



An Introduction to Lesson Study



**Florida and the Islands Regional
Comprehensive Center**

Day One

**November & December 2009
Facilitated by Lois Brown Easton**

An Introduction to Lesson Study

Description:

Lesson study is a potent embedded peer-to-peer professional learning strategy. It requires teachers and other educators to work collaboratively to strengthen a given lesson until it has been refined as much as possible and then teach it to get powerful data about how well the lesson works. In a colloquium after the lesson is taught, the teacher (who can be anyone in the lesson study group) reflects on the lesson first, and then the other members of the lesson study group share data they collected during the lesson. Lesson study groups make a decision about whether to revise the field-tested lesson and teach it again or simply apply what they have learned to another lesson.

In addition to understanding the basics of lesson study and engaging in three lesson study experiences, participants will learn about lesson study variations. They will plan implementation of lesson study in their regions, districts, and schools, and they will work together to solve problems related to implementation.

Essential Question:

How can educators in Florida's schools improve learning for all students using lesson study?

Participant Outcomes:

Participants will (KUD):

1. Understand why lesson study is important as a way to strengthen teaching and learning in schools, especially those that are low performing.
2. Understand the role data plays in lesson study and how to collect data during lesson study.
3. Know how to do lesson study themselves.
4. Know ways to vary lesson study, including writing lessons and then testing them through lesson study.
5. Know Florida's approach to lesson study and how lesson study fits with other initiatives.
6. Know other professional learning activities related to lesson study.
7. Plan how to implement lesson study in their own environments.
8. Plan how to connect with each other and follow-up to this workshop electronically and in-person as they initiate lesson study within their own professional learning communities.

Agendas

Day One

AM

- 8:30 Breakfast buffet
- 9:00 Welcome and introductions
- Opening activity
- Why study lessons?
- Lesson Study Experience #1
 - Reflection and debriefing
- “The Basics of Lesson Study” and a text-based protocol

PM

- 12:00 Lunch
- 1:00 Data – What and how
- Lesson Study Experience #2
 - Reflection and debriefing
- How does lesson study fit?
- 3:30 End of Day One
- 5:00 Reception

Day Two

AM

- 8:30 Breakfast buffet
- 9:00 Announcements and opening activity
- 9:15 Variations on lesson study
- Lesson Study Experience #3: A variation (creating a lesson and taking it through the lesson study process)
 - Reflection and debriefing
- Lesson Study Experience #4: A variation (looking at student work that results from a lesson using the tuning protocol)

PM

- 12:15 Lunch
- 1:15 Reflection and debriefing on tuning protocol
- 1:30 Logistics of lesson study
- Planning for implementation
- Getting feedback
- 3:30 End of Day Two

About Your Facilitator

Lois Easton, Ph.D., works as a consultant, coach, and author. She is particularly interested in learning designs – for adults and for students. She recently retired as Director of Professional Development at Eagle Rock School and Professional Development Center, Estes

Park, Colorado. Easton was Director of Re:Learning Systems at the Education Commission of the States (ECS) from 1992 to 1994. Re:Learning was a partnership between the Coalition of Essential Schools (CES) at Brown University in Providence, Rhode Island, and ECS. Prior to that, Easton served in the Arizona Department of Education as English/Language Arts Coordinator and then became Director of Curriculum and Instruction, and then, Director of Curriculum and Assessment Planning.

A middle school English teacher for 15 years, Easton earned her Ph.D. at the University of Arizona. Easton has been a frequent presenter at conferences and a contributor to educational journals. She is currently co-president of the Colorado Staff Development Council.

She has published four books. Her book *The Other Side of Curriculum: Lessons From Learners* was published by Heinemann in 2002. She is editor of and contributor to a book published by the National Staff Development Council (NSDC) in August 2004, with a second edition appearing in 2008: *Powerful Designs for Professional Learning*. Corwin Press published her third book, *Engaging the Disengaged: How Schools Can Help Struggling Students Succeed* in 2008. This book won the Educational Book of the Year Award from Kappa Delta Gamma in 2009. ASCD has just published her fourth book, *Protocols for Professional Learning* (2009), and she is working on two additional books.

You can reach her at 4643 Burgundy Lane, Boulder, CO 80301-5377; 303-527-2733 or 303-517-5084; leastoners@aol.com.

Some Resources Related to Lesson Study

Cannon, J. & Fernandez, C. (2003). "*This research has nothing to do with our teaching!*": An analysis of lesson study practitioners' difficulties conducting teacher research. Manuscript submitted for publication. (If you would like to obtain a draft of this paper, please e-mail lsrg@columbia.edu.)

Chokshi, S. & Fernandez, C. (March 2004). Challenges to importing Japanese lesson study: Concerns, misconceptions, and nuances. *Phi Delta Kappan*, 85(7), 520-525.

Easton, L. B. (2009). *Protocols for professional learning*. Alexandria, VA: Association for Supervision and Curriculum Development.

Easton, L. B. (Ed.) (2008). *Powerful designs for professional learning*. Oxford, OH: National Staff Development Council.

