



## The Dubuque Area Lesson Study Pilot Project

<http://web.loras.edu/lessonstudy>

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Iowa Council of Teachers of Mathematics  
Annual Meeting  
February 21, 2003

Lesson study is a school-based professional development model that has been used for decades in Asia with great success. Teachers engaged in lesson study meet once a week over a period of several weeks to plan a “research lesson.” This is then taught by one of the members of the team. The teaching and learning that occurs during the first trial of the research lesson is observed by the other members of the lesson study group and by “knowledgeable others” such as the principal or other colleagues. The research lesson is then discussed and refined. The refined lesson is taught by another member of the team to another group of students.

Lesson study is a collaborative process, with a focus on student learning, not on teacher behavior. The resulting lessons (“polished stones”) are often very impressive. Nevertheless, the process of lesson study is more important than the product. Lesson study transforms teachers into “teacher-researchers” who share their ideas in order to become more reflective (and therefore more effective) practitioners.

The speaker is co-director of a lesson study pilot project in Dubuque that was funded by an Iowa Eisenhower professional development grant. He will survey the research on lesson study and share what has been learned during the first year of the project.

*A complete set of slides from this talk is available at our Web site.  
Links and additional references can also be found there.*

## LESSON STUDY: SELECTED RESOURCES

### BOOKS

1. Stigler, James and James Hiebert, *The Teaching Gap*, The Free Press, 1999.
2. Lewis, Catherine, *Lesson Study: A Handbook of Teacher-Led Instructional Change, Research for Better Schools*, 2002.
3. Ma, Liping, *Knowing and Teaching Elementary Mathematics*, Lawrence Erlbaum, 1999.

### REPORTS AND TALKS

1. *RBS Currents* Special Issue on Lesson Study, Volume V, no. 2, Spring/Summer 2002, Research for Better Schools, 2002.
2. Catherine Lewis, *Lesson Study: The Core of Japanese Professional Development*. Invited address to the Special Interest Group on Research and Mathematics Education, American Educational Research Association Meeting, New Orleans, April 2000.

### VIDEOS

1. *The Polished Stones: Mathematics Achievement Among Chinese and Japanese Elementary School Students*, Harold W. Stevenson and Shin-ying Lee, University of Michigan, 1989. VHS format.
2. *Japanese Lesson Study: Ideas for Improving Mathematics Teaching*, Frances Curcio, NCTM, 2002. VHS format.
3. *Three Perspectives on Lesson Study*: Catherine Lewis, Clea Fernandex, and Jim Stigler, Regents of the University of California, 2001. VHS format.
4. *Lesson Study: An Introduction*, Makoto Yoshida and Clea Fernandez, Global Education Resources, 2002. Multimedia (Quick Time) CD-ROM format.

### ARTICLES

1. Clea Fernandez and Sonal Choski, A Practical Guide to Translating Lesson Study for a U.S. Setting, *Phi Delta Kappan*, October 2002.
2. Catherine Lewis and Ineko Tsuchida, A Lesson Is Like a Swiftly Flowing River, *American Educator*, Winter 1998.

### WEB SITES

1. Research for Better Schools (Patsy Wang-Iverson et al)  
[http://www.rbs.org/lesson\\_study](http://www.rbs.org/lesson_study)
2. Global Education Resources (Makoto Yoshida et al)  
<http://www.globaledresources.com>
3. Lesson Study Research Group at Columbia University (Clea Fernandez et al)  
<http://www.tc.columbia.edu/lessonstudy>
4. Lesson Study Group at Mills College (Catherine Lewis et al)  
<http://lessonresearch.net>
5. Lesson Study Project at EDC  
<http://www2.edc.org/lessonstudy>
6. Puerto Rico Statewide Systemic Initiative  
<http://web.uprr.pr/rcse/ssi>
7. Mathstar Lesson Study Project at New Mexico State  
<http://mathstar.nmsu.edu>
8. Colorado State Lesson Study Pilot Project  
<http://cslsp.dreamteamtech.com>

