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How do our teachers use our textbooks ?

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Introduction

Thai' mathematics textbook for school mathematics focus on the mathematics contents and skill/ mathematical process consistent with the basic education core curriculum (2008). Each level, teacher guide for mathematics activity is provides. Teacher guide book consist of Mathematics Content Knowledge (MCK), calculation skill, exercises to drill and practices, and extra problems for more deep in the students' skill to solve problems. The representation of MCK is description of mathematical principles with examples and exercises to check understanding. Teacher might give more drill and practices or more exercise rather than examining problems of students' learning.

Mathematics textbook and Teacher guide were created by the Institute for Promotion of Teaching Science and Technology assigned by the Commission on Basic Education. Those are used in almost schools around the country. However, we still have seen the language problems, such as more special word difficult to students' understand, many signs and symbols are not familiar, paper type in the book with low quality, description is quite long, test items (the test items are almost focus on calculation) etc.

According to the mathematics curriculum, orientation process to learn that focus on student learning is important. Teaching method should vary. Mathematics activity gave students' opportunity to learn by themselves and let student think and solve problem. So, teacher place importance on the quality of teaching methods, for example, teacher was dominated by traditional memory and drilled work. There is the fact that more teachers miss the meaning of problem solving, such as for routine problem if the student can get the right answer then it is enough for the teacher.

Although, we have Thai' mathematics textbook and teacher guide. But in the project of teacher professional development with lesson study and open approach can not be used properly.

The most problems are

- the structure of mathematics contents are axiomatic approach.
- more exercise for practices.
- more mathematical terms and difficult to understand
- model published in the book are not persuasively, etc.

Inprasitha (2005) had conducted lesson study and open approach as a project for teacher professional development to an Elementary school and 3 Expansion schools. Thai' teachers was introduced lesson study and open approach to improved their teaching and learning mathematics for three years under Center for Research in Mathematics Education Faculty of Education Khon Kaen University supported. As a result, theoretical framework was emerged to extend for 19 schools in northern and northeast of Thailand.

The project for teacher professional development to an elementary school and 3 expansion schools. We need to change the Thai' teachers and students by apply new way of teaching and learning in the mathematics classroom. So, Japanese mathematics textbook was introduced for teaching and learning.

Japanese mathematics textbook, in contrast it consist of

- mathematics contents was represented in terms of mathematics activity. It carried out by problem solving approach. With these process, we have a lot of students mathematical ideas which is nearly students' natural way of thinking.
- there are exercises same as Thai textbook, but almost the items want to check students' understanding and the exercise are not for repeat practice.
- mathematical term are nearly natural language of student and they can elaborate and build-up until they reach to mathematical term with the meaning.
- model published in the book are quite persuasively, for example, quality of paper, color, picture, provide diagram in table of contents for guide mathematics structure.

Issues to concern with the teaching and learning mathematics

What we learn from Japanese mathematics textbook.

- a sequence of subject matter was introduce in students daily life, those situation could be problem situation for them by their language to the problem. The students batter and solve it then student experiences can explore, explain, drawing and connect to mathematics ideas and form to concept (sometime just incomplete concept).
- a contents page is helpful for teacher, such as the color, it shows the same color in the other grade.
- the book should provide teaching guide for teaching approach, for example, how to learn about addition for student in grade one.
- the book should provide assessment guide for teacher and student, for example, there are problems for check students' mathematical understanding,

- a model published in the book are quite persuasively, for example, quality of paper, color, picture, provide diagram in table of contents for guide mathematics structure.

Objective

- 1. To enhance power of team lesson study and open approach teachers for criticizing from experts, principal, supervisor and participatory observer.
- 2. To construct mathematics activity base on problem solving. The leadership in lesson study and open approach can do it quite nearly the students thinking.
- 3.To create mathematical problem in open approach.

Methodology

- 22 primary schools was the subjects in this study. Every schools in the project of teachers professional development must set agenda for the day to plan the lesson, the day to do and observation, and the day to reflect the lesson in every week and every semester.
- Qualitative research was applied for collect data using: classroom observation with field note, performances as mathematical approach from problem solving, photographs, activities are relating to research study, interview of teachers, administrators, and students participating in project.
- Data analyses consisted of: participation in activities following cycles of Lesson Study, number of lesson plans, and assessment form of opinion on activity participation, instructional design of media and material design. Classroom observation was recorded by observed teachers and classroom reflection, annual assessment conference in developing instructional media and resources for applying in the students' mathematical thinking by Lesson Study and Open Approach. The analyzed data included the lists and pictures of media, material, equipments and technology with description of usage in this study. The observations implemented by various kinds of instruments for searching and developing model of implementation in real practice.

Results of the study

The teachers are prefer to use Japanese textbook after one semester, because in that book, there are teaching approach guide for teaching, students' ideas and the important mathematics concept. However, teacher still have some problem with the mathematics structure, such as some ideas were deeper than Thai textbook.

Recommendations

1. Traditional Thai mathematics lessons could not enhance the teachers in creating mathematical activities. But, modified Japanese lessons could do this, especially in developing concept of mathematical content through problem solving. However, the difficulty of the team of lesson study was the mathematics textbook. They tried to use Thai mathematics textbook but they

can not construct the good lesson. The important problem is to looking for mathematics problem situation, which is quite difficult to them.

2. Using Lesson Study and Open Approach could sustainable enhance the school work system of every one in school to persist in work.

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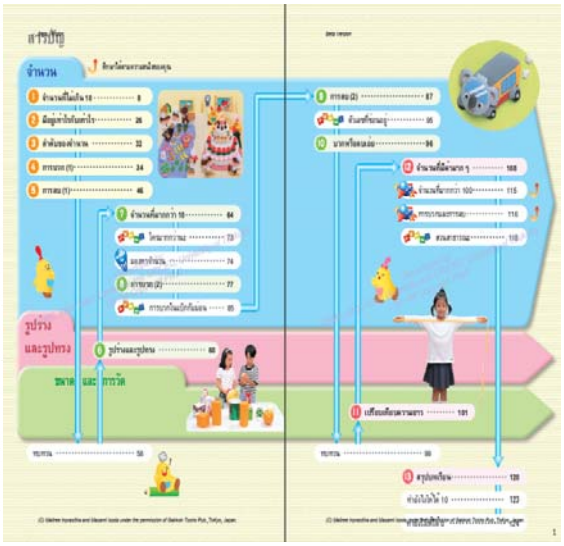

Teacher guide