California Lesson Study Conference

Asilomar Conference Center

Monterey Bay
June 7-8, 2009
Agenda

Sunday June 7, 2009
2:00 -- 4:00 Registration, Check-In to Rooms .......... Chapel
4:00 -- 4:30 Welcome and Introductions ................. Chapel
4:30 -- 5:30 Keynote Address ................................ Chapel
Catherine Lewis
5:30 -- 6:00 Activity ......................................... Chapel
6:00 -- 7:00 Dinner Break ................................. Crocker Dining
7:00 -- 8:30 Opening Session ............................. Chapel

Monday June 8, 2009
7:30 -- 8:30 Breakfast ...................................... Crocker Dining
8:45 -- 9:05 Program Overview ............................. Chapel
Opening Speaker
9:15 -- 10:15 Session One
Marlin, Curlew, Dolphin, Acacia, Toyon
10:30 -- 11:50 Session Two
Marlin, Curlew, Dolphin, Acacia, Toyon
12:00 -- 12:35 Lunch .................................... Crocker Dining
12:45 -- 1:45 Session Three
Marlin, Curlew, Dolphin, Acacia, Toyon
2:00 -- 3:20 Session Four
Marlin, Curlew, Dolphin, Acacia, Toyon
3:30 -- 4:00 Closure, Next Steps, Evaluation .......... Chapel
4:00 -- 5:00 Reception and Networking ................. Chapel

BREAKOUT SESSIONS
Strands as indicated below generally organize the breakout sessions.
A more detailed description of the presentations in each session follows.

Acacia: Elementary / Secondary Science
Curlew: Research on Lesson Study
Dolphin: Introduction to Lesson Study/ Managing Lesson Study
Marlin: Research on Lesson Study
Toyon: Academic Content / Pedagogy

Featured Speaker
CATHARINE LEWIS

Catherine Lewis, Ph.D. is a senior research scholar at Mills College and principal investigator on investigations of lesson study funded by the National Science Foundation and Federal Department of Education. She has conducted research in Japanese and U.S. schools for 25 years and has been instrumental in introducing and nurturing lesson study outside Japan through more than a dozen publications and videotapes, including Lesson Study: A Handbook of Teacher-Led Instructional Change (www.rbs.org) and How Many seats? (www.lessonresearch.net). A graduate of Harvard University (B.A.) and Stanford University (Ph.D.), Lewis is proud to have four generations of public school teachers in her family.
LEAD PRESENTERS

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Using Lesson Study with Science Teacher Leaders

Presenters: Andrea Pfaff, Kathleen Blair, Kellie Marcarelli, Nancy Taylor
Middle School Science Education Learning Initiative

Grade Level/Content: Middle School Science
Strand: Lesson Study in Science

The presentation will focus on the ongoing Collaborative Lesson Study of San Diego’s Middle School Science Education Leadership Initiative. Over the five years of the program, participants deprivatize practice of middle school science instruction during two, three-day lesson study cycles during the academic year. Four teachers at the same grade level design and co-teach a lesson using design principles from the 5E instructional model. Outcomes of this process include enhanced content knowledge among teachers and a greater awareness of barriers and challenges during instruction that can be modified for optimal learning.

Analyzing student work for content, process, and communication accuracy drives the debriefing conversation. Examples of the results of professional learning for teachers at many stages in teaching careers will be shared as well as informed plans for follow up professional learning, strategies for looking at student work, student feedback and more!

Teaching and Learning Historical Habits of Mind Through Lesson Study

Presenters: Mimi Lee, Ph.D. -- Iowa State University
Grade Level/Content: Secondary History
Strand: Research into Lesson Study

Following fifty secondary history teachers from one county in California, this study examines the impact of lesson study experiences in the context of professional development. To what extent do secondary history teachers acquire, modify, and use content knowledge and historical habits of mind to create lessons after participating in a lesson study-driven professional development? Participants wrote lesson plans on an unfamiliar topic before and after professional development and the lesson plans were analyzed using a 12-point rubric with four categories including (1) historical theme, (2) historical habits of mind, (3) lesson structure, and (4) use of additional instructional materials. The results indicated that the mean score for post-lesson study plan (M=9.25, SD=1.22) was significantly greater than the mean for pre-lesson study plan (M=7.54, SD=1.71), t=-4.90, p<.01. The presentation also discusses the qualitative analysis results.