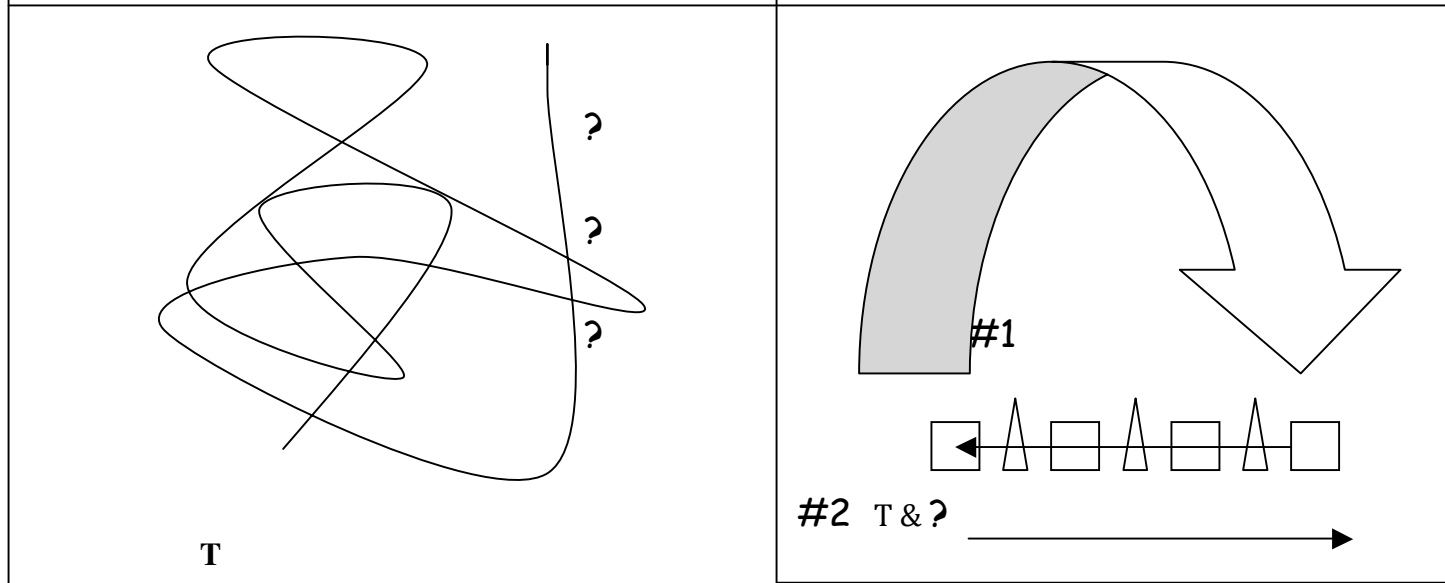
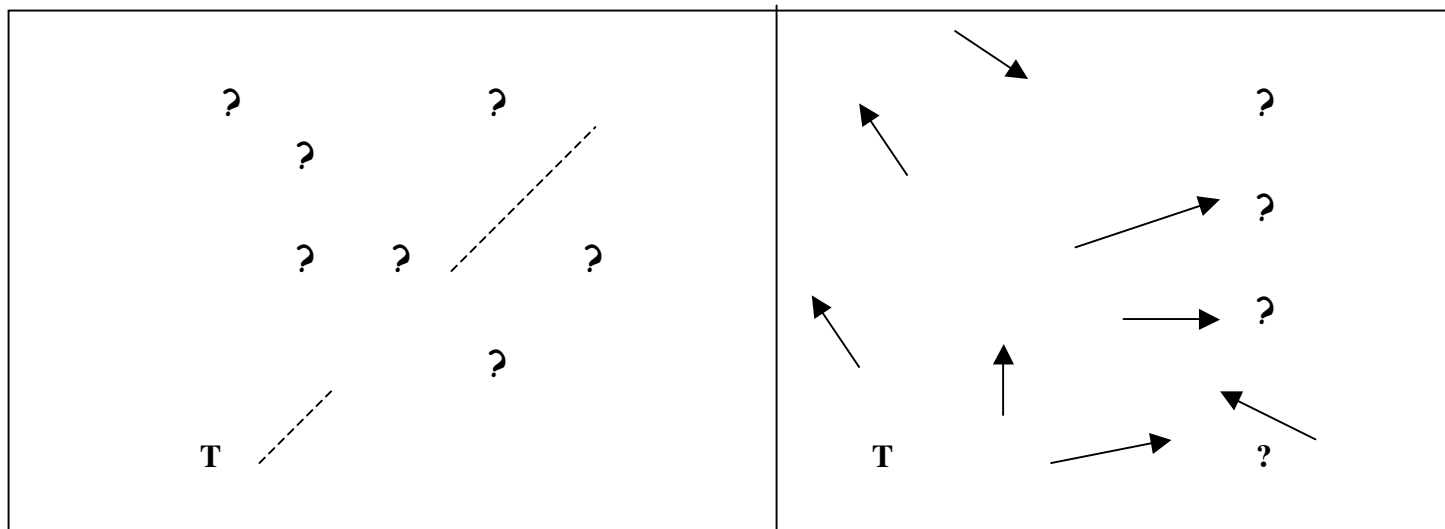
Fernandez, C. (2003). *Lesson study: A means for U.S. teachers to develop the knowledge of mathematics needed for reform-minded teaching?* Manuscript submitted for publication.

