PART I

Introduction to Student-Involved Assessment FOR Learning

In this book, we lay the foundation of professional competence you need to meet standards of excellence in classroom assessment. The presentation unfolds in three parts. We begin in Part 1 by articulating the *standards of good assessment practice* that are your responsibility as a classroom teacher. We continue in Part 2 with specific suggestions for how you can meet those standards by *accurately assessing* the achievement of your students and by using assessment and its results to benefit them, and we conclude in Part 3 with practical options for *communicating the assessment results,* once again, in ways that maximize student learning success.

As you study this text, you will see a very strong theme emerge around the use of classroom assessment as a confidence builder for your students, as a motivator to keep them striving to learn, and as a strong foundation for unprecedented achievement gains for them. You can use assessment to help your students become confident, motivated, and successful learners by involving them deeply in ongoing classroom assessment, record keeping, and communication.

The idea of student involvement in assessment deviates from the traditions of the American educational system. Those traditions have us using assessments to hold students accountable for learning. Assessment has provided an index of the amount learned. However, we also can use classroom assessment to support or cause learning. We achieve excellence in classroom assessment when we balance a continuous array of assessments used to help students learn (assessment FOR learning) with periodic assessments used to verify that they did, in fact, meet prescribed academic achievement standards (assessment OF learning).

The three chapters of Part 1 set the stage for sound assessment practices. Chapter 1 addresses the users and uses of assessment, including classroom, instructional support, and policy users. It makes the point that different decision makers need access to different information about student achievement in different forms at different times to do their jobs. Our assessments must meet those various information needs.

Chapter 2 defines the kinds of achievement expectations, contending that we can dependably assess only those targets that we have clearly and appropriately defined. We will examine several different kinds of achievement, starting with achievement standards, break those down into classroom-level achievement targets, and discuss the need for student-friendly versions of these expectations. Students can hit any target that they can see and that holds still for them. We'll see how to use classroom assessment to set them up for success in these terms.

Chapter 3 frames commonsense standards of classroom assessment quality, explaining how to select proper assessment methods, given particular users and

achievement targets. Sometimes the situation demands a selected response (multiple-choice) test, other times an essay assessment. Still other times a performance assessment or simply a conversation with a student about achievement will meet your needs. The most unique feature of this chapter is the manner in which it connects these various methods to the various kinds of achievement discussed in Chapter 2.

Part 2 is about the effective use of different assessment methods. Our presentation takes you inside each of the four families of assessment methods one at a time: selected response (e.g., multiple-choice, true/false) assessments, essay assessments, performance assessments, and assessments based on direct personal communication with students. We will explore how to apply each method in appropriate contexts, detailing how to develop good ones, how to avoid biased results, and when and how to involve students in their use in ways that promote increased achievement.

In Part 3 we delve deeply into the alternative ways of managing assessment results and communicating to their many users, such as students, parents, other teachers, administrators, and so on, in timely and understandable terms. The communication vehicles we will explore include test scores, report card grades, standards-based report cards, portfolios, and conferences. We will explore the strengths and limitations each offers when it comes to using assessment to improve student learning.

Become a Reflective Learner

Be advised from the very beginning that you have much to learn to manage your classroom assessment environment efficiently and effectively. This is part of the reason many new and even most experienced teachers dread the assessment part of their jobs. It's hard work, often complex and confusing.

Besides, we all carry with us those emotional associations with assessment that we learned in our youth. Most of us grew up in classrooms in which our teachers believed that the way to maximize learning is to maximize anxiety, and assessment was always the great intimidator. Mention assessment, evaluation, or grading to adults and immediate feelings of anxiety, vulnerability, and frustration come to the fore. As a result the entire topic is one most of us would prefer to avoid.

My mission is to give you the information and tools you need to be *confident* in and *comfortable* with your assessment practices. Confident—knowing your practices are sound and they will support, not stifle, your students' learning. Comfortable—you have had enough opportunity to think about and try out practices so that you know them well.

How will we accomplish this? I have built a variety of interactive opportunities into the text, including times for your personal reflection during learning, practice exercises, and growth portfolio entries, each of which is designed to function as an integral part of your learning. These are designed to bring the book's ideas to life in your own context. They will serve to integrate your new

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learning about assessment into your existing structures of knowledge and understanding. *If you merely read this book with the purpose of committing to short-term memory the parts you think will be on the midterm or final exam, you will finish neither confident in nor comfortable with your assessment practices.* You must practice applying the concepts and procedures as you learn about them. Only then can you develop the level of personal understanding needed to make them part of your teaching routine.

I plan to model in our relationship and in your learning the very relationship that must exist between you and your students. I want the work you do in conjunction with this book to keep you in touch with, and therefore feeling in control of, your own ongoing professional development. Thus, this work models in your adult learning environment the very student-involved assessment, record-keeping, and communication tactics that have been demonstrated to yield unprecedented achievement gains when used with students in classrooms.

Keep a Journal to "Watch Yourself Grow

Extensive experience in helping teachers learn about classroom assessment leads me to suggest that you maintain a learning log, journal, or diary as you proceed. From time to time I will suggest entries that may be useful. Here are three for you to consider:

Times for Reflection
As you study, periodically you will encounter "Times for Reflection" asking you to relate an idea to your personal perceptions, to think about something in greater depth, or to write something down before moving on. These occur within and at the end of each chapter. These reflections will help you construct your own personal meaning of the material presented. Consider recording your written responses to each of these reflections in your learning log or journal. They will help you watch yourself grow.

Time and Energy Savers
It is most important that you understand why high-quality classroom assessment effectively used to benefit student learning can become an immense time saver for you in the classroom. It can make everyone's job far easier—students, teachers, and parents. Periodically I will offer specific procedural suggestions that promise time and energy savings. They will be highlighted with a clock icon (shown in the margin). Consider keeping a list of these time savers somewhere in your learning log for easy reference and later review.

Practice Opportunities
To help you integrate the ideas presented herein into your teaching practices, I have woven in a variety of opportunities for you to practice applying student-involved

classroom assessment strategies and methods. They appear within and at the end of chapters, and include the following:

- Case studies that ask you to confront real-world classroom assessment dilemmas and use what you are learning to find solutions
- Examples of unsound assessments that you can practice fixing
- Examples of high-quality assessments for you to study and learn from
- Projects that you can complete to meld these ideas directly into your classroom

Again, keep a record of your responses in your journal. Over time they will permit you to monitor your own growth.

Form a Learning Team or Study Group

It has been my experience that I learn more, faster, and with deeper understanding when I collaborate with like-minded learners. The research literature on adult learning and professional development backs me up in this contention. In fact, we rely exclusively on learning teams in our work at the Assessment Training Institute (ATI) to provide professional development experiences to practicing educators around the world. Teamwork works! For this reason, consider forming a team of classmates to help you learn about classroom assessment.

Use each meeting to talk about the big ideas, help each other through difficult parts, discuss applications relevant to each team member, or compare your responses to Times for Reflection and to the practice exercises. This "talking time" is very important to solidifying your understanding.

Companion Website

Pearson/Prentice Hall and ATI have teamed up to create a Companion Website (http://www.prenhall.com/stiggins). Among other features, this learning aid will provide opportunities for you to practice applying the standards of good practice described herein. This further study will support those seeking deeper understanding of key topics. For example, as the chapters unfold, we will build a comprehensive set of rubrics for evaluating classroom assessment quality. These rubrics appear in the Appendix. The website provides additional sample assessments for you to evaluate and revise for practice.

Chapter 1

Classroom Assessment for Student Success

CHAPTER FOCUS

This chapter answers the following guiding question:

> What are my classroom assessment responsibilities as a teacher and how can I fulfill them in ways that maximize the success of my students?

From your study of this chapter, you will understand the following:

1. How classroom assessment fits into the big picture of your job as a teacher.
2. What it means to develop and use assessments that are valid and reliable.
3. The relationship among assessment, student motivation, and student success at learning.
4. Four guiding principles that lead to sound classroom assessment practice.

Our Classroom Assessment Responsibilities

Assessment is the process of gathering evidence of student learning to inform instructional decisions. This process can be done well or poorly. To function effectively in the classroom, we all must be able to do it well. That means we must do both of the following:

- Gather *accurate information* about the achievement of our students.
- Weave classroom assessment and its results into instruction in ways that *benefit our students;* that is, not merely to grade them, but to enhance both their desire to learn and their achievement.

These two standards of professional practice are central to our effectiveness as teachers. Gather dependable information and use it well and our students can prosper. In short, we succeed. Gather inaccurate information or use it poorly and we will do severe and perhaps long-lasting damage to some (perhaps many) of our students.

Let me introduce you to Ms. Weathersby, a teacher who has mastered her classroom assessment responsibilities and who carries them out very effectively. She and her student, Emily, can teach us valuable lessons.

A Story of Assessment for Student Success

At a local school board meeting, the English department faculty from the high school presents the results of their evaluation of the new writing instruction program that they had implemented over the past year. The audience includes a young woman named Emily, a junior at the local high school, sitting in the back of the room with her parents. She knows she will be a big part of the presentation. She's only a little nervous. She understands how important her role is. It has been quite a year for her, unlike any she has ever experienced in school before. She also knows her parents and teacher are as proud of her as she is of herself.

As part of their preparation for this program, the faculty attended a summer institute on assessing writing proficiency and integrating these assessments into their teaching and their students' learning. The teachers were confident that this kind of professional development and their subsequent program revisions would produce much higher levels of writing proficiency.

As the first step in presenting program evaluation results, the English department chair, Ms. Weathersby, who also happens to be Emily's English teacher, distributes a sample of student writing to the board members (with the student's name removed), asking them to read and evaluate this writing. They do so, expressing their dismay aloud as they go. They are less than complimentary in their commentary on these samples of student work. One board member reports with some frustration that, if these represent the results of that new writing program, then clearly it is not working. The board member is right. This is, in fact, a pretty weak piece of work. Emily's mom puts her arm around her daughter's shoulder and hugs her.

But Ms. Weathersby urges patience and asks the board members to be very specific in stating what they don't like about this work. As the board registers its complaints, a faculty member records the criticisms on chart paper for all to see. The list is long, including everything from repetitiveness to disorganization to short, choppy sentences and disconnected ideas.

Next, Ms. Weathersby distributes another sample of student writing, asking the board to read and evaluate it. Ah, now this, they report, is more like it! This work is much better! But be specific, she demands. What do you like about this work? They list positive aspects: good choice of words, sound sentence structure, clever ideas, and so on. Emily is ready to burst! She squeezes her mom's hand.

The reason she's so full of pride at this moment is that this has been a special year for her and her classmates. For the first time ever, they became partners with their English teachers in managing their own improvement as writers. Early in the year, Ms. Weathersby ("Ms. W." they all call her) made it crystal clear to Emily that she was, in fact, not a very good writer and that just trying hard to get better was not going to be enough. She expected Emily to improve—nothing else would suffice.

Ms. W. started the year by working with students to implement new state writing standards, including understanding quality performance in word choice, sentence structure, organization, and voice, and by sharing some new "analytical scoring guides" written just for students. Each scoring guide explained the differences between good and poor-quality writing in understandable terms. When Emily and her teacher evaluated her first two pieces of writing using these standards, she received very low ratings. Not very good. . . .

But she also began to study samples of writing Ms. W. provided that Emily could see were very good. Slowly, she began to understand *why* they were good. The differences between these and her work started to become clear. Ms. W. began to share examples and strategies that would help her writing improve one step at a time. As she practiced and time passed, Emily and her classmates kept samples of their old writing to compare to their new writing, and they began to build portfolios. Thus, she literally began to watch her own writing skills improve before her very eyes. At midyear, her parents were invited in for a conference at which Emily, not Ms. Weathersby, shared the contents of her portfolio and discussed her emerging writing skills. Emily remembers sharing thoughts about some aspects of her writing that had become very strong and some examples of things she still needed to work on. Now, the year was at an end and here she sat waiting for her turn to speak to the school board about all of this. What a year!

Now, having set up the board by having them analyze, evaluate, and compare these two samples of student work, Ms. W. springs a surprise. The two pieces of writing they had just evaluated, one of relatively poor quality and one of outstanding quality, were produced by the same writer at the beginning and at the end of the school year! This, she reports, is evidence of the kind of impact the new writing program is having on student writing proficiency.

Needless to say, all are impressed. However, one board member wonders aloud, "Have all your students improved in this way?" Having anticipated the question, the rest of the English faculty joins the presentation and produces carefully prepared charts depicting dramatic changes in typical student performance over time on rating scales for each of six clearly articulated dimensions of good writing. They accompany their description of student performance on each scale with actual samples of student work illustrating various levels of proficiency.

Further, Ms. W. informs the board that the student whose improvement has been so dramatically illustrated with the work they have just analyzed is present at this meeting, along with her parents. This student is ready to talk with the board about the nature of her learning experience. Emily, you're on!

Interest among the board members runs high. Emily talks about how she has come to understand the truly important differences between good and bad writing. She refers to differences she had not understood before, how she has learned to assess her own writing and to fix it when it doesn't "work well," and how she and her classmates have learned to talk with her teacher and each other about what it means to write well. Ms. W. talks about the improved focus of writing instruction, increase in student motivation, and important positive changes in the very nature of the student-teacher relationship.

A board member asks Emily if she likes to write, and she answers, "I do now!" This board member turns to Emily's parents and asks their impression of all of this.

They report with pride that they had never before seen so much evidence of Emily's achievement and that most of it came from Emily herself. Emily had never been called on to lead the parent-teacher conference before. They had no idea she was so articulate. They loved it. Their daughter's pride in and accountability for her achievement has skyrocketed in the past year.

As the meeting ends, it is clear to all in attendance that evening that this application of student-involved classroom assessment had contributed to important learning. The English faculty accepted responsibility for student learning, shared that responsibility with their students, and everybody won. There are good feelings all around. One of the accountability demands of the community was satisfied with the presentation of credible evidence of student success, and the new writing program was the reason for improved student achievement. Obviously, this story has a happy ending.

Success from the Student's Point of View

The day after the board meeting, I interviewed Emily about the evening's events. As you read, think about how our conversation centers on what really works for Emily.

"You did a nice job at the school board meeting last night, Emily," I started.

"Thanks," she replied. "What's most exciting for me is that, last year, I could never have done it."

"What's changed from last year?"

"I guess I'm more confident. I knew what had happened for me in English class and I wanted to tell them my story."

"You became a confident writer."

"Yeah, but that's not what I mean. Last night at the board meeting I was more than a good writer. I felt good talking about my writing and how I'd improved. It's like, I understand what had happened to me and I have a way to describe it."

"Let's talk about Emily the confident writer. What were you thinking last night when the board members were reacting to your initial writing sample—you know, the one that wasn't very good? Still confident?"

"Mom helped. She squeezed my hand and I remember she whispered in my ear, You'll show 'em!' That helped me handle it. It's funny, I was listening to their comments to see if they knew anything about good writing. I wondered if they understood as much about it as I do—like, maybe they needed to take Ms. Weathersby's class."

"How did they do?" I asked, laughing.

