how Discourses about immigrant students have infiltrated the discourses of a group of immigrant students who are just completing their last year of compulsory school in Sweden. Our aim is to highlight the complexity of the situation in which immigrant students are positioned, by interrogating their perspectives on mathematics homework and the importance of parental support, as well as how their views seemed to have been shaped by wider Discourses. In so doing, we critique explanations for immigrant student failure in mathematics that are based on deficit discourses common within Swedish society.

Homework and parents are one area where school mathematics comes in contact with families. There is much public discussion about parents' engagement in their children's schooling and their provision of homework support (for examples found in newspapers, see [4]). In such discussions, homework is considered to be important because it is believed to lead to increased learning and success in school. Good parents are constructed as those that can support their children with their schooling and homework (Lange, 2008). Indeed, research by Sheldon and Epstein (2005) suggests that subject-specific collaborations between school, family and community help to improve student achievement and proficiency in mathematics. Since 2013, it has been possible for families to receive a tax deduction if they purchase homework support for their children from homework support companies (the Ministry of Finance, 2012). This decision implies that the Swedish government considers homework important for school achievement, but that not all parents have the time or educational resources to provide the necessary help. In this case, being a good parent has been twisted, so that it includes the ability to purchase homework support.

Runfors (2003) found that in Sweden, teachers explained immigrant students' problematic behaviour and lack of desirable competencies and skills as being the result of students not having their learning needs satisfied at home. In using this deficit Discourse, teachers constructed immigrant parents as insufficient, that is, as not taking care of and giving their children what the teachers considered the students needed. Thus, the home was seen as the cause of students "falling behind" and also their rowdiness. Discourses about homework, therefore, can contribute to immigrant students being viewed as disadvantaged (see also Lange, 2008) and are in contrast to research which shows that homework has only a marginal affect on academic achievement (Hattie, 2008).

Discourses in the media [5] about "good" parents are problematic because they lead to a perception that immigrant parents cannot support and help their children because of deficiencies in their background, Swedish language and education. It may be that immigrant parents cannot fix these "deficiencies" because they do not have the financial resources to buy homework help for their children. This situation reinforces perceptions of their inability to be "good" parents.

Foregrounds and backgrounds

In order to understand how students' possibilities for learning are affected by media reports and public discussion, we use the notion of foreground. By the *foreground* of a person, we mean the opportunities provided by the social, political and cultural situation for this person. This definition does not refer to opportunities as they might exist in any socially well-defined or objective form, but to opportunities as perceived by the person. Similarly, although *background* refers to what a person has done and experienced (such as situations the person has been involved in, the cultural context, the socio-political context and family traditions), it is still interpreted by the person.

We refer to the combination of foreground and background of a person as their *dispositions* (Skovsmose, 2005, p. 6). Skovsmose considered that dispositions, especially dispositions to learn, "embody propensities that become manifest in actions, choices, priorities, perspectives, and practices" (2005, p. 7). However, these propensities may be contradictory because the person may conceptualise different foregrounds and backgrounds at different times and situations (Alrø, Skovsmose & Valero, 2009). Thus, students' foregrounds provide information about how they view the world in which they operate and how this affects their motives, decisions and actions in relationship to their mathematics learning (Alrø, Skovsmose & Valero, 2009). Skovsmose (2005) mentions that when hindrances for learning occur one should not only look at the history of the student but also consider the possibilities made available by the social and political systems. Based on the situation that the person is in, different foregrounds can be activated and thus provide motives for action and intentions to learn. Foregrounds can be both positive and negative. For example, a person who interprets his or her foreground negatively may feel unable or unwilling to act and so the intended learning does not occur.

Researching immigrant students' perspectives

This article is part of a larger research study investigating how immigrant students who live and go to school in multi-cultural and socially deprived areas experience their possibilities to learn mathematics (Svensson, 2014). The data for the study come from two semi-structured life world focus group interviews with seven immigrant students, all aged fifteen. In the first interview, two girls and one boy participated and in the second interview four boys participated [6]. The interviews occurred in June 2012, just before the students completed compulsory school. If they gained mathematics qualifications, amongst others, they could go on to enter different upper secondary programmes. At the time of the interviews, all but one of the students were eligible to continue to upper secondary school.

