What Models of Lesson Study Have Emerged in the U.S. and What Can They Each Contribute?

MSRI, May 13, 2011

www.lessonresearch.net
Clewis@mills.edu

1. ***Preservice lesson study:*** Aki Murata & Bindu Pothen, Stanford Univ.
2. ***Preservice lesson study:*** Ruth Cossey & Elizabeth Baker, Mills College
3. ***School-wide lesson study***: Jackie Hurd, Palo Alto Unified School District; Ben Ford, Sonoma State University
4. ***District-based lesson study:*** Stan Pesick and Marlene Wilson, Oakland Unified School District
5. ***Regional lesson study within a mathematics coaching network:*** David Foster, Silicon Valley Mathematics Institute, and Tracy Sola, Belmont-Redwood Shores School District

Session Outline

- 5 to 10 minutes to hear about each of the 5 models. Each model will present:
  1. A brief description
  2. What this model can accomplish (why it is important)
  3. Follow-up references

- 45 minutes for Q & A with the audience

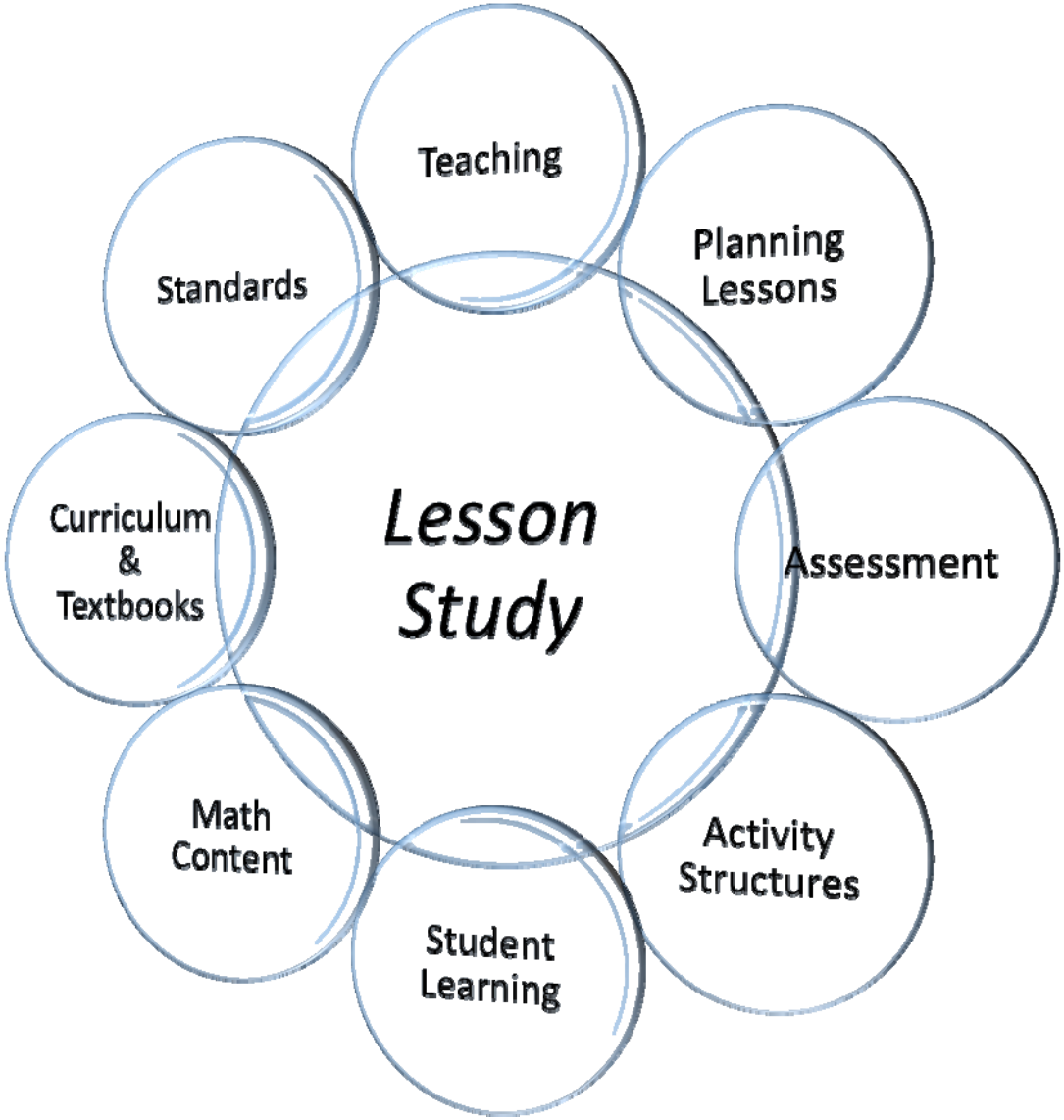
Using Lesson Study to Connect Preservice Teachers' Experiences and Emerging Understanding