- Fernandez, C. (2002). Learning from Japanese approaches to professional development: The case of lesson study. *Journal of Teacher Education, 53*(5), 393-405.
- Fernandez, C., Cannon, J., & Chokshi, S. (2003). A U.S.-Japan lesson study collaboration reveals critical lenses for examining practice. *Teaching and Teacher Education, 19*(2), 171-185.
- Fernandez, C. & Chokshi, S. (October 2002). A practical guide to translating lesson study for a U.S. setting. *Phi Delta Kappan, 84*(2), 128-134.
- Fernandez, C., Chokshi, S., Cannon, J., & Yoshida, M. (in press). Learning about lesson study in the United States. In E. Beauchamp (Ed.), *New and old voices on Japanese education*. Armonk, New York: M.E. Sharpe.
- Gallimore, R. & Santagata, R. (2006). Researching teaching: The problem of studying a system resistant to change. In R R. Bootzin & P. E. McKnight (Eds.). *Strengthening Research Methodology: Psychological Measurement and Evaluation* (pps. 11-28) Washington, D.C.: APA Books
- Hiebert, J., & Stigler, J. W. (2000). A proposal for improving classroom teaching: Lessons from the TIMSS video study. *Elementary School Journal, 101*, 3-20.
- Kelly, K. (2002). Lesson study: Can Japanese methods translate to U.S. schools? *Harvard Education Letter, 18*(3), 4-7.
- Lewis, C. (2008). Lesson study. In Easton, L. B. *Powerful designs for professional learning*. Oxford, OH: National Staff Development Council.
- Lewis, C. (2006). Lesson study in North America: Progress and challenges In M. Matoba, K. A. Crawford & M. R. Sarkar Arani (Eds.) *Lesson study: International Perspective on Policy and Practice*. Educational Science Publishing House, Beijing.
- Lewis, C. (2004). Lesson study. In Easton, L. B. *Powerful designs for professional learning*. Oxford, OH: National Staff Development Council.
- Lewis, C. (2004). Lesson study. In Easton, L. B. *Powerful designs for professional learning*. Oxford, OH: National Staff Development Council.
- Lewis, C. (2002). *Lesson Study: A Handbook of Teacher-Led Instructional Change*. Philadelphia: Research for Better Schools.
- Lewis, C. (2002) What are the essential elements of lesson study? *The California*

- Science Project Connection*. Volume 2, No. 6. November/December 2002.
- Lewis, C. (2002). Does lesson study have a future in the United States? *Journal of the Nagoya University Department of Education, January (1)*, 1-23.
- Lewis, C., Perry, R., & Hurd, J. (2004). A deeper look at lesson study. *Educational Leadership, 61(5)*, 6-11.
- Lewis, C., Perry, R., Hurd, J., & O'Connell, P. (2006). Lesson study comes of age in North America. *Phi Delta Kappan*. December 2006, pp. 273-281.
- Lewis, C., Perry, R., & Murata A. (2006). How should research contribute to instructional improvement: A case of lesson study. *Educational Researcher*, Vol. 35, No. 3, pp. 3-14.
- Lewis, C., & Takahashi, A. (Eds.) (2006). Learning across boundaries: U.S.-Japan collaboration in mathematics, science and technology education. Conference paper.
- Lewis, C. & Tsuchida, I. (1998). A lesson is like a swiftly flowing river: Research lessons and the improvement of Japanese education. *American Educator, Winter*, 14-17 & 50-52.
- Lewis, C., & Tsuchida, I. (1998). The basics in Japan: The three Cs. *Educational Leadership 55:6*, 32-37.
- Liptak, L. (2002). It's a matter of time. *RBS Currents, 5(2)*, 6-7.
- Perry, R., & Lewis, C. (in press) What is successful adaptation of lesson study in the U.S.? *Journal of Educational Change*.
- Perry, R., Lewis, C., & Akiba, M. (2002). *Lesson study in the San Mateo – Foster City School District*. Paper presented at the American Educational Research Association (2002 Annual Meeting), New Orleans, LA.
- Watanabe, T. (Winter 2003). Lesson study: A new model of collaboration. *Academic Exchange Quarterly, 7(4)*, pp.
- Yoshida, M. (1999). Lesson study [Jugyokenkyu] in elementary school mathematics in Japan: A case study. Paper presented at the American Educational Research Association (1999 Annual Meeting), Montreal, Canada.

FIVE MODELS OF "LESSON DESIGN"

T = Teacher ? = Student



(Thanks to Madeline Hunter)

LESSON STUDY EXPERIENCES: OUR PROCESS

1. In your teaching group, review the given lesson and improve it as much as you can. One way to improve it is to have someone “teach” it within your own group to see what happens.
2. Once you have it as “perfected” as possible, decide who will teach it to the “students” (who may be another teaching group). Anyone can teach the approved lesson; lesson study is not about the idiosyncrasies of a teacher; it is about a joint effort to improve a lesson. It is about seeing what happens when the lesson is taught.
3. Also decide what data you want to collect and assign every other member of the teaching group to be observers for part of the data you want. Here are some samples of data you might want to collect:

Questions that come to your mind as you observe

Critical things are happening in the classroom

Types of questions the students asked

Types of questions the teacher asked

Evidence of higher-level thinking

Evidence of skill

Evidence of confusion

Percent of students who raised hands

Body language, “aha” moments, shining eyes

Shifts in thinking that are evident

Number of times students refer to and build on classmates’ comments

Evidence of engagement

Following the lesson and deviations from the lesson

4. The teacher will teach the lesson, as decided upon by the group with the rest of the group arranged around the students, collecting data as unobtrusively as possible. (Note: The teacher should feel free to adapt the lesson if needs arise but should be sure to note when and why the

lesson needed adaptation in order to share that information with the group during the colloquium).

5. As soon as possible after the lesson, the group should reconvene for the colloquium. The colloquium begins with the comments of the teacher (particularly what worked and what didn't work). Then, the data collectors should report what they noticed. If it's possible to have the students present, they should report what they experienced. A recorder can keep track of the information.
6. During the colloquium, participants should make recommendations on how to improve the lesson and a decision should be made about whether or not to re-teach it or apply learning to the next lesson to be studied.

Reflection on Lesson Study Experience #1



IDEA CATCHER¹

Take a moment to reflect on your first experience with lesson study. Write below what you noticed and what you are wondering.

<p style="text-align: center;">NOTICINGS</p> <p>What did you notice? What struck you? What do your “noticings” mean?</p>	<p style="text-align: center;">WONDERINGS</p> <p>What do you wonder about? What do you want to think more about?</p>

¹ From Stevi Quate

The Basics of Lesson Study²

Directions: Read this brief article quickly and then pick out a sentence that you think captures what is most important about lesson study. Then, select a set of words (not necessarily a sentence) that you also think is important. Finally, select a single word that is key (see the Three Levels of Text Protocol on pp. 18-21).

