

## Students learn when the teacher knows

**N**SDC’s standard on quality teaching identifies the three elements of quality teaching. Quality teaching includes many tasks; however, it essentially involves deep content knowledge, assessment, and instruction. These elements are the core of a teacher’s work and are at the heart of what helps students achieve.

The axiom “what a teacher knows and does influences what a student learns” is at the heart of this standard. Teachers’ content knowledge determines not only what a teacher teaches, but also how. When a teacher’s understanding of complex concepts, content, or processes is fragmented, shallow, or insufficient, the lessons the teacher designs and teaches are likely to reflect this. I remember an experience that drove this point home for me.

Several years ago, I was invited to a symposium at the National Research Center on mathematics teaching at the middle school. As a former middle and high school English teacher, I felt a bit out of place. I had been invited to facilitate a series of discussions. I am a confident facilitator and agreed to participate and simultaneously promised myself to facilitate and not talk.

Hyman Bass, an international authority on mathematics teaching, delivered one of the plenary sessions. He invited participants to view a videotape of a middle-school math lesson. I was awestruck by the enthusiasm of the young teacher. She used students’ names and visual models, asked students to explain their thinking, invited them to diagram their solutions on the board, complimented students positively. I saw her gently encourage a shy, uncertain student until she stepped forward and spoke about her

solutions. In my estimation, her teaching behaviors rivaled those of a more experienced teacher.

When Bass came back to the podium to address the audience, he asked several people to comment on the teaching. I started to raise my hand and then remembered my rule. It was a good thing. Before long, Bass was telling us how students in this teacher’s classroom would struggle with subsequent mathematical concepts because, while she was a good teacher, what she taught was wrong. I was shocked. It never occurred to me before that a teacher could be so

masterful in one area of her instruction and so wrong in her content knowledge. I will long remember that teacher and her students. What a teacher knows does influence what a student learns.

In addition to a deep content knowledge, students benefit when their teachers have considered what learning looks like and when they have designed assessments both of and for learning. Teachers use assessment as an instructional tool to help students know what they know and can do and to assist both the teacher and the student to identify where the student needs additional instruction.

Assessment for learning helps

teachers clarify what students already know and can do, where their gaps are, and targets the next step of instruction. Assessment of learning helps teachers look at what students have learned before moving to another unit or concept. Teachers also take time to consider how to design assessments to allow students to demonstrate success. This might mean having more oral than written assessments for students who fare better when they are not struggling with written language. It means making accommodations for students who need them so that they too can be suc-

### QUALITY TEACHING

Staff development that improves the learning of all students deepens educators’ content knowledge, provides them with research-based instructional strategies to assist students in meeting rigorous academic standards, and prepares them to use various types of classroom assessments appropriately.



Joellen Killion is director of special projects for National Staff Development Council.

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cessful. It might mean asking students to demonstrate their learning in diagrams, songs, demonstrations, or other forms of performance. Designing assessments before instruction helps focus instruction.

Selecting the most appropriate instructional methodology to teach particular concepts can determine the degree to which a student achieves. If the assessment asks students to demonstrate their learning through a diagram or graphic organizer and the instruction fails to engage students in that type of process, some students will fail. If at the end of instruction, students are expected to analyze a concept, yet their instruction is primarily focused on receiving facts, some students will fail. If instruction is not differentiated for students who learn differently — whether they are special needs students, gifted students, males, females, English language learners — some students will fail. Students learn when their teachers know which instructional methodologies are supported by research, can select the most appropriate method for the content they are teaching, can explain their reasons for selecting the strategy, and can execute well a lesson using that method.

What role then does a coach play in helping teachers become masterful at quality teaching? A coach helps teachers deepen their content knowledge by taking time to discuss or model complex concepts for teachers. They may share resources with teachers that will help them deepen their understanding of the content. They may engage teachers in conversations about the content. Coaches also help teachers design assessment both for learning and of learning, alter them for different types of learners, and differentiate how students demonstrate their learning. Lastly, coaches model research-based instructional practices, help teachers learn how research supports the use of certain instructional methods, engage teachers in conversations either one-on-one or in small groups about their decisions to use particular instructional strategies, and provide feedback to teachers or engage teachers in reflection on their lesson delivery.

Quality teaching is challenging and complex work. Coaches are a key resource for teachers in helping them refine their teaching especially when the focus reaches across all three dimensions of quality teaching — content knowledge, assessment, and instruction. ◆

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#### **MAIN BUSINESS OFFICE**

5995 Fairfield Road, #4  
Oxford OH 45056  
(513) 523-6029  
(800) 727-7288  
(513) 523-0638 (fax)  
E-mail: NSDCoffice@nsdc.org  
Web site: www.nsd.org

**Editor:** Joan Richardson

**Designer:** Kitty Black

#### **NSDC STAFF**

##### **Executive director**

Dennis Sparks  
dennis.sparks@nsdc.org

##### **Deputy executive director**

Stephanie Hirsh  
stephanie.hirsh@nsdc.org

##### **Director of publications**

Joan Richardson  
joan.richardson@nsdc.org

##### **Director of special projects**

Joellen Killion  
joellen.killion@nsdc.org

##### **Director of business services**

Leslie Miller  
leslie.miller@nsdc.org

##### **Web editor**

Tracy Crow  
tracy.crow@nsdc.org

##### **Distinguished senior fellow**

Hayes Mizell  
hayes.mizell@nsdc.org

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