

S E V E N T H E D I T I O N



Classroom Assessment

Principles and Practice that Enhance
Student Learning and Motivation



James H. McMillan

SEVENTH EDITION

Classroom Assessment

*Principles and Practice that Enhance
Student Learning and Motivation*

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I remember it well: When I took my first “tests and measurements” course in graduate school at Michigan State University, I was fairly apprehensive—what would this class have to do with teaching and learning? Would I be using complex mathematics and learning about the technical aspects of “standardized” testing that really had little to do with what I wanted to do day in and day out in the classroom? Well, the course met some of my negative expectations! It was interesting, but not as helpful as I hoped when applied to teaching. I have written this book to address this shortcoming, to be directly relevant to instruction so that student learning and motivation are enhanced.

The premise of this book is that classroom assessment is the most important element in evaluating students that has a direct and powerful impact on student learning and motivation. It is through everyday interactions with students, as well as quizzes, unit tests, papers, and assignments, that teachers communicate what is important in learning, the standards that indicate proficiency and more advanced levels of understanding and skills, and communicate with students about what they understand and what needs further learning. While much recent emphasis has been placed on large-scale accountability testing, classroom assessments, from what I have seen in classrooms, show what is really being learned, as well as what influence teachers have had on student achievement and motivation. Classroom assessment is the most direct, specific, and helpful indicator of what students know, the depth of their understanding, and the nature of their dispositions.

Over the past two decades the field of classroom assessment has changed considerably. There is now more emphasis on how *student assessment is an integral part of teaching that effects student learning and motivation*, not just something that is done after instruction to measure what students have learned. Much attention is now focused on *formative assessment*—what is also called *assessment for learning*. In recent years, there has also been a dramatic change in curriculum throughout the United States that has led to standards-based instruction and assessment at every level of education and nearly every subject. The Common Core State Standards and accompanying “national” and state tests of those standards reinforce the emphasis on assessing students’ levels of proficiency, which will have direct implications for what you do for your classroom assessments. Finally, there is continued high interest in the importance of “scientific” research and “empirical data” as sources of knowledge about what works in education (*evidence-based*). These three influences—assessment as part of instruction to improve student learning and motivation, standards-based education, and data-driven evidence—form the foundation for this book. All are essential factors in understanding how classroom assessments can improve targeted student outcomes.

This book, then, is designed to provide prospective and practicing teachers with:

- a concise, nontechnical, and engaging presentation of assessment principles that clearly and specifically relate to student learning and motivation;
- current research and new directions in the classroom assessment field; and
- practical and realistic examples, suggestions, and case studies.

The approach I have taken to meet these goals is to build assessment into the instructional process, focusing on assessment concepts and principles that are essential for effective teacher decision making, and integrating principles of learning and motivation. The emphasis throughout is on helping teachers to understand the importance of establishing credible performance standards (learning targets), communicating these standards to students, and providing feedback to students on their progress. There is much less emphasis on technical measurement concepts that teachers rarely find useful, though there is extensive discussion of aspects of assessment that result in high quality and credibility, such as accuracy, fairness, matching assessment to clearly and publicly stated standards, positive consequences, and practicality.

For previous users of this book, you have probably noticed a new subtitle for this edition. This change is important because it represents the evolution of the emphasis from integrating assessment with instruction to assessment that enhances student learning and motivation. This is important because the examples and explanations have been revised and updated with student learning and motivation at the forefront.

With three exceptions, the basic organization of the text is unchanged from the sixth edition. Chapters 1 through 3 present the fundamental principles of assessment and instruction, with an emphasis on the importance of the teacher's professional judgment and decision making as integral to making useful and credible assessments that enhance learning and motivation. Chapters 4 and 5 cover formative assessment, but here I've made a significant change. These chapters are now divided so that each one captures the essential elements of two types of formative assessment. Chapter 4 examines *embedded* formative assessment, the type that occurs "on the fly" during instruction, and Chapter 5 presents formative assessment that occurs after students take a more formal summative assessment, such as chapter or unit tests. Both Chapters 6 and 7 focus on summative assessment—Chapter 6 for summative assessments like tests and quizzes that occur weekly or monthly, and Chapter 7 for externally designed, large-scale tests tied to accountability. The types of standards-based tests included in Chapter 7 are now commonplace for teachers (this content is moved from later in the book in the previous edition). The next few chapters (8–11) are organized by type of assessment, beginning with selected-response item formats. Each of these chapters shows how to assess different types of learning targets.