I. Overview of Lesson Study

“Improving something as complex and culturally embedded as teaching requires the efforts of all the players, including students, parents, and politicians. But teachers must be the primary driving force behind change. They are best positioned to understand the problems that students face and to generate possible solutions.” James Stigler and James Hiebert, *The Teaching Gap*.1999, p.135.

Lesson study provides an ongoing method to improve instruction based on *careful observation of students and their work*. In the lesson study cycle teachers work together to:

- Formulate goals for student learning and long-term development.
- Collaboratively plan a “research lesson” designed to bring life to these goals. “This lesson may come from a textbook or workbook (especially at the beginning). Later, it may be a lesson that a teacher has designed and wants the group to study. The lesson may also be constructed by the lesson study group itself (although that work at least doubles the time that lesson study takes)” (added by L. B. Easton).
- Conduct the research lesson, with one team member teaching and others gathering evidence on student learning and development. “The teacher of the lesson can be any member of the lesson study group – indeed, it should not matter who teaches the lesson if the group has agreed upon the lesson.

²A Brief Guide to Lesson Study by Catherine C. Lewis, Education Department, Mills College, Oakland CA, Clewis@mills.edu www.lessonresearch.net. Used with permission.

Lesson study is not about the teacher; it is about the lesson. If the teacher changes the lesson, the teacher should note the changes and why they were made, as should the group, in order to discuss them in colloquium later.

Lesson study is not about the idiosyncrasies of particular teachers; it is about the success of the planned and agreed upon lesson (during which planning the teachers should certainly talk about how they would, uniquely, approach the lesson" (added by L. B. Easton).

- Discuss the evidence gathered during the lesson, using it to improve the lesson, the unit, and instruction more generally. (If desired, the revised lesson may be taught, observed, and refined again in one or more additional classrooms.)

The lesson study cycle provides the opportunity for teachers to:

- Think carefully about the goals of a particular lesson, unit, and subject area.
- Think deeply about long-term goals for students. What is the gap between who students are now and who we hope they will become?
- Study and improve the best available lessons.
- Deepen their own subject-matter knowledge, by considering questions like: what knowledge and understanding are important?; how is it developed?; what are the gaps in student understanding and knowledge?
- Collaboratively plan lessons.
- Anticipate student thinking.
- Carefully study student learning and behavior.
- Build powerful instructional strategies – for example, develop questioning strategies that stimulate student interest and learning.

II. Steps of Lesson Study

1. Focus the Lesson Study

- Agree on long-term goals for student development. What qualities do we hope students will have when they graduate from our school?

- Select an academic focus, based on discussion of standards and of the topics that are persistently difficult for students.

2. Plan the Research Lesson

- Study existing lessons.
- Building on the best available lessons, map out a unit that brings to life long-term goals for student development, and that will move students from their current understanding/knowledge to the place we'd like them to be.
- Plan in detail one "research lesson" in that unit. As part of the planning, try out the lesson as adults and anticipate student thinking. Identify the data on student learning, motivation, and behavior that you will collect during the research lesson.

3. Teach and Discuss the Research Lesson (1 lesson, followed by discussion same day or soon after)

- One member teaches the lesson and other team members collect data as planned; observation protocol at <http://www.globaledresources.com>.
- Conduct a post-lesson discussion. Structure the discussion agenda and consider the following conventions:
- The teacher who taught the lesson speaks first and has the chance to point out any difficulties in the lesson before they can be pointed out by others. (Teachers need not criticize something that's already been pointed out as an issue.)
- The lesson belongs to the whole study group; it is "our" lesson, not "your" lesson.
- Discussion focuses on the data collected at the research lesson—on the students and lesson, not the teacher

4. Reflect and Re-teach, Or Plan the Next Step

- Would you like to refine and re-teach the lesson in another classroom? What should be changed?
- What went well in your lesson study effort, and what would you like to change next time around?
- What new issues or problems came up that you would like to address in your

next research lesson cycle?

III. Supports for Lesson Study

1. See the lesson as part of the unit
 - Map out the overall goals and “flow” of the unit
 - Don’t try to cram too much into one lesson
2. Value self-criticism
 - A key belief is that lessons (however wonderful) can always be improved
 - Create a climate that encourages self-criticism
3. Embrace mistakes
 - Much can be learned from imperfect lessons
 - The yardstick for measuring lesson study’s worth is how much teachers learned along the way
 - Lesson study is not a quick fix, but a slow, steady means of instructional improvement
 - Remember you are pioneers—mistakes are to be expected, and many other US teachers will be eager to learn from you
4. Don’t worship originality
 - What’s important is whether the lesson promotes student learning, not whether it is original
5. Develop group norms
 - Talk about what will make your group productive and supportive
 - Formulate ground-rules, and revisit them at each meeting

IV. Four Levels of Lesson Study Goals: Examples

Lesson study focuses simultaneously on four levels of goals:

Level 1: Goals Specific to the Lesson

- Be motivated to find out the principles of levers in subsequent lessons.
- Identify businesses and institutions in the neighborhood of the school

- Discover that the circumference of a circle is always about three times its diameter

Level 2: Goals Specific to the Unit

- Understand that the force needed to lift an object of constant weight with a lever changes, depending on position of object and force
- Develop an awareness of the local community and one's role in it.
- Understand how to calculate the area of a circle, and how the area of a circle relates to the area of a rectangle.

Level 3: Broad Subject-Matter Goals

- Actively use prior knowledge to solve novel mathematics problems
- Develop scientific habits of mind such as use of the five senses, use of evidence to warrant assertions, and use of controlled investigation.

