EDUCATIONAL LEADERSHIP

February 2003 | Volume **60** | Number **5**
Using Data to Improve Student Achievement Pages 6-11

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How Classroom Assessments Improve Learning

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Teachers who develop useful assessments, provide corrective instruction, and give students second chances to demonstrate success can improve their instruction and help students learn.

Large-scale assessments, like all assessments, are designed for a specific purpose. Those used in most states today are designed to rank-order schools and students for the purposes of accountability—and some do so fairly well. But assessments designed for ranking are generally not good instruments for helping teachers improve their instruction or modify their approach to individual students. First, students take them at the end of the school year, when most instructional activities are near completion. Second, teachers don't receive the results until two or three months later, by whic time their students have usually moved on to other teachers. And third, the results that teachers receive usually lack the level of detail needed to target specific improvements (Barton, 2002; Kifer, 2001).

The assessments best suited to guide improvements in student learning are the quizzes, tests, writing assignments, and other assessments that teachers administer on a regular basis in their classrooms. Teachers trust the results from these assessments because of their direct relation to classroom instructional goals. Plus, results are immediate and easy to analyze at the individual student level. To use classroom assessments to make improvements, however, teachers must change both their view of assessments and their interpretation of results Specifically, they need to see their assessments as an integral part of the instruction process and as crucial for helping students learn.

Despite the importance of assessments in education today, few teachers receive much formal training in assessment design or analysis. A recent survey showed, for example, that fewer than half the states require competence in assessment for licensure as a teacher (Stiggins, 1999). Lacking specific training, teachers rely heav on the assessments offered by the publisher of their textbooks or instructional materials. When no suitable assessments are available, teachers construct their own in a haphazard fashion, with questions and essay promp similar to the ones that their teachers used. They treat assessments as evaluation devices to administer when instructional activities are completed and to use primarily for assigning students' grades.

To use assessments to improve instruction and student learning, teachers need to change their approach to assessments in three important ways.

Make Assessments Useful

For Students

Nearly every student has suffered the experience of spending hours preparing for a major assessment, only to discover that the material that he or she had studied was different from what the teacher chose to emphasize on the assessment. This experience teaches students two un-fortunate lessons. First, students realize that hard worl and effort don't pay off in school because the time and effort that they spent studying had little or no influence o the results. And second, they learn that they cannot trust their teachers (Guskey, 2000a). These are hardly the lessons that responsible teachers want their students to learn.

Nonetheless, this experience is common because many teachers still mistakenly believe that they must keep thei assessments secret. As a result, students come to regard assessments as guessing games, especially from the middle grades on. They view success as depending on how well they can guess what their teachers will ask on quizzes, tests, and other assessments. Some teachers even take pride in their ability to out-guess students. They ask questions about isolated concepts or obscure understandings just to see whether students are reading carefully. Generally, these teachers don't include such “gotcha” questions maliciously, but rather—often unconsciously—because such questions were asked of them when they were students.

Classroom assessments that serve as meaningful sources of information don't surprise students. Instead, these assessments reflect the concepts and skills that the teacher emphasized in class, along with the teacher's clear criteria for judging students' performance. These concepts, skills, and criteria align with the teacher's instructiona activities and, ideally, with state or district standards. Students see these assessments as fair measures of important learning goals. Teachers facilitate learning by providing students with important feedback on their learning progress and by helping them identify learning problems (Bloom, Madaus, & Hastings, 1981; Stiggins, 2002).

Critics sometimes contend that this approach means “teaching to the test.” But the crucial issue is, What determines the content and methods of teaching? If the test is the primary determinant of what teachers teach and how they teach it, then we are indeed “teaching to the test.” But if desired learning goals are the foundation students' instructional experiences, then assessments of student learning are simply extensions of those same goals. Instead of “teaching to the test,” teachers are more accurately “testing what they teach.” If a concept or skil is important enough to assess, then it should be important enough to teach. And if it is not important enough to teach, then there's little justification for assessing it.

For Teachers

The best classroom assessments also serve as meaningful sources of information for teachers, helping them identify what they taught well and what they need to work on. Gathering this vital information does not require a sophisticated statistical analysis of assessment results. Teachers need only make a simple tally of how many students missed each assessment item or failed to meet a specific criterion. State assessments sometimes provic similar item-by-item information, but concerns about item security and the cost of developing new items each ye usually make assessment developers reluctant to offer such detailed information. Once teachers have made specific tallies, they can pay special attention to the trouble spots—those items or criteria missed by large numbers of students in the class.

In reviewing these results, the teacher must first consider the quality of the item or criterion. Perhaps the questic is ambiguously worded or the criterion is unclear. Perhaps students mis-interpreted the question. Whatever the case, teachers must determine whether these items adequately address the knowledge, understanding, or skill that they were intended to measure.

