

A NEW VIEW OF Professional Development

STORY BY Jennifer Stepanek ILLUSTRATIONS BY students of Innerscape Art Center

TEACHERS ENGAGE IN LESSON study as researchers and scholars of their own classrooms. Their inquiries honor the fascinating and complex nature of teaching.

Classroom life is full of habits and routines that often pass unnoticed. They will often remain invisible until they are viewed from a different angle or in a new landscape. A video study of eighth-grade classrooms in Germany, Japan, and the United States allowed researchers to make cross-cultural comparisons of mathematics teaching. In doing so, they were able to look at teaching “with new eyes” and observe commonalities among teachers that might have gone unnoticed when only looking into U.S. classrooms.

In *The Teaching Gap*, James Stigler and James Hiebert (1999) ex-

vides a new perspective on teaching and educational reform:

“Teaching is a cultural activity. We learn how to teach indirectly, through years of participation in classroom life, and we are largely unaware of some of the most widespread attributes of teaching

According to Stigler and Hiebert, lesson study—a model for intensive, school-based professional development used in Japan—is a strategy for change and improvement that is appropriate for a cultural activity such as teaching. Developing new approaches requires deep



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in our own culture. The fact that teaching is a cultural activity explains why teaching has been

thought, inquiry, and collaboration with a collective focus on teaching rather than teachers. Lesson study provides a way for teachers to look at their own practice “with new eyes.”

THE TRUE VOYAGE OF DISCOVERY CONSISTS NOT IN SEEKING NEW LANDS, BUT IN SEEING WITH NEW EYES.
— MARCEL PROUST (1934)

plain how the video study from the Third International Mathematics and Science Study (TIMSS), conducted in 41 countries, pro-

so resistant to change. But recognizing the cultural nature of teaching gives us new insights into what we need to do if we wish to improve it.”

Mills College researcher Catherine Lewis has written extensively about lesson study and “research lessons,” the lesson activities that take place in the classroom as part of the lesson study process. She is writing a handbook for teachers and administrators based on her research, *Lesson Study: Teacher-Led Improvement of Instruction*, due out this summer.

During her observations of science lessons in Japanese elementary schools, she noticed her own understanding of science concepts was increasing. She found that Japan had experienced a shift from rote teaching to teaching for understanding based upon the recommendations for science education reform in the United States. While the change process seemed to be successful in Japan, it was much more inconsistent in the United States. The Japanese teachers identify research lessons as the source of their success (Lewis & Tsuchida, 1998).

Lesson study embodies many of the principles of effective professional development. Patsy Wang-Iverson, a senior associate with the Mid-Atlantic Eisenhower Consortium for Mathematics and Science Education @ Research for Better Schools in Philadelphia, has been working with Paterson School 2 in Paterson, New Jersey, one of the first schools in the United States to use the lesson study model. She explains that lesson study brings to life many of the theories about teacher learning and change: "Even though the term 'lesson study' is not familiar to most people in the United States, it converges with our current thinking about what's the most effective kind of professional development." For example, it is embedded in the classroom and focused on students, it is collaborative and ongoing, and it is based on teachers' own concerns and questions (Darling-Hammond & McLaughlin, 1995).

students at the center

In her autobiography, Virginia Woolf (1976) noted her desire to break through the "cotton wool" of daily life—the routines and habits that prevented her from seeing and living deeply. When teachers participate in lesson study and observe a lesson being taught, they have an opportunity to focus their attention on students. There is little time for such concentration when teachers are caught up in the flow of teaching.

Catherine Lewis explains that this is a key part of lesson study. "Japanese teachers say that the most powerful part of lesson study is that you develop the vision to see children. So you're

watching the students to see if their eyes are shining and listening for the exclamations that students make to themselves (Lewis, 2000).

The process of watching students as they think and learn is the part of lesson study that is most appealing and exciting. Patsy Wang-Iverson also points out that this is the reason the process is so effective. "The Japanese approach to lesson study provides two important pieces that are often missing from U.S. professional development: the direct observation of students and teachers in the classroom and teachers coming together to discuss what they've observed. Rather than examining

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MY EYES, I SIMPLY WON'T SEE IT.
— ANNIE DILLARD (1974)

really watching how children are learning, and learning to see things that you didn't see before: their thinking and their reactions."

When they observe, the teachers are often assigned to follow one group of children throughout the lesson. They pay close attention to the conversations students have with each other as well as the teacher's interactions with the small groups. They are also intent on capturing students' reactions to the lesson: How eager are they to investigate the topic? The teachers mention

student work, teachers should be examining students working."

Steve Rhine, who teaches at Willamette University in Salem, Oregon, suggests that the success of programs such as Cognitively Guided Instruction and Integrating Mathematics Assessment lies not in providing teachers with research on student thinking and cognitive development, but in focusing the teachers' attention on student thinking in their own classrooms. Lesson study may provide teachers with a similar experience, inspiring them to "open their eyes and minds to

the diversity and complexity of students' thinking" (Rhine, 1998).

An anecdote from Columbia University researcher Makoto Yoshida's (1999) ethnography of lesson study in Japan demonstrates teachers' attention to student thinking and the thoughtful use of manipulatives. The teachers spent a great deal of time in deciding what manipulatives they would provide for a subtraction problem. In this example we see that the teachers were not merely concerned with what type of manipulative might help students solve the problem. More important to them was identifying materials that would allow them to see and understand students' thinking.

developing professional authority

School improvement efforts often fail to engage teachers as knowledgeable practitioners, instead providing mandates, incentives, or "teacher-proof" strategies and materials. Some educators argue that professionalizing teaching is a more effective way to improve the educational system. Darling-Hammond (1997) advocates for teachers' professional authority and judgment as a more authentic means of developing and ensuring high-quality schools than bureaucratic accountability systems.