The Focused Inquiry Model: Teacher-Led Professional Development Through Lesson Study

Presenters: Maria Sudduth, Linda Montes -- CSU Chico. Liz Capen, Beth Sarcona, Lynda Sterling, Neil Woodward, Parkview Elementary School, Chico USD
Grade Level/Content: Elementary Science
Strand: Initiating, Maintaining, and Managing Site Level Lesson Study

Our team will present a summary of our work, then include a panel discussion. In Spring 2008, Parkview Elementary in Chico, CA began implementing the Focused Inquiry Model. We piloted the model with three grade level faculty teams (3rd, 4th, and 5th.) including one administrator. Our work focused on current research to develop participants’ understanding of language acquisition, academic language development, characteristics of language proficiency levels, and instruction. SIOP® provided the primary framework for the training. Grade level teams then decided on an area of focus for their lesson study based on an area of need. Each team designed, implemented and evaluated the lesson. One teacher taught the lesson, and others from the team observed the lesson in real time. We held an immediate post conference to discuss the lesson, focusing on what we learned and what we would improve when teaching the lesson again.
Design Principles for Lesson Study: A Comparison Across Multiple Sites

**Presenters:** Jennifer Lewis, Ph.D. -- University of Michigan
Sherry Hix -- Jefferson City School District, Jefferson City, Georgia

**Grade Level/Content:** Elementary/Secondary Math

**Strand:** Research into Lesson Study

American adaptations of lesson study have taken up only some features of lesson study, or deployed surface forms of lesson study with varying degrees of substance and meaning. Some of this can be attributed to differing cultural norms, work habits, and content knowledge of teachers across countries. In this session, we present lesson study as it is practiced across three widely different institutional and geographic settings: one in a preservice mathematics methods class at a Midwestern university; another in an elementary school on the East Coast, and a third in a middle school in the South. We do so to extract design principles for professional development that builds teachers’ mathematical knowledge for teaching (Ball, Hill & Bass, 2005; Watanabe, 2003). Our aim is to build a theory of teacher learning so that lesson study does not degrade into a set of activities that contribute little to teachers’ mathematical knowledge for teaching.

Using Lesson Study to Move From Assumption to Assessment.

**Presenter:** Patsy Wang-Iverson -- Rosenbaum Foundation

**Grade Level/Content:** Elementary and Secondary Content

**Strand:** Managing Lesson Study/ Across Content Areas

Lesson study offers a simple concept: to better understand student thinking/ learning/ misconceptions in order to help improve student learning. However, observations of lesson study efforts both in the U.S. and in Singapore reveal a common challenge: difficulties in stepping outside of one’s own knowledge construct to see a lesson from students’ perspectives.

Because of our shared history of looking for right answers, we tend to expect correct student responses. We find it challenging to anticipate student responses, particularly those that reveal misconceptions and misunderstanding (and, once misunderstanding is surfaced, what do we then do?). By focusing on observing the research lesson as a formative assessment process, ‘outsiders’ can collect invaluable data that can help lesson study team members adjust students’ learning experiences.

This session will help participants to review their understanding of their lesson study practices and to explore how to overcome their assumptions and focus on ongoing assessment.