If teachers find no obvious problems with the item or criterion, then they must turn their attention to their teaching. When as many as half the students in a class answer a clear question incorrectly or fail to meet a particular criterion, it's not a student learning problem—it's a teaching problem. Whatever teaching strategy was used, whatever examples were employed, or whatever explanation was offered, it simply didn't work.

Analyzing assessment results in this way means setting aside some powerful ego issues. Many teachers may initially say, “I taught them. They just didn't learn it!” But on reflection, most recognize that their effectiveness is n defined on the basis of what they do as teachers but rather on what their students are able to do. Can effective teaching take place in the absence of learning? Certainly not.

Some argue that such a perspective puts too much responsibility on teachers and not enough on students. Occasionally, teachers respond, “Don't students have responsibilities in this process? Shouldn't students display initiative and personal accountability?”

Indeed, teachers and students share responsibility for learning. Even with valiant teaching efforts, we cannot guarantee that all students will learn everything excellently. Only rarely do teachers find items or assessment criteria that every student answers correctly. A few students are never willing to put forth the necessary effort, bu these students tend to be the exception, not the rule. If a teacher is reaching fewer than half of the students in th class, the teacher's method of instruction needs to improve. And teachers need this kind of evidence to help targ their instructional improvement efforts.

Follow Assessments with Corrective Instruction

If assessments provide information for both students and teachers, then they cannot mark the end of learning. Instead, assessments must be followed by high-quality, corrective instruction designed to remedy whatever learning errors the assessment identified (see Guskey, 1997). To charge ahead knowing that students have not learned certain concepts or skills well would be foolish. Teachers must therefore follow their assessments with instructional alternatives that present those concepts in new ways and engage students in different and more appropriate learning experiences.

High-quality, corrective instruction is not the same as reteaching, which often consists simply of restating the original explanations louder and more slowly. Instead, the teacher must use approaches that accommodate differences in students' learning styles and intelligences (Sternberg, 1994). Although teachers generally try to incorporate different teaching approaches when they initially plan their lessons, corrective instruction involves extending and strengthening that work. In addition, those students who have few or no learning errors to correct should receive enrichment activities to help broaden and expand their learning. Materials designed for gifted and talented students provide an excellent resource for such activities.

Developing ideas for corrective instruction and enrichment activities can be difficult, especially if teachers believe that they must do it alone, but structured professional development opportunities can help teachers share strategies and collaborate on teaching techniques (Guskey, 1998, 2000b). Faculty meetings devoted to examining classroom assessment results and developing alternative strategies can be highly effective. District-level personn and collaborative partnerships with local colleges and universities offer wonderful resources for ideas and practical advice.

Occasionally, teachers express concern that if they take time to offer corrective instruction, they will sacrifice curriculum coverage. Because corrective work is initially best done during class and under the teacher's direction early instructional units will typically involve an extra class period or two. Teachers who ask students to complete corrective work independently, outside of class, generally find that those students who most need to spend time on corrective work are the least likely to do so.

As students become accustomed to this corrective process and realize the personal benefits it offers, however, th teacher can drastically reduce the amount of class time allocated to such work and accomplish much of it throug homework assignments or in special study sessions before or after school. And by not allowing minor errors to become major learning problems, teachers better prepare students for subsequent learning tasks, eventually ne less time for corrective work (Whiting, Van Burgh, & Render, 1995), and can proceed at a more rapid pace in later

learning units. By pacing their instructional units more flexibly, most teachers find that they need not sacrifice curriculum coverage to offer students the benefits of corrective instruction.

Give Second Chances to Demonstrate Success

To become an integral part of the instructional process, assessments cannot be a one-shot, do-or-die experience for students. Instead, assessments must be part of an ongoing effort to help students learn. And if teachers follo assessments with helpful corrective instruction, then students should have a second chance to demonstrate thei new level of competence and understanding. This second chance helps determine the effectiveness of the corrective instruction and offers students another opportunity to experience success in learning.

Writing teachers have long recognized the many benefits of a second chance. They know that students rarely wri well on an initial attempt. Teachers build into the writing process several opportunities for students to gain feedback on early drafts and then to use that feedback to revise and improve their writing. Teachers of other subjects frequently balk at the idea, however—mostly because it differs from their personal learning experiences

Some teachers express concern that giving students a second chance might be unfair and that “life isn't like that.' They point out that that a surgeon doesn't get a second chance to perform an operation successfully and a pilot doesn't get a second chance to land a jumbo jet safely. Because of the very high stakes involved, each must get it right the first time.

