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How to visualize classroom norms through social interaction

A pilot study of two frameworks

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In this pilot study we investigate if and how two different frameworks can be used to visualize classroom norms through classroom social interaction.

Background

Between 2013-2016 the Swedish National Agency for Education launched a curriculum-based professional development project, the so-called Mathematics Boost (Swedish: Matematiklyftet) (Skolverket, 2016). The aim was to develop and improve mathematical classroom teaching with a focus on four different didactical dimensions: formative assessment, teachers' knowledge about competencies, social interaction and socio-mathematical norms (Skolverket, 2016).

Parts of the Mathematics Boost and the national evaluation afterwards is based on Cobb and Yackel's framework of classroom norms (Skolverket, 2016). Cobb and Yackel divide classroom norms into social norms (SN), socio-mathematical norms (SMN) and mathematical praxis (MP). According to Cobb and Yackel (1996), these classroom norms are reflexively connected. Our approach in this project is that for classroom norms to change or develop all three aspects above needs to be challenged, in this case, through the Mathematics Boost.

The national evaluation of the Mathematics Boost (Skolverket, 2016) showed development in some aspects of social interaction. A reasonable interpretation, based both on the national evaluation and on the writings of Cobb and Yackel, is that the SN hence is challenged and developed. According to the evaluation, it is impossible to state anything about SMN in regard to change or development but it is also stated the SMN will probably change over time (Skolverket, 2016).

Following the idea that classroom norms are reflexive and needs to be challenged simultaneously as mentioned above, another explanation for the lack of development could be that the SMN has not been challenged enough through the Mathematics Boost. As a complement to the national evaluation in 2016 we therefore pose the question for a coming study: Which classroom norms were challenged through the Mathematics Boost? But first we need to investigate how to visualize classroom norms through classroom social interaction.

Pilot study

In order to do this, we put two different frameworks into a test, one developed by Kilhamn and Skodras (2018) and one suggested by the Swedish Institute for Educational Research (Fredriksson, Envall, Bergman, Fundell, Norén & Samuelsson 2017), originally a framework by Hufferd-Ackles,

Fuson and Sherin (2004). Both frameworks are hence in a Swedish context and they both focus on social interaction but in different ways. The former framework is created in order to analyze the analyze level of teacher questions with a focus on responses from students (Kilhamn & Skodras, 2018). The latter is focused on how discourse is moved from a teacher centered to a student centered discourse when it comes to who poses questions, the type of questions/answers, sources of mathematical ideas and responsibility for learning (Hufferd-Ackles, Fuson & Sherin, 2004). Neither of the frameworks are created for the purpose that we have in our project but we have connected different parts of the frameworks to SN and SMN respectively. Hence, in this poster presentation, we put these frameworks into a test in order to investigate if and how these connections is possible to make in order to help us visualize classroom norms through classroom social interaction.

Method and initial results

Out of a total of 60 video-recorded classroom situations during the Mathematics Boost we have, in this pilot study, analyzed six classroom situations via transcriptions of what the teacher and students express. Our initial results using the two different frameworks show that they can help us visualize the level of social interaction. Our initial results also indicate that we can connect these different levels to SN and SMN. The first framework shows the potential for if and when SMN are challenged through social interaction. The second framework show if and when teachers and students are on the same level of social interaction, that is, if and when they agree on SN.

The poster

On the poster we present the frameworks and how we connect SN and SMN to these. We also present our initial results that indicate that despite the potential relatively high level of social interaction, that is SN, the social learning stays on a low level. That is we show that the SMN are not challenged enough. In the long run this means, due to the reflexivity in the model, that there are limited chances for MP to develop.

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