Mathematics homework and parental help was one of three major themes that arose from the broader analysis of the data. Most of the data about these themes came in responses to prompts about their parents' opinions about school mathematics. For example, the students were asked if they talked about mathematics at home and how they talked about it. The students' discussions about mathematics homework are interwoven with discussions about the importance of mathematics to the students' lives and what it means to be a good parent. We first discuss these sub-themes individually and then look at the connection between them.

Discourse on the importance of mathematics

Viewing mathematics as important is a Discourse that is present in many countries (see for example, Atweh & Clarkson, 2001; the Swedish National Agency of Education, 2004; Civil & Planas, 2010). In Ingram's (2011) research, junior high school students in a class in New Zealand considered that their parents viewed mathematics as important but they themselves had mixed views, particularly if they were struggling. A Swedish example can be seen in a press release from the Swedish minister of education from September 2011 in which the minister indirectly connected the need for a skilled workforce to falling results in mathematics:

If Sweden should be a successful country in the next generation skilled engineers, scientists, and economists are needed. At the same time Swedish students' performance in mathematics decreases in all international studies. We are falling behind, and this trend must be stopped. (Our translation) [7]

In the interviews, Ana, after first saying that her parents felt that mathematics was important, referred to a parents meeting to provide evidence of this:

Ana: Ja, de tycker det är jätteviktigt. För att min pappa va på mig helt mycket.

Petra: varför va han på dig?

Ana: det är han fortfarande, för vi va på utvecklingssamtal också såg det, alltså jag är på gränsen till G. Jag fick G men jag menar, men det va måste träna mycket hemma och sånt så pappa va på mig helt mycket

Translation:

Ana: Yes, they think it is really important. Because my dad was pushing me a lot.

Petra: Why was he pushing you?

Ana: He still is, because we were at a parent meeting with my teacher and saw that I am on a verge of a passing grade. I did get a passing grade, G, but I mean, but it was you have to train a lot at home and such so dad was right at me a lot.

According to Ana, her parents consider mathematics to be an important subject. Her evidence for this is her father's pushing for her to raise her achievement by practising more at home. It could have been that Ana's teacher's comments about her achievement raised her parents' awareness. However, it might also have been that Ana's parents were affected by media reports such as those mentioned earlier, which positioned mathematics as being important. Alternatively, it might also be that Ana was aware of the public Discourse and therefore gave an expected response that she and her parents view mathematics as important.

Chang and Jasmin expressed similar views about their parents' attitudes towards mathematics. Tarek believed that his father viewed mathematics as the most important subject:

Tarek: Min pappa tycker att matte är det viktigaste.

Petra: Han säger det?

Tarek: Ja, han säger till mig att jag borde kämpa mer och mer med det.

Petra: Mm, säger han det om andra ämnen också eller är det mest

Tarek: Han säger matte det är viktigt men allt det andra jag borde också kämpa med alla ämne för kunskap är viktig

Translation:

Tarek: My dad thinks math is the most important.

Petra: He says that?

Tarek: Yes, he tells me that I should struggle more and more with it.

Petra: Mm, does he say that about other subjects as well?

Tarek: He says math it is important but that I also should struggle with all the subjects since knowledge is important.

Khaled put it somewhat differently to his classmates, suggesting indirectly that his father thought that mathematics was important, "Dad says you should be able to pass in mathematics, but it is hard. It is not that hard with mathematics but I cannot pass. He says continue struggling". It may be that mathematics is important only because Khaled struggles to gain a passing grade and not for the sake of

mathematics itself. The same seemed to apply for Mohammed, "Yes, dad also thinks so in general, study well, get a good degree and then a good life, but at the parent-school meeting with my teacher two years ago or so, the teacher said that math is bad for you, the grade itself, then when we got home he asked my siblings to help me so he really cares. But, then he wants to help me, but he cannot since there he did not get an education." These students stated that their parents considered mathematics to be important, rather than hard, easy, fun or something else. Nevertheless, the importance these students connected to mathematics seemed to be limited to gaining appropriate qualifications.

