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Learning communities can use it to engineer

BY DYLAN WILIAM

There is today a bewildering range of coherent approaches to school improvement, almost all of which can be shown to have a significant effect on student achievement. The question is: Which investments provide the best value for the money?

It is becoming clearer that the teacher is the most important influence on student achievement (Rivkin, Hanushek, & Kain, 2005). Students who get the best teachers learn at twice the rate of students taught by average teachers (Hanushek, 2004). We can get a greater improvement in teacher quality, at a lower cost, by investing in teacher learning.

There is increasing research evidence that teacher professional development is most effective when it is related to the local circumstances in which teachers operate (Cobb, McClain, Lamberg, & Dean, 2003), takes place over a period of time

rather then being in the form of one-day workshops (Cohen & Hill, 1998), and involves teachers in active, collective participation through teacher learning communities as advocated by NSDC's Standards for Staff Development (Garet, Birman, Porter, Desimone, & Herman, 1999; Ingvarson, Meiers, & Beavis, 2005).

However, while any sustained teacher learning community may bring some benefits, the research evidence indicates that some foci are more powerful than others. And the most powerful appears to be the use of assessment, minute-by-minute and day-to-day, to help teachers "keep learning on track" (Black & Wiliam, 1998a; 1998b).

Over the past two years, researchers from the ETS Learning and Teaching Research Center have

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been working to help groups of teachers in Delaware, Maryland, New Jersey, and Pennsylvania integrate assessment with instruction through teacher learning communities. A number of factors have been crucial in the success that teachers have enjoyed, in terms of greater student motivation, higher student achievement, and greater professional satisfaction.

STRATEGIES FOR LEARNING

A substantial research base exists on the power of minute-by-minute and day-to-day assessment to improve student learning (Natriello, 1987; Crooks, 1988; Black & Wiliam, 1998a). While some teachers are more interested in the practical ideas, teachers should understand the research basis for two reasons. The first is that they may need to be able to cite the research evidence in getting permission to try some of the techniques, which may go counter to school policies. The second, and more important, reason is that teachers need to adapt the practical ideas they are

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a bridge connecting teaching and learning

given to make them work in their own classrooms. Without some understanding of the principles of how assessment can impact learning, their modifications may be counter-productive.

Like experts in other areas, expert teachers are highly sensitive to context. What might be exactly the right thing to do in one situation might be exactly the wrong thing to do in a similar, but different situation. Experts tend not to use general, all-purpose approaches to solving problems, but rather generate solutions that take advantage of specific details in the challenges they face. That is why "what works" is not the right question in education. Everything works somewhere, and nothing works everywhere. Therefore we must draw a clear distinction between general strategies for integrating assessment into instruction, and specific techniques for enacting the strategies.

Five key general strategies collectively define the territory of assessment for learning:

- Clarifying and sharing learning intentions and success criteria;
- Engineering effective classroom discussions and tasks;
- Providing feedback that moves learners forward;
- Activating students as owners of their learning; and
- Activating students as instructional resources for one another.

The "big idea" binding these strategies together is that teachers use evidence of learning to adapt instruction to meet student needs.

These five strategies are no-brainers in the sense that they are always important and worthwhile things to do. But the techniques with which such strategies are implemented in a particular content area, with a particular class, on a particular occasion, require the insight of the teacher.

Sharing success criteria

One of the clear findings from the literature (e.g. White & Frederiksen, 1998) is that many students do not understand what it is they are meant

to be doing in class. In other words, they do not understand the criteria for success, and so are unable to produce high-quality work.

To overcome this, a middle school history teacher gave his students a source document and a question about the document, together with four anonymous student responses to the question from a previous year's class. Students were asked to work in pairs to put the four pieces of work in rank order of quality. The teacher's first attempt didn't work well because it turned out that the longest answer was the best and the shortest was the worst, so he took care in subsequent lessons to choose examples where the longest answer was sometimes the worst and the shortest the best. "False starts" are by no means failures. They are the inevitable result of attempting to innovate in a complex area of expertise.

