An Introduction to Lesson Study

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UC Davis Mathematics Project

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An Introduction to Lesson Study

In this session you will:

• Discover the difference between lesson planning and lesson study.
• Learn the basics of lesson study and the research that supports it.
• See how lesson study embodies the characteristics of effective professional development.
Like Me!

• When I read a description, if it “fits”, please stand and say, “LIKE ME!”
• Let’s practice:
   – There are women here today
   – There are men here today
• Each time you stand, look around the room and see who is “like you.”
What Research Says

• Professional development is a tool that contributes to a school’s vitality.

• Successful schools use professional learning to build and strengthen a comprehensive approach to ongoing renewal.

• Professional development is not an isolated task but complements thoughtful school improvement planning.

- Powerful Designs for Professional Learning (2004), NSDC
Essential Features of Professional Development:

• It is centered around the critical activities of teaching and learning

• It grows from investigations of practice through cases, questions, analysis, and criticism; and

• It is built on substantial professional discourse that fosters analysis and communication about practices and values in ways that build colleagueship and standards of practice.

Ball and Cohen, 1999
Effective Professional Development

- Experiential, engaging teachers in concrete tasks of teaching, assessment, and observation that illuminate the processes of learning and development
- Grounded in participants' questions, inquiry, and experimentation as well as profession-wide research
- Collaborative, involving a sharing of knowledge among educators
Effective Professional Development

- Connected to and derived from teachers' work with their students as well as to examinations of subject matter and teaching methods.

- Sustained and intensive, supported by modeling, coaching, and problem solving around specific problems of practice.

- Connected to other aspects of school change.

Darling-Hammond and McLaughlin, 1995
Lesson study is:

- Teacher-led, ongoing professional learning.
- Conducted with a common overarching goal.
- Focused on subject content in the context of student thinking.
- Informed by outside expertise through knowledgeable others.
Lesson study is not:

- Teacher training
- About creating a perfect lesson
- Done in isolation
- Doing just one lesson study cycle
What Does Lesson Study Look Like?
The Practitioners

Teachers

Facilitator

Outside Expert

Guests
Teachers

- Gather as a team to work together long-term
- Discuss goals for students and content
- Research best practices in teaching
- Study available lessons
- Build their research lesson
Facilitator

- Part of the team long-term
- Maintain coherence in planning
- Focus on how the lesson will meet the research goals
- Establish an environment of collaboration
- Listen carefully to what each teacher is sharing, sometimes clarifying a point being made, other times probing for more information and sometimes modeling or coaching
Outside Expert

- Understand what the lesson writers are trying to accomplish
- Determine whether the team’s goals are being met while the lesson is being taught
- Focus comments on the content of the lesson
- Deliver comments in a way that cannot be construed as too negative
- Sum up all previous comments and bring closure to the debriefing
Guests

• Invited by teachers
• Should be part of the review prior to teaching of research lesson
• View research lesson and take notes on student interaction with the lesson
• Take part in debrief, keeping comments focuses on student thinking
Questions About the Participants?

- Think about the participants (teachers, facilitators, outside experts, guests) and their roles.
- Are there any burning questions swirling in your mind?
- Turn to a person close by and share your question. Provide answers to each other if possible.
- Any unanswered questions?
The Elements

Planning Phase → Research Lesson → Post-Lesson Activities

The Elements Planning Lesson
The Planning Phase

- Teachers increase content knowledge as they study, solve and discuss problems.
- Teachers improve their “eyes to see students” by anticipating students thinking.
- Teachers develop stronger networks so they can better use other’s knowledge and resources.
The Elements

Planning Phase → Research Lesson → Post-Lesson Activities
The Research Lesson

• Helps teachers deepen their own thinking about the issues involved
• Provides knowledgeable others with a format to provide feedback during the lesson planning process
• Becomes a written record of the team’s work
• Becomes a good resource for further improvement of the lesson
The Research Lesson

- Guests (other teachers, principal, outside experts) are invited to observe the lesson
- One member teaches the lesson
- The rest of the team members closely observe student learning and behavior to gather data

It is essential that all observers remember that they are **NOT** observing the teacher; they are observing **students’ interactions** and responses to the lesson.
The Elements

Planning Phase → Research Lesson → Post-Lesson Activities
The Post-Lesson Activities

• By looking closely at student learning, teachers’ motivation to improve instruction and their sense of efficacy increase.