Discourse about "good parents"

Another prevalent societal Discourse is about what constitutes being a "good" parent in regard to engagement in their children's education. This Discourse appears in different guises around the world. In Australia, students whose families originated in China considered that their parents had a stronger influence on their mathematics learning than did students who viewed themselves as Australian, citing higher expectations and the amount of time devoted to being actively involved in their children's homework (Cao, Bishop & Forgasz, 2006). In Lange's (2008) research in Denmark, Kalila, a 10-year-old immigrant student, indicated that she was aware of public perceptions about "good" parents helping with homework by initially claiming that her father helped her, before admitting that generally it was her older sister.

As noted in many of the newspaper articles mentioned in the notes at the end of this article, there is an assumption that parents should help their children with homework. If they cannot help, they should, according to this Discourse, tell the school that they cannot perform this normal parental duty, so that someone else can take over for the parents. Immigrant parents are referred to as a special case of this situation.

In our interviews, the students spoke implicitly and explicitly about their parents' engagement in their mathematics learning. According to Ana her parents ask her general questions about her achievements in school, though not particularly about mathematics, "Thus we speak generally, how was it in school? Yes, good I learned this today and so". She clarifies it with, "But it is not like we focus on mathematics".

On the other hand, Jasmin's father focused on her mathematics learning. Jasmin said that her father loves mathematics, that he used to be a mathematics teacher and that he had helped her a lot. At the same time, Jasmin stated that her mother did not care about school mathematics. Similarly in Chang's home, school and mathematics were generally not discussed. He positioned his family as not caring about it, unless he needed help. This is not surprising if mathematics is only important for gaining appropriate qualifications because if he needed help it would mean that he was at risk of not passing:

Chang: Alltså den enda som pratar om, om ska nämna matte så är den enda som kanske säger något är min bror. Men han bryr sig inte så mycket men alltså bara ibland min bror, kanske om man frågar då hjälper han mig annars inget händer.

Chang: För alltså jag tror det är mer att, jag tror att de

skulle bry sig om jag behövde hjälp men jag tror att det är lite så undermedvetet att jag inte behöver hjälp.

Ana: Ja, det är alltid så.

Chang: Det är därför de inte bryr sig

Translation:

Chang: Thus the only one talking about, if it is about math, so the only one who might say something is my brother. But he does not care so much, but then just sometimes my brother, maybe if you ask then he helps me otherwise nothing happens.

Chang: Because I think it is more that, I think they would care if I needed help but I think it is a bit so subconsciously that I do not need help.

Ana: Yes, it is always like that.

Chang: That is why they do not care.

It may be that Ana's parents and siblings also only care about homework when help was needed and not otherwise. Ana stated that her brothers tell her that school was important and that she had to do homework, but when she asked them for help they did not help her, which she called double standards. Ana's asking for help from her brothers suggests that her parents could not help her.

Khaled's description of his parents' engagement in school mathematics was similar to that of Ana, in that it was his father who asked about school and told him to continue to work to gain good grades: "My parents they ask, only my father tells me to continue with the grades and such, but he never asks about the grades how they are and such, we do not talk about the grades." Khaled says that his father often said, "My son how does it go in school? Good, continue working towards the grades".

Just like Ana, Khaled worries about having no one to help him with his mathematics homework. Unlike Ana who had brothers who could help if they wanted to, Khaled did not seem to have anyone: "I have nobody that can help me with it, no one in the family, so I can continue on my own". As mentioned earlier, Mohammed's situation was similar as he stated that his father could not help him with homework, instead he had asked that Mohammed's sibling did.

Hassan's mother engaged in Hassan's learning in mathematics by nagging him. Like Khaled's father, Hassan's mother could not help with the mathematics homework, but Hassan had cousins who could help: "Mum nags all the time but then so I have cousins who can help me with the math, you know, sometimes when I have the math test and such so you go to their houses to get help from there with different homework and such." Hassan continued to say that at parent-teacher meetings, he and his mother always were told that he was bad at mathematics and that he needed help.

In contrast to Ana, Mohammed, Hassan and Chang, Jasmin stated that her father helped her. Instead of talking about his father, as the other students did, Tarek talked about his

mother as helping him with mathematics homework: "He can help me but I take help from my mom."

In regards to mathematics homework and parental support, generally the students said that the help they got from their parents was limited or non-existing. Instead they talked about how their parents cared about their learning in mathematics, particularly when they risked not receiving a passing grade. In this way the students seemed to be protecting their parents from possible charges of not caring about their education, because they cannot help with homework. Just as they say their parents care, the students also showed that they cared about how their parents were constructed in relationship to the Discourse that good parents support and help their children with their homework.

