Using video-based mentoring to target the problem of representation in whole class discussions

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Orchestrating whole-class conversations in mathematics are pointed to as an example of core practices in teacher education (Grossman, Hammerness & McDonald, 2009; Lampert et al., 2013). This includes asking questions or posing problems to begin a discussion, monitoring pupil participation during discussion, and responding to pupil ideas. Grossman et al. (2009) argue that "each of these is critical to the practice as a whole and represents practices that novice teachers can begin to develop in teacher education and the early years of teaching" (p. 281). To develop this skill prospective teachers need skilled and focused mentoring. However, research shows (Helgevold, Nesheim-Bjørkvik & Østrem, 2015; Strong & Baron, 2004) that the mentoring is often more focused on classroom management and less on subject matter. Masats and Dooley (2011) assert that video coaching can play an important role in field practice as watching video allows the novice teachers to slow down the fast pace of the classroom. We performed an intervention where videos of the prospective teachers are used in the post-lesson mentoring. Our research question is "How did video of student teaching enrich the post-lesson mentoring of whole class discussions?"

The intervention study is founded in socio-cultural theory with a focus on mentoring as a tool-mediated activity (Vygotsky, 1987). Video is a key mediating tool in our intervention. Video was also used for research purposes. The data material for the study is video and transcripts from these recordings from four whole class conversations in the classroom and the corresponding post-lesson mentoring. In addition, we have written logs from the student teachers field practice. To analyze the classroom interaction, we used two frameworks developed by Drageset (2014, 2015) to code both the teacher and pupil utterances in the classroom, and search for emerging patterns. To understand the role the video played in the post-lesson mentoring we performed an inductive analysis of the videos and the logs.

We found that the whole class conversations are mainly shorter dialogs between the prospective teacher and one pupil at a time. These shorter dialogs often end up being teacher-led with minimal use of written representations on the board, making it difficult to make connections between these shorter dialogs. The analysis revealed that the problem of representation was a key issue in all post-lesson mentoring sessions. We use the concept of "noticing" (Jacobs, Lamb & Phillip, 2010) as an analytical tool to further understand how video of the student teaching helps to focus on and discuss the problem of representation in the post-lesson mentoring.