# Book Review

## Lesson Study: Challenges in Mathematics Education, Edited by Maitree Inprusitha, Masami Isoda, Patsy Wang-Iverson and Ban-Her Yeap, World Scientific Publishing Company, Ptc., Ltd., Singapore, 2015

**By**

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### Introduction

This book is about Lesson Study (L.S.) around the world and is helpful in understanding and applying Lesson Study. It gives a wide variety of opinions and views.

### Summary

It is felt that lesson study is a socially situated research practice. This includes societal, institutional, pedagogical and individual areas.

Mathematical thinking is an important goal of schooling, as a way of learning mathematics and for teaching mathematics.

A major purpose of mathematics is to improve the long-term learning of it for every person. Lesson study can be seen within a long-term framework to design curriculum and encourage long-term development.

It is helpful for insight not only into what needs to be learned and how, but also why some are so good at mathematics and why some are not. We can enhance the mathematical thinking of every child.

Workshops and university courses can provide opportunities for teachers to learn about how new curriculum and instructional materials are designed. These ways can be helpful to learn to use these in classrooms. Practice is important for using new ideas. Lesson study can be helpful in this process.

International studies of mathematics are helpful for the rich data set they generate. These can help educators to better understand various systems and cultural values.

Much of lesson study (jugykenkyu) began in 1870 in Japan. It was introduced as a science for better teaching practice in 1880 and has been shared around the world. Problem Solving Approach (PSA) is a Japanese teaching approach, a theory of teaching for developing children who learn mathematics by and for themselves. Another Japanese theory is to explore the technical terms for teachers for explaining the objective of teaching generally regarded as curriculum sequence. These are used by teachers and developed by mathematics educators for sharing the curriculum sequence and pedological content knowledge (PDK).

What is lesson study? In many articles written in English lesson study is usually explained as a school–based or a small group approach to enhance professional development to improve teaching. In Japan, lesson study groups are usually established in various subjects such as mathematics. In middle and senior high school–based lesson study is unusual, because teachers are specialized in a particular subject.

In implementing a Lesson Study Open Approach in Thailand, it is important to consider the conventional Thai education content and culture. A change in teachers' role that emphasizes giving lectures, doing exercises on the board for the students, and then drawing conclusions at the end of each lesson to a new role of organizing learning activities that help student learning through the Open Approach is important.

Many of the ideas behind lesson study in Japan were received from the United States and can be traced back to Europe. It is important to decide what is an important lesson summary. From the standpoint of professional development of teachers, three CO's—cooperation, collaboration and co–action are important.

Lesson study is now being used in some schools in North America. It is not only used to improve lessons, but also to enhance learning community among teachers and to improve teachers' own knowledge about mathematics, pedagogy and student thinking. Lesson study in the U.S. has faced problems where some teachers have few opportunities to collaborate.

Lesson study can also deepen the professional development of teachers in Singapore. These findings were derived from a case study in a secondary school. The process of lesson study consists of different parts—goal setting, research lesson planning, lesson teaching and evaluation and consolidation of learning.

Lesson study in Singapore schools has become increasingly popular as it provides opportunities for teachers to increase their knowledge through collaborative efforts in designing a lesson and discussing observations of student learning.

In Japan in 1995 a study group of young teachers was established as the Practice Study Group in Arithmetic Education (PSGAE) to improve instruction and raise everyone's abilities by focusing on young teachers in Sapporo City. They meet once a month and teach and observe about four open classes a year. An example is an effort to raise the ability of teachers based on concrete practice examples of adding and subtracting fractions in the sixth grade through "good practice" for teaching and learning mathematics through lesson study.

In the Philippines lesson study is CLRD (Collaborative Lesson Research and Development). It was first introduced in mathematics to help grade 8 mathematics teachers from Rizol High School (RHS) in Pasig City to use in their classes for learner–centered teaching strategies. The CLRD group consisted of four $8^{th}$ grade mathematics teachers, their department head, and a research author. This helped teachers to understand what counted as learner–centered teaching approaches. The students learned and enjoyed the teaching.

Thailand has gotten ideas from Japan and has implemented lesson study since 2000, with unique adaptations. Thailand's approach has been shared with APEC member economies and is considered "quite a success". The first Educational Act of 1999 was to "reform the process". The Ministry of Education implemented a new care standard curriculum which demands that school teachers integrate subject matter, learning process and skills, and desirable characteristics regarding the curriculum. The lesson study implementation was used with open–ended problems in mathematical activities. Work needs to continue on developing the teaching profession and for change in teaching practice.

In Indonesia the current lesson study activities are conducted under SISTTEM (Strengthening In–Service Teacher Training of Mathematics and Science Education). This is done at the junior secondary level. This is done primarily through MGMP (Teacher's Club) activities using lesson study. The lesson study project was effective in increasing student enthusiasm in learning.

In Chile in November 2005 there was implementation of a Project of Improvement for the Teaching of Mathematics with the Technical Assistance of Japan. In October of 2006 under lesson study there was a cycle of public lessons of mathematics for pupils of Primary Education. Using lesson study teachers develop teams for planning a lesson and selecting a goal for the lesson. Also, lesson study teams invite an outside expert to support them. Lesson study was combined with LEM Communal Workshops and both had a positive impact.

Malaysia introduced lesson study to promote positive practices. It is hard for many Malaysians to achieve these things in their teaching due to a number of challenges and constraints—such as time. Some teachers believe a teacher–centered approach where the teacher gives clear examples is good enough to achieve most of the teaching objectives. Positive and encouraging feedback from participating teachers has been a factor that has spread lesson study to more schools. However, keeping lesson study going in some schools is a challenge. Lesson study in English, history, science and mathematics was renamed Professional Learning Communities.

The teaching of mathematics in Vietnam is challenging. Teachers are encouraged to seek innovative approaches in teaching and learning mathematics. The first lesson study was introduced in schools and teachers saw a good opportunity to see teaching and learning in the classroom. Also, lesson study helps to guide teachers to have effective communication through the lesson study cycle. Students learn mathematics in an active way. In Singapore lesson study was helpful in getting results in teaching division in third grade classrooms

**Critique**

This book is most helpful in learning about lesson study. We highly recommend it.