• By hearing other teachers’ observations, teachers improve their ability to see lessons from a student’s point of view.

• By analyzing student work, teachers are better able to judge the effectiveness of teaching strategies.
Debriefing

The heart of lesson study is the **discussion** of the data collected during the research lesson.
Revising and Re-teaching

Based on the data collected during the observation and the resulting discussions, team members revise the research lesson to better meet the goals.

Ideally, the research lesson then goes through an additional cycle of teaching, observing, debriefing and revising.
REVISE and RETEACH

- Based on evidence, discuss possible changes to the lesson to increase effectiveness. This may involve more research.
- Redo task
- Anticipate student responses
- Review data collection plan
- Reteach revised lesson
Most Important Point

- Take a moment to think of the Most Important Point (M.I.P.) for you in what was presented thus far.

- Turn to a neighbor and share your point.
"I think students are pretty strong in seeing patterns but not necessarily in going to the next step of establishing a rule and writing an equation, at least at the beginning of 4th grade. We don’t always take them on to ‘How would we represent this with numbers?’"

Lesson Study Goal
Recognize and mathematically represent patterns

Research Goal
Become curious, eager learners
Triangle Tables Problem

We have a long skinny room and triangular tables that we need to arrange in a row with their edges touching, as shown. Assuming each side can hold one seat, how many seats will 1 table, 2 tables, 3 tables hold? Is there a pattern that helps you figure out how many seats 10 tables will hold?
# Triangle Rule Machine

<table>
<thead>
<tr>
<th>INPUT</th>
<th>RULE</th>
<th>OUTPUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Triangle tables</td>
<td></td>
<td>Number of seats</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INPUT</th>
<th>OUTPUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>
What the Team Saw and Heard

- Most students filled in the worksheets correctly (suggesting they grasped the mathematical rule)
- Some discussed the rule
- Few could connect the pattern to the actual problem
- Students needed to talk about how they counted.
- The table led students to the pattern, but away from the problem.
Revised Lesson

- Eliminated the worksheet
- Gave students cut out triangle “tables”
- Gave students a slip of paper to complete

<table>
<thead>
<tr>
<th>number of tables</th>
<th>number of seats</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

- Had students share counting methods on board
- Had students organize the data
How the Modifications Changed the Lesson

- Forcing students to organize the data without a given table promoted student understanding of the meaning of the +2 pattern.
- Having the kids talk about their counting was a big improvement.
- The changes made the lesson more accessible to other kids.
How the Lesson Study Changed the Teachers

- “The learning was so much more effective this time, it wasn’t about teaching, it was about learning.”
- “That idea can be used anywhere, to make sure that students are always learners in the classroom.”
- “We are only as effective as our level of understanding. We have to keep pushing ourselves into the “why”, the “how come” that’s the challenge.”
Lesson Study focuses on the heart of the educational process:
what actually happens between teachers and students in the classroom.
What makes lesson study unique?

• It is teacher-led, and long-term.
• It is planned collaboratively through intensive study.
• It supports a collaborative focus on student thinking through observation of classroom practice in real time.
• It offers a process that makes concrete, in an actual lesson, a goal for learning.
What makes lesson study unique?

- It provides new and outsiders’ perspectives of teaching and learning.
- It fosters shared reflection based on classroom evidence.
- It makes concrete what reflection means, what problem solving looks like, and what thinking entails.
What Research Says

- Lesson study improves instruction through the refinement of lesson plans.
- Lesson study strengthens three pathways to instructional improvement: Teachers’ knowledge, teachers’ commitment and community, and learning resources.

Lewis, C., Perry K., and Murata, A. Educational Researcher, April 2006
Let’s Review the Objectives

Did you:

• Discover the difference between lesson planning and lesson study?

• Learn the basics of lesson study and the research that supports it?

• See how lesson study embodies the characteristics of effective professional development?
• For electronic copies of this PowerPoint, log on to www.julieorosco.pbwiki.com and select “Lesson Study Conference” from the sidebar.

• For questions about Lesson Study, email me at jcorosco@ucdavis.edu