"Pretty well, actually," Em replied. "They found some problems in my early work and described them pretty well. When I first started last fall, I wouldn't have been able to do that. I was a terrible writer."

"How do you know that, Em?"

"I understand where I was then, how little I could do. No organization. I didn't even know my own voice. No one had ever taken the time to show me the secrets. I'd never learned to analyze my writing. I wouldn't have known what to look for or how to describe it or how to change it. That's part of what Ms. W. taught us."

"How did she do that?"

"To begin with, she taught us to do what the board members did last night: analyze other people's writing. We looked at newspaper editorials, passages from books we were reading, letters friends had sent us. She wanted us to see what made those pieces work or not work. She would read a piece to us and then we'd brainstorm what made it good or bad. Pretty soon, we began to see patterns—things that worked or didn't work. She wanted us to begin to see and hear stuff as she read out loud."

"Like what?" I asked.

"Well, look, here's my early piece from the meeting last night. See, just read it!"

(Please read the Beginning of the Year Sample in Figure 1.1.)

"See, there are no grammar or usage mistakes. So it's 'correct' in that sense. But these short, choppy sentences just don't work. And it doesn't say anything or go anywhere. It's just a bunch of disconnected thoughts. It doesn't grab you and hold your attention. Then it stops. It just ends. Now look at my second piece to see the difference."

(Please read the End of the Year Sample in Figure 1.1.)

"In this one, I tried to tell about the feelings of frustration that happen when humans use machines. See, I think the voice in this piece comes from the feeling that 'We've all been there.' Everyone who works with computers has had this experience. A writer's tiny problem (not being able to find a good ending) turns into a major problem (losing the whole document). This idea makes the piece clear and organized. I think the reader can picture this poor, frustrated writer at her computer, wanting, trying to communicate in a human way—but finding that the computer is just as frustrated with her!"

"You sound just like you did last night at the board meeting."

"I'm always like this about my writing now. I know what works. Sentences are important. So is voice. So are organization and word choice—all that stuff. If you do it right, it works and you know it," she replied with a smile.

"What kinds of things did Ms. W. do in class that worked for you?"

"Well, like, when we were first getting started, Ms. Weathersby gave us a big stack of student papers she'd collected over the years—some good, some bad, and everything in between. Our assignment was to sort them into four stacks based on quality, from real good to real bad. When we were done, we compared who put what papers in which piles and then we talked about why. Sometimes, the discussions got pretty heated! Ms. W. wanted us to describe what we thought were the differences among the piles. Over time, we formed those differences into a set of rating scales that we used to analyze, evaluate, and improve our writing."

"Did you evaluate your own work or each other's?"

"Only our own to begin with. Ms. W. said she didn't want anyone being embarrassed. We all had a lot to learn. It was supposed to be private until we began to trust our own judgments. She kept saying, 'Trust me. You'll get better at this and then you can share.'"

"Did you ever move on to evaluating each other's work?"

"Yeah. After a while, we began to trust ourselves and each other. Then we were free to ask classmates for opinions. But Ms. W. said, no blanket judgments—no saying just, this is good or bad. And we were always supposed to be honest. If we couldn't see how to help someone improve a piece, we were supposed to say so."

BEGINNING OF THE YEAR Writing Sample

Computers are a thing of the future. They help us in thousands of ways. Computers are a help to our lives. They make things easier. They help us to keep track of information.

Computers are simple to use. Anyone can learn how. You do not have to be a computer expert to operate a computer. You just need to know a few basic things.

Computers can be robots that will change our lives. Robots are really computers! Robots do a lot of the work that humans used to do. This makes our lives much easier. Robots build cars and do many other tasks that humans used to do. When robots learn to do more, they will take over most of our work. This will free humans to do other kinds of things. You can also communicate on computers. It is much faster than mail! You can look up information, too. You can find information on anything at all on a computer.

Computers are changing the work and changing the way we work and communicate. In many ways, computers are changing our lives and making our lives better and easier.

END OF THE YEAR Writing Sample

So there I was, my face aglow with the reflection on my computer screen, trying to come up with the next line for my essay. Writing it was akin to Chinese water torture, as I could never seem to end it. It dragged on and on, a never-ending babble of stuff.

Suddenly, unexpectedly—I felt an ending coming on. I could wrap this thing up in four or five sentences, and this dreadful assignment would be over. I'd be free.

I had not saved yet, and decided I would do so now. I clasped the slick, white mouse in my hand, slid it over the mouse pad, and watched as the black arrow progressed toward the "File" menu. By accident, I clicked the mouse button just to the left of paragraph 66.1 saw a flash and the next thing I knew, I was back to square one. I stared at the blank screen for a moment in disbelief. Where was my essay? My ten-billion-page masterpiece? Gone?! No—that couldn't be! Not after all the work I had done! Would a computer be that unforgiving? That unfeeling? Didn't it care about me at all?

I decided not to give up hope just yet. The secret was to remain calm. After all, my file had to be somewhere—right? That's what all the manuals say—"It's in there *somewhere"* I went back to the "File" menu, much more carefully this time. First, I tried a friendly sounding category called "Find File." No luck there; I hadn't given the file a name.

Ah, then I had a brainstorm. I could simply go up to "Undo." Yes, that would be my savior! A simple click of a button and my problem would be solved! I went to Undo, but it looked a bit fuzzy. Not a good sign. That means there is nothing to undo. Don't panic ... don't panic ...

I decided to try to exit the program, not really knowing what I would accomplish by this but feeling more than a little desperate. Next, I clicked on the icon that would allow me back in to word processing. A small sign appeared, telling me that my program was being used by another user. Another user? What's it talking about? *I'm* the only user, you idiot! Or at least I'm trying to be a user! Give me my paper back! Right now!

I clicked on the icon again and again—to no avail. Click ...click ...clickclickclickCLICKCLICKCLICK!!!! Without warning, a thin cloud of smoke began to rise from the back of the computer. I didn't know whether to laugh or cry. Sighing, I opened my desk drawer, and pulled out a tablet and pen. It was going to be a long day.

Figure 1.1
Emily's writing samples
Source: Personal writing by Nikki Spandel. Reprinted by permission.

"Were you able to see improvement in your writing along the way?" I wondered.

"Yeah, see, Ms. W. said that was the whole idea. I've still got my writing portfolio full of practice, see? It starts out pretty bad back in the fall and slowly gets pretty good toward spring. This is where the two pieces came from that the board read last night. I picked them. I talk about the changes in my writing in the self-reflections in here. My portfolio tells the whole story. Want to look through it?"

"I sure do. What do you think Ms. Weathersby did that was right, Emily?"

"Nobody had ever been so clear with me before about what it took to be really good at school stuff. It's like, there's no mystery—no need to psych her out. She said, 1 won't ever surprise you, trust me. I'll show you what I want and I don't want any excuses. But you've got to deliver good writing in this class. You don't deliver, you don't succeed.'

"Every so often, she would give us something she had written, so we could rate and provide her with feedback on her work. She listened to our comments and said it really helped her improve her writing. All of a sudden, *we* became *her* teachers! That was so cool!

"You know, she was the first teacher ever to tell me that it was okay not to be very good at something at first, like, when you're trying to do something new. But we couldn't stay there. We had to get a little better each time. If we didn't, it was our own fault. She didn't want us to give up on ourselves. If we kept improving, over time, we could learn to write well. I wish every teacher would do that. She would say, 'There's no shortage of success around here. You learn to write well, you get an A. My goal is to have everyone learn to write well and deserve an A.'"

"Thanks for filling in the details, Em."

"Thank you for asking!"

The Keys to Success

Let's consider the conditions that needed to be in place in Ms. W.'s classroom for Emily and her classmates to have experienced such success. To begin with, Ms. W. understood who is in charge of whether or not learning happened—her students. Therefore, assessment was a student-involved activity *during the learning* in which Emily and her classmates assessed their own achievement repeatedly over time, so they and their parents could watch the improvement. To be sure, Ms. W. controlled the definition of good writing and the evaluation criteria. And clearly, she made important instructional decisions based on assessment results. But she also shared the wisdom and power that come from being able to assess the quality of writing. She showed her students the secrets to their own success.

In this way, Ms. W. used assessment and its results to build her students' confidence in themselves as writers. She wanted her students to continue to believe the target was within reach if they kept striving. Students who see the target as being beyond reach will give up in hopelessness.

Second, Ms. Weathersby wanted her students always to remain in touch with where they are currently in relation to an ultimate vision of success. She wanted her

students to continually see the distance closing between their present position and their goal. This turned out to be incredibly empowering for them.

Third, Ms. W. and her colleagues knew that their assessments of student achievement had to be very accurate. Writing exercises had to elicit the right kinds of writing. Scoring procedures needed to focus on the important facets of good writing. As faculty members, they needed to train themselves to apply those scoring standards dependably—to avoid making biased judgments about student work.

But, just as importantly, Ms. W. understood that she also had to train her students to make dependable judgments about the quality of their own work. *This represents the heart of competence.* Any student who cannot evaluate the quality of her own writing and fix it when it isn't working cannot become an independent, lifelong writer.

Another key to success was the great care taken to communicate effectively about student achievement. Whether Ms. W. was describing for Emily improvements needed or achieved in her work or sharing with the school board summary information about average student performance, she took pains to speak simply, to the point, and with examples to ensure that her meaning was clear.

Some Students Aren't So Lucky

Sadly, for every such positive story, in which sound assessment feeds into productive instruction and important learning, there may be another with a far less constructive, perhaps even painful, ending. For example, consider the story of our daughter Kristen Ann, when she was just beginning to learn to write:

Kristen arrived home one afternoon full of gloom when she was in third grade. She said she knew we were going to be angry with her. She presented us with a sheet of paper—the third-grade size with the wide lines. On it, she had written a story. Her assignment was to write about someone or something she cares about deeply. She wrote of Kelly, a tiny kitten who had come to be part of our family, but who had to return to the farm after two weeks because of allergies. Kelly's departure had been like the loss of a family member.

On the sheet of paper was an emergent writer's version of this story—not sophisticated, but poignant. Krissy's recounting of events was accurate and her story captured her very strong sadness and disappointment at losing her new little friend. She did a pretty darn good job of writing, for a beginner.

At the bottom of the page, below the story, was a big red circled "F"! We asked her why, and she told us that the teacher said she had better learn to do it right or she would fail. Questioning further, we found that her teacher had said that students were to fill the page with writing. Krissy had used only three-quarters of the page, so she hadn't followed directions and so deserved an F.

When she had finished telling us this story, Kristen Ann put the sheet of paper down on the kitchen table and, with a very discouraged look, said in an intimidated voice, "I'll never be a good writer anyway," and left the room. My recollection of that moment remains vivid after 20 years.

In fact, she had *succeeded* at hitting the achievement target. She produced some pretty good writing. But her confidence in herself as a writer was deeply shaken because her teacher failed to disentangle her expectation that students comply with directions with her expectation that they demonstrate the ability to write well. As a result, both the assessment and the feedback had a destructive impact on this student. Without question, it's quite easy to see if the page is full. But is that the point? It's somewhat more challenging to assess accurately and to formulate and deliver understandable and timely feedback that permits a student to write better the next time and to remain confident about her ability to continue to grow as a writer.

Please *never* underestimate the power of your evaluations of student performance and the impact of your feedback on your students. For we adults, it's a grade that goes in a gradebook or a score we average with other scores. But for students, it's always far more personal than that. It's how they decide how they fit into the world of people who do this thing called "writing," or "reading" or "math." Indeed, they interpret your feedback to decide whether they fit in at all. And depending on how they "come down" on this, we may or may not be able to influence their learning lives. Never lose sight of this very personal dimension of your classroom assessment processes.

Time for Reflection

Analyze and compare the assessments experienced by Emily and Kristen. Considering the keys to success discussed here, what were the essential differences? Why was one productive and the other not?

Other Potential Problems

Some unfortunate students may be mired in classrooms in which they are forced to try to guess the meaning of academic success. Their teachers may lack a vision of success or may focus on an incorrect one. Or they might choose to keep the secrets of success a mystery to retain power and control in the classroom. When their students guess at the valued target and guess wrong, they fail the assessment. Under these circumstances, they fail not from lack of motivation, but from lack of insight as to what they are supposed to achieve. This can be very discouraging. It destroys confidence. These students may well have succeeded had they been given the opportunity to strive for a clear objective.

Then there are those students who prepare well, master the required material, and fail anyway because the teacher prepares a poor-quality test, thus inaccurately measuring their achievement. Student achievement may also be mismeasured because a teacher places blind faith in the quality of the tests that accompanied the textbook, when in fact that confidence is misplaced. In addition, some students fail not because of low achievement, but because their teacher's subjective performance assessment judgments are riddled with the effects of unconscious bias.

When these and other such problems arise, an environment of assessment illiteracy dominates, assessments will be of poor quality, and students are placed directly in harm's way.

Anticipating and Avoiding Assessment Problems

Your job is to avoid problems like these by applying the basic principles of sound assessment. As you will see, assessments can serve many masters, take many different forms, reflect many different kinds of achievement, and fall prey to any of a variety of different problems that may lead to inaccurate results. When our journey together through the chapters of this book is complete you will have developed your own framework for understanding all of the options and for selecting from among them for each classroom assessment context. You will know what can go wrong and how to prevent assessment problems. In short, you will be prepared to assemble the parts of the classroom assessment puzzle as artfully as Ms. Weathersby does.

Understanding Assessment Validity

One way to think about the quality of an assessment is in terms of the fidelity of the results it produces. Just as we want our recorded music to provide an accurate representation of the real thing, so too do we want assessments to provide a high-fidelity reproduction of the desired learning. In the assessment realm, this is referred to as the *validity* of the test. All assessments results (scores, for example) provide outward indications of inner mental states. We must always seek assessment results that accurately represent student learning.

Another way to think about the validity of an assessment is in terms of the usefulness of its results. A valid, sound assessment serves the purpose for which it is developed and administered. For instance, a diagnostic test helps the user see and understand student needs. A college admission test leads to appropriate selection decisions among candidates. We always seek to develop assessments that fit the context at hand—that are valid for a specific purpose or set of purposes.

As we go, I will fill in details about this important concept of validity.

Understanding Assessment Reliability

Still another way to think about assessment quality is in terms of its ability to give us consistent results. Assume that, in the truth of the world, a student possesses a specific and stable level of proficiency in reading comprehension. So we know that achievement is not changing. A dependable or *reliable* assessment will reflect that stable level of achievement no matter how many times we measure it.

Additionally, as that proficiency improves, a reliable assessment will produce changing scores that track right along with that improvement. We will be able to

ount on this assessment to deliver dependable information about that student's evolving proficiency.

As we progress, you will come to see that factors other than students actual level of reading comprehension proficiency can influence test scores—bad test items, test anxiety, distractions during testing, and the like. When this happens the score' is muddled by these extraneous factors and is said to have become *unreliable.* This is a bad thing and we will discuss how to anticipate and avoid this kind of problem.

The Changing Role of Assessment

The faculty members of the high schools from which you and I graduated were evaluated in terms of their ability to sort us into a dependable rank order by graduation. Our schools were assigned the social mission of channeling graduates into the various segments of our social and economic system. Our entire classroom assessment and grading legacy was built around this mission.