Aki Murata

Bindu E. Pothen

Stanford University

Lesson Study to Help Integrate Different Experiences New Teachers Have in Preservice Programs



Lesson Study in Preservice Programs

- Preservice teachers are often provided with many discrete experiences about teaching in a short time
  - Not enough time to reflect & integrate new experiences
- Lesson study guides the integration process
  - Different parts of teaching coming together in the lesson study cycle, in real classroom settings
- Student learning of mathematics: *the "glue"*
  - 'How students learn math' -- the central topic addressed in different parts of the lesson study cycle
- Professional community building
  - Sense of community by working together with peers on what is important and relevant for their everyday practice
  - Beginning of professional identity & efficacy building: foundation for their future understanding of the profession (building strong teachers)

For further information …

Aki Murata

akimura@stanford.edu

Bindu E. Pothen

bpothen@stanford.edu

Mills College Lesson Study for Preservice Teachers

Ruth Cossey and Elizabeth Baker

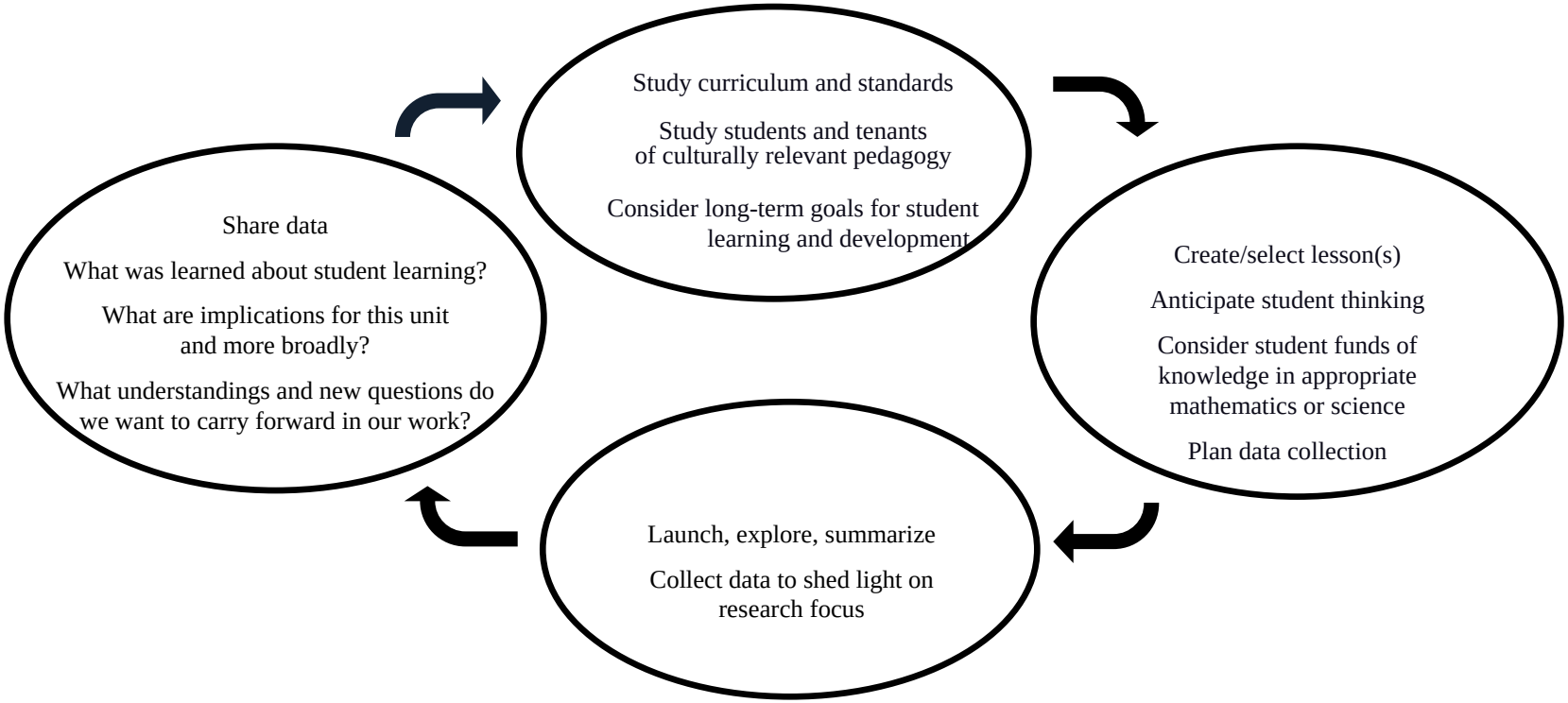
rcossey@mills.edu

ebaker@mills.edu

Mills College's

Mathematics Teacher Preparation

Guided Discovery Teaching Cycle



- **Begins with summer "Topics in Mathematics" class with Barbara LiSanti**
- **Ends with novice teacher Lesson Study Cycle in spring**

Learning to feel comfortable saying:

- I don’t think I ever learned…
- I don’t understand this “YET”
- I understand up to here…
- Will this always be true?
- Tell me more about YOUR rationale
- This is what I know is true and this is how I know it

Next two semesters' emphasis:

- How do students learn?
- How do you know?

Guided by the Mills principles…

Teaching Mathematics as Principled Practice:

- Teaching is a moral act founded on an ethic of care
- Teaching is an act of inquiry and reflection
- Teaching and learning are each a constructivist/developmental process
- The acquisition of subject matter and content knowledge is essential
- Teaching is a collegial act and requires collaboration
- Teaching is essentially a political act

End of Semester Lesson Study Cycle :

- Lesson held in the classroom of one of the teachers.
- Collaboratively planned.
- Mathematics faculty available for Lesson Study Cycle.
- End of semester consultation.
- Data collected by colleagues
- Observation and debrief includes knowledgeable others