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**Breakout Session II 10:30 - 11:50**

(This breakout session will conclude in each room with a 20 minute facilitated discussion)

Constructing the Nebular Hypothesis Model to Explain Solar System Phenomena

**Presenters:** Ingrid Salim, Kevin English, Aaron Stephens
Harper Jr. High, Davis Joint Unified School District

**Grade Level/Content:** Secondary Science

**Strand:** Lesson Study in Science

In this session, participants will construct an understanding of the formation of the solar system and the nebular model by engaging in a series of lab activities and data surveys. Using a variety of astronomical observations in the form of photographs, data sets, and computer simulations, participants will develop conceptual models explaining the structure, motion, similarities and differences among the sun, planets, and other objects in the solar system. Through appropriate guidance in small, collaborative groups, participants will ultimately develop a nebular model which can explain the patterns in the solar system, and the formation of planetary systems in general. The course will utilize research-based science teaching strategies, centered in scientific inquiry and model-based reasoning, and all the activities will easily transfer to the 8th-12th grade science classroom.
Identifying a Mechanism of Teacher Change Through Lesson Study

**Presenters:** Jenna Porter, Socorro Shiels
**CSU Sacramento**
**Strand:** Research in Lesson Study

Science Projects Related to Equity and Education (SPREE) is a joint collaboration between the Center for Science and Math Education (MASE) and the Sacramento State College of Education’s Equity Network, in partnership with the Sacramento County Office of Education. The project focuses on high poverty schools, in an effort to improve the teaching and learning of students, teachers, and university faculty. The five-year project implemented professional development in science for schools in summer institutes, workshops, and school-site Lesson Study teams. One of the project goals was to use lesson study as a vehicle for improving teachers’ pedagogical repertoire in science instruction. Data on teacher perspectives of lesson study over several years was collected and analyzed including teacher changes in thinking, benefits, and challenges of lesson study. Questions for further investigation include what revision means to teachers and what constitutes as evidence of student learning, as well as how lesson study can be used to initiate a broader learning community within schools.

Lesson Study Implementation at Pleasanton Middle School

**Presenters:** Debra Mintz, Duane Habecker, John Whitney
**Pleasanton Middle School, Pleasanton Unified School District**

**Grade Level/Content:** Secondary Math
**Strand:** Initiating, Maintaining, and Managing Lesson Study

Lesson Study was introduced 4 years ago at Pleasanton Middle School. With the support of administration, the math and history departments formed lesson study teams and began designing curricular lessons. This process has migrated to the Language Arts department. We will discuss the process for introducing this tool into other district’s school culture. Lesson Study was a feature component to our receiving the California Distinguished School Award for the current year. The evolution of our latest work, based on 7th grade state standards in mathematics will be discussed.

Lessons From Lessons: Why Watch Videos?

**Presenter:** Gail Hood, University of Wollongong, Australia
**Grade Level/Content:** Elementary and Secondary Math
**Strand:** Research into Lesson Study

Between 1999 and 2003 the TIMSS Video Study (Mathematics) analyzed eighth-grade classes from seven countries. Findings are published in two written reports and a set of twenty-eight public release lessons. The proposed presentation is in two parts. The first is a brief discussion on the development of an online course aimed at disseminating the study’s research findings to mathematics teachers to inform their practice. The second part is hands on with participants experiencing the activities from one of the video cases within the course. Findings from data collected and analyzed during the development process will be shared to enhance the session’s hands on component and further show the power of watching videotaped lessons.
**Results from Reform: A Collaborative Approach to Improving Instruction**

*Presenters:* Jennifer Wildman, Darci Cristobal  
*Landmark Elementary School, Pajaro Valley Unified School District*  
*Grade Level/Content:* Elementary Science  
*Strand:* Initiating, Maintaining, Managing Lesson Study

This presentation will focus on whole-school reform and a grade level lesson study. Participants will learn how one K-5 school changed its fundamental leadership structure to implement an intensive curriculum focus, repeated cycles of lesson study and results-driven instruction for all students over a three-year period.

The school model includes grade level “data teams” focusing on writing, linked with content area instruction in science and social studies. Teachers met 3-4 times monthly to analyze student writing samples, set goals and develop instructional strategies in the context of daily lessons. Lessons were adjusted over time to insure that students met goals and state standards. Results included students meeting and exceeding goals and standards, improved vocabulary and background knowledge, and a significant increase in the depth and complexity of instruction.

Presenters are the school principal and a classroom teacher, demonstrating the potential for collaborative teams to have a tremendous impact on student learning.

