

FIGURE 10.2 Seventh graders in a language arts class chose these examples of figurative writing to serve as models for their own writing efforts.

"The blackness of the night came in, like snakes around the ankles."
—Caroline Cooney, *Wanted*, p. 176

"Flirtatious waves made passes at the primly pebbled beach."
—Lilian Jackson Braun, *The Cat Who Saw Stars*, p. 120

"Water boiled up white and frothy, like a milkshake."
—Lurlene McDaniel, *For Better, for Worse, Forever*, p. 60

"I try to swallow the snowball in my throat."
—Laurie Halse Anderson, *Speak*, p. 72

themselves and are within their own ability levels (Braaksma et al., 2002; Schunk & Hanson, 1985). And remember Nathan's belief that French is a "girl thing"? Learners must believe that a particular behavior is appropriate for their gender, with different individuals having varying views about which activities are "gender appropriate" (Grace, David, & Ryan, 2008; Leaper & Friedman, 2007).

As classroom teachers, we're likely to be perceived by most students as competent, prestigious, and powerful—that is, we're likely to be influential models. Thus, we "teach" not only by what we say but also by what we do. It's critical, then, that we model appropriate behaviors—for instance, showing enthusiasm about classroom topics and fairness in our dealings with all students—and *don't* model inappropriate ones. Our actions will often speak louder than our words (e.g., J. H. Bryan, 1975).

Yet our students won't always perceive our behaviors as being relevant to their own circumstances. For instance, students from cultures and socioeconomic groups very different from our own may think that certain topics have little value in their own lives and communities. Students of both genders may view certain content domains and careers as being only for males or "girl things." And students with disabilities may believe they're incapable of performing the skills that a nondisabled teacher demonstrates. Ideally, students need to see successful models who are similar to themselves in obvious ways—for instance, in race, cultural background, socioeconomic status, gender, and (if applicable) disability (C. L. Martin & Ruble, 2004; Pang, 1995; L. E. Powers, Sowers, & Stevens, 1995).



Expose students to successful male and female models from diverse cultural and socioeconomic backgrounds. Also expose them to models who have achieved success despite disabilities.

* **ESSENTIAL CONDITIONS FOR SUCCESSFUL MODELING**

Even with the presence of influential models, however, learners don't always acquire the behaviors and skills they see others demonstrate. Social cognitive theorists suggest that four conditions are necessary for successful learning from models: attention, retention, motor reproduction, and motivation (e.g., Bandura, 1986).

① **ATTENTION** الانتباه

To learn effectively, *the learner must pay attention to the model* and, in particular, to critical aspects of the modeled behavior. For instance, students must observe carefully as we show proper procedures in the science lab or demonstrate the elementary backstroke, and they must listen attentively as we pronounce *Comment allez-vous?* in a French class—something Nathan didn't do in the opening case study.

② **RETENTION** الاحتفاظ

After paying attention, *the learner must remember what the model does*. As cognitive psychologists have discovered, students are more likely to recall information they've encoded in memory in more than one way—perhaps as both a visual image and a verbal representation (R. E. Mayer, 2011b; Moreno, 2006). As teachers, then, we may often want to describe what we're doing as we demonstrate behaviors. We may also want to give descriptive labels to complex behaviors that might otherwise be hard to remember (Vintere et al., 2004; Ziegler, 1987). For example, in

Chapter 6 presents many strategies for enhancing students' attention and retention.

FIGURE 10.3 Often learners can more easily remember a complex, multifaceted behavior—such as the sequence of arm movements in the elementary backstroke—when the various components have verbal labels.



teaching swimming, an easy way to help students remember the sequence of arm positions in the elementary backstroke is to teach them the labels *chicken*, *airplane*, and *soldier* (see Figure 10.3).

3 MOTOR REPRODUCTION

In addition to attending and remembering, *the learner must be physically capable of reproducing the modeled behavior*. When a student lacks the ability to reproduce an observed behavior, motor reproduction obviously can't occur. For example, first graders who watch a teenager throw a softball don't have the muscular coordination to mimic the throw. And high school students who haven't yet learned to roll their *rs* will have trouble repeating the Spanish teacher's tongue twister: *Erre con erre cigarro, erre con erre barril. Rápido corren los carros del ferrocarril*. It's often useful to have students imitate a desired behavior immediately after they see it modeled and to give them guidance and feedback that can help them improve their performance. This approach—sometimes known as *coaching*—is often more effective than modeling alone (S. N. Elliott &

Busse, 1991; Kitsantas, Zimmerman, & Cleary, 2000; Schunk & Swartz, 1993). When considering this approach, however, we must keep in mind that students from some ethnic groups (e.g., many Native Americans) may prefer to practice new behaviors in private at first and show us what they've learned only after they've achieved reasonable mastery (Castagno & Brayboy, 2008; Suina & Smolkin, 1994).

4 MOTIVATION

Finally, *the learner must be motivated to demonstrate the modeled behavior*. Some students may be eager to show what they've observed and remembered; for example, they may have seen the model reinforced for a certain behavior and thus have already been vicariously reinforced. But other students may not have any motivation to demonstrate something they've seen a model do, perhaps because they don't see the model's actions as being appropriate for themselves.

When all four factors—attention, retention, motor reproduction, and motivation—are present, modeling can be an extremely effective teaching technique. The Into the Classroom feature "Promoting Learning through Modeling" offers several strategies that can maximize its effectiveness.

