Lesson Study in Preservice Education, Mills College
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Mills Lesson Study Context

Mills College, located in Oakland, California, is an independent liberal arts college for women, with co-educational graduate programs. The Education Department offers graduate degrees in three areas: Teacher preparation, child development, and educational leadership. The teacher preparation programs emphasize the development of teacher knowledge and skills, and are based on an instructional program that integrates theory and practice and combines coursework and classroom teaching. The programs encourage collegial interactions among prospective teachers in order to maximize future effectiveness as professionals and also provide time for students to reflect on classroom teaching experiences. Learning to teach in an urban environment, appreciating and valuing cultural diversity, and seeing each child and adolescent as a unique individual are central program goals. The program is supported by six principles for teaching and learning that permeate students' coursework and fieldwork experiences. Teaching and learning is viewed as: 1) Moral, guided by an ethic of care; 2) Reflective, requiring on-going, systematic inquiry; 3) Purposeful, focused in the acquisition of important subject matter; 4) Collegial, enhanced through interaction and relationships; 5) Political, dealing by definition with matters of power and change; and 6) Developmental and constructivist, reflecting conceptions of how people learn.

The Teachers For Tomorrow's Schools program is a one-year credential program; students have the option of returning a second year for a Master's degree. The program enrolls 60 candidates in multiple and single subject credential cohorts. The Mid-Career Math and Science (MCMS) credential, which enrolls between 8 and 12 students per cohort, authorizes individuals to teach mathematics, life sciences or physical sciences in grades 6-12. In addition to coursework, students have two one-semester fieldwork placements, which are switched after the semester so that they receive fieldwork experience in both middle and high schools and have the opportunity to work with two cooperating teachers. Students typically spend mornings in their assigned placements, and may have full teaching responsibility for at most one class of students.

Lesson study has been a central organizing framework for the year-long MCMS Curriculum and Instruction (C & I) class for three consecutive spring semesters. Lesson study was adopted to facilitate student development in four primary ways. First, lesson study is intended to showcase and provide hands-on experiences with thorough lesson planning and revising at a level student-teachers would otherwise not experience. Second, through the lesson study inquiry cycle, student-teachers clarify and define their

own vision, goals, and objectives for students. Third, by building on shared experiences and diverse interpretations of classroom events, lesson study provides rich opportunities for understanding and talking about students and learning. Fourth, lesson study was adopted to provide a structure for and robust definition of collegiality, based on formal protocols and teachers' diverse and interdependent expertise.

Lesson Study Activities

Lesson study work typically begins in January of the second semester, and builds on student inquiry and reflection skills as well as the collaborative norms developed in the first semester of the class. The work is spread over approximately 11 weeks of the semester, and about 40% of course time in the second semester is devoted to lesson study. (The class meets weekly for a two and one half-hour session. Additional meetings in preparation for the research lesson may occur outside of class time as needed, and communication between students and with the instructor is also supported by on-line correspondence.) The instructor uses the lesson study work to assess and evaluate his students' learning, as well as to provide support for his students as needed.

The research lesson has been organized as part of a "site-visit" day, where student-teachers have the opportunity to familiarize themselves with the students, faculty, and culture of a local urban school and, through lesson study, participate in a live classroom teaching/ observation experience. The "site-visit" activities, including interviews with students and classroom observations in the math and science departments, provide a context for the research lesson. They also seem to play an important role in maintaining the team's ownership of the day and for the research lesson itself – a critical difference from simply "going to watch a colleague teach."

The lesson study schedule from Spring 2003 is summarized below.

1) Students are familiarized with lesson study through written and videotape material, and discussion with the instructor and collaborating lesson study researchers. These materials and discussion are intended to inform student-teachers about the process, explain the rationale for its inclusion in the C & I course, and build their motivation for participation.

2) The class selects a date for the research lesson, organizing the lesson study work in light of spring break schedules and known activities that must precede the culminating research lesson activity.