Discourse about the need to be Swedish

Deficit Discourses about minority students affecting their possibilities to learn are well documented. For example, Berry (2008) found that African American parents were able to identify situations in which their children were given less opportunity to learn mathematics than other students. In Sweden, the poor performance of immigrant students was juxtaposed with the performance of non-immigrants [8]. This seemed to set up an expectation that being Swedish or having Swedish parents would result in better assessment results.

In the interviews, the students often explained that their parents might not be able to help them with their mathematics homework because of their lack of "Swedishness". Jasmin said, "But kind of, if you are Swedish you probably get help from your parents because they themselves have been through the same thing, but if you kind of are immigrant, the parents may not have studied and so." Jasmin compared the parents of Swedish students with those of immigrant students. She considered that Swedish students could get help from their parents while immigrant parents may be unable to help with homework because they were not raised in Sweden or because they had no relevant education. Khaled reasoned in a similar manner: "The Swedish parents they are educated and they know math, and foreign background they who are parents they don't know so much math and the language and such. The Swedes can get help from their parents, the kids and everything, but we can't get it from our parents". Tarek felt that parents needed to have an education: "Most parents with foreign backgrounds they do not have an education because they come from countries with kind of dictatorships, you can say, and everything costs and is expensive and so they do not go to school". He continued his explanation, "So the parents cannot help a lot like the ones who live here, like the Swedes do."

In these quotations, the students position their parents as being insufficient mathematics homework helpers because of their backgrounds. In many ways, this is the most distressing of the Discourses in which these students are immersed, as there is no way that the students can protect their parents or themselves. Their immigrant status cannot be changed or reformulated, as was the case with the Discourse around "good" parents. Their parents will never have the appropriate Swedish background and language, or a valued educational background. Thus, as immigrant students,

they must accept that they can never have the same resources at home that Swedish students have. Although it may be the case that Swedish parents cannot provide the help that these immigrant students believe that they do, the reality for immigrant students is the perceptions, drawn from Discourses emerging in media and public discussions, about what it means to be an immigrant and what it means to be Swedish.

Discourses and foregrounds

This research has shown how students' perceptions of their opportunities to learn are dominated by the interplay of a number of different Discourses. The students seemed to have adopted, seemingly uncritically, Discourses about the importance of mathematics, about "good" parents and about the need to be Swedish. This seems to be an example of what Bakhtin (1981) called ventriloquation "which describes how individuals appropriate others' words for their own use" (p. 294) so that "one's own discourse is gradually and slowly wrought out of others' words that have been acknowledged and assimilated" (Bakhtin, 1981, p. 345). In their comments, the students ventriloquated the Discourses circulating in media, public discussions and wider society, even though they positioned themselves, in some cases, as inadequate. The complexity of this interplay is likely to have had an impact on their foregrounds and, thus, their possibilities for learning mathematics.

In regard to the Discourses around "mathematics is important" and "good parents", the students often situated themselves and their parents as the kind of people with these values. They and their parents viewed mathematics as important, although mostly because a qualification in mathematics was needed for entry to upper secondary school. They also accepted that "good" parents were those who showed interest in their education. Even when the students acknowledged that their parents did not seem to care, some, such as Chang, situated this as being because no help was needed. Similarly, if the students admitted that their parents could not help them, then often other family members were identified as providing help. Their perceptions of their foregrounds were thus likely to be similar to all other students who matched these values and thus they had the potential to be connected to having a good life, as Mohammed stated: "study well, get a good degree and then a good life."

On the other hand, the Discourse about "the need to be Swedish" was not one that they could twist so it reflected their reality. Consequently, it is likely to negatively affect their foregrounds and thus their possibilities to learn mathematics. When the students talked about the importance of homework and help from their parents in mathematics, they highlighted their parents' background and education. By accepting that they have limited possibilities to learn mathematics because of their parents' deficiencies in Swedish language and background, they also accepted that the desirable qualities were those of being Swedish.

The students may not have been able to challenge the idea that homework produces better results, because there was no public discussion about this idea. Thus, having accepted that homework was necessary to achieve a good future, their parents' background and especially their ability to help their

children with mathematics homework became important. Accepting that they themselves cannot gain the appropriate homework help situates the students outside the norm of what it is to be a "good" student. This may have affected their interpretations of their foregrounds.

