A qualitative analysis of teaching practices in high and low gains lower secondary mathematics classrooms

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This ongoing study qualitatively explores the relationship between teaching quality and student achievement by systematically analyzing and comparing 'lesson flow' patterns (how learning activities enfold over the course of lessons) as well as three subject-specific learning opportunities; explicit connections, type of task and cognitive demand of task, and students' opportunity to struggle. The data consists of video-recorded lessons from ten Norwegian lower secondary mathematics classrooms, five with low- and five with high achievement gains as measured by national numeracy tests in 8th and 9th grade. Studies have repeatedly found disappointingly low correlations between observed teaching and achievement gains. This might be due to noise in the measures used to capture teaching and learning gains, but it may also be due to teachers adjusting their instruction based on student groups' previous knowledge. Therefore, we consider the starting points of gain scores as a lens to discuss the patterns of teaching and learning opportunities. Tentative findings point to that most classrooms differ considerably from one lesson to another in activities, yet there are some differences between the two groups. High gains classrooms tended to focus on common whole class tasks followed by a joint review, while low gains classrooms generally engaged more often in individual seatwork. In high gains classrooms, there was more evidence of high-level explicit connections, while teacher making mathematical mistakes only occurred in low gain classrooms. Both groups employed a similar ratio of different types of tasks. However, there was slightly more struggle in low gains classrooms yet at times without much support, while high gains teachers scaffolded student learning in more explicit ways. In addition, outlier classrooms had significantly different pattern of lesson flows but also of students' starting points regarding gains scores.