3) The class works to develop a shared vision for teaching and learning in urban math and science classrooms, and then develops a shared "research theme" for their collaborative lesson study work. The group bases their research theme on the perceived gap they identify between the attributes of their students now and the attributes of the students as they hope them to be in five years.

4) Student-teachers who are interested in teaching the research lesson work with their cooperating teachers to identify curriculum materials appropriate for the research lesson. The material must be based on the curriculum sequence (targeting the material that will be taught on the scheduled research lesson day), and must support the development of the shared research theme. (For example, if the class wants to assess how reflective students

are as part of their research theme, the curriculum materials should provide an opportunity for student reflection.)

5) The class reviews the curriculum material and selects the lesson (and the associated student-teacher and school placement) that they feel best suits their shared professional interests or the particulars of their research theme.

6) To clarify the research theme and possible student responses to the lesson, student-teachers are asked to predict student responses to the lesson and participate in a micro-teaching of the lesson (where one student teaches the lesson to her colleagues and other student-teachers participate as students). (Micro-teaching may happen more than once. Each time the lesson is taught by a student-teacher other than the teacher whose classroom will eventually be visited.)

7) Based on their predicted student responses, their own actual responses to the lesson, and their observations about the strengths and weaknesses of the lesson during the micro-teaching, students collaboratively draft the research lesson plan. In planning they are asked to put the lesson in the context of a unit of instruction and consider both challenging content goals and longer-term goals for student development. The amount of time outside of class that individual student-teachers commit to the lesson planning process varies.

8) Students develop individual research questions, hypotheses, and data collection instruments based on the lesson and professional areas of interest at the time. Individual data collection ideas are considered by the class as a whole so that the class is able to gather data on the extent to which the lesson enables students to meet goals at multiple levels (in their long-term development; in the selected discipline; for the unit being studied; and with respect to the content of the immediate lesson).

9) The instructor organizes the site visit day, which includes the lesson study activities and other activities intended to familiarize the student-teachers with a typical urban school environment (e.g., lunch with students, classroom observations, panel discussions with school faculty.) Student-teachers take responsibility for organizing the research lesson debriefing session. Student-teachers typically take sections of the agenda in pairs.

10) The research lesson is taught by one teacher while others observe and collect data. After the lesson, at least one hour is set aside for student-teachers to review student work and their data, and make conclusions about the shared research theme. Student-teachers facilitate the debriefing, which may include cooperating teachers, Mills College faculty, fieldwork supervisors, and collaborating researchers.

11) Approximately one week following the research lesson, the class discusses the lesson study experience, noting strengths and challenges that become the basis for improvement in the following year.

12) Subsequent C & I course activities may build on the lesson study work.

Strengths and Challenges of the Lesson Study Work

Because of student-teacher composition, context for the research lesson (e.g., lesson topic, grade level, and school), and our own learning and reflection over time, lesson study has met with unique strengths and challenges each year.

Year One

- Student-teachers were given the option of including lesson study as a course component. Their decision to participate was a key highlight because students recognized the value of lesson study for their own professional and collegial development. Activities designed to build student buy-in were deemed successful.
- Defining the research theme took significant time and energy, in part because this activity was also used as part of a mid-year "taking stock" process for individual student-teachers and the class as a whole. Also challenging was the process of selecting a research lesson that took into consideration each student-teachers' various interests and expertise (subject matter, grade level, teaching experience). The solution to these problems was having student-teachers consider themselves part of "ideal" math and science department at a 6-12 secondary school, and develop a common vision and inquiry focus. The difficulty and time-consuming nature of this activity introduced students to the complexity and importance of collegial work, and raised the issue of how to ensure that the research lesson and lesson study experience are compelling and useful for all participants.
- One teacher was selected to teach the lesson, and she, along with her cooperating teacher, ultimately had to plan it. Other student-teachers, less involved in planning the lesson than they believed they would be, were disappointed by the level of collaboration. The benefit to the research lesson teacher over other student-teachers highlighted, and perhaps compounded, issues of unequal participation and confidence. The solution, however, was also a strength of the process. Each student took a specific role in the debriefing session and this allowed each one a powerful opportunity to develop and practice professional voice.
- The site visit – including interviews and with students, panel discussions with students and teachers, and classroom observations – was a significant highlight for student-teachers, because it provided a context in which to see the research lesson and to understand the participating students. Significantly, this site visit corresponds to the time of year when student-teachers are just beginning their job search.