In recent decades, however, society has come to realize the inadequacy of this mission for schools in today's increasingly complex world. The problem is that those who finish low in the rank order (along with those who give up in hopelessness and drop out before they are ever ranked!), fail to master the fundamental reading, writing, math problem-solving, and other proficiencies needed to survive in and contribute to an increasingly demanding and technical society. This is why, in the middle of the last century, scholars and policy makers began to conceive of a different social mission for schools. To meet society's needs, schools needed to ensure that all students reach a certain minimum level of academic competence in reading, writing, and math problem solving, for example.

This new vision of effective schools has continued to evolve over the decades, leading to today's dominant view that truly effective schools help all students meet specified academic achievement standards.

Virtually every state has developed its own standards defining the important academic learning that students are expected to master. Once articulated by experts in each academic field, these standards are translated into state assessments, and schools are accountable for student mastery of them. Thus, state policy makers have decreed that schools will be judged effective not merely in terms of their ability to rank students, but also on their ability to produce competent students. We have even witnessed federal educational policy rally around this definition of effective schools.

This shift in mission profoundly affects the role of assessment. Assessments must do far more for us than merely help us grade and rank students. They must help us accurately diagnose student needs, track and enhance student growth toward standards, motivate students to strive for academic excellence, and verify student mastery of required standards. This book will help you understand the role of classroom assessment in accomplishing these things.

Your Assignment in Standards-Driven Schools

In a standards-driven school, as a classroom teacher, your assignment is to maximize the number of students who meet standards; that is, who experience success—who become competent readers, writers, math problem solvers, or whatever version of academic success you choose for them. Therefore, in standards-driven schools, assessments must be far more than appendages connected to the end of teaching; they must do far more than merely gauge student success for grading or ranking purposes. Rather, you must use assessment to build student confidence and, indeed, to promote or cause greater student achievement. To do this, you must

- Understand the achievement targets you want your students to hit—what it means to succeed academically in your classroom.
- Transform your vision of academic success into assessment exercises and scoring procedures that provide accurate information about student achievement.
- Use both assessment and its results to help students both to believe in themselves as learners and to strive for academic success.

To be more specific, as a teacher, your job is to gather solid information about student achievement and feed it into your instructional decision making. You can do this only when you are able to do the following:

- *Anticipate the information needs* of those instructional decision makers who will use the assessment results. Your assessments must be designed specifically to meet those needs.
- *Identify the achievement targets* (goals, objectives, expectations, standards) that you expect your students to hit. These must be the focus of your assessment exercises and scoring procedures.
- *Select proper assessment methods* that accurately reflect your achievement expectations.
- *Assemble high-quality assessment exercises into an array (a sample)* that spans the full range of your expectations and thus leads you to confident conclusions about student achievement.
- *Anticipate and eliminate all sources of bias* that creep into your assessments.
- *Communicate assessment results* in a timely and understandable manner into the hands of their intended user(s).

These keys to success are presented graphically in Figure 1.2.

Important Benefits to You

There are three specific reasons why you must understand the principles of sound assessment. First, you will spend a quarter to a third of your available professional time involved in assessment-related activities. This includes designing and building them, selecting them from other sources, administering them, scoring them, and

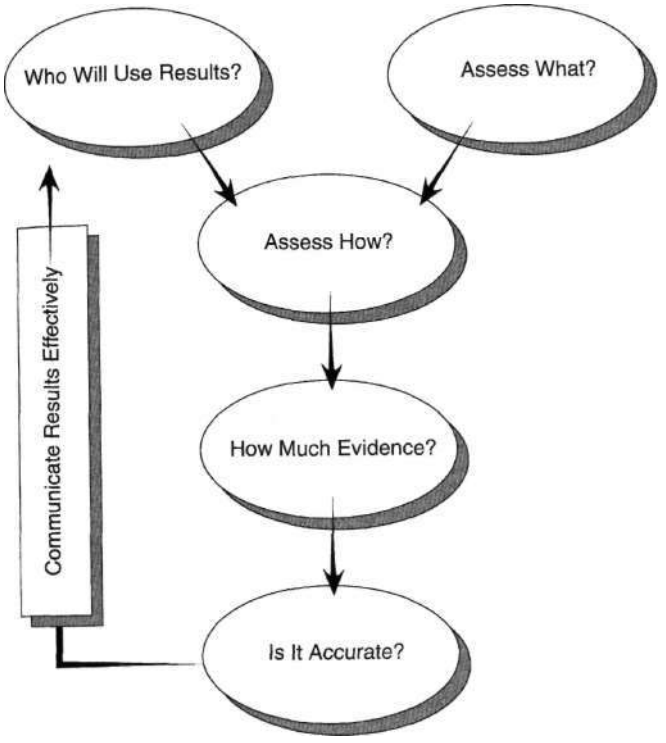

Figure 1.2
Keys to effective classroom assessment

managing and reporting results. It is hard work and can be tedious. The procedures described herein can *make that job MUCH easier.* The time savings detailed in the chapters that follow are legion. In fact, as noted previously, every time one appears, I will highlight it with a small clock icon (shown in the margin). Second, the routine application of the principles of sound assessment offered herein has been shown to *yield remarkable gains in student achievement* versus environments where they are missing (Black & Wiliam, 1998; Meisels, Atkins-Burnett, Xue, & Bickel, 2003). These gains accrue for all students, but especially for low achievers. In other words, the consistent application of these ideas can help you reduce achievement gaps between different subgroups of the student population.

Third, understanding the elements of sound classroom assessment will allow you to build a strong defense for their use in your classroom. The ideas presented herein run counter to decades of assessment traditions in schools. As a result, you will work

with colleagues who will challenge you on them and try to draw you back into "conventional" practice. Chances are, you will encounter teachers who are more experienced than you whose assessment and grading fall short of the standards of sound practice you will learn here. If you master the principles of sound practice, you will be able to carry them out and help others understand why they should do the same.

A Fundamental Assessment Belief

Our assessment traditions are built on the belief that assessments serve us best when they inform the instructional decisions made by the adults who manage schools and classrooms (teachers, parents, principals, superintendents, etc). However, this book manifests a fundamentally different belief. The instructional decisions that contribute the most to student success are, in fact, not made by the adults. Rather, the decisions that contribute the most to determining student success or failure in learning are made by students themselves. We will consider those decisions in great depth later in the chapter. For now, suffice it to say that students decide whether the learning is worth the risk and effort required to acquire it. They decide if they believe they are smart enough to learn it. And they decide these things based on their own interpretation of their personal record of academic success.

Therefore, whatever else we do, we must help them believe that success in learning is possible for them and worthy of the effort. If we cannot do that, we cannot help them learn. This book is about how to use student involvement in classroom assessment in the service of that mission.

To make their decisions well, students need continuous access to understandable descriptive information about their own improvement as readers, writers, math problem solvers, and the like. When they are partners in that kind of assessment process, teachers tell me, it's almost shocking how fast they can grow. The purpose of this book is to enable you to join the ranks of these very strong teachers.

This is not to say that adult decision makers are unimportant. Indeed, they are crucial to student success. But the adults are not in charge of the learning. *Learners* are. If students don't want to learn or don't feel able to learn, there will be no learning. So as teachers, our fundamental driving questions must be, How can we help our students want to learn? How can we help them believe that they are capable learners?

This book is about all of the different ways you can use day-to-day classroom assessment, record keeping, and communication to answer these questions. It's about learners being in control of their own success. It's about avoiding circumstances in which assessments have the effect of destroying student confidence. This book is about using assessment in support of learning—not merely as a gauge of learning. It's about assessment without victims.

Assessment and Student Motivation

As I noted in the Introduction to Part 1, most of us grew up in classrooms in which our teachers believed that the way you maximize learning is by maximizing anxiety.

Assessment was always the great intimidator. Many of our teachers believed that if a little intimidation doesn't work, turn up the heat—try a lot of intimidation. This is why most adults today feel that being evaluated is a distinctly dangerous enterprise. It always left us feeling vulnerable.

Please understand that our teachers were *wrong* about this. Here is the fundamental problem with this way of thinking: Research on the biological functioning of the human brain during cognition tells us that, when the brain is in an anxious state of tension, it draws itself inward—it closes down—for protection. In this state, it becomes very difficult to see, understand, and learn new things. This research tells us that, if we wish to maximize learning, we must do just the opposite of what our teachers did—we must *drive out the fear* of failure. This runs exactly counter to our traditions. But the research results are ironclad. In this book, I will show you how to use classroom assessment in ways that drive out the fear of failure and maximize student success. We do this by involving students deeply in assessment, record keeping, and communication.

Consider the student as consumer of assessment results: Right from the time students arrive at school, they look to their teachers for evidence of their success. If that early evidence suggests that they are succeeding, what begins to grow in them is a sense of hopefulness and an expectation of more success in the future. This in turn fuels enthusiasm and the motivation to try hard, which fuels even more success. The basis of this upward spiral is the evidence of their own achievement, which students receive from their teachers based on ongoing classroom assessments. Thus, classroom assessment information is the essential fuel that powers the learning system for students.

However, when the evidence suggests to students that they are not succeeding, what can then begin to grow in them is a sense of hopelessness and an expectation of more failure in the future. This can rob them of the confidence they need to take the risk of trying to learn. So they stop trying and stop learning, which in turn leads to more failure. In this downward spiral, here again we see consequences of classroom assessment evidence, but this time it is evidence of failure that fuels frustration and discouragement.

Please understand, I do not mean to imply that all assessment results should be positive simply to keep students involved and motivated. On the contrary, if students are not meeting your standards, your assessments must accurately reflect that fact. But if those results reflect a lack of academic success, you must act to change your instructional approach to prevent the pattern of failure from becoming chronic. You must find a different formula that brings to students hope of future success. Ongoing student-involved classroom assessment is your best tool for revealing increments of improvement to your students and for keeping them believing that success is within reach if they keep trying.

As you will learn in the next section, there are many important assessment users at all levels of the educational system. However, students, who use the results to set expectations of themselves, are the most important. Students decide how high to aim based on their sense of the probability that they will succeed. They estimate the probability of future success based on their record of past success as reflected in their classroom assessment experience. *No single decision or combination of decisions made by any other party exerts such influence on student success.* For this reason, to

be considered valid for this context, your classroom assessments must help both you and your students clearly understand the results of each individual assessment and track increments in their achievement over time,

A Note on Students with Learning Disabilities

When students are academically challenged, we and they face the constant danger that they will sense the slowness of their learning and develop a sense of futility in that regard. As we proceed, we will discuss specific ways to deal with this. But for now, suffice it to say that you must be aware of this danger and its origins. The achievement targets we set for them will be framed in their Individual Educational Plans (IEPs). We must be sure those are based on where they *really* are currently in the continuous-progress curriculum—that is, their level of achievement—not some "grade-level expectation." It is neither ethical nor pedagogically appropriate to hold students accountable for achievement targets they have no hope of hitting. This dooms them to inevitable failure and that is unacceptable. The effect of doing so will be the loss of student confidence in themselves as learners and the development of that sense of futility that leads to hopelessness.

On the other hand, if we manage their learning in a continuous-progress manner and at a rate appropriate for them, keeping them in touch with their own improvement through their involvement in assessment, we can keep them believing that success (as defined uniquely for them) is within reach.

Guides to Valid and Reliable Assessment

My job is to teach myself out of a job. In other words, my job is to help you reach a place where you no longer need me or your professor to tell you whether your assessments are valid and reliable. My mission is to help you know when you have done well because you know and understand *how to apply to your own work the criteria that define sound assessment.*

Your job is exactly the same: to take your students to a place where they no longer need you to tell them whether they have succeeded, but rather where they know this in their own minds because they understand the criteria that define high achievement-—just as Ms. W. helped Emily and her classmates learn.

As we proceed toward this end, you will see (indeed, already have seen) repeated reference to a set of guiding principles. They are represented graphically in Figure 1.3. I highlight them with you here at the outset as interrelated themes that map the path to valid and reliable assessment. The order in which they are presented is immaterial; each principle is profoundly important. Together, they represent the concrete foundation on which we will build the structure of your understanding of how to assess well in your classroom.

As you read about these principles, keep Ms. W. and Emily in mind and you will see why I started our journey together with their story.

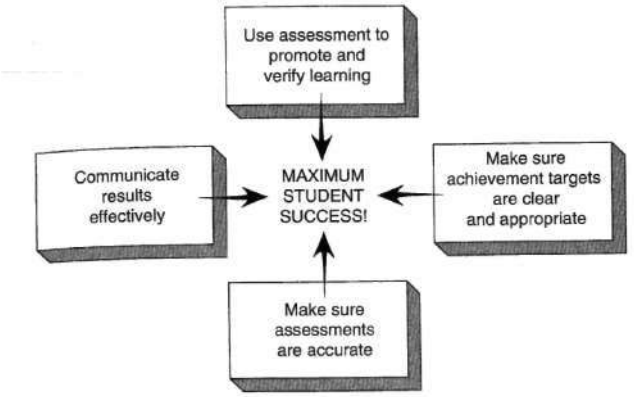

Figure 1.3
Guiding principles for effective classroom assessment

Guiding Principle 1: Classroom Assessments Can Both *Promote* and *Verify* Student Learning

To understand how to use assessment to support learning, first, we must see the big picture. A variety of different people use assessment results to inform a variety of instructional decisions—that is, to answer many different questions, as shown in Tables 1.1, 1.2, and 1.3. These tables illustrate how each assessment user's roles and responsibilities contribute to student success by depicting three levels at which assessment results can come into play.

Taken together, all three sets of assessment users make the decisions that determine whether schools work for any individual child, or for all children considered collectively. While I am of the opinion that decisions made at the classroom level contribute the most to student success, please understand that all parties listed make important decisions; their information needs deserve careful attention.

Column one of each table lists decision makers whose decisions are (or can be) informed by assessment results. Column two presents questions these decision makers ask whose answers are based at least in part on assessment results of some kind. These tables are not intended to be exhaustive but are rather samples from among the array of assessment users and uses. As you read on, bear in mind our *validity* concept: An assessment is valid only when it serves its intended purpose well.

Time for Reflection

Before continuing, please study Tables 1.1, 1.2, and 1.3 carefully. Based on the information provided in each, write down whatever insights or generalizations you can draw about assessment's role in promoting student success. When you have done this for all three tables, read on.

Classroom Users

The first level of use is in the classroom. Students, teachers, and parents gather and use the results of student assessments to inform a variety of decisions that influence both student motivation and their level of success. Some of these call for the formative use of assessment in support of learning: How can we help students improve? Others use assessment in a summative manner, checking achievement status for accountability purposes: Did the student learn enough?

After reflecting on the classroom-level questions listed in Table 1.1, can you imagine the dire consequences for student success if students, teachers, and parents were to try to answer them based on misinformation about student achievement due to inaccurate classroom assessment? What if students were not hitting the target, but the assessments said they were succeeding? What if they were succeeding, but the assessments said they were not?