But how did these highly skilled professionals learn their craft? The first operation performed by that surgeon wa on a cadaver—a situation that allows a lot of latitude for mistakes. Similarly, the pilot spent many hours in a fligh simulator before ever attempting a landing from the cockpit. Such experiences allowed them to learn from their mistakes and to improve their performance. Similar instructional techniques are used in nearly every professiona endeavor. Only in schools do student face the prospect of one-shot, do-or-die assessments, with no chance to demonstrate what they learned from previous mistakes.

All educators strive to have their students become lifelong learners and develop learning-to-learn skills. What better learning-to-learn skill is there than learning from one's mistakes? A mistake can be the beginning of learning. Some assessment experts argue, in fact, that students learn nothing from a successful performance. Rather, students learn best when their initial performance is less than successful, for then they can gain direction on how to improve (Wiggins, 1998).

Other teachers suggest that it's unfair to offer the same privileges and high grades to students who require a second chance that we offer to those students who demonstrate a high level of learning on the initial assessmen After all, these students may simply have failed to prepare appropriately. Certainly, we should recognize students who do well on the initial assessment and provide opportunities for them to extend their learning through enrichment activities. But those students who do well on a second assessment have also learned well. More important, their poor performance on the first assessment may not have been their fault. Maybe the teaching strategies used during the initial instruction were inappropriate for these students, but the corrective instruction proved more effective. If we determine grades on the basis of performance and these students have performed a a high level, then they certainly deserve the same grades as those who scored well on their first try.

A comparable example is the driver's license examination. Many individuals do not pass their driver's test on the first attempt. On the second or third try, however, they may reach the same high level of performance as others did on their first. Should these drivers be restricted, for instance, to driving in fair weather only? In inclement weather, should they be required to pull their cars over and park until the weather clears? Of course not. Becaus they eventually met the same high performance standards as those who passed on their initial attempt, they receive the same privileges. The same should hold true for students who show that they, too, have learned well.

Similar Situations

Using assessments as sources of information, following assessments with corrective instruction, and giving students a second chance are steps in a process that all teachers use naturally when they tutor individual students. If the student makes a mistake, the teacher stops and points out the mistake. The teacher then explain that concept in a different way. Finally, the teacher asks another question or poses a similar problem to ensure th student's understanding before going on. The challenge for teachers is to use their classroom assessments in similar ways to provide all students with this sort of individualized assistance.

Successful coaches use the same process. Immediately following a gymnast's performance on the balance beam, for example, the coach explains to her what she did correctly and what could be improved. The coach then offers specific strategies for improvement and encourages her to try again. As the athlete repeats her performance, the coach watches carefully to ensure that she has corrected the problem.

Successful students typically know how to take corrective action on their own. They save their assessments and review the items or criteria that they missed. They rework problems, look up answers in their textbooks or other resource materials, and ask the teacher about ideas or concepts that they don't understand. Less successful students rarely take such initiative. After looking at their grades, they typically crumple up their assessments and deposit them in the trash can as they leave the classroom. Teachers who use classroom assessments as part of th instructional process help all of their students do what the most successful students have learned to do for themselves.

The Benefits of Assessment

Using classroom assessment to improve student learning is not a new idea. More than 30 years ago, Benjamin Bloom showed how to conduct this process in practical and highly effective ways when he described the practice of mastery learning (Bloom, 1968, 1971). But since that time, the emphasis on assessments as tools for accountability has diverted attention from this more important and fundamental purpose.

Assessments can be a vital component in our efforts to improve education. But as long as we use them only as a means to rank schools and students, we will miss their most powerful benefits. We must focus instead on helping teachers change the way they use assessment results, improve the quality of their classroom assessments, and align their assessments with valued learning goals and state or district standards. When teachers' classroom assessments become an integral part of the instructional process and a central ingredient in their efforts to help students learn, the benefits of assessment for both students and teachers will be boundless.

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KEYWORDS

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Students Should Be Tested More, Not Less

When done right, frequent testing helps people remember information longer.

JESSICA LAHEY

JAN 21, 2014 | EDUCATION

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Testing is terrible for learning, destroys student and teacher morale, and impedes opportunities for productive, meaningful teaching. This oft-repeated axiom has become accepted as true without proof. Opposition to testing and all its associated ills has led to an over-generalization of the word "test" and an unwarranted reputation as the embodiment of all that is wrong with American education.

One researcher believes we are throwing a very effective learning tool out with our educational bathwater, and asserts that we should be testing students more, not less.

Henry L. Roediger III, a cognitive psychologist at Washington University, studies how the brain stores, and later retrieves, memories. He compared the test results of students who used common study methods—such as re-reading material, highlighting, reviewing and writing notes, outlining material and attending study groups—with the results from students who were repeatedly tested on the same material. When he compared the results, Roediger found, "Taking a test on material can have a greater positive effect on future retention of that material than spending an equivalent amount of time restudying the material." Remarkably, this remains true "even when performance on the test is far from perfect and no feedback is given on missed information."