Chapter 12 presents so-called "noncognitive" assessments that are used to measure attitudes, values, interests, beliefs, self-efficacy, student self-reflection, and other dispositional traits, as well as many 21st-century skills. Chapter 13 reviews the assessment of students who have special needs and are included in the regular classroom. The new Chapter 14 presents assessment practices that are

needed for culturally and linguistically different students, an increasingly important segment of the student population. The final chapter examines grading and reporting the results, with a strong emphasis on standards-based grading.

New to This Edition

There have been several significant additions for the seventh edition.

- Introductory case studies of teacher decision making are included at the beginning of each chapter to engage and focus readers, with answers at the end of the chapters.
- The chapter on assessment of students with special needs was extensively revised.
- A new sequence of chapters allows students to better incorporate the expanding influence of high-stakes accountability testing on classroom assessment.
-
- A new chapter on assessment of culturally and linguistically diverse students was added.
- New *Teacher's Corner* features provide updated examples of how National Board Certified teachers practice assessment.
- Chapters on formative assessment are reorganized to show the entire process separately for embedded and summative-based types.
- More emphasis on the role of student perceptions of assessment, which influences motivation, is provided.
- There is greater coverage of the role of technology in assessment, grading, and reporting of information. This includes coverage of computer-enhanced-type test items, eportfolios, digitally formatted test items, and electronic grading systems.
- A new appendix includes an example of a complete Individualized Education Program (IEP) for a student with special needs.
- The self-instructional review exercises that were included at the end of each chapter in previous editions are now moved to Appendix C along with the answers.

Other significant improvements in this edition include:

- Updating of research on key concepts and practices.
- Incorporation of newly adopted test standards.
- Expanded emphasis on the influence of externally developed standards-based tests and test items.
- Changes in writing style to be more engaging and concise.
- New figures and diagrams to organize information and show steps needed to implement recommended practice.

- New design elements to enhance the clarity of presentation of information that facilitates understanding.

Throughout the book there is a unique blend of educational psychology with principles of assessment. This approach to assessment is unique and helps teachers understand how good assessment is critical to enhancing student learning and motivation.

Several instructional aids are included to facilitate understanding and applying the material. These include *cognitive maps* at the beginning of each chapter to provide graphic overviews; *boldface key terms*; *quotes from National Board Certified and state-recognized teachers* throughout to illustrate practical applications; *chapter summaries* to review essential ideas;

to provide opportunities for practice and application; *suggestions for conducting action research*; extensive use of *examples, diagrams, charts, and tables*; *case studies for reflection*; and a *glossary* of key terms.

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Throughout the development and writing of this book, I have been fortunate to have the support and assistance of classroom teachers who have provided quotations, practical examples, and suggestions. I am very grateful for their willingness

