

# TEACHING A JOINTLY PLANNED LESSON ABOUT SUBTRACTION

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The implementation of teaching has been advocated to be an integral part of research, since it affects students' learning (Cai et al., 2017). If results from research are shared by teachers in instructional knowledge products like lesson plans, which has been advocated to promote student learning (Morris & Hiebert, 2011), the implementation in classrooms need to be studied, to see to what extent students are given similar opportunities to learn.

The aim of this study is to identify significant differences in teaching subtraction bridging through 10, to identify students' learning possibilities from lessons with the same lesson plan. This can shed light on issues in need to be addressed when teachers implement instructional products. The research question is: What is made possible to learn in the lessons and how can differences in what is afforded be explained? The study focuses on the teaching of one lesson held by four teachers in their classes. The lesson was planned by a group of teachers and researchers working collaboratively in a larger intervention project concerning addition and subtraction in grade 1. Variation theory (Marton, 2015) was used to analyse the video recorded teaching. The jointly planned lesson shows differences in aspects of the content brought out. These entail qualitatively different possibilities to learn subtraction bridging through 10 for the students. Teacher A drew students' attention to *Subtraction tasks solved as dynamic operations* and used representations sequentially. The choice of strategy was based on student preferences rather than tasks. Teacher B drew students' attention to *Subtraction tasks as static part-whole relations*. Representations, used simultaneously, gave the task the meaning of a part-whole relation. While using parts in a part, i.e. 3 and 5 in the part 8, these were referred back to the task  $13-8 = 5$ . The result shows that it might not suffice to co-plan lessons, have a script and a model lesson. Teachers might need to have a lived theory to meet student responses and direct their attention to relational and static aspects of subtraction instead of seeing subtraction as dynamic operations.

## References

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