

**Teachers' Professional Development With Lesson Study:
Evidence From Dutch Studies**

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This symposium presents empirical evidence from several studies in secondary and primary schools about what and how teachers learn when participating in Lesson Study. On the basis of previous research, Lewis (2009) presents a schematic that can be used to address the impact of Lesson Study on teachers and instruction. The schematic explicitly links lesson study to teacher learning but it does not elucidate the influence of different activities in the Lesson Study process on teacher learning. This has become an important focus of our research.

In one study, we investigated a secondary school mathematics teacher's learning outcomes - particularly changes in pedagogical content knowledge (PCK) - and related those to teachers' learning activities within the context of the lesson. This study shows (a) the importance of live classroom observation for developing knowledge of student learning, and (b) the significance of imagination when creating a (research) lesson.

In another study, we broadened our view to professional learning. Fifteen secondary school teachers participated in this study. To gain a deeper understanding of teachers' learning - especially the relation between Lesson Study activities and teacher learning outcomes - we asked the participants to fill in a learner report after each Lesson Study activity (planning, teaching or observing, and discussing).

In a four-year study, we focussed on mathematics teacher learning in the context of sense making of the calculus. The first year resulted in changes in the teachers' educational goals and instructional strategies in relation with student understanding. The study revealed that the teachers were impeded by the Dutch standard examinations and their reluctance to use computers (Verhoef, Coenders, Van Smaalen, & Tall, 2013).

The last study was conducted in primary education. A team of teachers of a middle sized primary school in the northern part of The Netherlands participated in a Lesson Study cycle as part of an in-service training in improving their mathematics lessons to cater for differential educational needs of their students. Each Lesson Study activity (planning, teaching, observing, and discussing/reflecting) was videotaped. In the presentation, results of the video-analyses are discussed. Also here, teachers were impeded by the standard examination goals and time restraints.