* Self-Efficacy

One important aspect of the fourth condition—motivation—is self-efficacy, and in this respect learners often differ considerably. In general, *self-efficacy* is a learner's self-constructed judgment about his or her ability to execute certain behaviors or reach certain goals. To get a sense of your own self-efficacy for various activities, try the following exercise.

EXPERIENCING FIRSTHAND SELF-APPRAISAL

Take a moment to answer the following questions:

1. Do you believe you'll be able to understand and apply educational psychology by reading this book and thinking carefully about its content? Or do you believe you're going to have trouble with the material regardless of how much you study?
2. Do you think you could learn to execute a reasonable swan dive from a high diving board if you were shown how to do it and given time to practice? Or do you think you're such a klutz that no amount of training and practice would help?
3. Do you think you could walk barefoot over hot coals unscathed? Or do you think the soles of your feet would be burned to a crisp?

self-efficacy Belief that one is capable of executing certain behaviors or achieving certain goals, or behaviors

two they behaviors whether or not they can achieve

Into the Classroom

Promoting Learning Through Modeling

Make sure you have students' attention when modeling a desired behavior.

A middle school science teacher wants to show his class how to prepare a slide of swamp water for inspection under a microscope. He meets with students in groups of three or four so that everyone can closely observe what he does.

Describe what you are doing as you model a desired behavior.

As a fourth-grade teacher shows students how to use word processing software to edit their compositions, she explains every step she takes to insert new text, cut unwanted text, use the thesaurus and spell-check functions, and so on. She also distributes a handout that describes, step by step, how to perform each of these procedures, and she shows where to find important commands and functions on the computer screen.

When teaching a complex behavior or sequence or behaviors, provide descriptive labels that students can repeat to themselves to help them remember what they need to do.

To help students remember the new dance steps she demonstrates, a dance teacher instructs them to say such things as "One, two, gallop, gallop" and "One leg, other leg, turn, and turn" while performing the steps.

Have students perform a desired behavior immediately after you model it; give them guidance and feedback to help them improve their performance.

After an elementary art teacher shows students how to work effectively with watercolor paints, she walks around the classroom, giving pointers on how to blend colors for desired shades and how to keep differently colored areas from bleeding into one another.

Show students how the skills you model can help them in their own lives.

After demonstrating how to use rounding to estimate sums, a middle school math teacher presents examples of how students

might quickly estimate the total cost of several purchases at a local discount store.

Invite respected professionals to the classroom to demonstrate skills in their areas of expertise.

A high school journalism teacher invites a local newspaper reporter to show students how he determines the sequence in which he presents information in a newspaper article.

Show videos of skilled individuals performing complex psychomotor skills.

A gymnastics coach shows an aspiring young gymnast a video in which an expert performs a particular gymnastics skill. The coach also videotapes the child's execution of the skill. The coach and child then watch the two videos—sometimes pausing the videos at particular frames—to identify components of the skill in which the child could benefit from further practice.

Have students read about or observe positive role models in such media as books and films.

In a unit on civic responsibility and community service, a high school social studies teacher has students read excerpts from Barack Obama's *Dreams from My Father*.

Introduce students to models who have successfully crossed traditional gender boundaries in certain professions.

When exploring various professions over the course of the school year, a second-grade teacher invites several adults in the community—including a female police officer and a male nurse—to come to class and describe what they do in their jobs.

Include competent children as well as adults in the role models you present.

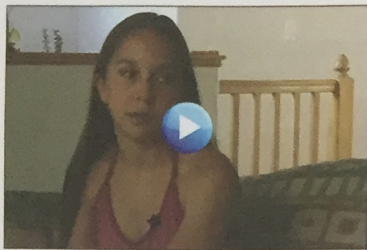
Once a week, a kindergarten teacher invites one or two third graders to come and read storybooks to his class. The older children delight in their ability to show off their reading skills and work especially hard to make the stories lively and entertaining.

Sources: Boyer et al., 2009 (gymnastics example); R. L. Cohen, 1989; S. N. Elliott & Busse, 1991; Féry & Morizot, 2000; Gerst, 1971; Kitsantas et al., 2000; Mace, Belfiore, & Shea, 1989; Obama, 2004; T. L. Rosenthal, Alford, & Rasp, 1972; Schunk, 1989c; Schunk & Hanson, 1985; Schunk & Swartz, 1993; Shute, 2008; Vintere et al., 2004, p. 309 (dance example); Ziegler, 1987.

Learners are more likely to engage in certain behaviors when they believe they'll be able to execute the behaviors successfully—that is, when they have high self-efficacy for the behaviors (e.g., Bandura, 1997). For example, I hope you have high self-efficacy for learning educational psychology, believing that with careful thought about what you read, you'll be able to understand and apply its key principles. You may or may not believe that with instruction and practice, you could eventually execute a passable swan dive. You're probably quite skeptical that you could ever walk barefoot over hot coals, so my guess is that you have low self-efficacy regarding this endeavor. Obviously, then, self-efficacy plays a key role in learners' *outcome expectations* for various courses of action.

Self-efficacy is a component of one's overall sense of self. It may seem similar to such concepts as *self-concept* and *self-esteem*, but it's different from these other two concepts in important ways (Bong & Skaalvik, 2003; Pietsch, Walker, & Chapman, 2003; Schunk & