



Asia-Pacific
Economic Cooperation

**A Progress Report:
A Collaborative Study on Innovations for
Teaching and Learning Mathematics in Different
Cultures among the APEC Member Economies**

International Symposium “Innovation and Good Practices for
Teaching and Learning Mathematics through Lesson Study”
June 14 – 17, 2006, Thailand

APEC Human Resources Development Working Group

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PREFACE

This is the progress report on the APEC project “*A Collaborative study on innovations for teaching and learning mathematics in different cultures among the APEC Member Economies*”. It included the result of APEC – KHON KAEN International Symposium.

At the third APEC Education Ministerial Meeting held on 29-30 April 2004 in Santiago, the ministers defined 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 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. The project is managed by the Center for Research on International Cooperation in Educational Development (CRICED) in the University of Tsukuba and the Center for Research in Mathematics Education (CRME) in Khon Kaen University. There are four phases in this project:

In phase I, an open symposium and closed workshop among key mathematics educators from the cosponsoring APEC Member Economies was held during 15-20 January 2006 in Tokyo by the University of Tsukuba under the management of the Center for Research on International Cooperation for Educational Development (CRICED). The purpose was to further develop a research proposal and collaborative framework for the development of innovation and good practices for teaching and learning mathematics. As the results “Lesson Study” is the key innovation of the teaching professional development to develop innovation and good practices for teaching and learning mathematics.

In phase II, based on the agreed collaborative framework, each cosponsoring APEC Economy conducted the research in the real classroom setting in each his/her home country to develop innovation and good practices in teaching and learning mathematics through lesson study during February – May, 2006.

In phase III, an APEC International Symposium on “Innovation and Good Practices for Teaching and Learning Mathematics through Lesson Study” was organized in order to share and reflect on each Economy’s research results and good practices based on the developed framework of Tokyo meetings. The Symposium was hosted by Khon Kaen University, Thailand on June 14-17, 2006. Based on the financial support of APEC project, the Office of the Commission on Higher Education, and Khon Kaen University, the project aimed at organizing:

- APEC Open symposium: “Innovation and Good Practice for Teaching and Learning Mathematics through Lesson Study, Khon Kaen Session”
- APEC Specialist session: “Presentation on good practices of teaching and learning mathematics through Lesson Study”.

245 participants and observers attended this meeting. 200 local participants and observers including university lecturers, mathematics teachers, experts and educational policy makers related to mathematics education in Thailand and 45 participants and observers from 13 members of economies of APEC including Australia, Chile, China, Japan, Hong Kong, Indonesia, Laos PDR., Malaysia, the Philippines, Singapore, South Africa, USA, and Vietnam attended this meeting.

In phase IV, the ‘APEC Workshop on: Improving the quality of the mathematics lesson through Lesson Study’ was held in Thailand in 24-27 August 2006. In this workshop, Japanese teaching method was proposed to teachers of Thailand in the style of workshop on Lesson Study. Teachers who belong to Attached Elementary School of University of Tsukuba, Japan came to Khon Kaen 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 really reflect the title of the project. In addition, these activities are also effective to support the movement which is developed in northeast area of Thailand by Khon Kaen University.

For the most benefit of APEC member economies to share their knowledge on lesson study, based on the results of these APEC - Khon Kaen International Symposium, we will publish a book consisting of reports and VTRs of Lesson Studies from participating economies.

We appreciate the Office of Commission of Higher Education, Ministry of Education and Khon Kaen University for their fully support the APEC project “A Collaborative Study on Innovations for Teaching and Learning Mathematics in Different Cultures among the APEC Member Economies.” More importantly, we would like to thank all members of CRME and staff of Faculty of Education for their contributions to organize the symposium and to complete this progress report. At last, I would like to use this space to give my gratitude to Prof. Dr. Alan J. Bishop of Monash University, our keynote speaker, for his great contribution to mathematics education community in the Great Mekhong Sub-region countries in the donation of a complete set of Educational Studies in Mathematics (ESM) to house in the library of Khon Kaen University.

