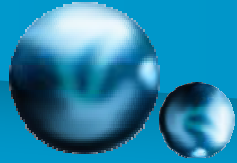


# Progress Report of the APEC HRD 02/2007 Project Thailand and Japan



*Collaborative Studies on Innovations for  
Teaching and Learning Mathematics in  
Different Cultures (II)*

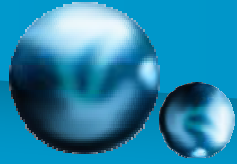
*- Lesson Study focusing on Mathematical Thinking -*



## Results of year 2006

**The project HRD 03/2006, succeeded to share;**

- 1. Lesson Study as for a Method of Improvement**
- 2. Videos for innovative mathematics Teaching**
- 3. A collaborative network on Lesson Study among member economies.**



## **Approved four years for the expansion of the project 2006**

**Based on the success and shared approaches of Lesson Study and videos, we proposed next four year's project in relation to topics in below and its approved:**

**2006 Sharing Lesson Study as for method**

**2007 Mathematical Thinking**

**2008 Mathematical Communication,**

**2009 Evaluation**

**2010 Integration**

**Mathematical Thinking is necessary ability for science, technology and economical life.**



# Procedure of the Project 2007

*Each economy started to share the ideas on movement of Lesson Study*  
*December, 2006*  
*Japan as a host*



*Each economy challenged to develop Teaching Approaches for Mathematical Thinking via. Lesson Study by involving school teachers*



**Each Economy**

*Encourage to use developed TA for MT and videos for LS Movement by Teachers in each economy*

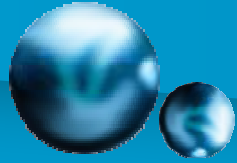


**Each Economy**

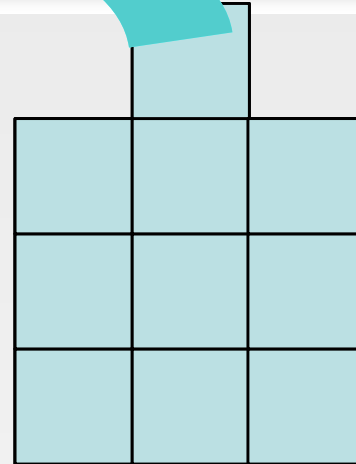
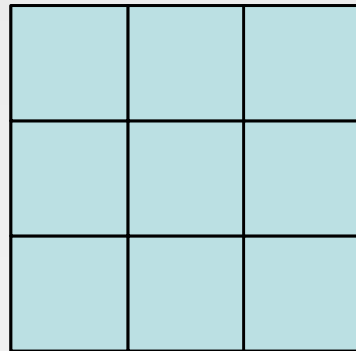
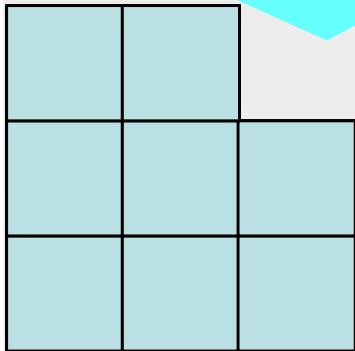
*Each economy shared the results of Lesson Study*  
*August, 2007*



**Thailand as a host**



# How many are there the unit squares?



**Mathematical  
Thinking  
enabling us  
looking at the  
world differently.  
By D. Tall**

Counting: One, Two, Three,....



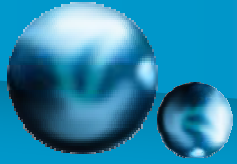
Adding:  $8+9+10$



Multiplying:  $3 \times 9$

日本数学教育学会 科学教育学会、札幌市





If you are selling or buying,

# Multiplication (1)

Developing  
Concept of  
Equality





# Results of Phase 1

149 participants (39 foreign scholars)

## *Before the meeting:*

If we want to develop students' mathematical thinking, we should begin to train teachers enabling to think mathematically.

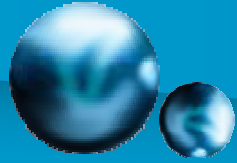
## *At the meeting, we explored:*

On your national curriculum, How is Mathematical Thinking described?  
How can you define it for what?  
How can we develop it?

## *Achievement of the meeting:*

Shared Mathematical Thinking, learned to develop it, and began to challenge Lesson Study for developing Mathematical Thinking.

