

How Many Seats? Excerpts from a U.S. lesson study cycle

Note: We strongly recommend that viewers solve and discuss the “seats” problem (Attachment 1) before watching the video. It can be found on the accompanying sheet ‘Seats Problem’.

Suggested Uses

1. To provide a brief overview of lesson study
2. To explore the elements of the lesson study cycle: Curriculum Study and Planning, Research Lesson, Debrief, Cycle Reflection.
3. To investigate how teachers use lesson study to build their mathematical and pedagogical knowledge.

Background of the Video

This lesson study cycle occurred during a 10-day summer workshop on lesson study and algebra. The six teachers (five elementary, one middle school) are from different schools and have not previously worked together as a lesson study group. During the first days of the workshop, teachers solve and discuss algebra problems, study state mathematics standards, and identify elementary-grades concepts critical to students’ subsequent success in algebra. They study several existing lessons and choose one as the basis for their research lesson, taking it through two cycles of planning, teaching, observation, and reflection. (See Lesson Study Cycle). Although lesson study is sometimes portrayed as a way to “polish” lessons, their work focuses not just on improving the lesson, but on deepening their own understanding of mathematics, of students, and of teaching.

They begin to plan the research lesson by comparing several different textbooks, and analyzing various lessons designed to build students’ mathematical representation of patterns. They choose one textbook’s lesson as the basis for their research lesson, modifying it slightly to provide a real-world context for the problem. They focus their instructional planning on both an immediate goal -- to help students recognize and mathematically represent patterns -- and a long-term goal--to help students become curious, eager learners.

Use 1: To Provide a Brief Introduction to Lesson Study

Cycle Overview (23:30 min), is designed to provide a brief introduction to lesson study, We suggest the following sequence of activities, within a 30-60 minute overall presentation.

1. Explore the mathematics of the “How Many Seats?” problem.
2. Introduce the video setting (see above).
3. Suggest norms for discussion.
4. Frame for viewing the video:
 - Lesson study focuses on *careful study of students* during research lessons. Record as carefully as you can student speech/actions during the two lesson segments. Make these the focus of your discussion. What difference does it make to focus on students, rather than on evaluation of teacher moves?
 - What are the similarities/differences between the work of these teachers and your own professional development experiences?
 - What might the teachers in the video find valuable about their lesson study work?

Use 2: To Build Understanding of the Elements of Lesson Study

The segments can be used to build understanding of the major elements of lesson study.

The lesson study cycle consists of four major activities:

1. **Study:** Of curriculum, of goals for student development
2. **Planning:** Of the lesson, unit, and data collection.
3. **Conducting the research lesson,** with data collection
4. **Reflection:** On the data, lesson, and learnings from lesson study.

To build knowledge of the elements of lesson study, you will want to prepare questions that help participants study each phase, and documents that support their learning.

1. Study and Planning

Suggested Focus: How is this segment similar and different from planning familiar to you?

Supporting Document: After viewing, you may wish to study the Plan to Guide Learning (from Lesson Study: A Handbook, Attachment #2). What is interesting or different about this planning format? Identify

how it might help teachers connect practice to long-term goals, anticipate student thinking, and focus data collection.

2. Research Lesson

Suggested Focus: Write down as carefully as you can everything students say and do during this lesson. Watch this segment a second time and try again. What might be the different effects of focusing on students, rather than teacher?

Supporting Document: After viewing, read the observation protocol for a research lesson (p.69, Lesson Study: A Handbook, top items only, or see more detailed observation protocols at websites of Teachers College Lesson Study Research Group, Global Education Resources, or Research for Better Schools)

3. Debrief of Research Lesson

Suggested Focus: You are an anthropologist; your job is to describe the structure of this meeting. What is the agenda? What are the rules? What is the culture?

Supporting Document: After viewing, read the agenda for discussion of a research lesson (from Lesson Study: A Handbook, Attachment # 3) or see more detailed debrief protocols at websites of Teachers College Lesson Study Research Group <http://www.tc.edu/lessonstudy/>, Global Education Resources <http://www.globaledresources.com>, or Research for Better Schools <http://www.rbs.org/lesson-study/>)

4. Reflection on Lesson Study Cycle

Suggested Focus: How might this lesson study cycle have been useful to teachers? What supports for their learning did you see within this video segment or earlier segments?

Use 3: To Explore How Teachers Use Lesson Study to Build Mathematical and Pedagogical Knowledge

For this use of the video, you will want to have participants go through experiences similar to those of the lesson study group in the video

1. Study and Planning

Before watching this segment, study the curriculum materials and standards the teachers are studying. Assume your group has chosen the “seats” problem for the research lesson. What would you want students to learn by doing this problem? What student thinking and misconceptions would you expect?

2. Research Lesson 1

Suggested Viewing Focus: Write down as carefully as you can everything students say and do during this lesson. Watch this segment a second time and try again. What evidence do you have about student learning?

3. Debrief of Research Lesson 1

Suggested Viewing Focus: What kinds of lesson observations did team members and audience share during the debrief? How did the discussion agenda, rules, norms, etc. support learning?

Discussion after segment: Imagine you are a member of the lesson study team. What changes in the lesson might you make before the second teaching?

4. Research Lesson 2

Suggested Viewing Focus: Write down as carefully as you can everything students say and do during this lesson. If you have time, watch this segment a second time and try again. What evidence do you have about student learning?

5. Debrief of Research Lesson 2

Suggested Viewing Focus: What kinds of lesson observations did team members and audience share during the debrief? How did the discussion agenda, rules, norms, etc. support learning?

4. Reflection on Lesson Study Cycle

Suggested Focus: How might this lesson study cycle have been useful to teachers? What supports for their learning did you see within this video segment or earlier segments?