October, 2006

APEC Project Overseers

Suladda Loipha and Maitree Inprasitha (Khon Kaen University, Thailand)

Masami Isoda and Shizumi Shimizu (University of Tsukuba, Japan)

Organizing Committee of the APEC- Khon Kaen International Symposium

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Opening Remark

Dr. Suchart Muangkaew

Deputy Permanent Secretary, the Office of the Commission on Higher Education

It's an honor for me to preside over this International Symposium. From the report, I learned that in these symposium mathematics researchers from 12 APEC member economies have been working together since April 2004. This kind of long term study will ensure promising outcomes. In the end it should yield excellent research results in mathematics education for stimulating mathematics and science learning in all member countries. I believe that this type of collaborative research should lead to a strong commitment for academic exchange especially in the area of mathematics educational research.

The 21st Century is “the century of knowledge-based societies” in which we consider knowledge and wisdom as key to success and development. The theme of this symposium “International Symposium on Innovative Teaching Mathematics through Lesson Study” indicates the driving force of researchers to innovate their teaching and learning approaches in mathematics.

I am grateful for the main supporting agency APEC Human Resources Development Working Group and the various institutes which have been fully involved in this event, namely Center for Research on International cooperation in Educational Development in the University of Tsukuba, Japan, the commission of Higher Education Thailand and the Faculty of Education at Khon Kaen University. All of their contributions and efforts are keys to the sustainable progress of this project. Thai mathematics educators from all over the country have the opportunity to participate in this symposium which is a great benefit for Thailand.

On Behalf of the host country, Thailand, I wish this symposium a great success and the continuation of the project for the greater benefit of every member economy countries.

I may now declare the opening of the International Symposium on Innovative Teaching Mathematics through Lesson Study.

Welcome Address

Prof. Dr. Chira Hongladarom

Lead Shepherd of APEC HRD Working Group

As Lead Shepherd, I am pleased to congratulate to all members who took part in the fourth workshop in Khon Kaen during 14th – 17th June 2006 on “A Collaborative Study on Innovations for Teaching and Learning Mathematics through Lesson Study among the APEC member economies”.

When the project was proposed during the 27th APEC HRD Working Group meeting, I was very happy that such innovative ideas were being implemented in the APEC setting.

Someone said "I like Mathematics because Mathematics is romantic language" that I agreed with him and I try to promote mathematics for everyone.

Beside free trade and investment among APEC economies, I believe that human resources are a crucial component in bridging the development gap among APEC economies. Therefore mathematics is important not only for mathematics sake but for economic and social benefit. With increasing mathematics skills the APEC community will develop systematic thinking and will benefit from the rising trend of knowledge based society. Among the 13 APEC member economies, we shared different approaches in teaching mathematics to disseminate best practices.

I look forward to witness the phase of the project in Khon Kaen, I will try to inform the public at large about the benefits of such projects through my television program. Finally, I would like to express my thanks to Prof. Masami Isoda from the University of Tsukuba in Japan and Assoc. Prof. Dr. Suladda Loipha from Khon Kaen University.

Thank You

Welcome Speech
Prof. Dr. Sumon Sakolchai

President of Khon Kaen University

I am delighted to welcome all participants. On behalf of Khon Kaen University, I would like to express my sincere gratitude to the Lead shepherd of the APEC Human Resource Development Working Group, Prof. Dr. Chira Hongladarom whose support has made this research project possible. I also would like to extend my deep gratitude to all guest speakers and participants who came a long way to participate in this symposium.

This symposium is a product of collaboration between the University of Tsukuba, the Commission of Higher Education under the Ministry of Education in Thailand, Khon Kaen University and researchers from APEC member countries.

This symposium will provide opportunities for participants to address their issues, share experiences, expand collaborations and partnerships in mathematics research and make contacts with outstanding mathematics educators.

The organizers will ensure opportunities for participants to meet and discuss closely outside the formal sessions. I believe that valuable idea and strategies based on innovation implemented in the classroom settings and working experiences will be revealed and distributed throughout this meeting.

Based on findings from the past phases of this research project, it is believed that the hard work of APEC members in teaching and learning innovation will contribute to the development of mathematics education in all participant countries. Moreover, the project will promote large scale collaborative international research and ensure the continuity of international exchange activities for years to come.

Once again, I would like to welcome you all to Khon Kaen City and Khon Kaen University and would like to express my gratitude to all supporting institutes and organizing staff. Thank you very much.