

17,000 CLASSROOM VISITS CAN'T BE WRONG

Strategies That Engage Students, Promote Active Learning, and Boost Achievement

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Focus on Learning

These frustrated ramblings in a 7th grader's journal are all too familiar to most educators. Teachers spend time planning lessons, basing them on standards and guided by curricula and instructional materials, only to be met with resistance and apathy. We try to keep up with developments in instruction—you wouldn't be reading this book if you didn't—but the pieces often seem to remain disparate and not come together. Perhaps it's a matter of changing our focus. Have we considered what our lessons might look like from the other side of the desk?

As the authors of this book, we have looked at instruction in more than 17,000 elementary and secondary classrooms. During this experience, we have come to recognize the power of shifting the focus from teaching to learning. This realization has come both over time and in a few blinding moments of clarity.

A few years ago, we hosted our first annual Engagement Conference in Las Vegas. On the eve of that conference, like expectant parents, we carefully reviewed our plans for the following days, ensuring that every detail was covered. Finally, at about 10:30 p.m., John said, "I think we're ready, but you don't seem very happy."

"What's the 'big idea' for our conference?" Jim asked.

"That kids need to be more engaged… actively involved in learning activities."

"And how are we starting?"

"With your 90 minute keynote speech…"

And at that point, we both realized that wouldn't work. So, we set about designing a new conference opening—one in which participants would be

physically and cognitively involved in the work. We were nervous, because we had never seen this kind of thing done in a large general session, but it gave rise to one of our favorite sayings: "Trust the learners."

A major purpose of this book is to help educators understand and develop this trust. Whether you are serving as a classroom teacher, site administrator, district leader, school board member, or parent, this idea can have powerful implications. In the following pages, we will share:

- What's really going on in classrooms around the country.
- Benchmarks to determine where your school is on the continuum of effective instruction.
- Good classroom practices for implementation and professional development.
- Tools and techniques to improve academic scores.
- Qualities that will result in students being more engaged.
- Strategies that develop higher-level thinking.
- Techniques to lead professional learning communities (PLCs) in a new, more thoughtful direction.
- A vision of what your school could be.

For many reasons—the movement to standards and accountability being chief among them—one might think that a shift toward learning-focused instruction should have already happened. Unfortunately, testing elevated the importance of results but not the learning process.

In a traditional classroom model, time is the constant and learning is the variable. That is, all students receive the same instruction for roughly the same amount of time. The results—not surprisingly—are a bell curve. Some students learn the content deeply and well, most have a moderate level of comprehension, and a few don't learn it at all. With the advent of standards, learning has become the desired constant, yet one of the most important variables—time—was never adjusted. Another element of the learning process resistant to change has been the traditional role of the teacher.

For more than 20 years, the International Association for the Evaluation of Educational Achievement has provided educators around the world with statistics regarding math and science achievement. In 1999, the Trends in International Mathematics and Science Study (TIMSS) analyzed math classes in seven nations to examine the relationship between the cognitive demands of mathematical tasks and student achievement. In this study, a random sample

of 100 8th grade math classes from each of the countries (Australia, the Czech Republic, Hong Kong [China], Japan, the Netherlands, Switzerland, and the United States) was videotaped during the school year. The six other countries were selected because each performed significantly higher than the United States on the TIMSS 1995 mathematics achievement test for 8th grade (Stigler & Hiebert, 2004).

In the 1999 video study, the classroom math tasks were categorized as either *using procedures* (i.e., requiring basic computational skills and procedures) or *making connections* (i.e., focusing on concepts and connections among mathematical ideas). The problems were coded twice—once to characterize the type of math problem and once to describe its implementation in the classroom.

Figure 1.1 captures the percentage of each type of math problem presented in six of the seven countries.

Approximately 17 percent of the problem statements in the United States suggested a focus on mathematical connections or relationships. This percentage is within the range of several high-achieving countries (i.e., Hong Kong, Czech Republic, Australia).

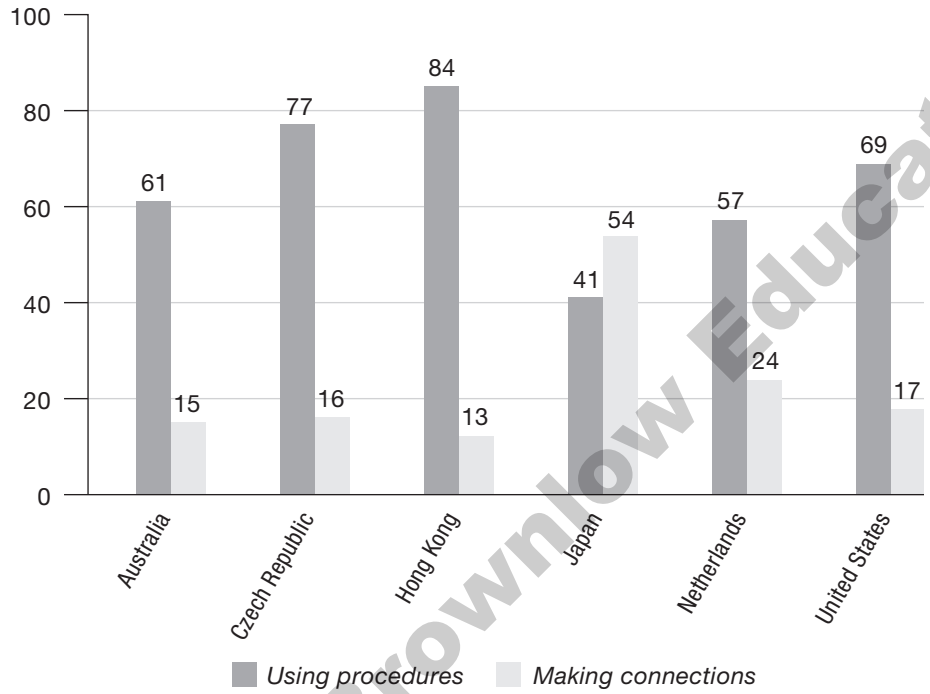
As students worked through the math problems, the video study analyzed teacher-student interactions and the mathematical approach taken to solve the problems. Figure 1.2 shows the coding of the student work as it was actually performed by students.