Level 4: Long-term Goals for Student Development

- Take initiative as learners
- Learn with desire
- Value friendship
- Work cooperatively with others

V. Questions To Consider When Planning the Research Lesson

Planning a research lesson differs from the lesson planning familiar to most of us.

The following basic questions guide planning of a research lesson.

1. What do students currently understand about this topic?
2. What do we want them to understand at the end of the lesson (and unit)?
3. What's the "drama" or sequence of experiences that will propel students from 1 to 2?
4. What kinds of student thinking (including problems and misconceptions) do we anticipate in response to each element of the lesson? How will we use these to foster movement from what students currently understand to what we want them to understand?
5. What will make this lesson motivating and meaningful to students?
6. What evidence from the lesson will help us reflect on our goals for learning

and student development? For example, what data should we collect regarding student learning, motivation, and behavior, what forms are needed to collect it, and who will be responsible for each piece?

VI. Examples of Data Collected During Research Lessons

Academic Learning

- How did students' images of heated air change after the experiment?
- Did students shift from simple counting to a more flexible method?
- Did dramatic role-play spark higher quality and quantity of writing?
- What did students learn about area, as expressed in their notes?

Motivation

- Percent of children who raised hands
- Body language, "aha" comments, shining eyes

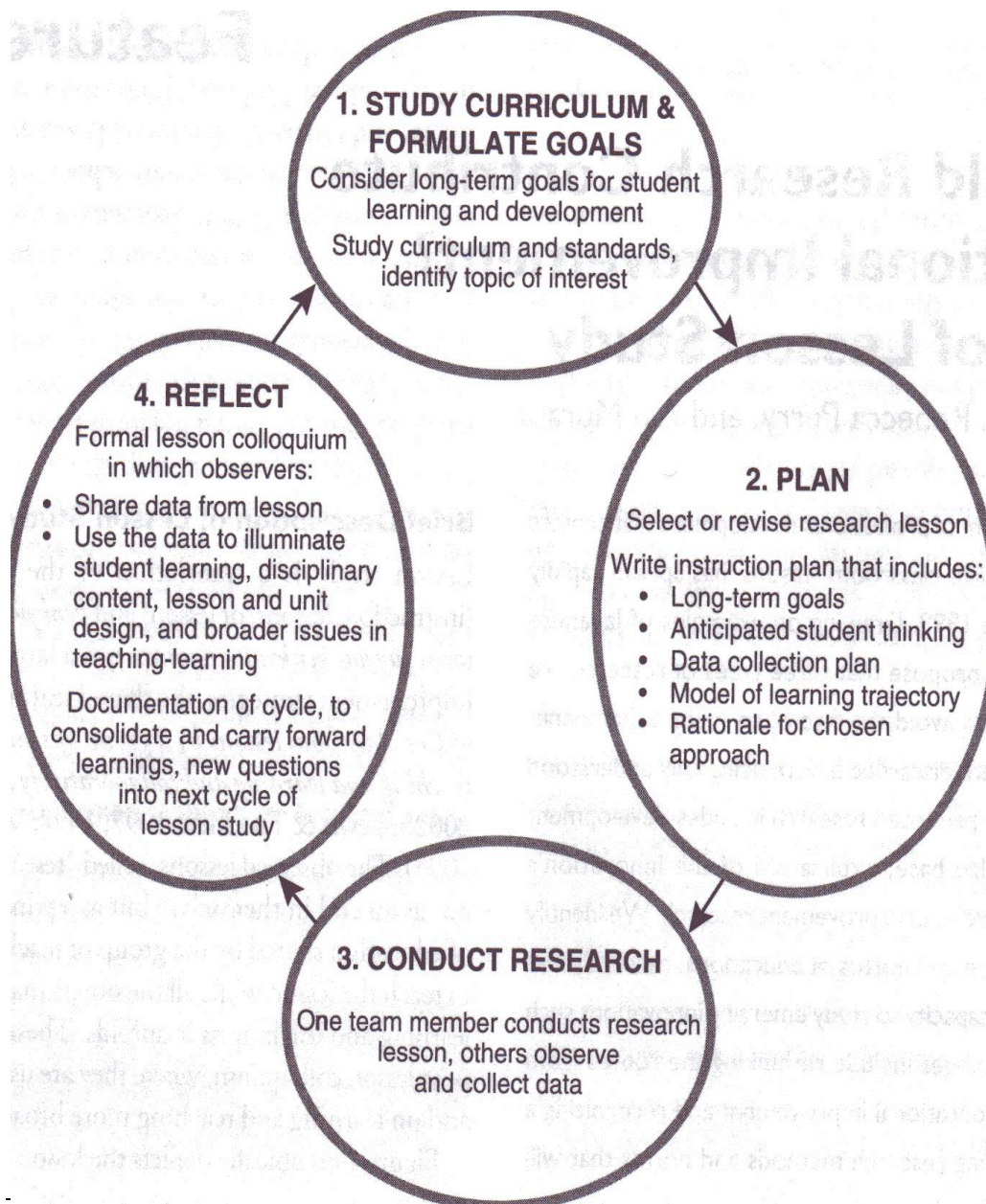
Social Behavior

- How many times do students refer to and build on classmates' comments?
- Are students friendly and respectful?
- How often do 5 quietist children speak up?

Student Attitudes toward Lesson

- What did you like and dislike about the lesson?
- What would you change the next time it is taught?
- How did it compare with your usual lessons in___?

Lesson Study Cycle for a Year



Lewis, C., Perry, R., and Murata, A. (April 2006). How should research contribute to instructional improvement? The case of lesson study. *Educational Researcher*, 31(3), 3-14.

THREE LEVELS OF TEXT PROTOCOL FOR A TEXT-BASED DISCUSSION³

SOURCE OF PROTOCOL: This protocol is similar to the Text-Based Seminar and the Text-Rendering Protocol developed by the National School Reform Faculty (NSRF). This protocol, developed by Stevi Quate and Lois Easton, is a variation on the NSRF text-based protocols.