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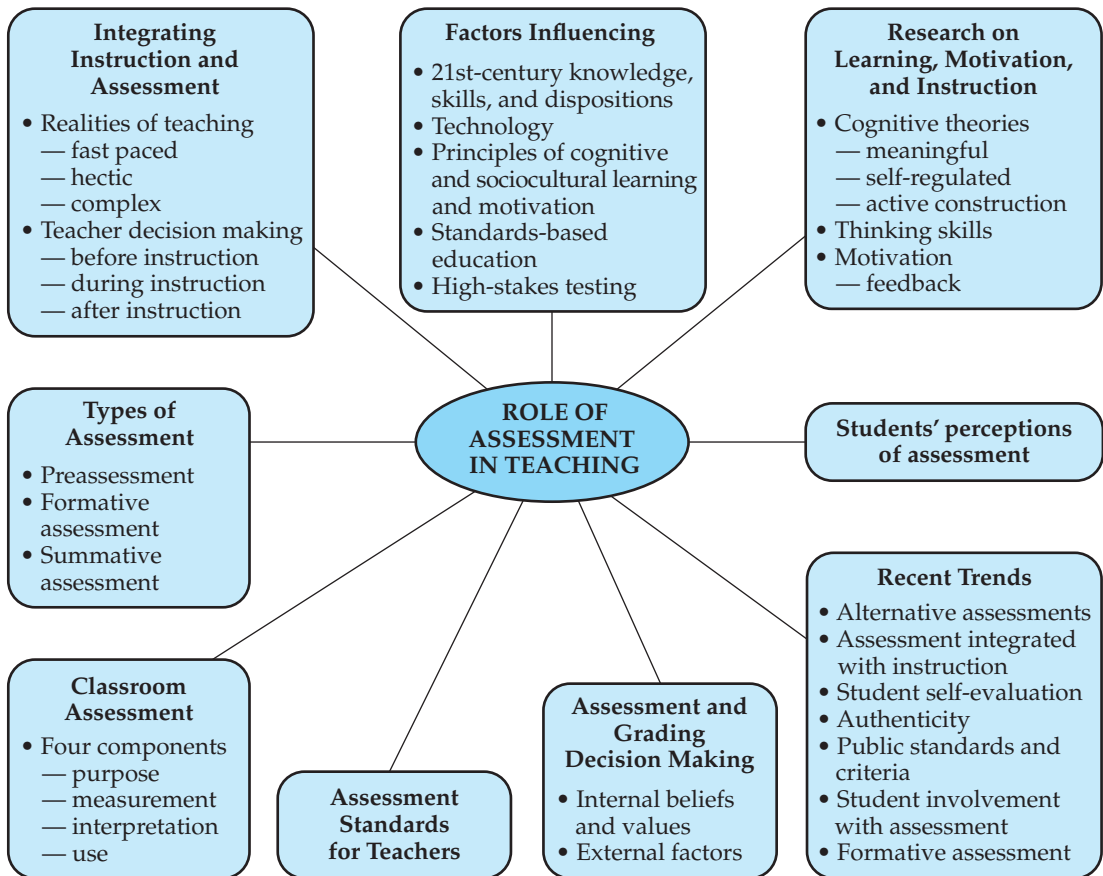
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The Role of Assessment in Teaching and Learning



Learning Outcomes

After reading this chapter, you should be able to:

- 1.1** Understand the nature of classroom assessment, its purposes and characteristics, and how classroom assessment differs from other types of assessment.
- 1.2** Understand and be able to give examples of how classroom assessment *of*, *for*, and *as* learning can be integrated with instruction.
- 1.3** Know how different contextual factors, such as high-stakes accountability testing and theories of learning, influence teacher decision making about how classroom assessments are designed and implemented in a specific classroom.

Introductory Case Study

What Should Abby Do?

When John walked into the math teachers' workroom, Abby was thinking about her upcoming unit on fraction computation and the changes this year she wanted to make in assessing student learning. She wasn't happy with the end-of-unit summative test that her peers and administration suggested be given to students. Her belief that assessments should help her understand her students' strengths, misunderstandings, and learning errors simply didn't merge with the current assessment. The assessment was computerized and contained 30 questions that were multiple-choice, fill-in-the-blank, and technology-enhanced items similar to those on the end-of-year high-stakes test.

Instead, Abby wanted to ask her administration if she could give a constructed-response assessment with fewer items that followed recent assessment trends and learning theories. Her proposed assessment would provide a scenario involving cooking pizzas at the new pizzeria in the neighborhood and allow student choice for which eight of ten teacher-created open-ended problems students wanted to complete. Students would also create and solve two of their own fraction problems. Throughout the fraction unit, students had completed these types of tasks and Abby had provided feedback to students on their progress in mastering the learning targets. Abby knew her assessment would allow students to apply their knowledge within an authentic task. Additionally, by using a rubric for scoring, she could emphasize student effort, which she knew would encourage her students to stay motivated for learning.