Australia	Kaye Stacey
Brunei	Madiyah Khalid
Chile	Francisco Bonomo
China	Shangzhi Wang
Chinese Taipei	Chang-Shou Lin
Japan	Kazuyoshi Okubo
Hong Kong	ChengChunChor Litwin
Indonesia	Marsigit
Korea	Inchul Jung
Malaysia	Lim Chap-Sam
Mexico	Marcela Santillán
Philippines	Soledad A Ulep
Singapore	Yeap Ban Har
Thailand	Suladda Loipha
USA	Patsy Wang-Iverson
Vietnam	Tran Vui

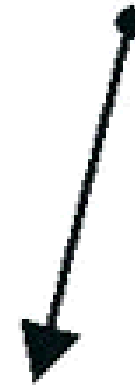
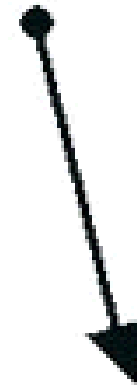


# Pedagogical Content Knowledge



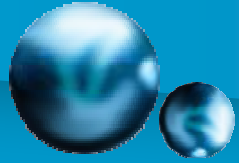
Mathematical content and processes

Teaching knowledge



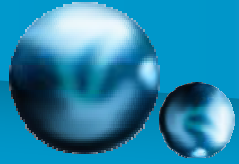
Solve a teaching problem





# Panel for sharing ideas

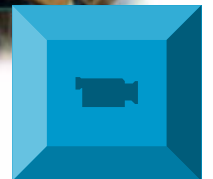


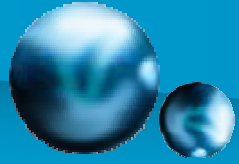


# Lesson Study in Tokyo & Sapporo



December 5: Lesson Study in Hokuto Elementary School





# Specialists sharing the target





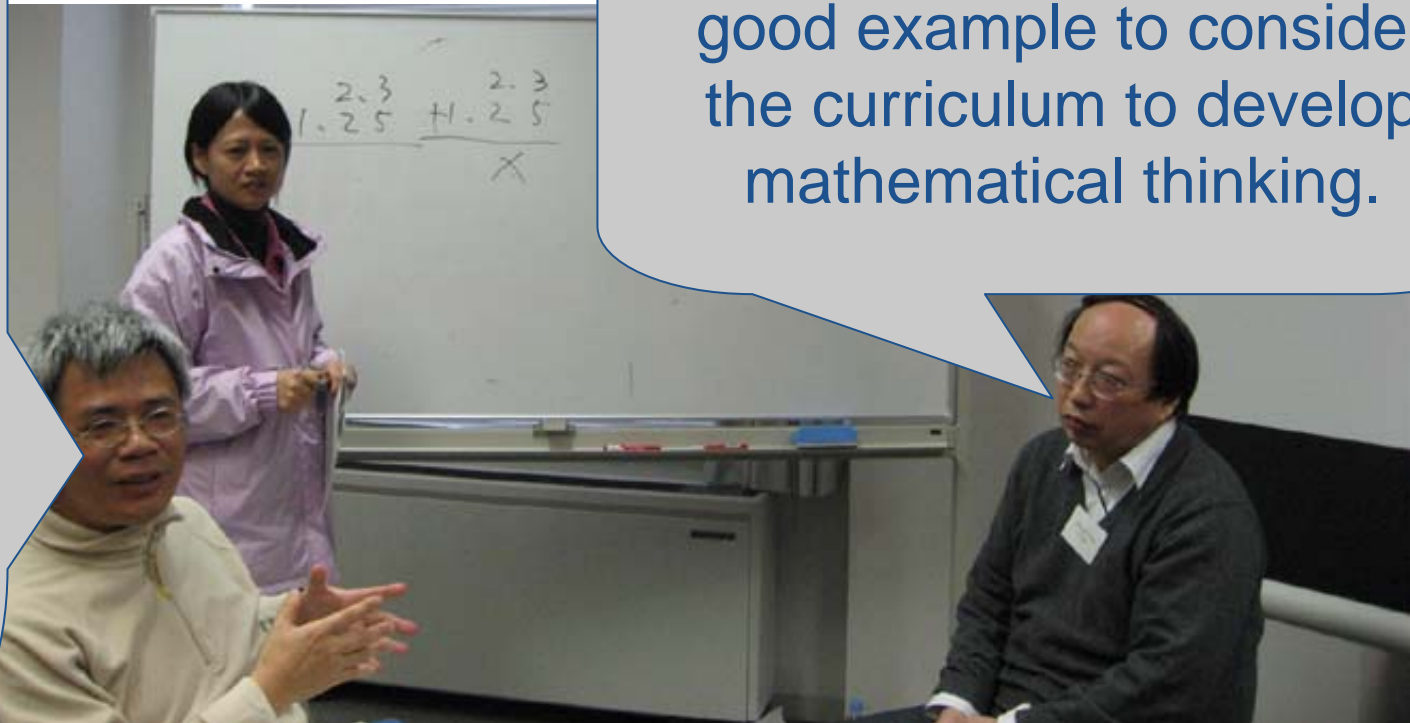
Dr. Rin  
Why?

$$\begin{array}{r} 2.3 \\ \times 1.25 \\ \hline \end{array}$$

Correct?

December 5-7: Sp

Dr. Wang: Yes, it is a very good example to consider the curriculum to develop mathematical thinking.





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