**Breakout Session III 12:45 - 1:45**

**Batteries, Food and Fuel**

*Presenters:* Moira Young, Kathy Lewis, Jane Montoya  
*Elk Grove Unified School District*  
*Grade Level/Content:* 4th Grade Physical Science  
*Strand:* Lesson Study in Elementary Science

Students will learn that stored energy takes many forms. Students are given a pre and post assessment asking if batteries, food, and fuel are related. Students are given a student work packet where they record their observations and data. Day one consists of exploring batteries and how they operate when using a flashlight. The second day begins with turning the flashlight on and letting it run during the lesson on food as stored energy. Students learn that different foods have different caloric values and find out how exercise can burn off those calories. Students are given the flashlights to turn on and leave on at the beginning of day three. The students discuss candles and other fuels. Birthday candles are handed out for students to record and share observations. Once the flashlights have burned out, the students check the batteries with the battery charger again, noting the batteries are depleted of stored energy.

**Beginning Teachers and Mathematics Non Routine Problem:**

Variations from a lesson study group in an urban context.

*Presenter:* Hanna Haydar, Ph.D.  
*Brooklyn College, City University of New York*  
*Grade Level/Content:* Secondary Math  
*Strand:* Research into Lesson Study

This presentation will share data generated in the context of a Mathematics Lesson Study Group (MLSG) for beginning teachers working in high needs schools in NYC. Participants engaged in: a) solving/discussing NRPs; b) planning NRP-centered lessons and lesson sequences; c) classroom try outs of NRP-centered lessons, documentation, and discussion of results; d) analyzing samples of students’ work on NRP; e) searching for NRPs in mathematics assessments; and f) conducting ‘vertical’ analyses of mathematics curricula in search of NRPs.

In this presentation we will share data from a paper folding geometry instructional sequence done during two consecutive lesson study sessions and from a curriculum analysis activity aligning NRPs with curriculum standards. After summarizing our findings, we will present our instructional design framework linking NRPs, the lesson and the unit of instruction. We conclude by discussing the implications of our study for mathematics teacher professional development.
Managing Large-Scale Lesson Study for Excellence in Science Instruction

Presenters: Jenna Porter, Deb Bruns, Rich Hedman
CSU, Sacramento

Grade Level/Content: Elementary Science
Strand: Initiating, Maintaining, Managing Lesson Study

The Excellence in Science Instruction (eSCI) project is a collaboration between the Elk Grove Unified School District and the Sacramento Area Science Project (SASP), funded through a California Mathematics and Science Partnership grant. The three-year project includes professional development for 110 elementary school teachers of 3rd, 4th, and 5th grades in science. The professional development institutes focus on a different content area each year, starting with physical science, then earth science and concluding with life science. Project goals include researching the impact of the professional development on student achievement and using lesson study as a vehicle to examine teachers’ science instruction. Of particular interest is how teachers are using the process of lesson study to analyze evidence of student learning in revising their lessons. Examining how large-scale lesson study can be managed on a district-wide level is another goal of the project. The facilitation for each of our 26 lesson study teams is also a unique program feature.

What a Difference a Research Theme Can Make!

Presenters: Joan Easterday, Doreen Heath Lance
Sonoma County Office of Education

Grade Level/Content: Elementary and Secondary Math
Strand: Research into Lesson Study

We have been challenged to demonstrate that lesson study works and that the investment of time and energy produces more than “just one lesson”. We will share the evidence that we have collected. We have chosen to study five lesson study group’s work to accomplish their research theme, improving levels of discourse in a mathematics classroom. The lesson study groups represent grade levels 5 through Algebra I. We analyzed transcripts from year one and year two and compared the results. During today’s session, we’ll share video clips and our findings.