Abby explained her idea to John, a teacher with whom she had collaborated in designing most of the math unit's real-world applicable lessons, and asked John if he wanted to codevelop the assessment and give it to his students. John looked at Abby with questioning eyes. He declined her offer and suggested she stick with the current computerized assessment. Abby bantered with John telling him that she believed the traditional summative assessment was solely for providing students with a grade, that this test didn't align with their teaching methods, and that the end-of-unit assessment lacked impact on student learning and motivation.

John's response was that he believed the current assessment provided reliable standardized feedback to teachers and parents on students' mastery of learning targets. Additionally, teachers could use the efficient computer data analysis to drive immediate remediation efforts. He also believed it was important for students to be exposed to assessments similar to the end-of-year high-stakes test so students would have practice in preparing for it.

To encourage Abby and show his support of her assessment beliefs and values, John suggested that Abby give the computerized summative assessment and instead incorporate her assessment ideas throughout the unit of study.

As you read this chapter, think about what Abby should do. Should she follow John's advice and give the computerized assessment or ask permission to give her end-of-unit assessment? If she follows John's advice, how can Abby integrate her assessment beliefs and values throughout the unit?

Allow me to begin with two stories that are directly relevant to the importance of classroom assessment. When my daughter, Ryann, was 11, she was heavily into gymnastics, working out most days of most weeks. During this particular year, the gym where she worked out hired new coaches, both from Russia. Immediately, the review of her work (performance) changed dramatically. What she was once praised for now received detailed, critical feedback (e.g., "No, put your hands in this position, not like this"). When the girls were "tested," doing their routines, they were judged with higher expectations and only received praise when well deserved. Instead of hearing "good" all the time, they heard "wrong" most of the time. Negative comments, though, were accompanied by suggestions for doing something different and practice that would help them. The gym and training assessment environment changed, and with it, eventually, the level of performance. The acceptance of mistakes and honest feedback changed the "assessment" culture in the gym. The end of the story is a happy one. As a team, they were the best in the state, and Ryann made positive contributions!

Consider as well my son, Jon, who decided to be an art major in college. He gravitated toward ceramics, sold his work as a potter after graduation, then enrolled in a master of fine arts program. His experiences in graduate school impressed me from an assessment perspective. His work was continually and publicly subjected to criticism from both his professors and other students. It was as if this method of instruction, which could be brutally honest, fostered a perspective that what might seem to be "negative" feedback was what was needed to learn. As with my daughter, mistakes and errors were pointed out. They were an integral part of the assessment process and helped him advance in his craft. Another happy ending. Jon is now a ceramics professor!

These stories illustrate how important assessment is for learning, whether in the gym, the studio, or the classroom. It shows how the right kind of assessment, and the manner in which it is integrated with instruction, can have dramatic effects on how much is learned and how well something is performed.

The Bigger Picture Context of Classroom Assessment

OK, so it's clear that as a teacher you will be responsible for assessing what students in your classroom have learned, essentially gathering evidence of student learning and using that evidence to document and, hopefully, promote student motivation and achievement. But more than that, you instruct, follow a curriculum, and influence students in a multitude of ways. All of these occur in a larger context that has changed considerably in recent years. Essentially, there are a number of powerful influences now that affect everything you do in the classroom, including assessment, and understanding these factors is essential in developing and using effective assessments. That's because of something I'll be talking a lot about in this text—alignment. **Alignment** simply means that things are configured so that they reinforce and support each other. In science, for example, it's important to have alignment between research questions and methods; in gymnastics, it's critical to align music to the floor routine.

Teaching, which includes the use of student assessment, is most effective when these powerful contextual forces are aligned with what the teacher is doing in the classroom. For example, when the curriculum and your instruction are aligned with state standards, it's likely that students will achieve well on state tests. When your teaching and assessment are aligned to what we know about how students learn, achievement and motivation are enhanced. What, then, are these contextual influences? I've laid them out in Figure 1.1 to emphasize their impact on classroom assessment.