Lesson study approaches teaching as intellectually demanding work rather than a set of skills to be implemented. The attention paid to each lesson honors the importance of teaching as a pro-

foundly complex and interesting endeavor.

"Through the process of improving lessons and sharing with colleagues the knowledge they acquire, something remarkable happens to teachers: they begin viewing themselves as true professionals. They see themselves as contributing to the knowledge base that defines the profession. And they see this as an integral part of what it means to be a teacher" (Stigler & Hiebert, 1999).

In Japan, lesson study is a collaborative, schoolwide process, which means that improvement happens in more than one classroom, and teachers benefit from



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building on each other's knowledge and ideas. The process of learning through inquiry and discussion about classroom teaching helps teachers to build their sense of professional authority (Linn, Lewis, Tsuchida, & Songer, 2000). Lesson study also increases teachers' access to different points of view rather than limiting their interactions to those colleagues who share similar perspectives (Lewis, 2000).

constructing knowledge

In Liping Ma's (1999) study of elementary teachers in China and the United States, she found that the Chinese teachers demonstrated a deeper and more thorough understanding of elementary mathematics than the U.S. teachers. For example, the Chinese teachers emphasized "knowing how but also knowing why," interweaving procedural and conceptual knowledge. The U.S. teachers were concerned almost exclusively with procedural knowledge. This focus on procedural knowledge was also characteristic of the U.S. teachers in the TIMSS video study (Stigler & Hiebert, 1999).

Though they had a deeper understanding, the Chinese teachers had less formal education in mathematics than the U.S. teachers. Ma found that the Chinese teachers develop their pedagogical knowledge after they start teaching. They use a process similar to lesson study, working together in teacher research groups. The teachers study teaching materials together, exploring both what to teach and how to teach it. Their content knowledge in mathematics focuses on understanding the concepts in order to teach them to children (Ma, 1999).

Catherine Lewis points out that lesson study provides "a meaningful, motivating, high-fidelity context in which teachers can build their content knowledge" (Lewis, 2000). Therefore, the process of lesson study seems to be a more effective way to improve teachers' understanding

of the content than increasing the number of college-level mathematics classes that teachers are required to take. In commenting on lesson study, a Japanese teacher echoes Ma's findings: "The knowledge you gain by majoring in something is important, but more important is what kind of studying you do after you become a teacher" (Lewis & Tsuchida, 1997).

It may not be practical for schools in the United States to simply adopt the lesson study process without modifications. Nevertheless, it is a useful model for delivering intensive, school-based professional development that educators may want to adapt to their own needs. In Japan, lesson study helps teachers to "reinvent" policy in the classroom (Lewis, 2000). Teachers and administrators in the United States will make adjustments and reinvent lesson study in their own schools.

The challenge will be to strike a balance between keeping the essential elements of lesson study intact—for example, collaboration and peer observation—and changing the model to fit the reality of schools in the United States. For example, teachers tend to work in isolation and they have few, if any, opportunities to observe each other. Lesson study may help educators to see these barriers "with new eyes" and identify possibilities for change. ●

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THE LESSON STUDY PROCESS

In Japanese schools, the lesson study process generally flows through the following phases. The amount of time devoted to each lesson study varies, but the teachers commonly work on a lesson for about one month. This overview of the process is based on the work of Lewis (2000), Stigler & Hiebert (1999), and Yoshida (1999).

1. Focusing the Lesson

The lesson study usually focuses on a broad, schoolwide goal such as "independent thinking" or "love of learning." The teachers help determine these broad goals, and they choose the specific topic of the lesson. The topic often comes from a problematic concept that the teachers have observed in their own classrooms.

2. Planning the Lesson

The teachers research the topic of the study, reading books and articles about the problem they are working on. They collaborate to develop the lesson plan, and a draft is presented to the school staff for feedback.

3. Teaching the Lesson

One teacher from the team presents the lesson in his classroom. The other teachers observe the lesson very closely, taking notes on what the students and the teacher are doing and saying. The lesson may be documented through video, photographs, audiotapes, and student work.

4. Reflecting and Evaluating

The group meets after school to discuss the lesson and their observations. The teacher who presented the lesson speaks first, outlining how he thinks the lesson went and identifying problems he observed. The other teachers contribute their own observations and suggestions.

5. Revising the Lesson

Based on the problems identified in the first presentation, the study group makes changes in the lesson. Changes are usually based on student misunderstandings that the teachers noticed during their observation. The group may meet several times to improve the lesson and prepare for a second implementation, although sometimes the teachers decide that they do not need to reteach it.

6. Teaching the Revised Lesson

The lesson may be presented again to a different group of students. The same person may teach the lesson a second time or a different teacher may try it out. Often, all the teachers in the school are invited to observe the revised lesson.

7. Reflecting and Evaluating

The whole faculty will participate in the second debriefing session, which may cover more general issues of learning and instruction. There is usually an outside expert working with the lesson study group, who speaks last during the debriefing.

8. Sharing Results

Teachers share the lessons they develop through this process, creating a bank of well-crafted lessons to draw upon. The teachers will often publish a report about their study, including the teachers' reflections and a summary of group discussions. In addition, teachers from outside the school may be invited to observe the teachers present the lesson.