OVERVIEW OF PROTOCOL:

In this protocol, participants reflect on a “text” – which can take almost any form, from a videotape to a podcast – using increasingly more specific descriptions as they move through rounds. The purpose is to construct meaning collaboratively, clarify, and expand thinking about a text or document.

NUMBER OF PARTICIPANTS:

There is no presenter, but there should be a facilitator. It is helpful to have a recorder who will chart what people say. The ideal group size is from six to ten people, so if the whole group is larger, it should be broken into sub-groups of the ideal size, each with a table facilitator to help a room facilitator keep time and move the group along.

TIME REQUIRED:

This protocol can be done in as few as 20 minutes; it can be extended as long as there is time. It should be extended if the text is long and complex or if there are more than ten people in a group.

STEPS (with approximate timing for this protocol – about 45 minutes):

Preliminary Step: The “text” itself (time depends on text)

- Participants should read, view or listen to the text, perhaps taking notes on a performance text or annotating a written text.

Step One: Sentences (about 10 minutes)

- Each member of the group shares a sentence from the text or from notes written about a performance.

³ From L. B. Easton (2009). *Protocols for Professional Learning*. Alexandria, VA: ASCD.

- What is shared is something that is particularly significant to the participant.
- Others listen (and, perhaps, take notes) on what each person says, but there is no discussion.

Step Two: Phrases (about 10 minutes)

- Each person shares a phrase from the text or from notes written about a performance.
- What is shared is something that is particularly significant to the participant.
- Others listen (and, perhaps, take notes) on what each person says, but there is no discussion.

Step Three: Words (about 10 minutes)

- Each person shares a word from the text or from notes written about a performance.
- What is shared is something that is particularly significant to the participant.
- Others listen (and, perhaps, take notes) on what each person says, but there is no discussion.

Step Four: Discussion (about 10 minutes)

- The group discusses what they heard and what they've learned about the text being studied.
- The group discusses the words that emerged and any new insights they have about the document.

Step Five: Debriefing (about 5 minutes)

- The group debriefs the process.

Note: A variation on this protocol calls for people to follow this sequence for as many rounds as time allows:

A round consists of:

- One person using up to 3 minutes to:
 - Level 1: Read aloud the passage she/he has selected
 - Level 2: Say what she/he thinks about the passage (interpretation, connection to past experiences, etc.)
 - Level 3: Say what she/he sees as the implications for his/her work.

- The group responding (for a total of up to 2 minutes) to what has been said.

CRITICAL ELEMENTS:

Instead of working from sentences to words, a group can consider a play, a scene, and then a speech. . .or an entire work of art, a part of the art, a detail of the art, for example. Some groups want to re-examine the “text” after doing this protocol; most likely they’ll discover that their understanding of it has considerably improved.

TIPS FOR THE FACILITATOR:

The most common problem with this protocol is that people want to do more than share a sentence, phrase, or word. They may also want to deviate from the text being considered to share from their own experiences. Explain that they can do both during discussion in the fourth step, which may need to be extended if quite a few participants want to go beyond the text being considered.

Reflection Sheet : Reading & Text-Based Protocol

What surprised me:

I'm wondering:

Wow!

Not sure about this:

Pretty exciting:

A little confusing:

Other:

The Role of Data in Lesson Study

Before

- Selecting curriculum and personal growth goals according to
 - Achievement records
 - Student work
 - Observations
 - Surveys
 - State and district standards
- Selecting units and lessons within the curriculum
 - Achievement records
 - Student work
 - Observations
 - Teachers' and students' experiences

During

(See next page for examples)

- Framing research questions related to the general goal of the lesson
- Framing research questions around specific aspects of the lesson
- Deciding on generic questions to ask about student responses to the lesson
- Collecting specific data related to questions
- Reporting data results during colloquium

After

- Analyzing and interpreting the data
- Deciding what the data mean in terms of revising the lesson
- Deciding what the data mean in terms of applying learning to the next lessons
- Using the data in the next round of lesson study
- Framing research questions related generally and specifically to the next lesson
- Deciding on generic questions related to the next lesson

Note: The cycle moves from “During” to “After” and back again to “During” until the lesson study group decides that it needs to move on to another curriculum area or another unit from which a lesson will be drawn. Then it goes back to “Before.”

Collecting Data During Lessons

Research Questions Related to the General Goal of the Lesson

Ask: What is the goal of this lesson? What do we want students to know, understand, and be able to do as a result of this lesson? How will we know?

Frame Questions Such as These:

What evidence do we have that students know how to (goal)? How many are showing evidence that they know this? What are they doing or saying? How many males? Females? Students with IEPs? ELL students? Other?

How do we know that students understand (goal)? What are they doing or saying? How are different groups demonstrating (or not) their understanding?

What data do we have about whether or not students can apply this (goal)? What can we see in their work? What can we tell by listening in to their buddy conversations? How are different groups able (or not) to do this?

Research Questions Related to Specific Aspects (Moves) of the Lesson

Ask: What did we decide to do and why? What are our **MOVES** to advance this lesson? What evidence do we have that these **MOVES** worked with students?

Frame Questions Such as These:

How many demonstrated that our move to elicit background knowledge about the content of this lesson worked? Which groups did/did not demonstrate background knowledge?

How many students and which groups were able to transfer background knowledge to new learning according to our move? How do we know? What did they say or do?

How many students (and which groups) are able to use our move to make the shift from this topic (name topic) to this topic? How do you know?

How many students (and which groups) were attentive when we used modeling (a specific move we decided on at this point) and consciously used the modeling to help themselves do the process? How do you know? What did they say or do?