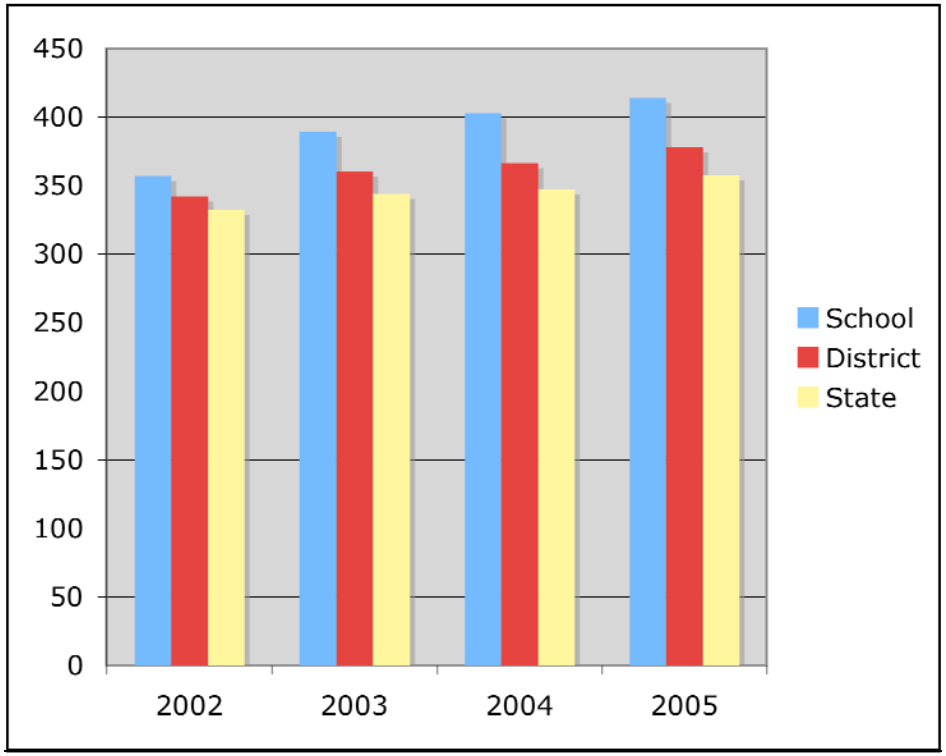
3. School Wide Lesson Study (1)

Jackie Hurd, Elementary Teacher, PAUSD

- Sept. – whole staff develops a Research Theme
- Teams of 3-6 cross grade level teachers begin investigation of the theme
- Research lessons happen across the year, inviting members from other teams
- April – sharing of findings from each team
- May – formalizing conclusions, deciding on next steps, reflecting on practice

Impact

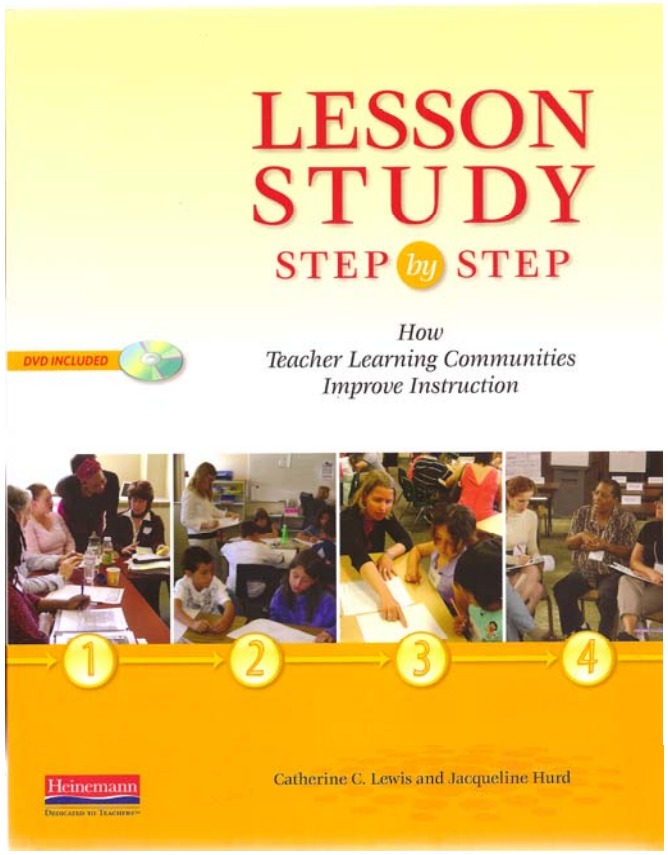
- Discussing the success or failure of lessons was common conversation
- Learning to improve our practice was a visible part of our school culture
- Teachers were invested in all students, not just their own
- Our school was a coveted place to work
- Our achievement data improved



California Standards Test in Mathematics: Mean Scale Scores, Grades 2-5

3-year net increase for school more than triple that for district (F=.309, 845df p<.001)

How To Follow Up



C Lewis & J Hurd (2011). *Lesson Study Step by Step: How Teacher Learning Communities Improve Instruction.* Portsmouth, NH: Heinemann.