21st Century-Knowledge, Skills, and Dispositions

You have probably heard much about what students need to know and be able to do to function effectively in life in the 21st century, and what high school graduates need to do to be ready for college and/or careers. From many levels, including national and state government, business, and educational policy works, there is an almost endless series of high-profile calls to action for changes in education to meet the new demands of an information-based, interconnected world. We'll consider these in more detail in the next chapter, but here is a short summary of what is now considered “essential” for students:

- Deep understanding of fundamental concepts of important content areas and disciplines
- Cognitive skills such as problem solving, decision making, critical thinking, and metacognition
- Creativity and innovative thinking
- Effective communication skills
- Effective social skills
- Global understanding and perspectives
- Dispositions such as responsibility, flexibility, self-direction, determination, perseverance, risk taking, and integrity

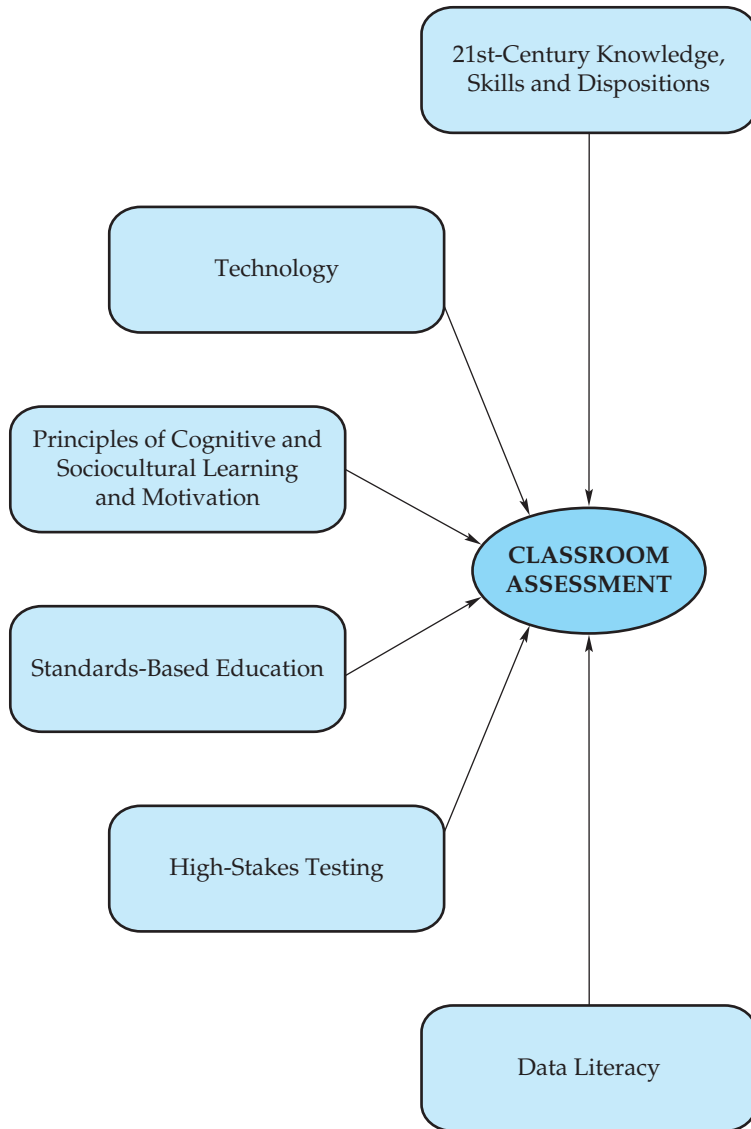


FIGURE 1.1 Significant Factors Influencing Classroom Assessment

Your challenge is to develop and use assessments to foster the development of all of these 21st-century skills, not just to assess the subject you are teaching.

Technology

The prevalence of technology has significant implications for classroom assessment. Not only are we teaching postmillennial digital natives (though careful

here—not all students are!) with accompanying expectations, skills, and comfort with technology, we also use new technology in teaching and assessment. Improved technology has now made item banking for teachers routine, including the use of adaptive tests that accommodate different levels of student ability (Bennett, 2015). Technology has also provided the capability to use new types of test items, including simulations and other active formats that demand student actions and thinking, and automated scoring. This is a huge influence and, as we will see, provides many new opportunities for novel and effective means of evaluating student learning. Teachers are now able to access data about students online and record grades electronically. Many teachers now routinely use apps and other programs on electronic devices such as iPads and iPhones to assess students.