Though the curriculum may have involved a balance in the types of problems proposed, virtually none of the *making connections* problems observed in the United States were implemented in a way that guaranteed conceptualization or demanded mathematical connections be made by students. There are a number of issues highlighted by the study, but the most troubling finding of all is that teachers in the United States reduced most problems to procedural exercises or simply gave students the answers—efficient teaching perhaps, but ineffectual learning.

If the TIMSS video study had only looked at instructional delivery or the resulting achievement measures, these issues might not have been as obvious. Focusing on students during academic activities provided the greatest clarity into the achievement results.

Why does this disconnect between curriculum and implementation occur in the United States? Math teachers across the country have shared with us many valid reasons when we ask this very question:

Figure 1.1 » **Types of Math Problems Presented**



The percentage of math problems that focused on *making connections* varied greatly among high-scoring TIMSS countries.

Note: Switzerland was not included in this analysis because this feature of teaching was coded only by English speakers and English transcripts of the Swiss lessons were not available.

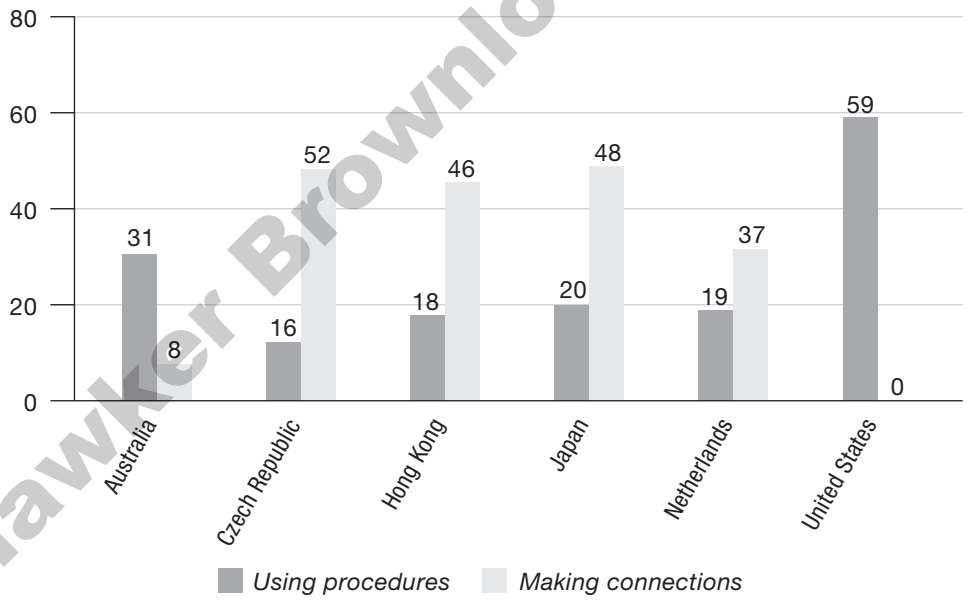
Source: From "Improving Mathematics Teaching," by J. W. Stigler and J. Hiebert, 2004, *Educational Leadership, 61*(15), p. 14. Copyright 2004 by ASCD.

- "Our curriculum is too full, inviting coverage and speed over deep mathematical understanding."
- "The discomfort of letting our students struggle; the need to rescue our students and then move on."
- "The pressure of the ever-present high-stakes testing."

- "The fear that a visiting administrator who walks in during a moment of student struggle might not see the teacher 'teaching.'"
- "It takes too long for them to figure it out."

This challenge remains today. Math teacher Dan Meyer put it into perspective when he said that we are "taking a compelling question, a compelling answer… but we are paving a smooth, straight path between the two and congratulating our students for how well they can step over the cracks on the way" (Meyer, 2013).

Figure 1.2 » **How Teachers Implemented *Making Connections* Math Problems**



High-scoring TIMSS countries implemented a higher percentage of *making connections* problems as *making connections* problems. U.S. teachers tended to turn these problems into procedural exercises.

Note: Switzerland was not included in this analysis because this feature of teaching was coded only by English speakers and English transcripts of the Swiss lessons were not available.

Source: From "Improving Mathematics Teaching," by J. W. Stigler and J. Hiebert, 2004, *Educational Leadership, 61*(5), p. 15. Copyright 2004 by ASCD.