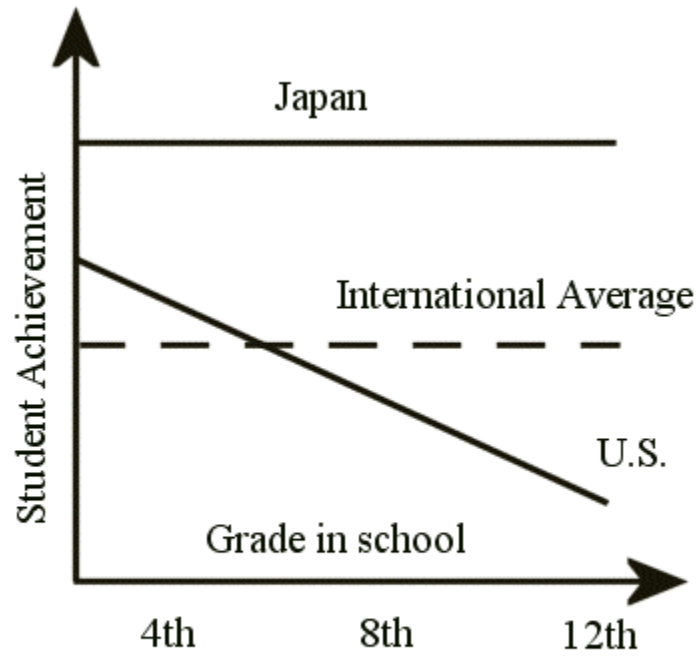


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# Development of Student Achievement (TIMSS)



# Educational System in Japan

- ❖ National curriculum.
- ❖ Parental and cultural expectations.
- ❖ Math is considered to be intrinsically interesting.
- ❖ Academic interests of students.
- ❖ Limited use of technology in the early grades.
- ❖ Inschool professional development of teachers.
- ❖ Coherent lessons.
- ❖ No interruptions.
- ❖ Focussed curriculum (versus U.S.: “mile wide and inch deep”)
- ❖ Stranded curriculum (versus U.S.: “spiral” going around and around but never getting higher).
- ❖ Cram schools (“juku”).
- ❖ Sense of community.
- ❖ Mastery of the “basics”. Example: all Japanese 2<sup>nd</sup> graders learn “ku-ku” (multiplication through  $10 \times 10$ ) by heart in second grade.
- ❖ Higher compensation for teachers.
- ❖ Hard work.
- ❖ Confucianism.

# Japan versus U.S.:

## Non-factors

- ❖ Homogeneous society (cf. Singapore).
- ❖ Tracking.
- ❖ Class size.
- ❖ Amount of television.
- ❖ Preservice teachers coursework, degrees, etc.

# Asian Classroom

- ❖ confident students
- ❖ working hard
- ❖ having fun
- ❖ challenging problems
- ❖ excited about learning
- ❖ sharing learning
- ❖ working on problems:
  - individually, then
  - in groups, then
  - selected students present solutions on the board.