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Engineering effective discussions

In many classrooms, students are able to choose whether to participate in the discussion since the convention is that the teacher calls only on those students who raise their hands. The result is that different students in the same classroom occupy different niches; demands are made of some, while others are allowed to choose not to participate.

To create high-engagement classrooms, teachers have used the device of writing each student's name on a Popsicle stick, posting a question on the chalkboard or overhead projector, and selecting a student to answer by randomly picking a stick. The dialogue can be sustained by randomly choosing a second student, who is asked whether the answer given is correct, and a third student, again chosen at random, can be asked for an explanation. Some teachers, concerned that such a sharp change in classroom practice might unsettle students, allow students one or two "passes" per week, or allow them to "phone a friend" (i.e. ask another student in the class for help).

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Task-involving feedback

Feedback that engages students and moves them forward is feedback that causes students to think. Teachers often are surprised at the substantial body of research showing that feedback in the form of a grade or score rarely helps improve student learning and instead often gets in the way of learning (Butler, 1987, 1988; Kluger & DeNisi, 1996).

An example of ineffective feedback would be to place a check next to a student's correct answer and a cross next to each incorrect answer. Instead, tell the student, "Five of these 20 answers are incorrect. Find them and fix them." Similarly, rather than

Additional resources:

• *Assessment for Learning: Putting It Into Practice*, by Paul Black, Christine Harrison, Clare Lee, Bethan Marshall, and Dylan Wiliam. New York: McGraw Hill/Open University Press, 2003.

• "Working inside the black box: Assessment for learning in the classroom," by Paul Black, Christine Harrison, Clare Lee, Bethan Marshall, and Dylan Wiliam. (2004, September). *Phi Delta Kappan, 86*(1), 8-21.

• "Classroom assessment: Minute-by-minute and day-by-day," by S. Leahy, C. Lyon, M. Thompson, and Dylan Wiliam. (In press). *Educational Leadership*.

correcting spelling, grammar, or punctuation errors, language arts teachers mark a dot in the margin for each error in the line and require students to correct their own work. The teachers who have been most successful in getting students to accept the need for improvement are those who have made time in class to work on these improvements rather than leaving students to make the corrections in their own time.

Self-assessment

If students are to become autonomous learners, they need to develop the ability to assess their own progress. Students then become owners of their own learning.

The use of "traffic lights" has proved a simple, flexible, but powerful way of starting the process. At the end of a lesson, the teacher returns to the lesson's objective and asks students to assess their own understanding by holding up colored paper or perhaps by placing colored cups on the corner of their desks. Green indicates the students are confident they have understood, yellow means they are uncer-

tain about some things, and red signals substantial confusion. Initially, many teachers find that boys signal green when girls with the same level of understanding signal yellow, but when teachers hold students accountable for their self-assessments, this discrepancy changes rapidly. One easy way to do this is for the teacher to say, "Greens help the yellows; reds over here with me." Students quickly learn that signaling green is equivalent to stating that one is ready to teach the lesson to someone else, and they become more accurate in their self-assessments.

Peer assessment

Many teachers have found that students seem unable or even unwilling to assess their own work. The fact is that assessing one's own work is challenging, even when a rubric is provided. On the other hand, many teachers have noticed that most students find it easier to spot errors in other people's work than in their own. For this reason, peer assessment can be a helpful stepping-stone to self-assessment.

Many teachers are initially reluctant to engage students in assessing each others' work. However, once teachers understand that students are helping each other improve their work and not grading each other, many doubts are assuaged.

A particularly successful format for peer assessment is "two stars and a wish." Students who provide feedback to their peers describe two positive aspects of the work they are evaluating (two stars) and one thing they think can improve the work (the wish). Students unused to working this way can be given sticky notes to place on their peers' work so they are not writing directly in the notebook. Most teachers, however, find they are able quickly to dispense with the sticky notes because the students provide such sensible feedback.