Lesson Adaptation: Equal Access to the Curriculum for English Learners

Presenters: Maria Sudduth, Victor Mejia, Jonathan Watts
CSU Chico

Grade Level/Content: English Learners
Strand: Lesson Study Across Content Area

I teach in the Bilingual Professional Preparation Program at CSU, Chico. One of our courses focuses on providing equal access to the curriculum for ELs. A key component of the course is teaching students to adapt lessons using Lesson Study. Students use Sheltered Instruction Observation Protocol (SIOP®) as a framework and other current research to design, teach, reflect and revise lessons specifically adapted to support English Learners.
1. Mystery Mixtures

Presenters: Sylvia Molina, Tammy Null
Elk Grove Unified School District

Grade Level/Content: 5th Grade Science
Strand: Lesson Study in Science

This lesson study focused on 5th grade science standards from two different elementary schools that had similar diverse student population where the majority of the school is classified as low socioeconomic. The science focus this year was physical science -- Types of Matter: Mixtures. The research goal for this lesson was that students know differences in chemical and physical properties of substances are used to separate mixtures. The lesson study goal and standard was students know differences in physical properties of substances are used to separate mixtures and identify compounds. The lesson study team wanted to have students learn about mixtures, participate and complete a hands-on lab, reflect on what they learned and then demonstrate reciprocal teaching at the parent night. Students enthusiastically participated in science discussion and lab which led to “real world” discussion of day to day science instruction. The lesson was extended by having a parent night where the students teaching the lesson to their families.

2. We’re Ecstatic about Static

Presenters: Nancy Ludu, Sabrina Anand, Sara Freathy, Will Lewis
Elk Grove Unified School District

Grade Level/Content: 4th Grade Science
Strand: Lesson Study in Science

Our lesson study focused on 4th grade Physical Science. We taught the lesson at different schools in Elk Grove Unified School District and in classrooms with very different populations. The classrooms differed economically, in academic abilities, and in regards to the number of EL students as well. The physical science standard we chose to do our lesson on was PS1e. Students know electrically charged objects attract or repel each other. Our lesson study goal was to have students become more curious about their world by doing hands-on, inquiry based labs to help them understand the standards and concepts related to static electricity. One of our major goals as a team was to plan lessons and activities to make the students’ learning visible. Also, additional modifications needed to be made to the lesson in order to help the second classroom with the high EL and special needs populations. The students in both classes were very eager to participate in the labs as well as the discussion and lab reports. This led to many questions and extension activities about static electricity in their life experiences.

Video as a Metacognitive Professional Development Forum

Presenters: Angela Thompson
University of California, Santa Cruz
Elementary Math
Strand: Research into Lesson Study

An alternative form of professional development to enhance growth in academic language instruction in mathematics for English learners: Ten elementary school teachers were videotaped using academic language during mathematics instruction. The videos were previewed and then discussed and analyzed in pairs at a professional development that focused on reflection. At a second professional development, these teachers discussed short clips of each other’s videos to gain a deeper understanding and address common pedagogical concerns. This presentation will address some of the research on lesson study using video analysis, offer a framework for professional development using video, and offer an opportunity for participants to view a video clip and practice reflective discourse using video.
Lesson Study in American History:
Translating Content into Classroom Practice

Presenters: Avi Black, Stan Pesick, Jah-Yee Woo
Alameda County Office of Education

Grade Level/Content: American History
Strand: Lesson Study Across Content Area

This session will focus on how two Teaching American History projects have worked to implement lesson study as a key component of their professional development programs. Both projects use lesson study as a means to translate enhanced content knowledge into effective classroom lessons and units while, at the same time, using the process to drive teachers’ initiative to learn more about history. A major aspect of the work of both programs is to surface the unstated assumptions, perceptions and misperceptions, and systems of logic (or “habits of mind”) that students bring to the classroom, thereby developing perspective on student learning that can be applied to all curriculum, whether created in the process of lesson study or otherwise.