Principles of Cognitive and Sociocultural Learning and Motivation

Here is where the rubber really meets the road. If you want to achieve 21st-century knowledge, skills, and dispositions, you must teach and assess in alignment with what we know about how children and adolescents learn and what motivates them. There has been a flood of research, especially in the areas of cognitive and sociocultural theories, that has led to solid, well-documented principles of learning and motivation.

We know that learning must be built on students' prior knowledge, life experiences and background, and interests. That is, new information needs to be connected to existing knowledge in meaningful ways. More than accumulating knowledge, students need to actively construct new and deeper understanding by integrating knowledge, skills, and procedures to solve problems, and by developing metacognition to monitor learning strategies. Learning progressions and scaffolding show how thinking can become more sophisticated. Transfer of learning to new situations is emphasized. Students learn best when they self-regulate their progress and enhance their self-efficacy through appropriate causal explanations to effort.

Cognition is mediated by culture and social contexts, influenced extensively by interactions with others. Effective motivation is intrinsic and students are especially engaging when challenged to revise misunderstandings and solve problems. Self-assessment is needed to provide self-direction, self-reflection, self-determination, and monitoring. Self-efficacy, a belief in being able to be successful, is essential for motivation and engagement in learning.

Good instruction provides an environment that engages the student in active learning, which becomes an ongoing process in which students actively receive, interpret, and relate information to what they already know, understand, and have experienced. Effective assessment, in turn, promotes this process by documenting the attainment of progressive levels of more knowledge and understanding that eventually lead to mastery.

Research on motivation suggests that teachers must constantly assess students and provide feedback that is informative. By providing specific and

meaningful feedback to students and encouraging them to regulate their own learning, teachers encourage students to enhance their sense of self-efficacy and self-confidence, important determinants of motivation (Brookhart, 2008). Meaningful learning is intrinsically motivating because the content has relevance. The implication here is that assessment does not end with scoring and recording the results. Motivation is highly dependent on the nature of the feedback from the assessment. Thus, in keeping with the integration of assessment with instruction, feedback is an essential component of the assessment process.

There have also been significant recent changes in curriculum theory that have clear implications for classroom assessment. Due in part to the standards-based movement, curriculum is now based on the premise that all students can learn, that standards for learning need to be high for all students, and that equal opportunity is essential. Curriculum needs to show students how learning is connected to the world outside school.

The research from cognitive learning and curriculum theories has laid the foundation for significant changes in classroom assessment (Penuel & Shepard, 2016). As we discover more about how students learn and what motivates them, we realize that assessment practices, as well as instructional practices, need to change to keep pace with this research. The list of principles is long and I can't do them justice here, but in Table 1.1 many of them are listed with implications for assessment. I've done this to again emphasize the importance of alignment of assessment with the principles.

Over the past 20 years or so, research on teacher decision making, cognitive learning, student motivation, and other topics has changed what we know about the importance of assessment for effective teaching. For example, one finding is that good teachers continually assess their students relative to learning goals and adjust their instruction on the basis of this information. Another important finding is that assessment of students not only documents what students know and can do but also influences learning. Assessment that enhances learning is as important as assessment that documents learning. As a result of this research, new purposes, methods, and approaches to student assessment have been developed. These changes underscore a new understanding of the important role that assessment plays in instruction and learning.

Standards-Based Education

Essentially, we have a “standards-based” educational system in America. *Standards-based*, using commonly accepted objectives for student learning, is now a ubiquitous buzzword in education, if ever there was one. As we'll see in detail in Chapter 2, standards frame what students should know and do—they formalize and standardize what gets taught and assessed. Every state has learning standards, with corresponding pacing guides and curriculum at the district level for implementation. While mostly content-driven, standards have become the benchmarks for evaluating students, schools, and very recently, teachers.