3. Schoolwide Lesson Study(2)

in the Bellevue Union School District

Ben Ford, Sonoma State University

With

- Joan Easterday and Doreen Heath Lance, Sonoma County Office of Education
- Edie Mendez, Brigitte Lahme, Kathy Morris, Sonoma State University
- Dave Chosa, Josh Deis, Bellevue Union Schools/SCOE

What do I mean by schoolwide?

- Hypothesis: Effective unit of change is the school, not the classroom
- Teachers adapt to their environment – very hard to be an individual change agent
- So: Lesson Study for school culture change
- Requires enough & intensive enough participation to change staff room conversations

Bellevue & Lesson Study

- 4-school elementary district
- Partnership with North Bay Math Project since 2001
- 16% lesson study participation year 1, integrated with other professional development
- 67% year 5
- Significant shrinking of English-learner gap in mathematics, sustained for over five years
- Superintendent hired in 2007 has become big supporter

Long-term relationship

We believe in the [lesson study] process as a district. Culturally it's highly valued. Teachers and administrators understand how important it is for teachers to gather together to develop the common shared understanding of what it means for students to be proficient…other than just relying on a CST score once a year. – Superintendent

For more details: *Evaluation of the California Subject Matter Project: California Mathematics Project and Bellevue UED*, H. Alix Gallagher and Teresa McCaffrey, SRI International, February 2011

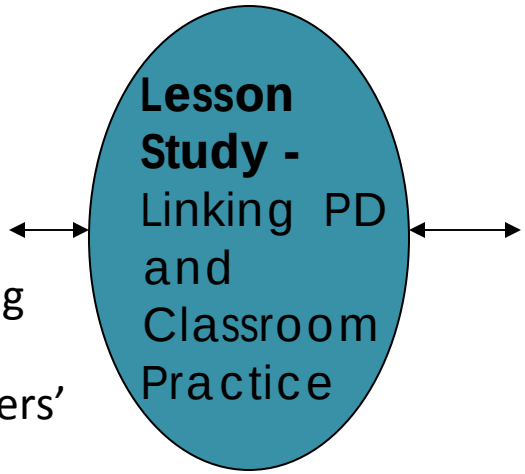
4. District-Based Lesson Study

Stan Pesick and Marlene Wilson, Oakland Unified School District

Lesson Study and the OUSD Teaching American History Grant – PD Model

Teacher Learning

1. Content – Increased and refined understanding of the struggle for democracy in U.S. History
2. Historical thinking – Increased and refined understanding and implementation of the district's historical thinking standards
3. Increase and refine teachers' repertoires of effective strategies to teach American History and historical thinking skills.
4. Increased knowledge of strategies to help students develop the reading and writing skills to construct an historical account.



Student Learning

1. Increase student engagement and achievement in the study of American History.
2. Increase and deepen knowledge of American History.
3. Increased ability to read and write American History.

Lesson Study and OUSD Teaching American History Grant

Where do the Lesson Study topics and the historical questions for students come from?

What topics are worth teaching for Lesson Study?

- The pacing guides - Where in the curriculum will you be in March or April?
- The state standards and testing – what content and topics are emphasized and tested?
- The historians' lectures and handouts - What issue or topic would best engage you and your students?
- Suggestions from historians - What are some of the significant historical topics and ideas in your curriculum?
- Student surveys - What issues, understandings, and misunderstandings might be explored?
- Topics you want to teach but haven't yet taught and want to learn more about.

Lesson Study and OUSD Teaching American History Grant

Connecting to Content Standards and Historians– Supporting the Development of Historical Questions - a 5th grade example

from Historian's memo to participants on possible focus for Lesson Study :

The Role of Women in the Founding of the Nation – Colonial women played a vital role in helping the thirteen colonies achieve independence. From organizing a boycott of imported British goods, wearing homespun dresses, raising funds for the war cause, accompanying their husbands to military camps, and managing family businesses, women partnered with their husbands, fathers, and brothers to win the American Revolutionary War.

