



**Asia-Pacific  
Economic Cooperation**

**Collaborative Studies on Innovations for Teaching and  
Learning Mathematics in Different Cultures (II) - Lesson  
Study focusing on Mathematical Thinking**

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## PREFACE

We are pleased to present this progress report on the APEC project “*Collaborative Studies on Innovations for Teaching and Learning Mathematics in Different Cultures (II) - Lesson Study focusing on Mathematical Thinking-*”. The papers were delivered during the APEC – KHON KAEN International Symposium and works.

At the third APEC Education Ministerial Meeting held on 29-30 April 2004 in Santiago, the ministers defined the four priority areas for future network activities. “Stimulating Learning in Mathematics and Science” is one of the four priority areas. Based on this priority, the APEC HRD 03/2006 project “A Collaborative study on innovations for teaching and learning mathematics in different cultures among the APEC Member Economies” was approved by APEC Member Economies in August 2005. This project held meetings in January 2006 at Tokyo in Japan and June 2006 at Khon Kaen in Thailand. The project was managed by the Center for Research in Mathematics Education (CRME) in Khon Kaen University and the Center for Research on International Cooperation in Educational Development (CRICED) in University of Tsukuba.

Based on the success, the specialists from APEC economies decided to continue the project more four years in relation to following topics: Mathematical Thinking (year 2007), Communication (year 2008), Evaluation (year 2009), and Generalization (year 2010). The first three topics are selected in relation to three Lesson Study processes, Plan (for Mathematical Thinking), Do (for Communication) and See (for Evaluation). The result of each year will be based for the following year project. In the final year, Generalization will be set for the benefit of all subjects in education.

For year 2007, the APEC HRD 02/2007 project “Collaborative Studies on Innovations for Teaching and Learning Mathematics in Different Cultures (II) - Lesson Study focusing on Mathematical Thinking-” was approved in October 2006. For APEC member economies, Mathematical Thinking is a necessary ability for science, technology, economical life and development. Developing this ability in school is an important role of school in all economies.

With Lesson Study approaches, the project aims to

- 1) Collaboratively share the ideas and ways of mathematical thinking which is necessary for science, technology, economical life and development on the APEC member economies, and
- 2) Collaboratively develop the teaching approaches on mathematical thinking through Lesson Study among the APEC member economies.

As the goal of project, we would like to publish the report (or book) with CD-roms including the video of good teaching practices for developing mathematical thinking for teacher education in APEC economies and the world. In order to achieve the goals of the project, activities will be implemented in four phases

Phase I, A workshop and a Lesson Study meeting (a kind of workshop for specialists) among key mathematics educators from APEC member economies hosted by Center for Research on International Cooperation in Educational Development (CRICED), University of Tsukuba, Japan will be organized in order to share the idea and ways of

mathematical thinking on curriculum level and teaching level (at Tokyo & Sapporo, December 2-8, 2006).

Phase II, Each co-sponsoring APEC member economy will engage in the Lesson Study project for developing some topics of mathematical thinking (February-July 2007).

Phase III, An International Symposium and a Lesson Study meeting (a kind of workshop for general teachers) will be organized in order to share teaching approaches for developing mathematical thinking by economies. The symposium will be hosted by Center for Research in Mathematics Education (CRME), Faculty of Education, Khon Kaen University, Thailand (at Khon Kaen, August 16-20, 2007).

Three hundred seventy-nine participants and observers attended the symposium. Three hundred forty-nine local participants and observers, including university lecturers, mathematics teachers, experts and educational policy makers related to mathematics education in Thailand, and thirty participants and observers from fourteen member economies of APEC, including Australia, Brunei Darussalam, Chile, Chinese Taipei, Hong Kong, Indonesia, Japan, Korea, Malaysia, the Philippines, Peru, Singapore, USA, and Vietnam and participants from other countries such as UK, Lao PDR and South Africa attended this meeting.

Phase IV: The ‘APEC Workshop on: Improving the quality of the mathematics lesson through Lesson Study’ was held in Thailand in 15-16 August 2007. In this workshop, Japanese teaching method was proposed to teachers of Thailand in the style of workshop on Lesson Study. Teachers from the Attached Elementary School of the University of Tsukuba, Japan came to Thailand to demonstrate two phases of Lesson Study – teaching Thai students in the real classroom and reflecting on teaching with Thai teachers. Activities in this phase reflected the title of the project. In addition, these activities were also effective in supporting the movement, which was developed in northeast area of Thailand by Khon Kaen University.

To disseminate the knowledge of lesson study shared by the APEC member economies at the APEC – KHON KAEN International Symposium, we are publishing this book of their reports and VTRs of Lesson Studies.

We are indebted to the Office of Commission of Higher Education, Ministry of Education and Khon Kaen University for their full support for the APEC project “*Collaborative Studies on Innovations for Teaching and Learning Mathematics in Different Cultures (II) - Lesson Study focusing on Mathematical Thinking-*”. More importantly, we would like to thank all members of CRME and staff of the Faculty of Education for their contributions in organizing the symposium and completing this progress report. Finally, we would like to use this space to express our gratitude to our keynote speakers: Alan J. Bishop, Kaye Stacey, David Tall, Fou-Lai Lin, Shizumi Shimizu, Masami Isoda, Abraham Arcavi, Akihiko Takahashi and all specialist for continuing to contribute to this APEC project.

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