TABLE 1.1 Implications for Assessment from Cognitive Learning Theories

Theory	Implications for Classroom Assessment
<p>Cognitive Theory Knowledge is constructed; learning involves creating personal meaning that connects new information with prior knowledge.</p>	<ul style="list-style-type: none"> • Use multiple modes of assessment that allow flexibility in how students demonstrate knowledge and understanding. • Assess current state of knowledge to target instruction and subsequent assessments. • Use assessments that require application of knowledge. • Individualize feedback so that it is meaningful for each student.
<p>Differentiation There is variety among students on learning styles, language, memory, aptitudes, attention, and developmental pace.</p>	<ul style="list-style-type: none"> • Provide choices in how to show mastery/competence. • Provide sufficient time for all students to demonstrate knowledge. • Provide students opportunities to revise and retest. • Use multiple modes of assessment.
<p>Goal Setting Students perform best when they know the goal, see examples or exemplars, and know how their performance compares with established standards of mastery.</p>	<ul style="list-style-type: none"> • Make standards explicit before beginning instruction. • Give students examples of performance at different levels. • Provide specific feedback that links performance with standards. • Use assessment during instruction. • Use student self-assessments.
<p>Self-Regulation Students need to know when to use knowledge, how to adapt it to new situations, and how to monitor and manage their own learning.</p>	<ul style="list-style-type: none"> • Use performance assessment with actual “real-life” problems and issues. • Use student self-assessment. • Use assessment during instruction. • Limit objectively scored assessments. • Provide progress monitoring feedback.
<p>Self-Efficacy Motivation and effort are important components of learning and performance that shape perceptions of capability to succeed.</p>	<ul style="list-style-type: none"> • Use “real-life” tasks and examples. • Use assessment during instruction. • Provide individualized feedback to see the connection between effort and performance. • Provide feedback that encourages internal attributions, especially effort.

High-Stakes Testing

Like it or not, it is abundantly clear that externally mandated high-stakes accountability tests have a profound impact on teaching and classroom assessment. For most teachers, there is no escaping this reality. What you do in the classroom will be influenced by both the content and the nature of these tests.

Students, teachers, and administrators have always been held accountable, primarily at a local school or district level, and sometimes at the state level. In the last two decades unprecedented federal and state accountability testing policy initiatives have increased the pressure on schools to show positive test results, as well as to evaluate teachers on the basis of their students' test scores. **High-stakes tests** are ones that have important consequences. This is the case for tests that determine whether a student can graduate from high school, when school accreditation is tied to test scores, or when teacher evaluation is determined by how their students perform on tests.

In 2002 the No Child Left Behind (NCLB) Act was passed, with federal-level pressure for demonstrating consistently improving student test scores. The heart of NCLB was to ensure that states had “challenging” content standards and extensive testing of the standards to hold schools accountable. By the 2005–2006 school year, all states tested reading and mathematics annually in grades 3–11 (once in grades 10–12). Science tests were required in 2008–2009. To hold schools accountable with these tests, each state was required to establish a “starting point” target for the percentages of students that need to be classified as “proficient” in 2002. Then, using a concept called **adequate yearly progress (AYP)**, states established increasingly high percentages of students reaching the proficient level at each grade each year. The Race to the Top initiative, launched in 2009, was focused on national standards and testing in major subject areas. The Every Student Succeeds Act (ESSA) was signed in 2015 to address increasingly unworkable and unrealistic prescriptive requirements from earlier legislation. ESSA places much less emphasis on a one-size-fits-all federal process, allowing states more flexibility in testing and standard-setting. For teachers, this means some easing of pressure in one sense but introduces new testing demands that can also be onerous. Regardless, there is little doubt that some kind of federal and/or state pressure will ensure that large-scale accountability tests will have high stakes and negative sanctions for low-achieving schools, resulting in some cases with state takeover of schools. It is also clear that administrators and local boards of education, as well as state-level policy makers, want these measures of student performance to be as strong as possible.

Now the stakes attached to accountability tests are set to go even higher. Our profession has entered a new era of teacher evaluation, with student performance on high-stakes and what are called “common” tests (those given every quarter rather than at the end of the year), a primary measure of teacher effectiveness. Can you imagine that your evaluation as a teacher will depend on how well your students do on high-stakes tests? (This has happened in many cities, including Los Angeles and New York, which have seen publicly available rankings of