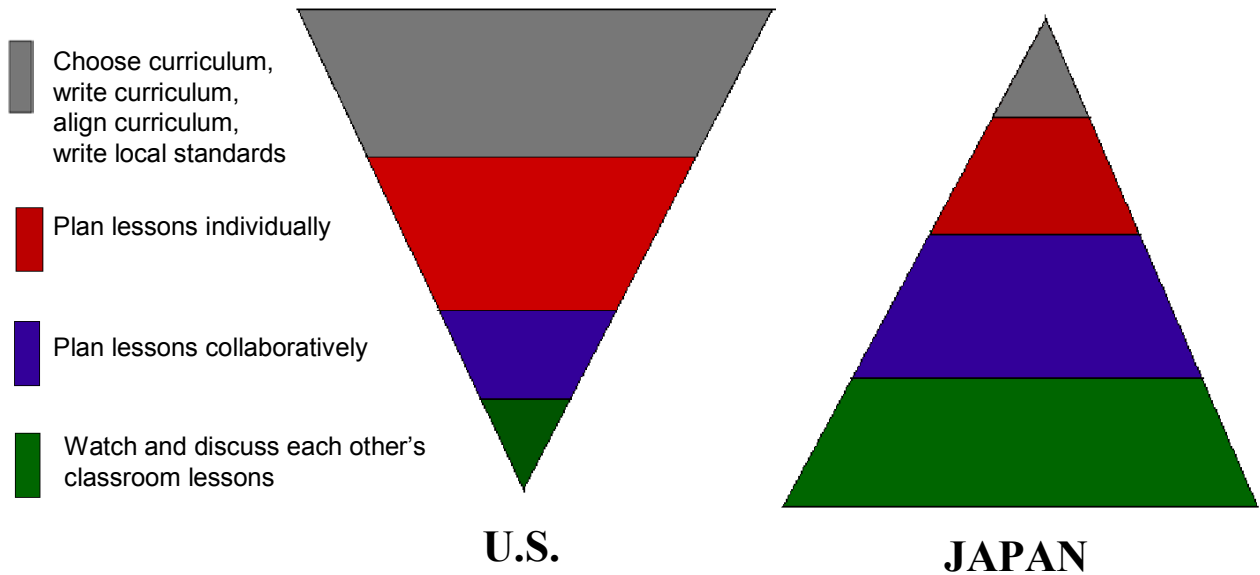
# Math Education in Asia

- ❖ Mathematics ...
  - is a collection of related ideas that make sense;
  - is not a set of meaningless procedures to be memorized.
- ❖ Curriculum and textbooks are focused on the essentials.
- ❖ A limited number of terms are introduced in each lesson.
- ❖ Any terms or concepts that are introduced are heavily used and thoroughly mastered in problems, applications, and proofs.

## from *The Teaching Gap*

- ❖ Looking at the situation as a whole, one might even argue that Japanese lessons better exemplify current U.S. reform ideas than do U.S. lessons ...
- ❖ And this is not the worst of it. When we examined the places in the video that teachers referred to as examples of reform, we saw ... that reform teaching, as interpreted by some teachers, might actually be worse than what they were doing previously in their classrooms ...
- ❖ The United States is always reforming but not always improving ...
- ❖ The most alarming aspect of classroom teaching in the United States is not how we are teaching now but that we have no mechanism for getting better ...

# Teachers' Activities to Improve Instruction



SOURCE:

Catherine Lewis

<http://www.lessonresearch.net>

# **Lesson Study in Japan**

Step 1: Define the problem.

Step 2: Plan a lesson.

Step 3: Teach the lesson.

Step 4: Group critique of the lesson.

Step 5: Revise the lesson.

Step 6: Teach the revised lesson.

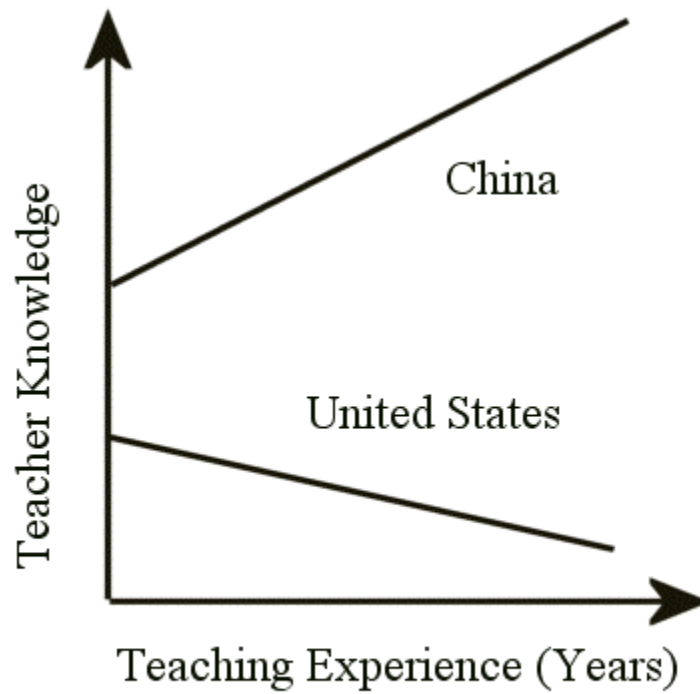
Step 7: Evaluate and reflect again.

Step 8: Share the results.

## **from The Teaching Gap**

The lesson-study process has an unrelenting focus on student learning. All efforts to improve lessons are evaluated with respect to clearly specified learning goals, and revisions are always justified with respect to student thinking and learning... Although this feature might seem obvious and trivial, it is not. Reforms in the United States are often tied to particular theories of teaching or to educational fads instead of specific learning outcomes. Because of this, success often is measured by the degree to which teachers implement recommended practices. Someone is marked as a good teacher because he or she uses cooperative groups or concrete manipulatives, instead of on the basis of his or her students' successful learning ...