Researchers have long known about the "testing effect," the phenomenon of improved performance through testing. William James, psychology professor at Harvard and author of *The Principles of Psychology* wrote in 1890,

> A curious peculiarity of our memory is that things are impressed better by active than by passive repetition. I mean that in learning (by heart, for example), when we almost know the piece, it pays better to wait and recollect by an effort from within, than to look at the book again. If we recover the words in the former way, we shall probably know them the next time; if in the latter way, we shall very likely need the book once more.

In other words, students who want to memorize information should attempt to retrieve that information from their own memories, rather than review the material over and over from notes or a text.

This is, at their essence, what tests are intended to do. Tests ask students to look into their wells of knowledge, locate information, and express that knowledge on the page.

Not all tests, however, are created equal. Some tests are more effective in eliciting this positive effect than others. Many tests, including standardized tests, SATs and IQ tests, are designed to measure developed knowledge or abilities. They are "static," and "summative," in that they measure students' sum total knowledge or ability at a fixed point in time. Summative tests do not allow for instructor input during the test and are not intended to shape future teaching. Therefore, no learning takes place during or as a result of the test. Complaints that excessive testing detracts from learning tend to be aimed at summative testing. As summative tests do not teach, and classroom hours spent engaged in summative assessments detract from hours a teacher has to educate her students, those complaints are probably well-founded.

"Formative assessments," on the other hand, are designed to discover what students do and do not know in order to shape teaching during and after the test. Formative assessments are not meant to simply measure knowledge, but to expose gaps in knowledge at the time of the assessment so teachers may adjust future instruction accordingly. At the same time, students are alerted to these gaps, which allows them to shape their own efforts to learn the information they missed.

Roediger asserts that educators should be using formative assessments early and often in the classroom to strengthen learning *during* the unit rather than waiting until the end and giving a summative assessment. These repeated assessments curb the most ineffective type of learning, in which students wait until just before the test and then attempt to cram the material in over a short period of time. Research shows that cramming works in the short term, allowing students to regurgitate the information for an exam the next day, but it is a terrible strategy for ensuring long-term storage. Knowledge learned through cramming is less durable over time.

Another drawback to standardized testing is that it is rare, high-pressure, and high-stakes, for both teachers and students. Because standardized test scores results can

dictate the fate of a school, a teacher's employment or a student's educational future, they are very stressful for all involved. Temptation to cheat can be high, particularly for teachers who know their jobs are at stake.

Formative testing at its best is low-stakes and high-frequency. When students are used to the practice of being tested (or "quizzed," if that term carries less baggage) it loses its emotional teeth and its utility as an educational tool begins to emerge. When teachers expose students to frequent low-stakes tests in order to reveal gaps and foster active, continuous engagement in the material, students are given more ownership and power over their education. In Roediger's words, "Continuous testing requires students to continuously engage themselves in a course; they cannot coast until near a midterm exam and a final exam and begin studying only then."

Continuous formative testing promotes the cognitive processes that have been shown to maximize long-term retention and retrieval. Frequent testing "not only measures knowledge, but changes it, often greatly improving retention of the tested knowledge," says Roediger. Information that is tested repeatedly is learned more fully, and remains encoded in memory for a longer period of time. Students with better memory retention will have more ready access to that information as they learn new information and mature as thinkers, making connections over time and across subjects. Students who cram for short-term regurgitation on a summative exam, however, will have long since forgotten their hard-earned knowledge, and lose out on the opportunity to draw analogies and connections across disciplines.

Roediger, in a presentation to the Harvard Initiative for Learning and Teaching Symposium in 2012, presented ten benefits to testing and their applications to educational practice.

1. Testing aids later retention.
2. Testing identifies gaps in knowledge.
3. Testing causes students to learn more from the next learning episode.
4. Testing produces better organization of knowledge.
5. Testing improves transfer of knowledge to new concepts.
6. Testing can facilitate retrieval of information that was not tested.
7. Testing improves metacognitive monitoring.
8. Testing prevents interference from prior material when learning new material.
9. Testing provides feedback to instructors.
10. Frequent testing encourages students to study

It takes time for a teacher to repeatedly assess, adjust future teaching for knowledge gaps, and assess again. Roediger acknowledges this difficulty, but implores teachers to rise to the challenge. "Often the best instruction may require teachers to implement the difficult process of using tests to assess performance and then changing the style and content of their teaching on the basis of the outcome of the tests," he says.

In the end, tests may just hold the key to our educational success—as long as educators are willing to commit the time and effort required to design tests that foster learning rather than impede it. It's time to stop teaching to the test, because if done properly, teaching *is* the test.

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