Table 1.1
Sample questions that we use assessment to answer at the classroom level

Assessment User	Sample Questions
Student	Am I succeeding? Am I improving over time? Do I know what it means to succeed here? What should I do next to succeed? What help do I need to succeed? Do I feel in control of my own success? Does my teacher think I'm capable of success? Do I think I'm capable of success? Is the learning worth the effort? How am I doing in relation to my classmates? Where do I want all of this to take me?
Teacher	Are my students improving? Is it because of me? What does this student need? Is this student capable of learning this? What do these students need? What are their strengths that we can build on? How should I group my students? Am I going too fast, too slow, too far, not far enough? Am I improving as a teacher? How can I improve? Did that teaching strategy work? What do I say at parent/teacher conferences? What grade do I put on the report card?
Parent	Is my child learning new things—growing? Is my child succeeding? Is my child keeping up? Are we doing enough at home to support the teacher? What does my child need to succeed? Does the teacher know what my child needs? Is this teacher doing a good job? Is this a good school? District?

Clearly, inaccurate assessments would lead to misdiagnosis of student needs on the part of the teacher, failure to understand which instructional strategies work and which do not, and communication of misinformation to parents, among other problems.

The point is that accurate information derived from quality classroom assessments is essential for instruction to work effectively and for students to learn. In addition, the following critically important generalizations are warranted on the basis of analyzing the questions in Table 1.1:

- Although we most often think of students as the examinees and not as examiners, they clearly are assessors of their own academic progress, and they use those results in compelling ways.
- Given the manner in which assessment results fit into day-to-day classroom decision making, assessment must be a regularly occurring process in all cases. These are continually recurring decisions. This is precisely why classroom assessment events are so much more frequent in a student's life than are annual, formal standardized tests.
- At this level, assessment virtually always focuses on individual students' mastery of specified material. You, the teacher, must set standards of acceptable achievement if your assessments are to show whether students have succeeded.

Instructional Support Users

The second level is that of instructional support. Decision makers at this level provide teachers with whatever backup they may need in the form of curricular, professional development, and/or resource support. Backup may come from the department, building, or district level, or beyond. In this case, formative applications examine assessment results to see what teachers may need to be more effective. Summative uses center on such questions as, Did the new reading program we purchased work effectively?

We can see the following patterns emerge from the information presented in Table 1.2:

- In every case, the decisions to be made focus on the instructional program or the teacher.
- Typically, the focus is not on the individual student but is rather on group performance.
- Decisions are made infrequentiy and thus assessment need only be periodic (typically once a year), not continuous.
- At this level, heavy reliance is placed on the use of assessment results in which assessment instruments or procedures must be held constant across classrooms. In other words, some standardization is required if sound information and good decisions are to result.

For all these reasons, this is the domain of the standardized test.

Table 1.2
Sample questions that we use assessment to answer at the instructional support level

Assessment User	Sample Questions
Principal	How do we define success in terms of student learning? Is this teacher producing results in the form of student learning? How can I help this teacher improve? Is instruction in our building producing results? Is instruction at each grade level producing results? Are our students qualifying for college? Are our students prepared for the workplace? Do we need professional development as a faculty to improve? How shall we allocate building resources to achieve success?
Mentor Teacher	Is this new teacher producing results? What does this new teacher need to improve?
Curriculum Director	How do we define success in terms of student achievement? Is our program of instruction working? What adjustments do we need to make in our curriculum?
Special Services	Who needs (qualifies for) special educational services? Is our program of services helping students? What assistance does this student need to succeed?

Policy-Level Users

The final level of assessment user is policy makers, including the superintendent, the school board, public officials (appointed and elected), and citizens of the community. They establish achievement standards to guide instruction in classrooms and then demand evidence of achievement to verify that students are meeting the standards. Based on the evidence they receive, they allocate district resources to overcome weaknesses, set personnel policies to regulate who gets to teach, and set procedural policies that guide teaching practices. Once again, we find both formative and summative applications.

We can make the following generalizations on the basis of the information in Table 1.3:

- The focus is on broad domains of achievement, not on specific objectives of instruction.
- As with the instructional support level, results summarized across students (group results) fill the need.
- As with the instructional support level, periodic assessment will suffice.
- At this level too, assessment procedures must be standardized across contexts and over time. The decisions to be made require it.

Again, this is the domain of the standardized test.

Table 1.3
Sample questions that we use assessment to answer at the policy-making level

Assessment User	Sample Questions
Superintendent	Are our programs of instruction producing results in terms of student learning? Is each building principal producing results? Which schools deserve or need more or fewer resources?
School Board	Are our students learning and succeeding? Is the superintendent producing results?
State Department of Education	Are programs across the state producing results? Are individual school districts producing results?
Citizen/Legislature	Are our students achieving in ways that prepare them to become productive citizens?

Generalizations About Users and Uses

Having reflected on these three tables, do any general conclusions come to your mind regarding the role of assessment in determining and enhancing the effectiveness of schools? Try the following and see if you agree:

- Obviously, assessment is intricately woven into the effectiveness of school functioning. Often the depth and complexity of the contributions of the various assessment levels are surprising to many educators. As teachers and instructional leaders, we must all face this complexity and come to terms with it.
- Students count on many people at all levels and in all decision-making contexts to use sound assessment results in productive ways. Every question listed in the tables is critical to student well-being. This is why we must continually strive for the most valid assessments—those that fit the purpose most closely. It is a moral, ethical, and professional imperative of the highest order.
- Considering the tables together, it is clear that both information gathered continuously on individual student mastery of specified material and information gathered periodically for the purpose of comparing students serve important roles. Different users need different information at different times in different forms to do their jobs.

Given this summary of all of the decision-oriented users and uses of assessment, it becomes clear that we need to maintain a balanced perspective about assessment's valuable role at all levels. High-quality classroom assessment serving its important users must be balanced with high-quality standardized assessment serving its important users.

Thought of in another way, purpose becomes a standard of assessment quality. Unless we begin development of any assessment with a clear sense of both the intended user and use, and thus the *user's information needs,* we cannot build an assessment that will accomplish its mission. A clear sense of purpose is essential.

Similarly, we can evaluate the quality of any assessment in retrospect in part by asking if the developer began with a clear sense of the user's information needs.

From now on, we will regard this as our first criterion by which to judge the quality of an assessment. High-quality assessments always begin with a clear purpose and the assurance that the assessment will be developed to serve it. Poor-quality assessments arise from contexts where (1) the purpose is missing, (2) there are so many purposes that the assessment could never serve them all, or (3) the evidence gathered cannot serve the intended user. This criterion is the first entry in a comprehensive set of rubrics for judging classroom assessment quality that appears in the Appendix. We will continue to build these criteria as we proceed and, as we go, you will practice applying them.

Therefore, the Principles of Assessment FOR Learning

This book is about how to use classroom assessment in the service of student success. We speak here, not merely of dependable assessment OF learning, but also of dependable assessment FOR learning. We seek to use assessment and its results, not merely to keep track of learning, but to help students learn more. The tools and strategies offered herein will permit you to help your students go on internal control and take responsibility for their own learning.

Both assessment of and for learning are important. In the case of the former, we use assessment to verify that students have met standards in an accountability sense. For instance, statewide standardized tests ask students to demonstrate that they have met required achievement standards. Or in the classroom, teachers administer final examinations to determine a student's report card grade. These are periodic events that happen after learning is supposed to have occurred in order to let others know if students have learned.

But assessment for learning is different. In this case, we rely on the process not merely to check for learning, but to increase the learning. These are the assessments that we use early in learning to diagnose student needs. These have no place in the gradebook. They are the assessments that we conduct while learning is happening to help students see and feel in control of their own ongoing growth. In short, these are continuous assessments that we use to inform students about themselves during learning. In between the periodic assessments of learning, we rely on a steady flow of assessments for learning. This is what Ms. W. did for Emily and her classmates.

In this sense, teachers who help students understand the learning targets, engage in self-assessment, watch themselves grow, talk about that growth, or anticipate next steps in learning are applying the principles of assessment for learning.

Following this line of reasoning, we at the Assessment Training Institute have developed a checklist of attributes of instruction that manifests the principles of assessment for learning (Figure 1.4). When teachers can say that these things are true about their instruction as a matter of routine, they are using assessment for learning—assessment in support of student success.

In the chapters that follow, I will show you the specifics of how to make these principles operational in your classroom through the use of student-involved classroom assessment, record keeping, and communication.

1. **I understand and can articulate *in advance of teaching* the achievement targets that I want my students to hit.**
2. **I inform my students continuously about those targets *in terms that they can understand;* that is, in student-friendly language with illustrations.**
3. **I transform those targets into classroom assessments that I am certain *will yield accurate evidence* of student achievement.**
4. **I understand the relationship between assessment and student motivation and, in my classroom, we use assessment to *build (and not to destroy) student confidence.***
5. **I consistently *act on classroom assessment results,* as needed, to revise instructional plans; that is, we go to where my students need to go, given their current achievement.**
6. **The feedback that my students receive is *frequent and descriptive* (versus infrequent or merely judgmental), providing a basis for improvement.**
7. **My students are actively involved in the *assessment of their own achievement.***
8. **My students *actively communicate with others* about their achievement status and improvement over time.**
9. **My students *can describe the achievement targets* they are trying to hit, even though they can't hit them yet.**

Figure \A
The Principles or Assessment *FOR* Learning
Source: Adapted From *Assessment* FOR *Learning: An Action Guide for School Leaders* (p. 35). by 5. Chappuis. R. J- Stiggins. J. Arter. and J. Chappuis. 2004. Portland. OR: Assessment Training Institute. Adapted by permission.

Guiding Principle 2: Clear and Appropriate Achievement Targets Are Essential

The quality of any assessment depends on how clearly and appropriately you define the achievement target you are assessing. In our opening vignette, a breakthrough in student writing achievement occurred in part because the English department faculty returned from that summer institute with a shared vision of writing proficiency. They built their program, and thus the competence of their students, around that vision.

You cannot validly (accurately) assess academic achievement targets that you have not precisely and completely defined. There are many different kinds of valued achievement expectations within our educational system, from mastering content knowledge to complex problem solving, from performing a flute recital to speaking Spanish to writing a strong term paper. All are important. But to assess them well, you must ask yourself, Do I know what it means to do it well? Precisely what does it mean to succeed academically? You are ready to assess only when you can answer these questions with clarity and confidence.

If your job is to teach students to become better writers, you had better start with a highly refined vision of what good writing looks like and a sense of how to help your students meet that standard. If your mission is to promote math problem-solving proficiency, you had better be a confident, competent master of that performance domain yourself. Without a sense of final destination reflected in your standards, and signposts along the way against which to check students' progress, you will have difficulty being an effective teacher.

Guiding Principle 3: Accurate Classroom Assessment Is Essential

To be of high quality (that is, to produce accurate results), assessments need to satisfy five specific quality standards. They must

1. Serve a specific purpose—that is, meet specified user information needs.
2. Arise from clear and appropriate achievement targets.
3. Rely on a proper assessment method.
4. Sample student achievement appropriately.
5. Eliminate distortion of results due to bias.

Assessments that meet these standards are said to be *valid* and *reliable.* All assessments must meet these standards. No exceptions can be tolerated, because to violate any of them is to risk inaccuracy, placing student academic well-being in jeopardy. (Return to Figure 1.2 to see these five standards represented graphically.) This is the first of many discussions and illustrations of these quality standards that permeate this book. On this first pass, I intend only to give you a general sense of the meaning of *quality.*

Guiding Principle 4: Sound Assessments Require Effective Communication

Mention assessment and the first thoughts that come to mind are of scores, numbers, and grades attached to very briefly labeled forms of achievement such as *reading, writing, science, math,* and the like. The underlying meaning of these one-word labels is rarely explained. In contrast, in our opening vignette the English faculty started with a clear vision of the meaning of academic success in writing in their classrooms and communicated that meaning effectively to students, parents, and school board members. They accomplished this by thoughtfully using performance rating schemes combined with examples of student performance, both of which reflected their vision. Sound assessment requires clear thinking and effective communication, not merely the quantification of ill-defined achievement targets.

While many assessments do translate levels of achievement into scores, we have come to understand two important realities more and more clearly. First, numbers are not the only way to communicate about achievement. We can use words, pictures, illustrations, examples, and many other means to convey this information. Second, the symbols we use as the basis of our communication about student achievement

re only as meaningful and useful as the definitions of achievement that underpin them and the quality of the assessments used to produce them.

Educators who are aware of sound practices and who are critical consumers of assessment information are constantly asking, "Precisely what is being assessed here, and do I know what the results mean?" They do not rest until they have good answers to these questions, and they certainly don't use the results to affect students until they have good aswers. They demand clear thinking about appropriate standards and effective communication, both in their own assessments and those of others.

The Power of Student Involvement

The guiding belief or value underpinning this book is that the greatest potential value of classroom assessment is realized when we open the process up and welcome students in as full partners. By now you understand that I do not simply mean having students trade test papers or homework assignments so they can grade each other's work. That's strictly clerical stuff. This concept of full partnership, as Emily and her classmates learned, goes far deeper.

Scriven (personal communication, 1995) provides a sense of the variable extent of student involvement in assessment. Starting with very superficial involvement, each level brings students further into the actual assessment equation. Students can do the following:

- Take the test and receive the grade.
- Be invited to offer the teacher comments on how to improve the test.
- Suggest possible assessment exercises.
- Actually develop assessment exercises.
- Assist the teacher in devising scoring criteria.
- Create the scoring criteria on their own.
- Apply scoring criteria to the evaluation of their own performance.
- Come to understand how assessment and evaluation affect their own academic success.
- Come to see how their own self-assessment relates to the teacher's assessment and to their own academic success.

Students who participate in the thoughtful analysis of quality work to identify its critical elements or to internalize valued achievement targets become better performers. When students learn to apply these standards so thoroughly that they can confidently and competently evaluate their own and each other's work, they are well on the road to becoming better performers in their own right. Consider Emily's case in our opening vignette. Ms. W. helped her to internalize key elements of good writing so she could understand the shortcomings of her own writing, take responsibility for improving them, and watch herself improve. Her confidence and competence as a partner in her classroom assessment came

through loud and clear, both in the parent-teacher conference she led at midyear and in her commentary to the school board at the end of the year. I offer many specific suggestions for melding assessment and instruction in this way throughout this text.

Summary: The Importance of Sound Assessment

The guiding principles discussed in this chapter (and illustrated with Emily's experience) form the foundation of the assessment wisdom all educators must master in order to manage classroom assessment environments effectively.

Teachers who are prepared to meet the challenges of classroom assessment understand that they need to do their assessment homework and be ready to think clearly and to communicate effectively at assessment time. They understand why it is critical to be able to share their expectations with students and their families and why it is essential that they conduct high-quality assessments that accurately reflect achievement expectations.

Well-prepared teachers realize that they themselves lie at the heart of the assessment process in schools and they take that responsibility very seriously. Competent teachers understand the complexities of aligning a range of /alued achievement targets with appropriate assessment methods so as to produce information 3n student achievement that both mey and their students can count on to be accurate. They understand the meaning of *valid assessment* and they know how to use all of the assessment tools at their disposal to produce valid information to serve intended purposes.

Effective classroom assessors/teachers understand the interpersonal dynamics of classroom assessment and know how to set students up for success, in part through using the appropriate assessment as a teaching tool. They know how to make students full partners in defining the valued targets of instruction and in transforming those definitions into quality assessments.

As teachers involve students in assessment, thus demystifying the meaning of success in the classroom, they acknowledge that students use assessment results to make the decisions that ultimately will determine if school does or does not work for them. Our collective classroom assessment responsibility is to be sure students have access to and understand the information they need to see themselves growing over time.

Final Chapter Reflection

Each chapter in this text will conclude with a brief and consistent set of questions for you to reflect on to solidify your understanding and ease your transition to subsequent chapters. Please take time to record your answers in your journal, They will help you make key connections as we continue our journey through the realm of classroom assessment.

1 What are the three most important new insights to come to you as a result of your study of this chapter?

2. What questions come to mind now about classroom assessment that you hope to have answered in subsequent chapters?

practice with Chapter 1 Ideas

The following activities provide opportunities for your personal reflection on ideas presented in Chapter 1 and may serve as an excellent basis for discussion of those ideas among classmates:

1. Read the following classroom assessment scenarios. Is each likely to increase or decrease student confidence and motivation to learn? Why?

Scenario

- Alan is having his students score each other's quizzes and then call out the scores so he can enter them in his gradebook.
- Students in Eileen's class are discussing some samples of anonymous science lab notes to decide which are great examples, which have some good points, and which don't tell the story of the lab at all well. They're gradually developing criteria for their own lab "learning logs."
- Catherine has just received back a grade on a report she wrote for social studies. She got a D+. There were no other comments.
- Students in Henry's basic writing class are there because they have failed to meet the state's writing competency requirements. Henry tells students that the year will be a time of learning to write. Competence at the end will be all that matters.
- Jeremy's teacher tells him that his test scores have been so dismal so far that no matter what he does from then on he will fail the class.
- Pat is reading her latest story aloud for the class to critique. Like each of her classmates, she's been asked to take notes during this "peer assessment" so that she can revise her work later.

Think of an assessment experience from your personal educational past that was a GOOD experience for you. What made it a productive experience? What emotional and learning impact did if have for you? Now think of one that was a BAD experience for you. What made it a counterproductive experience? What was its emotional and learning impact? What were the essential procedural differences between the two experiences? How do those differences related to the standards of sound classroom assessment practice described in this chapter?

Chapter 2

Defining Achievement Standards for Assessment

CHAPTER FOCUS

This chapter answers the following guiding question:

What kinds of achievement must teachers be able to assess in the classroom?

From your study of this chapter, you will understand the following:

1. Clear and appropriate achievement standards and targets are central to sound assessment and student success.
2. Sound achievement standards and targets have clear, identifiable attributes.
3. Teachers must be prepared to assess in their classrooms four different, but interrelated, kinds of achievement targets, plus dispositions.

Validity from a Different Perspective

Chapter 1 was about one key to valid classroom assessment: sound assessments arise from a clear sense of purpose. We must know why we are conducting the assessment—exactly who will use the assessment and how. Different users need different information in different forms at different times to do their jobs. Every assessment must be valid for its intended purpose; that is, it must serve its intended user well. Sometimes the users are students themselves trying to decide if the learning is worth the risk of trying for it and the effort required to attain it. Sometimes the users are teachers trying to diagnose student needs. Other times users are principals, parents, school board members, and so on. Each brings different information needs to the assessment context.

In this chapter, we move on to the next key to excellence in classroom assessment: clear and appropriate achievement targets (Figure 2.1). What do we expect our students to achieve? Teachers who cannot define the student characteristic(s) that they wish to assess will have difficulty developing assessment exercises and scoring procedures that reflect their expectations. Further, they will find it impossible both to share a clear vision of success with their students and to select instructional strategies that promise and deliver student success.

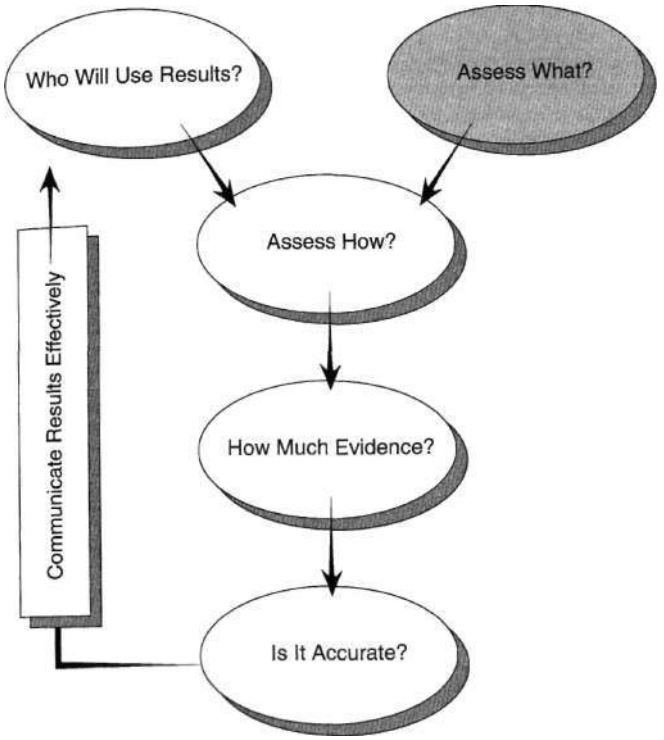

Figure 2.1
Clear targets: A key to effective classroom assessment

Only after clarifying the achievement target can the assessor pick an appropriate assessment method and develop and implement it properly so as to produce a high-fidelity representation of student achievement. Assessments that appropriately cover the material to be learned are said to meet standards of *content validity.*

Defining *Achievement Targets*

Achievement targets define academic success—what we want students to know and be able to do. Visualize a target with its concentric circles and a bull's-eye in the middle. The center circle defines the highest level of performance students can achieve; a very high-quality piece of writing, the most fluent oral reading, the highest possible score on a math problem-solving test. Each consecutive outside ring on the target defines a level of performance further from the highest level.

As students improve, they need to understand that they are progressing toward the bull's-eye.

Our mission as teachers in standards-driven schools is to help the largest possible percentage of our students to get there. To reach that goal, you must take charge of defining where "there" is. What are the attributes of a good piece of writing, such as Emily's end-of-year sample from Chapter 1? How does this level of performance differ from performance of lesser quality—that is, from the outer rings of the target? Ms. Weathersby knew, and gave Emily the insights she needed to understand as well.

I have adopted the target metaphor to permit me to point out now and repeatedly throughout this book that students can hit any target that they see and that holds still for them. But if they are guessing at what success looks like, in effect trying to learn while blindfolded, success will be a random event for them.

Schools use a variety of labels for their achievement expectations. Some call them *goals* and *objectives.* Others refer to *scope* and *sequence.* Still others label them *proficiencies* or *competencies.* More recently, we refer to *standards* and *benchmarks.* These terms all refer to the same basic thing: what we want students to know and be able to do.

I suggest that we think of them in this way: States and local school districts have developed academic achievement *standards.* These are the focus of state and district standardized tests. However, as teachers, we know that it is never the case that students attain mastery of standards in an instant. Rather, they progress through ascending levels of proficiency over time as they journey up to a place where they are ready to demonstrate that they have met the state standard. This is illustrated in Figure 2.2.

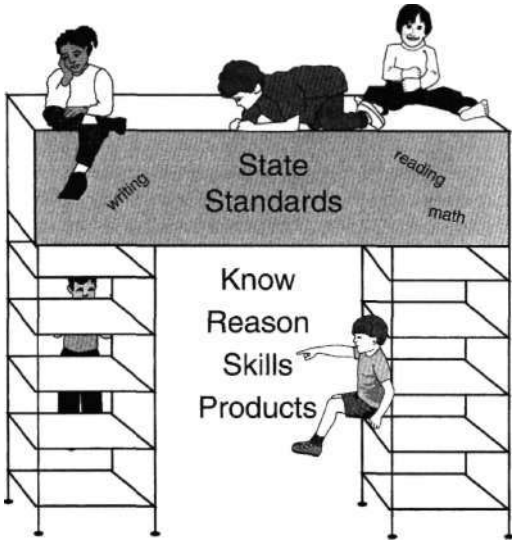

Figure 2.2
Relationship *of* standards to enabling classroom targets

The scaffolding on which they climb during the process of becoming competent can be thought of as *enabling classroom-level achievement targets.* They must be the focus of classroom instruction and day-to-day classroom assessment if students ultimately are to arrive at success. Figure 2.3 provides two examples of state standards deconstructed into their enabling classroom-level achievement targets.

Our standards and achievement targets form a solid foundation for classroom assessment when they meet the following criteria:

1. *Are Clearly Stated*—Our achievement expectations must be written in clear language, offered in public, and include student-friendly versions. When achievement targets are clearly stated, all who read and paraphrase them

Sample State Standard

History: Students will evaluate different interpretations of historical events.

The teacher must translate this into relevant classroom targets:

Knowledge and Understanding: Students must know and understand each historical event, and must understand each of the alternative interpretations to be evaluated. The teacher must determine if students are to know those things outright or if they can use reference materials to retrieve the required knowledge.

Reasoning: Evaluative reasoning requires judgment about the quality of each interpretation. Thus students must demonstrate both an understanding of the criteria by which one judges the quality of an interpretation and the ability to apply these criteria.

Performance Skills: None required

Products: None required

Sample State Standard

Writing: Students will use styles appropriate for their audience and purpose, including proper use of voice, word choice, and sentence fluency.

The teacher must translate this into relevant classroom targets:

Knowledge and Understanding: Writers must possess appropriate understanding of the concept of style as evidenced in voice, word choice, and sentence structure. In addition, students must possess knowledge of the topic they are to write about.

Reasoning: Writers must be able to figure out how to make sound voice, word choice, and sentence construction decisions while composing original text. The assessment must provide evidence of this ability.

Performance Skills: One of two kinds of performance will be required. Either respondents will write longhand or will compose text on a keyboard. Each requires its own kind of skill competence.

Products:The final evidence of competence will be written products that present evidence of the ability to write effectively to different audiences.

Figure 2.3
Converting state standards to classroom achievement targets

interpret them to mean essentially the same thing. Similarly, one criterion by which we should judge the appropriateness of our achievement expectations is our ability to provide samples of student work to illustrate different levels of proficiency.

2. *Center on Important Learnings*—Academic achievement expectations cannot merely be a matter of local opinion. Rather, they must be steeped in the best thinking of leading experts in the field. We don't get to vote on what our local faculty means by "good writer." Those traits have been clearly defined in our professional literature. Nor is it merely a matter of individual teacher opinion of what it means to do good science or solve math problems appropriately. As teachers, it is our personal and collective responsibility to remain in touch with our professional literature and know the most current thinking in the fields we teach.
3. *Are Articulated Within and Across Grades*—The achievement expectations held as important in any particular classroom cannot be merely a matter of the judgment of teachers at that grade level. Rather, they must fit into a continuously progressing curriculum that guides instruction across grade levels in that school and district. The overall curriculum should define ascending levels of competence that spiral through grade levels, mapping a journey to academic excellence. Each teacher's goals and objectives, therefore, must arise directly from what has come before and lead to what will follow.

Besides, because of differences in academic capabilities, students will ascend that continuous-progress curriculum at vastly different rates. Some will zoom, others will crawl very slowly. But please realize that the path to academic success doesn't change as a function of how fast they travel it. Prerequisites will remain foundations for what follows. They must be mapped to guide progressive learning—for students with learning disabilities, for midrange students, and for those who are gifted and talented.

. *Are Manageable in Number and Scope*—-It is always the case that time and resources available to promote student learning are limited. Similarly, students vary in the rate at which they are capable of learning. And achievement expectations vary in the demands they place on teacher and learner. It is essential that these variables be considered in defining each teacher's assigned responsibilities. In the productive classroom assessment environment, the amount to be learned fits within those limited resources. Too much overwhelms, too little frustrates. Both excesses discourage both teacher and learner.

Fall Within the Teacher's Repertoire—-As a classroom teacher, it will fall to you to deliver instruction and to conduct classroom assessments that focus on an assigned set of achievement expectations. To fulfill this responsibility, you must become a confident, competent master of the achievement targets that you expect your students to hit. This doesn't mean, for example, that elementary teachers need to be masters of high school physics. But it does

WRITING

1 The student writes clearly and effectively.

To meet this standard, the student will:

1.1 develop concept and design

develop a topic or theme; organize written thoughts with a clear beginning, middle, and end; use transitional sentences and phrases to connect related ideas; write coherently and effectively

1.2 use style appropriate to the audience and purpose

use voice, word choice, and sentence fluency for intended style and audience

1.3 apply writing conventions

know and apply correct spelling, grammar, sentence structure, punctuation, and capitalization

SCIENCE

1. The student understands and uses scientific concepts and principles

To meet this standard, the student will:

1.1 use properties to identify, describe, and categorize substances, materials, and objects, and use characteristics to categorize living things

1.2 recognize the components, structure, and organization of systems and the interconnections within and among them

1.3 understand how interactions within and among systems cause changes in matter and energy

Figure *1A*
Sample state of Washington learning requirements
Source: Washington State Office of Superintendent of Public Instruction. Reprinted by permission.

mean these teachers must thoroughly and completely understand those physics concepts that their students must master at this particular point on their journey toward high school physics and beyond. If they do not, then important prerequisites will be missing. This dooms students to inevitable later failure.

An Example

Figure 2.4 presents sample learning requirements for the state of Washington. These represent just a subset of the essential learning objectives that Washington educators feel are important for their students, and are stated at a general statewide level of specificity. But they are clearly stated and specific. Washington educators have developed benchmarks that define continuous progress in attainment through grades *4,7,* and 10. A sample of these is seen in Figure 2.5. It remains a local responsibility to be sure that each teacher is able to deliver them.

The student understands and uses different skills and strategies to read.
To meet this standard, the student will: (1)

Components	Benchmark 1-Grade 4	Benchmark 2-Grade 7 (3)	Benchmark 3 - Grade 10
"1.1 use word recognition and word meaning skills (2)	apply phonetic principles to read, including sounding out, using initial letters, and using common letter patterns to make sense of whole words	apply phonetic principles to read, including sounding out initial letters and using common letter patterns to make sense of whole words (4)	apply phonetic principles to read, including sounding out, using initial letters, and using common letter patterns to make sense of whole words (4)
	use language structure to understand reading materials, including sentence structure, prefixes, suffixes, contractions, and simple abbreviations (7)	use language structure to understand reading materials, including sentence structure, prefixes, suffixes, contractions, and simple abbreviations (7)	— use language structure to understand reading materials, including sentence structure, prefixes, suffixes, contractions, and simple abbreviations
1.5 use features of non-fiction text and computer software (2)	locate and use text organizers (title headings, table of contents, index, captions, alphabetizing, numbering, glossaries, etc.) (6) recognize organizational features of electronic information such as *pull-down menus, key word searches, icons,* etc. (5)	use organizational features of printed text (titles, headings, table of contents, indexes, glossaries, prefaces, appendices, captions, etc.) use organization features of electronic information microfiche headings and numberings, CD-ROMS, Internet, etc.	use complex organizational features of printed text (titles, headings, table of contents, indexes, glossaries, prefaces, appendices, captions, citations, endnotes, etc.) use features of electronic information (electronic bulletin boards and databases, e-mail, etc.)

(1) Essential Academic Learning Requirement: A statement of what students should know and be able to do at the completion of their K-12 education. These statements are purposefully broad and are intended to serve as guideposts to school districts and give teachers flexibility in designing curriculum, teaching strategies, and planning instruction.

(2) Components: The key components to each Essential Academic Learning Requirement. The components are intended to describe broad categories of student behaviors or actions.

(3) Benchmark: A point in time that may be used to measure student progress. Designed to help educators organize and make sense of a complex process of interaction between the student, the teacher, and the learning process. TBD means "to be determined" in science, social studies, arts, and health and fitness.

(4) The text repeats for each benchmark. The arrow means that the skills or materials used become increasingly complex.

(5) Content *for example* or *such as* (italics): Provides examples of skills contained in the benchmarks so that parents and students can more clearly see the particular skills students are being asked to acquire.

(6) Parentheses ( ) indicate material or types of material that are included in the test specifications for reading, writing, and communication.

(7) Each set of indicators demonstrates the developmental, cumulative nature of learning. For example, young readers should be able to progress independently through the steps of the reading process but will read simpler materials than maturing learners.

Figure 2.5

Siimple Washington learning requirements broken down into grade-level benchmarks
Source: Washington State Office of Superintendent of Public Instruction. Reprinted by permission.

The Benefits of Clear and Appropriate Targets

The energy you invest in becoming clear about your classroom targets will pay big dividends.

Control Over Your Professional Success

One major benefit of defining specific achievement targets is that you set the limits of your own professional responsibility. These limits provide you with a standard by which to gauge your own success as a teacher. In short, defining targets helps you control your own professional destiny. The better you become at bringing your students to mastery of your delimited learning outcomes, the more successful you become as a teacher. The thoughtful use of classroom assessment can help with this.

As a community of professionals, I think each of us must take responsibility for our own success. If I succeed as a teacher and my students hit the target, I want acknowledgement of that success. If my students fail to hit the target I want to know it, and I want to know why they failed.

I can think of at least five possible reasons why my students might not have learned:

1. They lacked the prerequisites needed to achieve what I expected of them.
2. I didn't understand the target to begin with, and so could not convey it appropriately.
3- My instructional methods, strategies, and materials were inappropriate or inadequate.
4. My students lacked the confidence to risk trying—the motivation to strive for success.
5. Some force(s) outside of school and beyond my control (death in the family, for example) interfered with and inhibited learning.

If I am a professional educator whose students failed to hit the target, I must know which problem(s) inhibited learning if I expect to remedy the situation. Only when I know what went wrong can I make the kinds of decisions and take the kinds of action that will promote success for me and my students next time.

For example, if my students lacked prerequisites (reason 1), I need to work with my colleagues in the lower grades to be sure our respective curricula mesh. If I lack mastery of the valued targets myself or fail to implement solid instruction (reasons 2 and 3), I have to take responsibility for some pretty serious professional development. Similarly, if my students lack confidence or motivation (reason 4), I may need to investigate with them the reasons for their lack of motivation and plan a course of action that will teach me new and better motivational tactics. And finally, if reason 5 applies, then I need to reach out into the community beyond school to seek solutions.

As a teacher employed in a school setting committed to helping all students meet state or local academic standards, my success hinges on my understanding the reasons for any lack of success.

Note that I can choose the proper corrective action if and only if I take the risks of (1) gathering dependable information about student success or failure using my own high-quality classroom assessments, and (2) becoming enough of a classroom researcher to uncover the causes of student failure. If I as a teacher simply bury my head in the sand and blame my students for not caring or not trying, I may doom them to long-term failure for reasons beyond their control. Thus, when they fail, I must risk finding out why. If it is my fault or if I can contribute to fixing the problem in any way, I must act accordingly.

I believe that the risk is greatly reduced when I start out with clear and specific targets. If I can share the vision with my students, they can hit it! If I have no target, how can they hit it?

Benefits in Student Motivation

Teachers must know which achievement targets they expect their students to hit if they are to share that meaning of success with them. If teachers can help students understand these expectations, they set them up to take responsibility for their own success. The motivational implications of this for students can be immense.

Personalize this! Say you are a student facing a big test. A great deal of material has been covered. You have no idea what will be emphasized on the test. You study your heart out but, alas, you concentrate on the wrong material. Nice try, but you fail. How do you feel when this happens? How are you likely to behave the next time a test comes up under these same circumstances?

Now, say you are facing another test. A great deal of material has been covered. But your teacher, who has a complete understanding of the field, points out the parts that are critical for you to know. The rest will always be there in the text for you to look up when you need it. Further, the teacher provides lots of practice in applying the knowledge in solving real-world problems and emphasizes that this is a second key target of the course. You study in a very focused manner, concentrating on the important material and its application. Your result is a high score on the test. Good effort—you succeed. Again, how do you feel? How are you likely to behave the next time a test comes up under these circumstances?

Given clear requirements for success, students are better able to gauge the appropriateness of their own preparation and thus gain control over their own academic well-being. Students who feel in control of their own chances for success are more likely to care and to strive for excellence.

Greater Efficiency

In our research on the task demands of classroom assessment, my colleagues and I determined that typical teachers can spend as much as one-third of their available professional time involved in assessment-related activities. That's a lot of time! In fact, in many classrooms it is too much time. Greater efficiency in assessment is possible.

Clear achievement targets can contribute to that greater efficiency. Here's why: Any assessment is a sample of all the questions we could have asked if the test were infinitely long. But because time is always limited, we can never probe all important dimensions of achievement. So we sample, asking as many questions as we can within the allotted time. A sound assessment asks a representative set of questions, allowing us to infer a student's performance on the entire domain of material from that student's performance on the shorter sample. If we have set clear limits on our valued target, then we have set a clear sampling frame. This allows us to sample with maximum efficiency and confidence; that is, to gather just enough information on student achievement without wasting time overtesting. When we have a clear sense of the desired ends, we can use the assessment methods that are most efficient for the situation.

Accurate Classroom Assessments

In Part 2 of this book I discuss several assessment methods in detail. I will argue that some methods work well with certain kinds of achievement targets but not with others. In that context, it also will become clear that some methods produce achievement information more efficiently than do others. Skillful classroom assessors match methods to targets so as to produce maximum information with minimum invested assessment time. This is part of the art of classroom assessment. Your skill as an artist increases with the clarity of your vision of important learning.

Sources of Information About Achievement Standards

You can search out, identify, come to understand, and even place limits around the achievement targets and thus your teaching responsibilities in three ways: analyzing state and local standards, studying your local written curriculum, and through interaction with professional colleagues. Let's explore each.

State and Local Standards

As noted earlier, our emergence into the era of standards-driven schools has spurred a great deal of high-powered reexamination of important achievement expectations. This is a boon to teachers because in virtually every field, we have at our disposal definitions of achievement success that hold the promise of allowing us to produce better achievers faster than ever before. This applies to reading, writing, science, math reasoning and problem solving, foreign languages, and many other subjects. Virtually every state and lots of local districts have standards of academic excellence, typically developed by teams of experienced teachers from within the state. In addition, states administer statewide assessments reflective of those standards and schools are held accountable for demonstrating student mastery of state standards

by scoring high on these tests. Contact your district office or state department of education for information about them.

On investigation, you will find that standards identified in these contexts typically are articulated in the form of goals or objectives. Two examples appeared earlier in this chapter in Figure 2.3, one in history and the other in writing. As a classroom teacher, it is your responsibility to transform such objectives into the classroom-level achievement targets that your students must hit to build over time to a place where they are ready to demonstrate the required proficiency. To accomplish this, you must ask the following questions:

- What do students need to come to *know and understand* to be ready to demonstrate that they can meet this standard when the time comes to do so?
- What patterns of *reasoning* must they develop the ability to apply?
- What performance *skills,* if any, are called for as building blocks beneath this standard?
- What *products* must they be proficient at creating, if any?

Be advised that all standards arise from a foundation of knowledge. As the faculty, you and your colleagues must divide up responsibility for providing students with the opportunity to master it. Further, many standards expect mastery of specific reasoning patterns, while some also imply performance skill and product development capabilities. We will study these in depth in the next section. You must identify them, build instruction to focus on them, and transform them into accurate classroom assessments.

Your Local Written Curriculum

Every school district will take its state standards across subjects and grade levels and transform them into their own local written curriculum. This document will present achievement expectations in much greater detail, typically identifying how subjects will be articulated within and across grade levels. Specific topics to be covered will be described, revealing how they are woven together over time. The document also will state if teachers are to emphasize integration across subjects or grades, such as writing across the curriculum. For all of these reasons, you can turn to your local curriculum description for insights regarding your assigned achievement expectations.

Professional Networking

Besides consulting state standards and your local curriculum, the next most important source of insight into key achievement targets is your team of professional colleagues. This includes your principal, other teachers in your school and grade levels, and others with experience in teaching in your context. Besides these, another way to remain current and to grow as a teacher is to join the appropriate local and national professional associations of teachers. Most have assembled commissions of their members to translate current research into practical classroom guidelines, and many regularly publish journals to disseminate this research. Work with the resource

personnel in your professional library if you have one. Often they can route special articles and information to you when they arrive. In addition, you can always search the Internet for information on valued achievement targets.

Types of Achievement Targets

All right, you might now ask, how do I make my targets clear? What is it that I must describe about them? The first step in answering these questions is to understand that we ask our students to learn a number of different kinds of things. Our challenge as teachers is to understand which of these is relevant for our particular students at any particular point in their academic development.

As my colleagues and I analyzed the task demands of classroom assessment, we tried to discern categories of targets that seemed to make sense to teachers (Stiggins & Conklin, 1992). We collected, studied, categorized, and tried to understand the various kinds of valued expectations reflected in teachers' classroom activities and assessments. The following categories or types of achievement targets emerged as important:

- *Knowledge*—mastery of substantive subject matter content, where mastery includes both knowing and understanding it
- *Reasoning*—the ability to use that knowledge and understanding to figure things out and to solve problems
- *Performance Skills*—the development of proficiency in doing something where it is the process that is important, such as playing a musical instrument, reading aloud, speaking in a second language, or using psychomotor skills
- *Products*—the ability to create tangible products, such as term papers, science fair models, and art products, that meet certain standards of quality and that present concrete evidence of academic proficiency
- *Dispositions*—the development of certain kinds of feelings, such as attitudes, interests, and motivational intentions

As you will see, these categories are quite useful to our thinking about classroom assessment because they subsume all possible targets, are easy to understand, relate to one another in significant ways, and (now here's the important part!) have clear links to different kinds of assessment. But before we discuss assessment, let's more thoroughly understand these categories of achievement targets.

Knowing and Understanding Targets

When we were growing up, we were asked to learn important content. What happened in 1066? Who signed the Declaration of Independence? Name the Presidents of the United States in order. What does the symbol "Au" refer to on the periodic table of elements? Learn this vocabulary for a quiz on Friday . . . Here is your spelling list for this week . . . Learn your multiplication tables.

We had to memorize these things by test time or fail. And, in fact, at least some of what we learned in this way was important. For example, we can communicate our ideas to others because we mastered a sufficient vocabulary. We may have attained proficiency in speaking a second language because we learned the vocabulary and syntax of that language. We would have remained incapable of reading and understanding our science text if we had not learned to understand at least some science content.

Such knowledge is prerequisite to more sophisticated achievements, so part of our jobs as teachers is to be sure our students gain control of that content. This is precisely why I have structured this book in part to help you know and understand the foundations of sound assessment. You cannot do the classroom assessment pan of the teaching job well unless you know certain things. In that sense this knowledge represents a foundation of your teaching competence.

But remember three important things about mastery of content knowledge—all of which have direct implications for classroom assessment:

1. Knowing something is not the same as understanding it. To understand content, students need to see how it fits into the larger schema of the academic discipline they are studying.
2. In this information age, the world does not operate merely on facts stored in our brains. I am every bit as much a master of content if I know where to find it as if I know it outright. This way of knowing is becoming increasingly important as technology continues to permeate our society.
3. There are ways to come to know and understand something that do not rely on memorization. I can come to know because I figured it out and the resulting insight left an indelible impression. I can come to know because frequent use of certain knowledge leaves memories.

In short, mastering (meaning *gaining control over)* content knowledge is a complex enterprise. Let's consider these items in greater detail.

To Know and to Understand Are Not the Same

The world around me is full of wonderful things that I know but don't understand. For instance, the Golden Gate Bridge arches beautifully over San Francisco Bay. But I don't understand the structures that keep it from falling into the bay. I know that my computer will save the text that I am composing. But I don't understand how it does this. I know that $E = MC^2$. So if someone asked me what E equals, I can say, "MC^2." But I don't understand what it means, and can't use it to help me solve physics problems. Thus, for me these represent useless information.

On the other hand, the world is also full of things that I know and understand. Airplanes whisk me across the country and don't fall out of the sky. I understand that this is because of the vacuum formed over the wing when air accelerates over the top of that wing. I can say and spell the science word *watershed* and I understand what it means. I even understand what not to do in a watershed environment. I can read and understand guidebooks on fly fishing because I know and understand the physics of a fly line in motion. These represent elements of knowledge that are useful to me because I know and understand them.

I submit that merely knowing but not understanding leaves any learners unable make use of what they have learned. Simply knowing that bridges don't fall down does not make knowledge useful. Learning a few mathematical equations cannot by itself lead me to comprehend physics. But knowing and understanding the *meaning* of such equations will.

Therefore, as a classroom teacher/assessor, I must know and understand what I expect my students to master. Further, I must be prepared to assess my students' understanding of what they claim to know.

Two Ways of "Knowing"

When I was a student, consequences were dire if anyone was caught with a crib sheet in a test. We were expected to know the required material outright. We were expected to have burned the content into the neural connections of our brains by whatever means. Remember all the tricks? Color-coded flash cards. Repetition—over and over. Cramming. All nighters. Playing recordings repeatedly while sleeping. If we didn't memorize it, we failed. There can be no question, some of that stuff stuck and that's a good thing. Regardless of how one gets there, knowing something outright can be a powerful way of knowing. But this is not the only way of knowing.

The reason, as stated previously, is that I am every bit as much a master of content if I know where to find it as if I know it outright. In other words, the world does not operate solely on information retrieved only from memory. To see what I mean, just try to fill out your income tax return, operate a new computer, or use an unfamiliar transit system without referring to the appropriate (hopefully well written!) user's guide. When we confront such challenges in real adult life, we rely on what we know to help us find what we don't know.

In short, this "knowledge" category of achievement targets includes both those targets that students must learn outright to function within an academic discipline (core facts, principles, concepts, relationships within structures of knowledge, and accepted procedures) and those targets they tap as needed through their use of reference resources. Each presents its own unique classroom assessment challenges. And remember, each way of "knowing" must be accompanied by "understanding."