# Liping Ma's *Knowing and Teaching Elementary Mathematics*



# **Lesson Study Projects: East**

- ❖ Columbia University Lesson Study Research Group
- ❖ Greenwich (CT) Japanese School
- ❖ Paterson (NJ) School #2
- ❖ EDC Lesson Study Project (Massachusetts)
- ❖ Delaware, Pennsylvania & others
- ❖ PR-SSI (Puerto Rico Statewide Systemic Initiative)

# **Lesson Study Projects: West**

- ❖ Bellevue (WA) School District
- ❖ Mills College (CA)
- ❖ San Mateo (CA) School District
- ❖ Mathstar Lesson Study Project at New Mexico State
- ❖ Colorado State Lesson Study Pilot Project



## The Dubuque Area Lesson Study Pilot Project

- ❖ Participants:
  - ◆ 32 teachers
  - ◆ public and parochial
  - ◆ K-6
  - ◆ 11 buildings
  - ◆ 3 Title I schools
  - ◆ 11 teams of three
- ❖ Summer Institute:
  - ◆ June 2002: 3 days on TIMSS, NCTM standards
  - ◆ July 2002: Read *The Teaching Gap*
  - ◆ August 2002: 3 days on the “nuts and bolts” of the Lesson Study process.



## The Dubuque Area Lesson Study Pilot Project

- ❖ 2002-2003 school year:
  - ◆ Weekly lesson study group meetings in school
  - ◆ Full group meetings (2 in Fall & 2 in Spring)
  - ◆ Keep in touch by email and Blackboard
  - ◆ ICTM (February 2003)
  - ◆ NCTM (April 2003)
  - ◆ Lesson Study Fair (May 15, 2003)



# Progress Report

- ❖ Most teams meeting an hour a week
- ❖ Most teams have finished 2-3 cycles
- ❖ Most teams are collecting data
  - ◆ Video
  - ◆ Audio
  - ◆ Photographs
  - ◆ Lesson Plan forms
  - ◆ Observation Notes
  - ◆ Student Work

# Anonymous Feedback from Teachers

- ❖ Continue next year?
  - ◆ 1/3 yes
  - ◆ 1/3 maybe
  - ◆ 1/3 no
- ❖ “Working with others and just talking about math has been great.”
- ❖ “It has made me more aware of how I’m teaching math.”
- ❖ “The collaboration of teachers has been great. Working together to perfect a lesson has been an eye-opener.”
- ❖ “It has helped me tremendously in my lesson planning.”
- ❖ “It was great making this a priority!”
- ❖ “Excitement/enjoyment of students. Feel like I am learning from this. Challenging at times.”
- ❖ “I can’t wait to teach the polished lessons again next year.”

# Issues / Opportunities

- ❖ Time/Scheduling
- ❖ Interruptions
- ❖ Different Buildings
- ❖ Different Grade Levels
- ❖ “Knowledgeable Others”
- ❖ Research Piece
- ❖ Electronic Communication (email, Blackboard)
- ❖ Competing programs (e.g. Reading), especially in Title I Buildings
- ❖ Lesson Plan forms
- ❖ “Teachable Moments”
- ❖ Engaging Principals
- ❖ Engaging Parents
- ❖ Assessment
  - ◆ BRS
  - ◆ ITBS
  - ◆ Attitude Survey
  - ◆ Control group???

# Issues / Opportunities

- ❖ “Doing Lesson Study” or  
“Doing Lesson Study *well.*”
- ❖ Blackboard work
- ❖ Note-taking
- ❖ *Neriage* = “lifting”
- ❖ Preservice / Inservice
- ❖ Seating chart
- ❖ Standardized tests
- ❖ Focussed curriculum
- ❖ Standardized curriculum

# Follow-up Projects

- ❖ Title IIA: Class-size Reduction & Professional Development
- ❖ Title IIB: Math & Science Partnerships (MSP) at DoED
- ❖ Math & Science Partnership (MSP) program at NSF
- ❖ Priority: Title I schools
- ❖ PR-SSI: a model program?
- ❖ Iowa assets:
  - ◆ Regents institutions
  - ◆ Community colleges
  - ◆ Private colleges
  - ◆ AEAs
  - ◆ ICN