A MODEL FOR TEACHER LEARNING

Classrooms are extremely complex places. This is perhaps obvious, but the consequences of this observation are less so. Classrooms are so complex that we cannot predict what will happen, and so training teachers to respond appropriately to what we anticipate might happen is likely to be ineffective. It is rather like trying to predict the different situations that might arise in a football game and trying to develop a set of moves for the quarterback for each situation.

To realize the promise of teacher learning to improve student achievement, we need to design professional development programs that take into account the nature of teacher expertise and how teachers learn.

Our model for effective teacher learning includes initial teacher workshops, monthly meetings of teacher learning communities, peer observation of practice, and training for teacher leaders. The model incorporates both the process (how teachers learn) and the content (what teachers need to learn) of teacher change. A number of traits are important in developing the model.

Small steps

Asking teachers to make wholesale changes in their practice is a little like asking a golfer to change her swing during a tournament. Teachers have to maintain the fluency of their classroom routines, while at the same time disrupting them. Teachers should develop an action plan that specifies a small number of changes — ideally two or three — that they will make in their teaching. As teachers establish new techniques in their practices, they can take on additional ones.

Flexibility

Teachers should modify techniques to make them work in their classrooms; in the process of adapting techniques, teachers often refine and improve them. One high school mathematics teacher adapted the traffic light technique by giving each student a disc, green on one side and red on the other. At the start of each lesson, students place the green side of a disc uppermost. A student can indicate confusion at any time by turning the disc over to show red. The teacher found that students who had never asked a question all year in class were prepared to signal their confusion in

this way. Another teacher tried this approach, but found it difficult to see the discs from the front of the class so she provided each student with three paper cups, in green, yellow, and red, nested inside each other on the students' desks. Students used these cups to indicate whether they were following the teacher's explanation (green), wanted the teacher to slow down (yellow), or wanted her to stop (red).

Choice

Teachers often describe the process of changing their practice as "scary." Many have described the feeling as being asked to give up control of their classrooms. However, teachers responsible for choosing what they will change about their practice feel empowered, especially when they can choose among techniques those that appeal to them. This choice lies, however, within a framework of accountability. While teachers are free to choose what they change, they are accountable for changing something.

Accountability

Most professionals involved in teacher development will have had the experience of generating considerable

enthusiasm for, and commitment to, change during a summer workshop, only to find that all the good intentions seem to be erased by the demands of teachers establishing themselves with new classes. Teachers should be held accountable for making changes by colleagues at monthly meetings of their teacher learning community. Each teacher describes what he or she tried and how it went. Having to face their colleagues often helps teachers move their change task to the top of their in-tray.

Support

Along with ideas for what to change and the support of a teacher learning community, two elements are highly desirable, if not essential, for teacher learning. The first is training for those who will lead the learning communities. The person leading the learning community must be clear about his or her role. The leader is not to create teacher change, but to engineer situations in which the teacher change can take place. Those in supervisory roles often find this more difficult than do teachers, because those teaching every day understand how difficult it is to change practice. The second element is peer-observation. Collaborative planning in the monthly learning community meetings can help teachers focus on what they want to develop in their practice, but teachers need support in enacting these practices in their classrooms. To clearly distinguish these observations from those routinely carried out to manage performance, these observations should be done by peers rather than supervisors. The teacher being observed must set the agenda for the observation and spell out for the observer what should count as evidence. By defining the observer's role, both in terms of what is to be looked

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for and what counts as evidence, the observer's own prejudices are minimized, and the difference between this and supervisory observation is emphasized.

CONCLUSION

The research on teacher learning shows that teacher learning communities provide the most effective process for teacher change (Borko, 2004), while research shows that a focus on assessment *for* learning is the most powerful, and yet most neglected, aspect of teacher practice (Black & Wiliam, 1998a). By fusing these together, educators have the real possibility of providing effective teacher learning at scale and a reasonable cost.

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