The Prospects of Lesson Study as School Reform: How Teacher Attitudes Can Determine the Promise or Peril of Lesson Study

Presenter: Greg Gero
Claremont Graduate University
Strand: Research into Lesson Study

This study employed a self-report survey for the purpose of investigating teachers’ attitudes about the lesson study process. Fifty-five teachers from two elementary schools responded to the questionnaires. One site is a “state-monitored” school where teachers are held to rigid schedules and curriculum guides. Some have questioned whether lesson study can run effectively in a hierarchical, controlled school culture. Data were analyzed using multiple regression analysis, Pearson correlations and t-Tests for independent groups. Support for lesson study was found to be associated with teachers’ comfort with collaboration and critique of their lessons. Teacher discomfort seemed greatest in regards to observation of their teaching. Path analyses revealed significant indirect effects of a continuous improvement mindset. These findings have important implications for the design of lesson study projects in the future. Suggestions for successful implementation of lesson study, including in schools facing substantial internal and external pressures, will be shared and discussed.

Using Lesson Study to Support Differentiated Instruction

Presenters: David Jelinek, Jenna Porter, CSU Sacramento
Strand: Lesson Study Across Content Area

A Javits Gifted and Talented Students Education Program grant was used to identify and serve underrepresented students of above average Ability, Creativity, and Task Commitment. The grant project, ACT, examined the collaborative process of 23 teachers using lesson study as a tool for improving differentiated instruction. Our project sought to: (1) improve GATE identification processes for one school district; (2) provide a professional development series for classroom differentiated instruction strategies, which is (3) readily replicable in other school districts, and (4) offer additional educational opportunities for underrepresented or underserved students. Student achievement was measured by comparing pre and post differences of 351 student assessments and comparing mean scores of 95 lesson study students to 105 non lesson study participants’ assessments. Teacher perspectives on the usefulness of lesson study for differentiating instruction and its impact on student achievement were also collected.
California Post-Secondary Education Commission
The California Postsecondary Education Commission is responsible for conducting grant competitions and supporting initiatives that target improving the curriculum knowledge and instructional competence of the California teaching workforce. The current program is the Improving Teacher Quality (ITQ) State Grants Program, part of the federal No Child Left Behind (NCLB Title II A) Act.

CRESS
The Cooperative Research and Extension Services for Schools (CRESS) Center administers core programs funded by UC Davis (the Collaborative Research Grants program, Teacher Research program, and publication program) and a significant array of externally funded programs including four California Subject Matter Projects and the Center for Community School Partnerships.

Life Lab Science Program
Our mission is to inspire learning and conservation by engaging students and educators in the natural world. Since 1979 Life Lab Science Program has been supporting science and garden-based education through publications, professional development, and innovative programs.

Math and Science Education
The mission of the MASE Center at Sacramento State University is to improve the quality of science teaching and learning in the public and private schools of the Sacramento region. The MASE Center employs the expertise of teachers, grades K-12, university and community college faculty and local industrial scientists and engineers to accomplish this mission.

Central Coast Science Project
Central Coast Science Project is a professional development organization in science at the Cal Poly, San Luis Obispo campus. This project is based in the Chemistry and Biochemistry Department and counts with faculty leaders in all science areas and literacy as well as teacher leaders from the San Luis Obispo area and northern Santa Barbara.

Monterey Bay Science Project
Monterey Bay Science Project is a partnership with the University of California, Santa Cruz and Life Lab Science Program. The mission is to bring systemic changes in professional development services to schools, that will bring underrepresented language minority students in to the mainstream of academic literacy. The model focuses on integrating language acquisition with scientific concepts from physical, earth and life sciences.

Sacramento Area Science Project
The Sacramento Area Science Project is an education partnership between the University of California, Davis and California State University, Sacramento. The SASP mission is to provide science educators with useful, high quality professional development, encourage teachers to become reflective practitioners focused on student understanding, teachers and learning and provide forums where educators can exchange ideas and engage in professional dialogue.

Redwood Science Project
Redwood Science Project at Humboldt State University develops and manages numerous initiatives to support educators in schools and informal settings. RSP offers high quality professional development workshops and institutes, coaching and mentoring, leadership development, career advancement opportunities, special programs on curriculum enhancement and media production. RSP also conducts evaluation and research on a multitude of education programs.