It could be that being unable to change their parents' background and education may contribute to the students considering that there is no point in trying to learn mathematics, since without the appropriate background, they could never learn it. Although all but one of these students had gained the necessary mathematics qualification to go on to upper secondary school, their achievement of this qualification was tenuous. In some cities and at some schools in Sweden, homework support is arranged in optional after school activities. This support is often provided by voluntary organizations or by the schools themselves, and may be part of a solution for some students. Still, however, this support does not deal with the influence of public discussions about immigrants and immigrant parents and how it affects students' foregrounds and, therefore, their perceived possibilities to learn mathematics. For these students, it is not enough to provide more help so that they can move from senior secondary school into further study requiring further mathematics qualifications. Explicit discussions about how stories in the media are contributing to shaping their futures are needed so that they can understand that their learning is not only reliant on the attributes that they bring into the mathematics classroom. Understanding how Discourses about what it means to be "good parents" or "good students" can affect students' perceptions of their possibilities to learn. Discussions such as these could contribute to them seeing and acting upon alternative foregrounds.

Conclusion

A consequence of the students' acceptance of the Discourses as the discourses that describe their own lives implies that "Swedish" is desirable, and consequently "if I just had other parents, Swedish parents, I would have learned mathematics because they help their children with homework" is a possible interpretation. It is problematic that Discourses about mathematics education that appear in public discussions could result in immigrant students viewing their parents as being inadequate and contributors to their difficulties. Thus, our analysis of the students' talk shows a very complex situation and suggests that a change is needed. In discussing these issues, Discourses are drawn on in which it is predetermined that these students' performance in mathematics will be worse when compared with Swedish students. Thus, this study shows a complex situation where no simple solution is at hand.

Civil, Planas and Quintos (2012) stated:

to gain a better understanding of the situation surrounding immigrant students' performance in mathematics, we need to know more about these students' social contexts and, in particular, about their parents' perceptions of their children's mathematics education. (p. 268)

To truly understand the students' social contexts, perceptions of the students, their parents and their teachers about what

it is like to learn mathematics in these circumstances need to be taken seriously. In trying to understand how these students have come to these views, the role of Discourses arising in public discussions and the media must be examined. As Valero (2004) indicates, viewing mathematics learning as only a cognitive activity happening within students' heads fails to recognise the complex set of factors that contribute to their learning. This failure to recognise the complexity of the situation will result in offers of homework help being seen as the only valuable contribution to improving students' possibilities for achieving in mathematics. Instead it is important that it is seen as one of a multitude of approaches that are needed if the situation is to be overcome.

Notes

- [1] Siris database. Retrieved 17 June 2013, from siris.skolverket.se/
- [2] Axelsson, H. Invandrare dåliga i matte [Immigrants bad at math], Svenska Dagbladet, 16 May 2006.
- [3] For additional examples, see:
Höglund, E. Det är dags att damma av gamla "pluggskolan" [It's time to dust off the old "study school"], Aftonbladet, 14 December 2010.
Sundström, U. Resultaten sjunker för elever födda utomlands [The results for foreign students decreases], Lärarnas tidning, 8 September 2010.
Örstadius, K. Viktigast för skolresultat: Familjebakgrunden [Most important for school achievement: family background], Dagens nyheter, 26 March 2013.
- [4] For examples see:
Adeen, A. Föräldrarna måste läsa med sina barn [Parents must read with their children], Östran, 18 December 2013.
Sörbring, K. Så motiverar du dina barn med läxorna [This is how you motivate your children with their homework], Expressen, 7 December 2013.
- [5] For example: Sörbring, K. Så motiverar du dina barn med läxorna [This is how you motivate your children with their homework], Expressen, 7 December 2013.
- [6] The interviews were 54 and 56 minutes long and were audio-recorded and transcribed.
- [7] Press release. Mattelyftet - 2,6 miljarder ska höja resultaten [The Mathematics initiative - 2.6 billion to raise results], 6 September 2011.
- [8] For example Axelsson, H. Invandrare dåliga i matte [Immigrants bad at math], Svenska Dagbladet, 16 May 2006.

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