How many students (and which groups) went from one level of thinking to another without help using the move we designed so they could do so?
How do you know? What did they say or do?

How many students (and which groups) understood this activity as a result of a move we decided upon? How do you know? What did they say or do?

How many students (and which groups) were motivated according to our moves by this activity? How do you know? What did they say or do?

How many students (and which groups) build upon their learning as a result of a move we designed for the lesson from one activity to the other? How do you know? What did they say or do?

How many students (and which groups) reached closure for themselves as a result of a move we designed for the lesson? Was the closure accurate or not? How do you know? What did they say or do?

How did any one student (or pair of students) learn and demonstrate any of the above according to the moves we built in to this lesson? What did you see or hear? What makes you certain of the learning?

Generic Questions

Questions that come to your mind as you observe

Critical things that are happening in the classroom

Types of questions the students ask

Types of questions the teacher ask

Evidence of higher-level thinking

Evidence of skill

Evidence of confusion

Percent of students who raised hands

Body language, “aha” moments, shining eyes

Shifts in thinking that are evident

Number of times students refer to and build on classmates’ comments

Evidence of engagement

The teacher's following the lesson or deviating from it, and the conditions that caused the deviation, and what happened next

Examples of Questions Leading to Data Collected During Lessons

Research Questions Related to the General Goal of the Lesson

Standard: Students can factor large numbers using a given process.

Questions:

- How many students follow the complete process for factoring ? How many males? Females? Students with IEPs? ELL students? Other?
- What parts of the process do other students use?
- Which students get correct answer on practice problems? How many males? Females? Students with IEPs? ELL students? Other?
- Which students get correct answers up to a certain point in the process? At what point do they falter?
- Which students seem to have another, workable process for factoring large numbers?

Research Questions Related to Specific Aspects (Moves) of the Lesson

Standard: Understands the difference between exponential and linear relationships.

Questions:

- How many students (and which groups) remembered key points from yesterday's lesson and wrote them on their admit cards?
- How many students (and which groups) had something to share in the brainstorming activity about world population growth?
- How many students (and which groups) said the population growth chart was exponential? How many said it was linear?
- Which pairs of students were able to persuade the rest of the students that the chart was exponential?

- Which students (and which groups) achieved accurately represented the major goal of this lesson in the closure activity?

Generic Questions

How could the learning have been enhanced during any part of the lesson? What specific moves could have been changed, added, or deleted? Why? What were students doing at that point?

What are students doing during X move? Y move? Z move?

What questions do students have during the lesson (report them verbatim, as much as possible, and then categorize them according to Bloom's taxonomy)?

Who among the students asks questions and what types of questions are they? Who doesn't ask questions? To what extent do the non-questioners appear to be learning and able to demonstrate knowledge and skill?

What do students say to each other in pairs/triads or to the whole class? Capture these verbatim and then categorize them according to Bloom's taxonomy. At what levels of thinking are these peer-to-peer questions?

What evidence do you have that students have attained a skill?

What evidence do you have about clarity about any point? Confusion? How many students seem to "get" the learning? How many don't? What do you notice about groups?

What evidence do you have that students are able to shift from one topic to another?

What evidence do you have that students are helping each other out?

Where did the teacher deviate from the planned lesson? What was happening at the point of deviation? What did the teacher do differently? What was the result in terms of the students?

**Your Turn: What Questions Do You Have About
This Lesson? What Data Might You Collect to
Answer Those Questions?**

TITLE: Water to the Max

AUTHOR: R. Vance Wood, Hurricane High School,
Hurricane, UT

GRADE LEVEL/SUBJECT: (9-12), Math or Science

OVERVIEW: This lesson is one which I have used with the class, however it will work equally as well as homework or extra credit assignment. In addition to teaching, I am also a track coach and this activity is of particular help to my athletes in seeing what they should do to maximize their performance. This activity is a great deal of fun in the spring of the year when the students want to get outside to enjoy the great outdoors and the water.

PURPOSE: To find the optimum angle to achieve the greatest distance.

RESOURCES/MATERIALS:

Protractor

Meter stick

Garden hose with nozzle attached

ACTIVITIES AND PROCEDURES:

Attach the garden hose to a tap and adjust the flow of water to a constant pressure.

Starting at an angle of 0 degrees to the ground, measure and record the distance the stream travels in the horizontal direction along the ground.

Repeat this process at 20, 30, 45, 60, and 75 degrees.

Have students discuss these questions:

1. Which angle allowed you to achieve the maximum distance?
2. If you were to increase the pressure on the water in the hose, what effect would it have on the angle you would use to achieve maximum distance at

- the new pressure?
3. Do you think that a shot put or a javelin would need to be thrown at some angle different than the water to achieve maximum distance?

Activity:

Can you think of a method to determine the maximum height the water achieved at the optimum angle? Briefly describe your method. Draw the approximate path the water followed in its flight. What is the shape of the path?

Research Questions Related to the General Goal of the Lesson

1. What do you want to know?
2. What data will you collect to answer your research question?

Research Questions Related to Specific Aspects (Moves) of the Lesson

1. What do you want to know about moves in this lesson?
2. What data will you collect to answer your research questions?

Generic Questions

1. What do you want to know generically (applicable to any lesson) in terms of this specific lesson?
2. What data will you collect to answer your research questions?

Six Degrees of Reflection

(Six Degrees of Separation from Expectations)

Directions: Consider what you just done. Write down three expectations you had regarding data collection. Then consider the degree to which you were surprised or affirmed in terms of each expectation. Feel free to write a comment to explain your reaction.

