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The Schools Network to Promote Teachers Professional Development: The Creation of Mathematics and Historical Collaborative Curriculum 'Oedo Story'

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The purpose of this study is depicting teachers' learning through networking in Akita city. These networks are looked at from both the perspective of the person within them and an external viewpoint. Pedder and James (2012) suggested the importance of the 'inquiry' group of teacher learning practices, reflecting a range of research-informed, classroom-based approaches to collaborative teacher learning. Our research question was to investigate how to promote teachers' professional development among small schools through collaboration by setting up a small schools' network. Because the school size is gradually decreasing due to the declining birthrate in Akita, there is one or no teacher with expertise on specific subjects.

Fortunately, however the opportunity for teachers to learn has been organized by school leaders and the Board of Education from 2006. With a common aim, all teachers of Akita city have joined with one school and they have learned from each other by implementing lesson study. Originally among Akita teachers the knowledge creation and assessment practices, such as mathematical problem-solving on a learning worksheet, or the team-teaching system of primary school, have continued at each school. Therefore they were willing to participate in the professional learning community and have shared their expertise to all schools in Akita city. A conference has been held and the outcomes of group research have been shown since.

One of these research groups, grade-6 mathematics teachers group, had designed a new topic curriculum in collaboration. 12 teachers from 5 primary schools gathered. At first they sent out a questionnaire about learning for their students. They found the students were interested in history, particularly the Edo era (1603-1868). Hence, they devised a mathematics and historical collaborative curriculum: 'oedo Story'

The teachers attempted to teach children how to use mathematics to 'Appreciate' the 'knowledge' learned in social studies classes, focusing on the Edo era. They researched materials relating to 'the life of ordinary people in the Edo era' and the heads of the research teams collected these materials in order to co-develop a unit worksheet on the concept of 'size per unit quantity.' The worksheet consisted mainly of important 'core problems,' which provide more in-depth learning and arouse children's interest in historical facts. In the class, the teachers employed a problem-solving learning style that forecasts core problems, using materials such as figures and graphs, from textbooks or other reference books, for verification, and discussed the results. They verified the effects of this learning style in both open classes and workshops.

Relearning 'oedo Story' from the perspective of mathematics has dramatically changed the students' opinion of mathematical studies. The students addressed the task of re-verifying the history they studied in social studies textbooks by using mathematical concepts such as population density, surveying, people's average height, velocity, and yield amount. As a result, they could not only understand people's lives in Edo

more realistically, but also realize the power of mathematical concepts.

Finding interest in exploiting mathematics encouraged students to extend their learning and to learn from a broad perspective. Concurrently, teachers learning with collaboration through networking allowed them to enjoy the pleasure of creation that improves and enhances student learning. In that sense, this lesson opened up the possibility of the development of professional learning based on lesson study.

Pedder, D. & James, M. (2012) Professional learning as a condition for assessment learning. In J. Gardner (Ed.) *Assessment and learning: second edition*, Sage. 33-48

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How the Professional Learning Community through Lesson Study has an Effect on Teacher Development to Enhance Student's Thinking Skills?

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This research aims to 1) study and develop a Professional Learning Community through Lesson Study process to enhance student's thinking skills 2) study effectiveness of the Professional Learning Community process in three-fold: (a) To broaden the teacher's ability to design and manage lessons for the benefit of the student. (b) To study the relationship of teachers in the learning community. (c) Analyze the results of the lessons to develop student's thinking skills.

This study was conducted with a focus on qualitative data collection by dividing into 4 phases, including (1) analyze and synthesize relevant notions, theories, documents, and researches, as well as fundamental information used for developing a process, (2) develop a Professional Learning Community through Lesson Study process to enhance student's thinking skills, (3) implement a Professional Learning Community through Lesson Study process to enhance student's thinking skills, and (4) develop and present a Professional Learning Community through Lesson Study process. The periods of implementation was 36 weeks. There are 55 members, consisting of 46 teachers, 3 school executives, 2 university lecturers, 1 retired educational officer and 3 foreign experts. The process involves data collection through a variety of methods. These include observations, interviewing and testing. The assessment tools include the teacher's ability to design, plan and instruct lessons, the teacher's relationship interview form and the analytical thinking tests.

The research results were as follows:

(a) Teacher's develop their abilities to design and manage all aspects of teaching and learning. Our results show the education skill sets for design of teaching and learning management increased by 89.13%. For the implementation of teaching and learning management skills the results showed an increase of 73.91% and finally the results for the overall improvement of teaching management showed an increase to skill sets of 41.30%

(b) The results of the study on the relationship of teachers covered 4 main points. 1) All teachers saw a change in teacher relationships in the professional learning community after the process had been updated to enhance performance. 2) The factors that promote good relationships in the community can be classified into two factors. (2.1) The teacher should demonstrate an open mind and (2.2) The support of the executive and mentor. 3) The barriers and problems that affect the relationship building in the professional learning community which included The organizational work culture, The unfamiliarity of the process, The workload of the teacher, and The creation of good, sustainable relationships.

(c) With regard to the student's performance. It was found that after the teacher applied the process learnt from the professional learning community, the thinking level of students in 3 classrooms (85 students) at primary school grade 1 level were as follows:- 84.71% the creative thinking level increased. 10.59% the creative thinking level remained the same.

4.71% the creative thinking level decreased.

Overall, the results of the teacher development activities can be summarized as follows:- 1) The students were happy and enjoyed learning much more and the students developed more consistently and achieved their goals in every lesson. 2) The teachers improved their ability to work more effectively. 3) The executives had a closer relationship to the teacher and understood their work and the difficulties they experience. The executives felt part of the team according to the professional learning community process and were able to provide support to the teachers in order to achieve the goals that had been set.

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The Role of Curriculum Leader in Professional Learning Community - the Examples from Preschools in Taiwan

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After the enactment of the Early Childhood Education & Care Curriculum Framework (ECECCF) in 2012, preschool educators in Taiwan try to implement the framework in the field. Since the framework is new to educators, professional learning community is encouraged as a way to help preschool educators to implement the framework.

However, how to develop a professional learning community how does the community work how does the leader of the community lead the community. All of the questions are new to the preschool educators. The paper tries to analyse the data from the on site guidance, especially focus on the curriculum leaders. There are two cases will be presented. The results show; (1) The curriculum leader need to establish the issues and the goals with the members in the community; (2) The curriculum leader need to facilitate and support the interactions among members in the community; (3) The curriculum leader need to respond to the questions related to the issues those members raised; (4) The curriculum leader need to organize the discussions and make conclusions for the members. Other than that, the curriculum need to give the work to members to implement in the field as the issues to discuss next time. Finally, the role of the curriculum leader will be discussed.