

Maitree INPRASITHA, Center for Research in Mathematics Education,
Faculty of Education, Khon Kaen University, Thailand

Lesson Study as an Innovation for Teacher Professional Development: A Decade of Thailand Experience

Before entering the 21st century, most of affluent countries have been preparing new skills for their children while most of non-affluent countries do not recognize this shift. Report on TIMSS and PISA is a good evidence for the difference. However, during the last decade before entering the 21st century, all of the countries across the world have become recognized the necessity of 21st century skills and attempting to improve their school education to serve these skill demand for their citizen. If taking Thailand as a case, it has been undergoing an educational reform movement since 1999, after the first Educational Act was launched. A number of educational institutions have been attempting to respond to the national agenda, to reform learning process, and respond to the new demand of 2001 curriculum which emphasis on the integration of three major components of the curriculum: subject matters, skills and learning processes, and desirable characters. This paper describes a decade of Thailand experience attempting to implement Japanese Lesson Study as an adaptive innovation for teacher professional development through the project running by Center for Research in Mathematics Education (CRME), Khon Kaen University since 2002.

The long-term plan for implementing Lesson Study

There are many attempts in implementing new innovations in Thailand. But, most of the attempts often failed. One cause came from the lack of context preparation for using those innovations or approaches. Lesson Study as a Japanese teaching professional development has been developed and used in Japan for more than 130 years (Shimizu, 2006). Now, it is expanded throughout the world for improving teacher's profession. However, in order to implement in Thailand, the following context preparations have been implemented.

2002	Incubation of Ideas with 15 student teachers and the first two schools
2002-2005	Experimentation in a number of schools
2006-2008	Starting Whole School Approach in 4 schools in the Northeast of Thailand

Incubation of Ideas in two schools in 2002

Traditionally, most of mathematics classroom in Thailand depend heavily on following the national textbooks. Textbook style starts with introducing some definitions, principles, rules, or formula follow by some examples, and close with some assigned exercises. Unfortunately, most of exercises are kinds of closed problems, which have one and only one correct answer. This style of textbook has influenced the teacher's style of teaching, or even become teaching method for most of them. The script of teaching of mathematics teachers will look like this; starting with explaining new contents, some examples, and closing with giving the students some assigned exercises. This method of teaching has formed the classroom culture where the students cannot initiate their own learning. They become passive learners in this kind of mathematics classrooms.

In order to change this kind of mathematics classroom, the author challenges the idea of using open-ended problems in the classrooms of 15 student teachers in 2002 academic year (Inprasitha, 2011). In the summer of 2001 academic year during March and May, 15 student teachers had been coached by the author how to make lesson plan using open-ended problems as a focal mathematics activity. They were trained to organize teaching sequence in a new way, which starting with posing prepared open-ended problems to the students, allowing time for the students to think by themselves within their small-group working. While the students were doing their small-group working, the student teachers had to make some notes for collecting students' ideas emerged in the classroom and bringing for whole class discussion. On every Friday, all 15 student teachers came back to the university to discuss about the teaching problems with the author. In the first half of the semester, all of student teachers had pressure with many aspects. For examples, the classroom teachers reminded them that they should go directly to teach to cover the contents, otherwise their students would run into trouble when having mid-term test. Even the students in the classroom also complained that the student teacher did not teaching anything according to the textbook. They were afraid that they did not learn what other students in other classes learned. The student teachers presented these problems in Friday discussion. They all faced the same problem in every class and in every school.

However, after the first half of the semester has passed, the situation changed. The students in every class showed a good sign of responses to the class. They like to present their ideas in the whole discussion session. One typical example in every school is most of incapable students in traditional classroom play an important role in group-working activities. Hands-on

activities provided them a chance to use their ability. At the end of semester, there had great changes in the classroom of all student teachers and the student teachers also changed their worldview about teaching and learning mathematics. They perceived that learning mathematics is more than just coverage of contents. This change influences their career path after they graduated. For the author, this one semester gave an idea on how to integrate Open Approach which emphasis on using open-ended problems in the traditional mathematics classroom to challenge mathematics teachers to change the way they teach mathematics. He provided much training for teachers during 2002 -2005.

Experimentation in Some Schools during 2002-2005

Since the second half of 2002, the author introduced how to use some 5-6 open-ended problems in the classroom through short training program in many schools. During 2002-2005, more than 800 teachers had been trained to use open-ended problems in their lesson plan while emphasis on changing their role of teaching in the classes by posing the open-ended problems and allowed time for students to think by their own in group-working activities, following by whole class discussion. There has a great change in those teachers as in the following survey (Inprasitha, Loipha, and Silanoi, 2006). The great impact of changing classroom after using open-ended problems was apparent to teachers. However, most of the teachers were still being worried about how to cover the contents because they used only some 5-6 open-ended problems in their classroom. Almost of teachers who had been trained to use open-ended problem called for open-ended problems which covering all of the contents in every grade.