Expectation #1:

<i>Degree of Separation from Expectations</i>					
<i>Huge</i>	<i>Moderate</i>				<i>Minor</i>
6	5	4	3	2	1

Comments:

Expectation #2:

<i>Degree of Separation from Expectations</i>					
<i>Huge</i>	<i>Moderate</i>				<i>Minor</i>
6	5	4	3	2	1

Comments:

Expectation #3:

<i>Degree of Separation from Expectations</i>					
<i>Huge</i>	<i>Moderate</i>				<i>Minor</i>
6	5	4	3	2	1

Comments:

Activity Reflection:

What We Did: **Lesson Study Experience #2**

What I Learned:

Reflection on What I Learned:

How I Might Use What I Learned:

How Does Lesson Study Fit?????

Directions: Working with a partner or in a triad, consider how the following initiatives fit or don't fit with lesson study. Amend the descriptions of other initiatives if I've left something out. Then put an X by any part of the initiatives that **is supported** through lesson study. Put a ? by any part that **could be supported** through lesson study.

CONTINUOUS LEARNING CYCLE or COACHING & LEARNING CYCLE

- Analyze data and student work
- Develop a course of study
- Encourage inquiry during course
- Do a pre-conference
- Plan/model/observe demonstration lessons
- Debrief and give/get feedback on lessons
- One-to-one coaching
- 4-6 week cycle
- Self-directed inquiry with discussion around specific instructional needs
- Method for engaging in professional learning
- Identifies student needs via data
- Identifies adult learning goals about teaching related to data
- Review materials and resources about topic
- Take turns demonstrating lessons
- Try out new and different teaching
- Practices
- Provides a forum – personal reflection and discussion
- Examining student work for evidence
- Evaluating new approaches through documenting results

STRATEGIES & SUPPORT FOR DIFFERENTIATED ACCOUNTABILITY

Professional Development

- School and district ensure Individual Professional Development Plans (IPDPs) for teachers of targeted subgroups. . . including the needs of subgroups not making AYP
- District participates in a sample of IPDP meetings
- District ensures that leadership professional development includes PD targeting the subgroups not making AYP
- District ensures that appropriate resources are provided to support the school to redesign the master schedule to provide common planning time for data-based decision making within the problem-solving process, job-embedded professional development, and Professional Learning Communities (PLCs) with Lesson Study Groups.
- District provides leadership development on monitoring classroom instruction and evaluating professional development
- District provides professional development on Florida's Continuous Improvement Model, Problem Solving, Response to Instruction/Intervention, Professional Learning Communities, including the use of Lesson Study Groups, and School Grade and AYP Calculators.

***DA CIM (DIFFERENTIATED
ACCOUNTABILITY CONTINUOUS
IMPROVEMENT MODEL)***

PLAN

DART 2009

FCAT Test Design Document

FCAT Content Focus Report

Item Specifications Guidelines

DO

Instructional Pacing Calendar

Instructional Delivery Guide

CHECK

Assessments

Data Disaggregation

Maintenance

Monitoring

ACT

Differentiated Instruction

Lesson Study

Professional Development

***PROFESSIONAL LEARNING
COMMUNITIES (PLCs)***

Definition and description: A group of educators who regularly engage in professional learning for the purpose of enhancing their own practice as educators in order to help all students succeed

- Focus on professional learning for the purpose of enhancing their own practice as educators
- Focus on what educators do, what's happening in classrooms and how educators can get better in terms of what they do
- Focus on helping all students succeed Team learning
- Shared vision, values & beliefs
- Reflective dialogue
- Deprivatization of practice
- Collective focus on student learning
- Collaboration
- Sustaining leadership
- Supportive conditions
- Action orientation and experimentation; results-oriented
- Collection and use of effective data

Florida's Approach To Lesson Study

1. In Florida lesson study is recommended as an effective professional learning strategy for all schools.
2. All DA schools are required to implement lesson study but only targeted schools (Intervene, F, D former F) are receiving direct support from the Department of Education regional teams.
3. Lesson study needs to be started in schools on the "critical" list during the 2009-2010 school year. The state does not mandate full implementation of lesson study in the first year. Rather, schools should go slowly at first, initiating PLCs and then using lesson study as one of activities that engage members of PLCs.
4. Schools on the "critical" list, especially, may need to ease into lesson study because faculty may not be familiar with/knowledgeable about collaborative work.
5. However, by the end of the 2009-2010 school year, all schools on the "critical" list should be engaged in lesson study in some substantive way.
6. Lesson study is specified on DA CIM (Differentiated Accountability Continuous Improvement Model). Lesson study is one aspect of implementing DA CIM.
7. Lesson study goals are derived from data; the research lesson provides data; and lesson study groups decide how to proceed on the basis of data.
8. Lesson study can be the mechanism for implementing the coaching cycle and the continuous learning cycle.
9. Lesson study may involve teachers in developing lessons together, but the focus is on refining a developed/given lesson (such as a lesson from a textbook), teaching it to collect data on student learning, sharing data, improving the taught lesson (sometimes called the "research" lesson), and applying learning to development/refinement of additional lessons.

10. There is no official lesson planning template required by Florida; however, schools need to choose among many effective published templates (Wiggins & McTighe, Daggett, Hunter, Easton, others). Also see the Instructional Focus Calendar template from the Department of Education.
11. Lesson study is standards-based; created/given lessons are based on standards; they are improved to help students achieve standards; data are collected (in part) according to how well the lesson helps students achieve standards; lessons are revised according to data; the next lessons to be studied benefit from the data collected about previous lessons
12. The focus of lesson study is on the intersection of curriculum, the student and the teacher -- instruction. This is where the proverbial "rubber meets the road" of learning.

Closure

Directions: Complete as many sentence frames as possible to reflect your thoughts about what we have done in this workshop.

I used to _____ and/but
now I _____.

I used to _____ and/but
now I _____.

I used to _____ and/but
now I _____.

I used to _____ and/but
now I _____.

I used to _____ and/but
now I _____.