

Collaboration Between Two Learning Study Groups from Different Grades with Similar Object of Learning

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The aim of this presentation is to highlight what may be the benefit when two separate learning study groups consisting of researchers and teachers from different grades in the same school collaborate, in order to develop teaching. In Sweden it is not taken for granted, to collaborate when planning, conducting and evaluating lessons and teachers mostly teach a small span of grades, for example grade 1-3, 4-6 or 7-9.

Initially, two unconnected learning study projects were conducted and planned parallel, in grade 3 respectively in grade 9 at the same school. The respective object of learning were formulated in the two groups and based on the researchers and the teachers experienced challenges when teaching. These challenges are highlighted by previous research (e.g. Ball, 1993; Kilhamn, 2011; Schmittau & Morris, 2004) and confirmed by reports from TIMSS (Skolverket, 2016). The two objects of learning were formulated very similar, actually they could merge into one identical formulation: the ability to theoretically reason regarding the relationship between the numbers in a task with additive structures and negative numbers involved.

The variation theory was used as a theoretical framework (Marton, 2015). The participating researchers and teachers also gained acquaintance with Davydov's curriculum (Davydov, 2008) and research regarding teaching mathematics, based on an algebraic teaching tradition (e.g. Davydov, 2008; Venenciano & Dougherty, 2014), previously unknown by the teachers. The two learning study groups were inspired by as well Davydov's curriculum as an algebraic teaching tradition when exploring the object of learning. Due the similarities regarding the object of learning and what the students needed to discern (critical aspects), regardless grade, the two groups decided to collaborate when planning and evaluating the research lessons. The teachers had different experiences and educations and therefore the two learning study groups could expand the repertoire of arguments at the discussions regarding what the students needed to discern, for example the minus signs' different meanings or the invisible positive sign in front of the positive numbers (cf. Ma, 1999).

Tentative findings indicate that students, regardless grade, asked the same questions and responded in the same way regarding the object of learning. According to the ongoing analysis there are indications showing, when meeting an unknown content (the students in grade 3) or meeting a known content, though based on an unknown teaching tradition (the students in grade 9), what the students need to discern and learn, can be similar.

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Implementation of Collaborative Learning at GagasCeria Elementary School, Bandung Indonesia

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Collaborative is one of the important things in a learning. Collaborative learning is expected to build interaction between students. Students are encouraged to pro-actively build their own understanding through dialogue, asking, or sharing ideas with their friends.

Teachers at Gagasceria Elementary school realize the importance of this collaboration in the learning process. Therefore, when doing lesson study, we consider collaboration in designing learning activities. We observe 4 lesson study activities that implement collaborative learning. The focus of our observation is what kind of collaboration makes children learn. The things we observed were the number of students in the group, the learning relationships that occurred (whether mutual learning or mutual teaching), and the form of a task given (jumping task).

Based on the observations made, we find that children learn when:

- x Grouped with friends who feel comfortable to learn each other or to ask questions.
- x For the initial stage, groups can be made in pairs.
- x The task is problem solving contextual
- x Teacher interventions encourage children to find out or learn from friends rather than teach difficulty friends.
- x U-shaped sitting position allows children to focus on teachers and learning.
- x Giving the opportunity to try to accomplish the task given independently before exchange opinions or ask questions with group mates.

All of them can be a guide in designing collaborative learning. We hope that with this guidance, teachers can be more effective in designing lesson. So that children can learn from each other optimally.

Keywords: Collaborative learning, Lesson study, Student learning.

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Research on Lesson Study for the Curriculum Development of Life Environment Studies During Establishment as a New Subject in Japan

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The purpose of this presentation is to clarify the actual state of the curriculum development of the school curriculum of the life environment studies by the lesson study at the Japanese school through historical research on how the school curriculum was created at the time of establishment of the new subject (1988 to 1990). It has been pointed out that the lesson study plays a major role in the formation and revision of the curriculum, and about the formation and revision of the school curriculum of comprehensive learning time by the lesson study in Japanese schools, Kuno (2009) has revealed its actual condition in the case of Kuchiyoshida elementary school. However, the problem of how the formation and revision of the school curriculum of the life environment studies at Japanese schools was addressed has not been sufficiently clarified so far. For the creation of life environment studies, which was fully implemented from 1992 at Japanese schools, the research promotion schools on 51 environment schools in the nationwide who were commissioned by the Ministry of Education, Ministry of Education, and the school curriculum development of the life environment studies by the lesson study, Evidence was offered. During the establishment of a new subject, the research promotion school on life environment studies was working on the development of guidance planning, devising guidance methods, developing teaching materials, practicing lessons based on the lesson study. Therefore, in this research, we take Mito Nanbu elementary school in Mito, Hoi District, Aichi Prefecture as a case representative of the research promotion school on life environment studies nationwide and concretely tackle the efforts of the school curriculum development of the life environment studies by the lesson study. In the research method, we analyze the lesson research record at the time and question paper survey to related persons, and draw close to that situation. As a tentative conclusion, we are considering the following three points. First, in the school lesson study in Mito Nanbu elementary school, there was a research perspective to promote curriculum development of life environment studies in the whole school system, taking advantage of the idea of young teachers. Secondly, in the school lesson study in Mito Nanbu elementary school, development of experimental unit of life environment studies and practice of class were carried out based on voluntary research subject and child image to be raised. Third, in the school lesson study at Mito Nanbu elementary school, a post-study meeting based on frank communication between teachers was conducted, changing the viewpoint of curriculum formation and revision of life environment studies. Based on the results of this research, we believe that the historical achievement point of the school curriculum development of the life environment studies by the lesson study in Japanese schools will be verified from an international perspective.