The Center for Research in Mathematics Education does not respond to this demand. The author then decided to recommend teachers to create open-ended problems by themselves. This made them to be perceived that it was very difficult for them to do that. Then, it is timely to prepare to introduce a tool for creating “open-ended problems” by school teachers, rather asking the Center to provide for them. The tool for creating “open-ended problems” is that they have to collaboratively working together according to the three basic steps of lesson study; collaboratively plan, do, and see for making lesson plan which emphasis on using “open-ended problems” in the mathematical activities in the lesson plan. This idea had been implemented in the first two lab schools in 2006.

Lesson Study with Whole School Approach

As mentioned in the earlier session, the idea of integrating Open Approach into the three steps of lesson study; collaboratively plan the lesson together

for creating lesson plans emphasis on how to creating “open-ended problems” in terms of 3-4 short instructions, teachers have to anticipate the students’ responses to their instructions, and coming to discussion in the end of the week. In the first stage of implementing lesson study, the author did not focus in the detailed research lesson like those of Japanese teachers but still emphasis on how to help the teachers to reconceptualize “what does it mean ‘mathematics classroom’ for them?” In terms of research, they were trained to use classroom as a unit of analysis for improving their daily practices. The author proposed a new approach for teaching which integrating both the idea of teaching and research for the tool of the teachers.

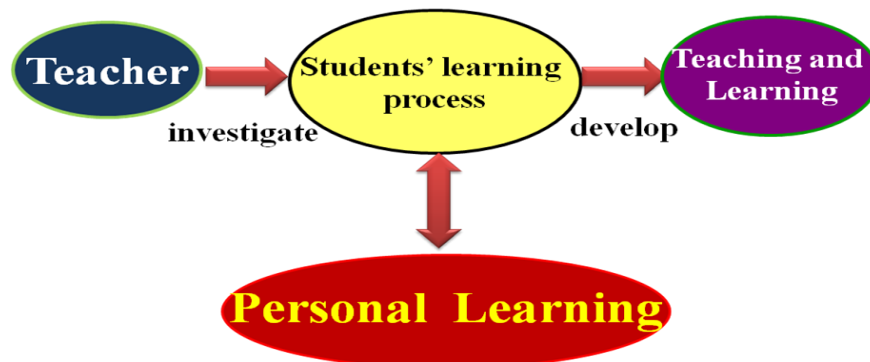


Figure 1 A new approach for teaching

In this model, teachers had been encouraged to focus on how to investigate the “students’ ideas” emerged in the classroom. Their focus is on how to bring “those students’ ideas” to be discussed in the whole class session in order that all or most of the students in the class being engaged in such aspects of the problem, which is very important for them to view problems from many angles. This is the central issue for using open-ended problems in these classrooms. As we might expect, most of the teachers have limited tools to collect students’ ideas. Even though we recommended them to use short note to collect the students’ ideas but they usually ignore what is important for the students. They are not familiar with the students’ natural ways of thinking. This also returns back to the step that they have a difficulty in anticipating the students’ ideas when making lesson plan.

Positively, teachers come to realize that “classroom” is not just a simple idea. It is a culture which the teacher and students in that class have created in the long-term tradition. Parts of this classroom culture are classroom norm, belief system, attitudes, and values. All of these has formed the complicated aspects of that classroom culture. Thus, changing the classroom is not just providing teachers with new method of teaching and expecting that the changing will occur in the classroom. Creating new teaching practices by integrating Open Approach into Lesson Study is a

promising context for changing teachers' roles in the mathematics classroom. This idea has been implemented in the following two lab schools since 2006. Khoo Khum Pittayasan, a typical expansion school in the remote area of Khon Kaen province 30 kilometers far from Khon Kaen city and Chumchon Ban Chonnabot, an elementary school in the typical country side of Thailand in some 50 kilometers far from Khon Kaen city voluntarily participated in the project.

The most difficult part of implementing lesson study in schools in Thailand is how to form lesson study team. We do not have senior or expert teachers in schools like those of Japan. We also lack of outside knowledgeable persons to support the schools. In order to have effective lesson study team in the project school, Faculty of Education, Khon Kaen university has trained our graduate students in master degree program in mathematics education, which first offered in 2003 to take part in the workshop organized by the Faculty during 2003-2005. We organized our workshop into small group mixing both teachers or school principals and supervisors. The graduate students take their roles to observe group-working and then come to reflect what they observed after the representative people of the group presented their work.