To help our students know and understand content, we ourselves must be masters of the disciplines we expect them to master. Thus, we must be prepared to share the topics, concepts, generalizations, and theories that hold facts together. We also must be ready to share with them our skills and methods of researching information. Further, as classroom teachers, part of our job is to devise assessment exercises that require students to demonstrate their understanding of those connections.

Ways of Coming to Know

I can think of at least three ways to come to "know" something. Give me a list to memorize and in the end I will know it. If that list bears useful information and knowing is accompanied by understanding, important learning has occurred. Put me in a situation where I must use the same body of knowledge repeatedly, and habits of use eventually will entitle me not to have to look it up every time. Present me

ith a novel problem whose solution forces me to put together two pieces of knowledge previously mastered, and once I figure it out, that solution becomes part of my knowledge.

Think about the assessments Ms. W. had Emily involved in as she was learning to write. What were the foundations of knowledge that Emily needed to master? Among these were the attributes of good writing: word choice, sentence structure, organization, and so on. How did Ms. W. help Emily to mastery? Did she give her definitions of the attributes and performance rating scales to memorize? I think not. She helped Em and her classmates figure out what it was they needed to know and then she provided lots of repetitive practice in applying those standards of good writing. Emily came to know and understand them.

Time for Reflection

Identify at least five achievement targets that take the form of knowledge that you would expect students to master at the grade level(s) and in the subject(s) you teach or plan to teach.

Relationship to Other Types of Achievement

The foundation of academic competence rests on knowledge and understanding. I know that, for some, it is not trendy today to value learning the content. We are supposed to be attending to "higher-order thinking" and process skills. I agree that these, too, are important. But there is a danger lurking here.

In our haste to embrace "higher-order thinking," we deemphasize what we have a tradition of calling "lower-order thinking." But what have we traditionally defined as "lower order"? The mastery of content knowledge. So by deemphasizing content mastery, we in effect deny our students access to the very content they need to solve the problems that we want them to solve. Does that make sense to you? This is why you will find no reference to higher- or lower-order thinking in this book. Rather, we will honor both the ability to retrieve useful knowledge and the ability to use it to reason and solve problems.

Time for Reflection

Identify the academic discipline you regard as your greatest strength. How strong is your underlying knowledge of facts, concepts, and generalizations in that area? Think about your weakest area of academic performance. How strong is your knowledge and understanding base there? From this two-part analysis, what inference would you draw about how much apart of academic success is a strong, basic understanding of facts, concepts, and generalizations?

Reasoning Targets

Having students master content merely for the sake of knowing it and for no other reason is a complete waste of their time and ours. It is virtually always the case that we want students to be able to use their knowledge and understanding to reason, to figure things out, to solve certain kinds of problems. For example, we want them to

- Analyze and solve story problems in math because those problems mimic life after school
- Compare current or past political events or leaders because they need to be active citizens
- Reason inductively and deductively in science to find solutions to everyday problems
- Evaluate opposing positions on social and scientific issues because life constandy requires critical thinking

If we hold such targets as valuable for students, it is incumbent on us to define precisely what we mean by *reasoning and problem-solving proficiency.* Exactly what does it mean to reason "analytically"? It means that we take things apart and see what's inside them. But what is the difference between doing it well and doing it poorly? That's the key question. What does it mean to reason "comparatively"? We do this when we think about similarities and differences. But when and how is that relevant? Another key question. What does it mean to categorize, synthesize, to reason inductively or deductively? What *is* critical thinking, anyway? Not only must we be clear about the underlying structure of these patterns of reasoning, but we must help students understand and take possession of them, too. And, of course, we must be ready to translate each pattern into classroom assessment exercises and scoring procedures.

Obviously, these patterns represent important forms of achievement. The key to our success in helping students master them is to understand that any form of reasoning can be done either well or poorly. Our assessment challenge lies in knowing the difference. Our success in helping students learn to monitor the quality of their own reasoning—a critical part of lifelong learning—is to *help them learn the difference.*

In the case of reasoning, as with the other kinds of achievement targets, we who presume to help students master effective reasoning must first ourselves become confident, competent masters of these patterns. In other words, we must strive to meet standards of intellectual rigor in our own reasoning if we are to make this vision come alive in our students' minds. If we do not, then we remain unprepared to devise assessments that reflect sound reasoning.

All Reasoning Arises from Knowledge

There is no such thing as "content-free" reasoning. My auto mechanic can diagnose the reason for my car problems in large part because he knows and understands the systems that make my car run. My attorney can help me with my legal problems because she has studied and learned the law. CPAs prepare taxes correctly because they know proper procedures. My physician can help me get well because she knows the human body and understands medical remedies. Chefs create culinary delights because they know and understand how ingredients blend to look and taste good. You will develop sound assessments in your classroom in part because of the knowledge and understanding you acquire from studying the *content* of this book.

Realize That Students Are Natural Thinkers

Virtually all students arrive at school from day one as natural thinkers. You don't have to teach them to "think." Rather, you must help them learn to focus and structure their thinking into reasoning. The vast majority of students possess those cognitive abilities they need to survive and even prosper in school and beyond. Hidden within them is the capacity to interact purposefully with their world, confronting problems, reflecting on solutions, solving problems, and deriving or constructing personal meaning from experience.

But there's a problem. According to critical thinking expert Richard Paul (1995), the unschooled human mind is a mixed bag of good and bad thinking, of sharp focus and fuzzy thinking, of ignorance and sound knowledge, of accurate conceptions and misconceptions, of misunderstanding and important insight, of open-mindedness and prejudice. Our challenge as teachers is to help students learn to clean out and organize their mental houses as needed, to clear out the garbage and let sound reasoning prevail.

Patterns of Reasoning

How then should we understand and help students learn what it means to reason effectively? The answer lies in understanding various ways to organize our thinking and how those ways must come together to solve problems. Let's start by exploring a few of the commonly referenced forms of reasoning. Then we'll explore their dynamic interrelationships.

In the real world, we frequently find instances of the need to see relationships by reasoning analytically, comparatively, or in an evaluative manner. Real-life thinkers need to be able to synthesize, classify, and reason inductively or deductively. Let's think together about what these inferring processes really mean.

As you read about these different ways of reasoning, you will see that each has its own definition. Each can be illustrated in understandable terms. Nevertheless, as the examples reveal, *reasoning patterns are rarely used independently of one another.* Rather, these patterns blend to bring us to problem solutions. For now, as you read about each pattern, take a few seconds to see if you can identify some of the ways they fit together. We'll discuss those connections later.

Just to be sure you see the path ahead, I intend to argue that students must know and understand these patterns if they are to be able to use them productively to reason and solve problems. Therefore, they have a place among our valued achievement targets. We need to be ready to teach and assess student mastery of each. But more important, *we must prepare our students to be lifelong assessors of the quality of their own reasoning.*

Analytical Reasoning. Consider, for example, the performance arena of writing and the assessment of writing proficiency. Here we draw the distinction between holistic and analytical scoring. In *holistic* scoring we consider all aspects of the written piece together and base our judgments on overall impression, assigning one overall score. In *analytical* scoring, we break performance down into its component parts (word choice, organization, voice, and the like), evaluating and

Questions that help students reason *analytically*:

1. What is it that I wish to analyze?
2. Why is analysis relevant?
3. What are the relevant parts, subdivisions, or categories?
4. How do the parts relate to each other?
5. How do the parts come together to create the whole?

Key concepts that underpin *analytical* reasoning:

- Interrelated parts of a whole
- Components
- Ingredients

Graphic representation of an example:

Reasoning Task: Analyze the ingredients of assessment quality covered in this book:

Figure 2.6
Understanding analytical reasoning

assigning a score to each part. It is this sense of the meaning of *analytical* that we are speaking of here.

When we reason analytically, we draw inferences about the component parts of something: its ingredients, how they fit together, and how they function as a whole. When good reporters do "news analysis" they go into a story in greater depth to study its parts. When we try to figure out how a machine works (to go inside and see how the pieces fit and work together) we are reasoning analytically. When we infer what goes into making something good, like food, a movie, or a teacher, we are involved in analytical reasoning. Figure 2.6 analyzes and presents

a graphic representation of this pattern of reasoning, analyzing key assessment topics.

In this case, our instructional challenges are to be sure that students have access to whatever knowledge and understanding they need to analyze something and that they have guided practice in exercising their analytical thought processes.

Our assessment challenge is to ask them to tap into that knowledge base and apply their reasoning skills to a novel analytical task. For example, in literature, we might provide practice in character analysis by having students read a new story (gathering knowledge of a new character) and asking them to generate an original analysis of this character they have just "met."

As a teacher, I want my students to know exactly what is called for whenever I ask them to "analyze" something. I might even put a chart on the wall detailing the process and highlighting examples of analytical inferences. These might include character analyses from literature, storyline or plot analyses, breakdown diagrams of machines, or depictions of the subparts of a scientific process such as the water cycle. I want students to recognize when analysis is needed and to understand how to apply that pattern of reasoning in novel problem situations.

Synthesizing. Let's say you have just finished helping students analyze the structure of two short stories. Then, you have them pool or synthesize these into a set of generalizations about the typical structure of a short story. Thus two different sources of knowledge and understanding about short stories are integrated. This is *synthesizing.* You then ask them to draw the following inference: How does the story you just read align with what you know about the typical structure that you just developed? Figure 2.7 presents a description of synthesis.

We find a great deal of interest being expressed these days in the development of "integrated" or "thematic" instruction or curricula. This often is described as being different from discipline-based instruction, in which students study separately math, science, writing skills, and so on. Thematic instruction encourages students to bring knowledge and productive patterns of reasoning together from several disciplines, as they explore their particular theme, whether it be the study of a particular culture! scientific problem, or social issue. Such curricula place a premium on synthesizing insights from divergent sources and present wonderfully rich opportunities to develop and assess student mastery of this pattern of reasoning.

Comparative Reasoning. *Comparative reasoning* refers to the process of figuring out or inferring how things are either alike or different. Sometimes we compare in terms of similarities, other times we contrast in terms of differences, still other times we do both. To understand this kind of reasoning, we must see that those who are proficient begin with a clear understanding of the things they are to compare. Then they identify the dimensions of each that they will examine for similarities or differences. And finally, they detail the comparison, highlighting why those particular points are important. Here are simple examples: In what way are these two poems alike and different? Given this early and this late work by this particular author, how are they different in style? How are these insects alike and different? Figure 2.8 illustrates the structure.

Questions that help students *synthesize:*

1. What is the problem to be solved by combining ideas?
2. Why is synthesis relevant in this context?
3. What are the various understandings that can be combined to help?
4. How do those parts fit together to help us find a solution?

Key concepts:

- Convergence
- Generalization
- Whole is more than the sum of its parts

Example:

Understanding #1: My personal experience has shown me that students who are involved in the ongoing assessment of their own achievement are much more highly motivated to learn than are those who are not involved.

Understanding #2: The professional literature in both reading and writing instruction tells us that students must learn to monitor their own comprehension and the quality of their own writing to become independently literate adults.

Understanding #3: Research from around the world provides irrefutable evidence that students who are deeply involved in high-quality classroom assessment environments learn more.

Synthesis: It would be a very good idea for me, the teacher, to involve my students in assessment, record keeping, and communication to increase motivation.

Figure 2.7
Understanding synthesis as a pattern of reasoning

Classifying. Sometimes, life presents us with reasoning challenges that ask us to categorize, or *classify,* things. When we budget, we classify expenses. When we analyze how we use our time, we organize events into different categories. In science, we classify plants and animals. In politics, we categorize issues and candidates. To reason productively in this manner, we must first know the defining parameters of each category and the attributes of those things we are classifying. Then we can compare each item with the categorical options and infer its appropriate group (Figure 2.9).

Induction and Deduction. In the case of *inductive* reasoning, we reason productively when we can infer principles, draw conclusions, or glean generalizations from accumulated evidence. Induction results from synthesis. Reasoning travels from particular facts to a general rule or principle. Here are two examples:

- Now that you have read this story, what do you think is its general theme or message?
- Given the evidence provided in this article about the stock market [note that this is an example of using knowledge gained through reference], what is the relationship between interest rates and stock values?

Questions that help students *compare* and *contrast:*

1. What is to be compared?
2. Why is it relevant to draw the comparison?
3. Upon what basis will we compare them?
4. How are they alike?
5. How are they different?
6. What important lessons can we learn from this *comparison?*

Key concepts:

- Similar
- Different

Example:

Compare classroom and standardized assessment

Criterion	Classroom Assessment	Standardized Test
Focus	Narrow Targets	Broad Targets
Developer	Teacher	Test Publisher
Frequency	Continuous	Once a year
Users	Teacher Student Parent	Principal Curriculum Director Superintendent School Board Legislator

Figure 2.8
Understanding comparative reasoning

We help students gain control over their inductive reasoning proficiency when we make sure they have the opportunity to access the proper knowledge from which important rules or principles arise and when we provide guided practice in drawing inferences, conclusions, or generalizations.

We also reason when we apply a general rule or principle to find the solution to a problem. This is *deductive* reasoning. Here, reasoning travels from the general to the specific:

- Given your theory about criminal behavior, who did the killing?
- Given what you know about the role of a tragic hero in classic literature, if this character is a tragic hero, what do you think will happen next in the story?
- If the chemical test yields this result, what element is it?

Obviously, the key instructional challenge is to be sure students have the opportunity to learn and understand the rules, generalizations, or principles we want

Questions that can help students *classify:*

1. Classify what?
2. into what categories?
3. Why is it relevant to do so?
4. What elements into what categories?
5. What is the basis of (our reasoning behind) each proper match?

Key concepts:

- Objects have characteristics
- Categories have characteristics
- Alignment in terms of characteristics

Example:

Classify each instructional objective on the left in terms of the kind of achievement target that it represents.

Objective	*Target*
Read aloud fluently	Understand content knowledge
Know the causes of the Great Depression	Pattern of reasoning
Speak a second language fluently	Performance skill
Predict the results of an experiment	Product development
Set up the science lab apparatus properly	
Learn a poem	
Create a model dwelling	
Compare two characteristics from literature	

Figure 2.9
Understanding the reasoning that underpins classification

them to apply. Then and only then can we assess their reasoning proficiency by presenting them with novel contexts within which to apply those rules.

Evaluative Reasoning. We reason in an evaluative manner when we apply certain criteria to judge the value or appropriateness of something. The quality of the reasoning depends on our ability to logically or dependably apply proper judgmental criteria. Synonyms for this pattern of reasoning include *critical thinking* and *judgmental reasoning.*

Within the context of our journey together, the very process of evaluating the quality of student work in terms of some predetermined achievement standards, such as writing assessment, is a classic example of evaluative reasoning. When we express and defend a point of view or opinion, we reason in an evaluative manner. When we judge the quality of an assessment using our five standards of quality, we reason in an evaluative manner.