- How did the role of women change during the War?
- Did Indian and African American women play a role in the Revolutionary War effort?
- How were women involved in the military aspects of the War?
- What role did women play in the founding of the Nation?

Possible Sources

-Primary – letters (Abigail Adams) and diaries

- Secondary – history of women during the American Revolution and the Founding Period

Lesson Study and OUSD Teaching American History Grant

Deepening the Analysis – Teacher Commentary on the Lesson

The lesson being observed sits as part of a larger series of lessons designed to develop student understanding about a particular historical question. Therefore the debrief has two parts.

1) Immediately after the teaching of the lesson and,

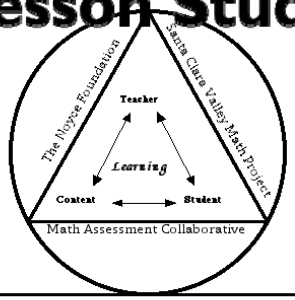
2) at a later time after final pieces of student writing have been collected.

After the two debriefings teachers write commentaries on what they learned.

5. Regional Lesson Study

David Foster, Silicon Valley Mathematics Initiative & Tracy Sola, Belmont-Redwood Shores School District

Silicon Valley Mathematics Initiative's Lesson Study Project



The Silicon Valley Mathematics Initiative

www.svmimac.org

Lesson Study has grown and prospered since 2000

SVMI's Lesson Study Project Model

Teams report to schools and instruction improves.

All teams engage in the Annual Public Lesson Open House

When research lesson is refined the team conducts exchange lessons with another team in the project (often from a different district).

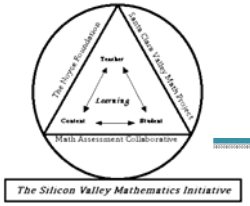
Teams use the student data to revise and polish the lesson.

Teams try out initial lesson designs in classrooms. Team members observe student thinking.

Teams research, design and plan a lesson (often building off existing lessons).

All teams participate in Fall orientation.

Many teams attend a 5-day summer institute on Lesson Study.

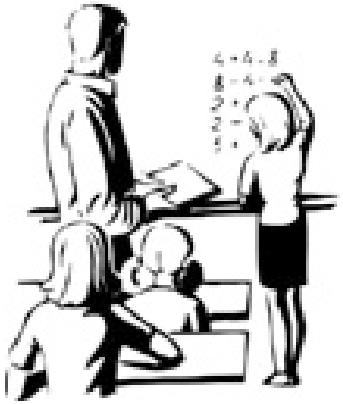


SVMI provides a mini-grant to a LS team at a school or district.

What teachers value about lesson study

- Teachers feel like professionals – in charge of their own professional learning.
- They value the opportunity to collaborate to solve common problems of learning.
- Teachers develop deeper understanding of mathematics and student learning and how they play out across the grade levels.
- They collaborate and create lessons and activities that can be used immediately in their classrooms.
- Teachers gain important insights about instructional practices that extend well beyond the specific lesson designed.
- They learn to focus on student thinking and the conceptions the students hold.

Effects on our work in SVMI



Lesson Study has been the lens of change:

- De-privatize teaching – End to teacher isolation – Informs math coaching.
- In how we examine student thinking, student work and design future learning experiences, curricula and assessments.
- Fostered a major shift in how we conduct professional development (focused on student thinking).
- How and what to value from our performance assessments.
- The tools we created to assist us in our work (Toolkits, student analysis instruments, Number Talks, POMs, lesson planning, etc.).
- The need for and methodology in the design of re-engagement lessons.
- LS has become the highest form of professional development and professional learning of teachers, math coaches and school leaders.

Follow-up Info

David Foster

http://www.svmimac.org/lessonstudy.html

Catherine Lewis

www.lessonresearch.net

Stan Pesick

http://www.teachingamericanhistory.us/lesson_study/index.html