The roles of graduate students provided a chance for school teachers to reflect on their traditional roles. In 2006, when we started to fully implement the idea of lesson study and Open Approach, our graduate students have been assigned to be members of lesson study team working closely with school teachers where as they used the school they participated as their research site. Thus, each lesson study team will look like this; three classroom teachers from grade 1, 2, and 3 added with one graduate student, one teacher from other grade (option), the principal (mostly attended in reflection session). A team for grades 4, 5 and 6 or for grades junior 1, 2, and 3 will do the same way to form their lesson study team. Three steps of lesson study have been practiced as follows: Monday or Tuesday was set for collaboratively plan the lesson for each team. One teacher went to teach according to usual time table in a week. Then, all teachers in that school with the school principal took leadership in reflection session in the end of the week, may be Thursday or Friday. The author adapted many steps of lesson study by putting revision step into yearly cycle. This made the three step lesson study could be practiced as a weekly cycle. Thus, we can plan to do lesson study every week for still covering all content teachers have to teach. This adaptive version relaxed teacher to be comfort to use innovations like lesson study and Open Approach in their classroom. They feel like they have outside knowledgeable persons to help them improve the class-

room, rather feeling that they had to have more extra work than they used to do. Figure 2 shows three steps of lesson study adapted to be used in mathematics classroom in the project schools in Thailand in two schools mentioned earlier.

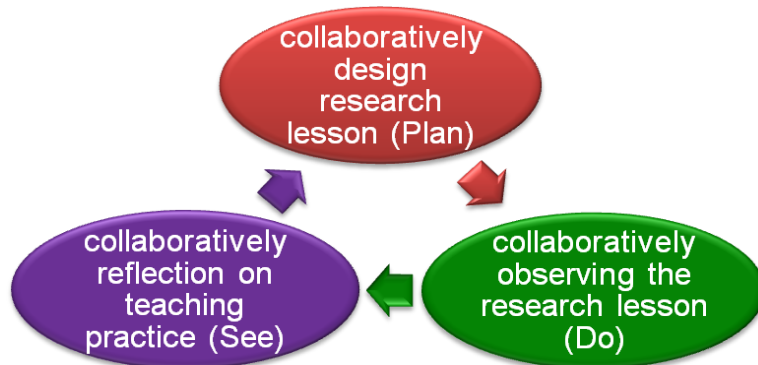


Figure 2 Adaptive Lesson study in Thailand (Inprasitha, 2006)

Lesson Study with Whole School Approach: A Case of Khoo Kham Pittayasan School

Khoo Kham Pittayasan School is an extended school (1st grade to 9th grade). There are one hundred-eighty students and eighteen teachers in 2010 academic year. The school has been participating in the project since 2006. In the 2006 academic year, the school implemented three phases of lesson study in the 1st grade, the 4th grade and the 7th grade. In the academic year 2007, they extended to 6 classrooms; 1st grade, 2nd grade, 4th grade, 5th grade, 7th grade and 8th grade. In 2008 academic year until now, they extended to 9 classrooms; 1st grade, 2nd grade, 3rd grade, 4th grade, 5th grade, 6th grade, 7th grade 8th grade and 9th grade. In order that all 18 teachers of this school could participate in 3 phases, especially the reflection phase. The school principal took leadership in the reflection phase and it is obligation for all school teachers had to participate in this phase. This weekly cycle of lesson study activities could relax the new comers of lesson study team as in this school in Thailand.

In the “Plan” Phase; it involved the researcher, school coordinator, co-researchers, and participant teachers to collaboratively design a research lesson (Plan). During this phase mathematics problem activities were chosen using open-ended problems based on a Japanese mathematics textbook. The materials to be used in the classroom were then designed. This was conducted once a week.

In the “Do” Phase, during this phase the LS group collaboratively observed the research lesson (Do) and implemented the lesson plan of the school teacher in the classroom. In addition, the classroom teaching was observed by

the research team, school coordinator, co-researchers, and other teachers. The objective of the observation focused on the students' thinking approach, and not on the teacher's teaching competency.

In the "See" Phase, during this phase the team collaboratively discussed and reflected on the research lesson, and examined the findings of the teaching observation for improving the research lesson. The research lesson was then kept with a view of using it again in the following year. This phase was conducted once a week. A unique feature of this phase is that the school principal took leadership in running this session and this motivated all the teachers in school to attend the session.

Concluding Remarks

After a decade has passed, we have learned that implementing lesson study in a different context, which is quite different from that of Japan, there are many issues we have to be concerned. Analysis of its own national contexts including social and cultural aspects of school and classroom is very important. In the case of Thailand, teaching mathematics by emphasis on the coverage of contents is the central issue of most of the school teachers. Thus, modifying the time schedule so that we can implement lesson study in weekly cycle is a key for the success. This does not mean that 'revision and reteach the research lesson' is not important but we put it in the yearly cycle. Khoo Kham Pittayasan school now can become 'learning center' for other school to learn how to adapt lesson study in their schools. Since 2009, the idea of using lesson study to improve teaching practices has been extended into another 18 schools and into another 8 schools in 2011. It is expected that since 2012, lesson study will become expansion nationwide.

Acknowledgments

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