Our instructional task is to help students understand the criteria they should be applying when they defend their point of view on an issue. Who is the best candidate

for mayor? That's a matter of opinion. What are the important characteristics of a good mayor? As we discuss these criteria in class, we must address how to apply these standards logically.

Our assessment challenge is to determine if students are able to apply those criteria appropriately, given a novel evaluative challenge. Students who are able to appropriately evaluate a piece of writing they have never seen before using a learned set of analytical rating scales are demonstrating proficiency in evaluative reasoning. It is in this sense that I say this entire book is about developing critical thinkers.

Why These Patterns?

Three reasons. First, I sought to describe what people normally think of as reasoning processes. I wanted as few patterns as possible that, at the same time, covered sufficient ground to provide the most commonsense meaning of *reasoning.* This would make the list comprehensive but manageable. It needed to be practical. These patterns are simple and understandable, and at the same time describe what happens in the real world.

Second, I finally realized that there is no final "truth" in the universe with respect to defining *reasoning.* As I studied the professional literature, I found a variety of labels for patterns. Classification systems abound. Every scholar has a different opinion about the truth. So I tried to glean from these various opinions the things they had in common. The patterns described here have a foundation in current thinking about reasoning.

Third, I wanted patterns that I could describe and illustrate in terms that students (including you!) could master. The fact that we can diagram each pattern and easily find examples makes them approachable by our students. That's a good thing.

But remember, after studying and reflecting on the reasoning targets that you want your students to master, you may find other classifications or definitions that work better for you. That's fine. Just be clear enough about your vision of excellence in reasoning that your definitions are practical, based on the best current understanding, and student friendly.

Relationships Among Patterns

As I wrote about these patterns of reasoning and their classroom applications, I tried to use descriptive vocabulary so you could see key connections. I hope that your study of and reflection on the six organizing structures permitted you to notice some important connections among them. I list some here to establish the dynamic nature of reasoning. Your own reasoning may be different. If you are seeing rich relationships, you are reasoning productively.

- All reasoning consists of seeing relationships among things.
- Synthesis requires inductive inference; that is, we do it well when we can infer or see the unity arising from divergent parts.
- Complex comparisons require a prior step of analyzing the things to be compared to infer or identify potential points of similarity and difference.
- Classification involves comparison of each item to be classified to the attributes of each category to infer which goes where.

Inductive inference requires that we compare the pieces of evidence at hand to see what they have in common.

Evaluation often requires analysis and comparison of different points of view before coming to judgment.

Evaluative judgments about the quality of any reasoning can be made if we have standards for what it means to do it well.

So it is that different ways of reasoning form a puzzle whose pieces can fit together in various ways to permit you and your students to figure things out. It is appropriate to help students see and understand the different organizing structures.

Students who encounter a new math problem, debate a volatile social issue, or confront an unknown substance in a science lab bring all of these ways of reasoning into play in a rapid-fire manner, analyzing the problem to infer what knowledge bases they must bring to bear, Beyond school, when students are confronted with a drug pusher, make career choices, or deal with the demands of peer pressure, they must think clearly and select a proper course of action. Those who are masters of their own reasoning and who know how to use their minds effectively have a strong chance of generating productive responses to such circumstances.

Time for Reflection

Identify at least five reasoning or problem-solving achievement targets that might be relevant for students to master at the grade levels and in the subjects you teach orplan to teach.

Relationship to Other Targets

We can use our reasoning powers to generate new knowledge and understanding. When I combine two things that I knew before to derive an insight that I hadn't realized before, that insight can remain with me for future use. Further, my reasoning powers will come into play as I strive for skillful performance or product development—the next two kinds of targets. You'll see how as you read on.

Performance Skill Targets

In most classrooms, there are things teachers want their students to *be able to do,* instances for which the measure of attainment is students' ability to demonstrate that they can perform or behave in a certain way. For example, at the primary-grade level, a teacher might look for certain fundamental social interaction behaviors or oral reading fluency skills. At the elementary level, a teacher might observe student performance in cooperative group activities. In middle school or junior high, manipulation of a science lab apparatus might be important. And at the high school level, public speaking or the ability to converse in a second language might be a valued outcome.

In all of these cases, success lies in "actually *doing* it well." The assessment challenge lies in being able to define in clear terms, using words, examples, or both,

what it *means* to do it well—to read or speak fluently, work productively as a team member, or carry out the steps in a lab experiment. To assess well, we must provide opportunities for students to show their skills, so we can observe and evaluate while they are performing.

Time for Reflection

Identify at least three achievement targets that take the form of performance skills that might be relevant for students to master at the grade levels and in the subjects you teach or plan to teach.

Relationship to Other Targets

To perform skillfully, one must possess the fundamental procedural knowledge and reasoning proficiency needed to figure out what skills are required. Further, skillful performance must combine with this knowledge and reasoning proficiency to create quality products (discussed in the next section). In this way, performance skills represent an end in and of themselves as well as a building block for other competencies. For example, I cannot produce a quality piece of writing (a product) unless I have handwriting or computer keyboarding proficiency (performance skills) *and* the ability to think about the topic in ways that permit me to write fluently and coherently. I cannot deliver an effective spontaneous speech (skill) unless I know something about the subject and can figure out what needs to be said about that topic at this moment. It is critical that we understand that, in this category, the student's performance objective is to integrate knowledge and reasoning proficiencies and to be skillful. This is precisely why achievement-related skills often represent complex targets requiring sophisticated assessments. Success in creating products—the next kind of target—virtually always hinges on the ability to perform some kinds of skills. Performance skills underpin product development.

Product Development Targets

Yet another way for students to succeed academically in some contexts is by developing the capacity to create products that meet certain standards of quality. These represent tangible entities that are created by the performer, and that present evidence in their quality that the student has mastered basic knowledge, requisite reasoning and problem-solving proficiencies, and specific production skills.

For example, a high school social studies teacher might have students prepare a term paper to gather evidence of writing proficiency. A technology teacher might ask students to repair a computer to judge job-related preparedness. An elementary school teacher might challenge students to create a model or diorama. A primary-grade teacher might collect samples of student artwork.

In all cases, student success lies in creating products that possess certain key attributes when completed. The assessment challenge is to be able to define clearly and understandably, in writing and/or through example, what those attributes are.

must be able to specify exactly how high- and low-quality products differ and must be prepared to express those differences in student-friendly language.

Time for Reflection

Identify at least two product development achievement targets that might be relevant for students to master at the grade levels and in the subjects you teach or plan to teach.

Relationship to Other Targets

Note once again that successful performance arises out of student mastery of prerequisite knowledge and through the application of appropriate reasoning strategies. In addition, students will probably need to perform certain predefined steps to create the desired product. Prerequisite achievement thus underpins the creation of quality products, but evidence of ultimate success resides in the product itself. Does it meet standards of quality?

Dispositional Targets

This final category of aspirations for our students is quite broad and complex. It includes those characteristics that go beyond academic achievement into the realms of affective and personal feeling states, such as attitudes, sense of academic self-confidence, or interest in something that motivationally predisposes a person to act or not act.

Many teachers set as goals, for example, that students will develop positive academic self-concepts or positive attitudes toward school subjects predisposing them to strive for excellence. Without question, we want our students to develop strong interests, as well as a strong sense of internal control over their own academic well-being. We may define each disposition in terms of three essential elements:

- It is focused on some specific thing.
- It varies along a continuum from positive to negative.
- It varies in intensity from strong to weak.

Examples of things about which we might have attitudes (feelings) include ourselves as learners, school in general, specific subjects, classmates, and teachers. Those feelings about things are positive, neutral, or negative. For instance, our academic self-concepts are positive or negative. We might hold positive or negative attitudes about math or English. And sometimes those feelings are very strong, other times very weak—we range from passionate to disinterested. In school, we seek to impart strong positive dispositions toward learning new things, among other attitudes.

Positive learning experiences can result when teachers are in touch with students' dispositions (either as individuals or as a group) and when teachers can put students in touch with their own feelings about important issues. Obviously, however, we cannot know students' feelings about things unless we ask. This requires assessment.

Because these affective and social dimensions are quite complex, thoughtful assessment is essential. We define success in assessing them exactly as we do success in

assessing achievement: Sound assessment requires a crystal-clear vision or understanding of the characteristic(s) to be assessed. Only then can we select a proper assessment method, devise a sampling procedure, and control sources of bias and distortion so as to accurately assess direction and intensity of feelings about specified objects.

Time for Reflection

Identify at least three dispositional targets that might be relevant for students to master at the grade levels and in the subjects you teach or plan to teach.

Summary of Targets

We have discussed four different but interrelated visions of achievement plus the affective component of student learning. Knowledge and understanding are important. Reasoning and problem solving require applying that knowledge. Knowledge and reasoning are required for successful skill performance and/or product development. And dispositions very often result from success or lack of success in academic performance. But once again, remember that these can all grow and change in dynamic, interrelated ways within students. Figure 2.10 summarizes the kinds of targets we have discussed, and Table 2.1 presents sample achievement targets from various academic disciplines. Read down each column.

Time for Reflection

Let's say we wanted to extend Table 2.1 to include three more columns. Identify examples of knowledge, reasoning, skill, product, and dispositional targets that would be relevant for Foreign Language (spoken and written, separately) and for Social Studies.

Figure 2.10
\n overview of kinds of achievement

Master Content Knowledge
- ***Master*** **means know and understand**
- **Things to know outright**
- **/ Know where to find it**

Use Knowledge to Reason and Solve Problems
- **/ Analysis**
- **/ Synthesis**
- **/ Comparison**
- **/ Classification**
- **/ Inference**
- **/ Evaluation**

Demonstrate Performance Skills

Create Products

Develop Attitudinal, Motivational Predispositions

Table 2.1
Sample achievement targets across school subjects

Achievement Target	Reading	Writing	Music	Science	Math
Know and Understand	Sight vocabulary Background knowledge required	Vocabulary needed to communicate Mechanics of usage Knowledge of topic	Instrument mechanics Musical notation	Science facts and concepts	Number meaning Math facts Numeration systems Algorithms
Reason	Decode the text and comprehend the meaning	Choose words and syntactic elements to convey message Evaluate text quality	Evaluate tonal quality	Hypotheses testing Classifying species	Formulate math problem from situation
Performance Skills	Oral reading fluency	Letter formation Keyboarding skills	Instrument fingering Breath control	Manipulate lab apparatus correctly	Use manipulatives while solving problem
Products	Diagram revealing comprehension	Samples of original text	Original composition written in musical notation	Written lab report Science fair model	Well-reasoned problem solution
Dispositions	"I like to read."	"I can write well."	"Music is important to me."	"Science is worth understanding."	"Math is useful in real life."

A critical step in planning instruction or designing classroom assessments is to specify the type(s) of target(s) students are to hit. As you will see later, once a target is defined, the process of designing assessments is quite easy. The toughest part by far is coming up with the clear and complete vision!

A Final Reminder: The Targets in Your Classroom Are Your Responsibility

As a teacher, you may or may not practice your profession in a district that engages in integrated planning. You may or may not practice in a school in which staff collaborate in articulating achievement targets across grade levels or subjects. In short, you may or may not receive the kind of school and community support needed to do a thorough job of generating a continuous-progress portrait of success for students.

Nevertheless, each of us has a responsibility to our particular students to be clear, specific, and correct about our achievement expectations. The point is that, regardless of what is going *on* around you, tomorrow or as soon as you enter a classroom a bunch students will show up wanting and needing to master content knowledge, learn to solve problems, master important performance skills, learn to create important products, and/or develop certain dispositions. They count on you to know what these things mean and to know how to teach and assess them. *When it comes to being clear about what it means to be successful in your classroom, the responsibility stops with you! Embrace this responsibility.*

Summary: Clear Targets Are Essential for Sound Assessment

In this part of our journey into the realm of classroom assessment, I have argued that the quality of any assessment rests on the clarity of the assessor's understanding of the achievement target(s) to be assessed. We strive for content-valid assessments, and they start with clear and appropriate targets.

We have identified five kinds of interrelated types of achievement expectations as useful in thinking about and planning for assessment and a commitment to lifelong learning, strong pro- or integrating it into your instruction:

Mastering content knowledge (including understanding)

Using that knowledge to reason and solve problems

Demonstrating certain kinds of performance skills

Creating certain kinds of products

Developing certain dispositions

Each teacher faces the challenge of specifying desired target in the classroom, relying on fessional preparation, community input, and collegial teamwork within the school to support this effort.

ben we are clear, benefits accrue for all ed Limits of teacher accountability are "bTTshed, setting teachers up for time sav- - 1 and greater success. Limits of student ac- Bniability are established, setting students *M* for success. And, the huge assessment workload faced by teachers becomes more manageable.

We will make this clarity the second criterion by which to judge classroom assessment quality- High-quality assessments arise from easily identified and clearly articulated learning targets. They reflect the best current thinking in the field and are obviously important—that is, they deserve instructional and assessment time and effort. Poor-quality achievement targets, on the other hand, either (1) are missing, (2) are too broad or vague to guide assessment development, (3) fail to link to important academic standards, or (4) fail to reflect the wisdom of the field of study.

Thus, clarity and appropriateness will be the second entry in our set of comprehensive rubrics for judging classroom assessment quality (see the Appendix). You will have opportunities throughout your study to practice applying these standards of good practice.

I urge that you specify clear expectations in your classroom. Do so in writing and publish them for all to see. Eliminate the mystery surrounding the meaning of success in your classroom by letting your students see your vision. If they can see it, they can hit it. But if they cannot see it, their challenge turns into pin the tail on the donkey—blindfolded, of course. You will see in the next chapter how this triggers key decisions about how to assess the achievement of your students.

Final Chapter Reflection

1. *What are the three most important new insights to come to you as a result of your study of this chapter?*
2. *Which of your previous questions about assessment can you now answer based on your study of this chapter?*
3. *What new questions have come to mind as a result of your study of this chapter that you hope to have answered as your study continues?*

Practice with Chapter 2 Ideas

1. Engage your professor in a discussion of the intended standards and achievement targets of the course in which you are using this text. How do those expectations relate to the attributes and types of targets discussed in this chapter?
2. Here are several state standards. Deconstruct each into the enabling classroom-level knowledge, reasoning, performance skill, or product achievement targets (as appropriate) that underpin it.

   Reading—The student understands the meaning of what is read. Specifically, the student comprehends important ideas and details.

   Writing—The student writes effectively. Specifically, the student

uses style appropriate to the audience and purpose; uses voice, word choice, and sentence fluency for intended style and audience.

Mathematics—The student uses mathematical reasoning. Specifically, the student analyzes information from a variety of resources; uses models, known facts, patterns, and relationships to validate thinking.

Science—The student understands and uses scientific concepts and principles. Specifically, the student recognizes the components, structures, and organization of systems and the interaction within and among them.

Geography—The student understands the complex physical and human characteristics of places and regions. Specifically, the student identifies the characteristics that define the regions within which she or he lives.

Civics—The student analyzes the purposes and organization of governments and laws. Specifically, the student compares and contrasts democracies with other forms to government.

3. Select three state achievement standards from a state in which you may teach—any grade level or content area—and analyze them in terms of the foundations of classroom targets that students must master on their journey up to each of those standards.