Year Two

- Based on the level of buy-in the previous year, student-teachers were told (not asked) that they would be doing lesson study, and were given a schedule of the primary lesson study activities involved at the beginning of the semester. The issue of how to allocate time for the lesson study work could be addressed by all class members.

- The instructor organized classroom activities to facilitate the group's development of a more focused research theme. Less class time was spent word-smithing; student-teachers took more responsibility for this outside of class.
- Collaboration in the early stages of the lesson study process (lesson planning and revision) was increased. Micro-teaching the research lesson two weeks prior to the actual research lesson enabled two additional teachers an opportunity to teach the lesson, and gave others an opportunity to experience the lesson as students. This experience facilitated student-teachers' understanding of possible student responses to the lesson, and enabled them to develop more grounded hypotheses about the research lesson
- The more focused research theme and the micro-teaching experience enabled student-teachers to develop more targeted data collection instruments. In other words, the direct relationship between research theme, student responses, and data collection activities was made clearer. Each student-teacher was required to formulate a hypothesis about how the research lesson would bring about particular student responses, and to create a data collection instrument based on this hypothesis. Students' data collection instruments were reviewed, and suggestions were made for improvement by the instructor prior to the research lesson.
- Students were given time after the research lesson to review and draw conclusions from the data they collected, resulting in a higher quality analysis of student involvement in the lesson.
- While the debriefing continued to be student-run, outsider observers offered important pedagogical strategies during the debriefing. This experience highlighted the student-teachers' novice skill set and raised the question of how to include input from more experienced teachers without undermining the autonomy and efficacy of the preservice lesson study team.

Year Three

- Further changes have simultaneously narrowed the focus and increased the depth of the lesson study work. The research theme was even more narrowly defined than in previous years, including only two concepts (as opposed to five in the first year). In the first year, the multi-dimensional research theme was a way to recognize and include the viewpoints of individual student teachers. This year, stronger consensus around the research theme has enabled student-teachers to collect data on common ideas from multiple perspective (highlighting the issue and value of diverse perspectives on a lesson), and has also supported the class as a whole to gather information at multiple levels of concern (e.g., student grasp of particular content and student behavior).
- An increased content focus has been facilitated by three changes made to the lesson study process. First, the lesson was micro-taught twice prior to the research lesson. These experiences provided more opportunities for student-teachers to understand the content being taught, to consider possible student responses to the lesson, and to think about how to revise the lesson to correct student misconceptions. A second factor

was the group's recognition of the value of multiple levels and types of data. This led one third of the students to focus their individual research hypotheses on content goals, and resulted in more specific data collected on and discussion of students' grasp of the specific physics content. A third factor was the decision to build into the data analysis session following the research lesson a specific analysis of student work created during the lesson. Student-teachers were asked to analyze and evaluate the quality of the written work, giving those team members who focused on content goals a chance to compare whole class data with the performance of the smaller group of students they had observed more closely. For lesson study team members who looked at longer-term developmental goals – the research theme – the written student work provided valuable information linking the research goal and subsequent academic performance.

- The instructor has used the shared lesson study experience to create continuing conversations about teaching and learning and improve the quality of instruction in the class. In past years, the class has moved on to other course topics after their debriefing of the lesson study work. This year, the lesson study experience is being used to further discussions about other course topics. One example of this is that the class is revisiting the critical teacher decision points within the research lesson, and role-playing those moments with an eye towards adapting the lesson to the needs of a sheltered physical science class.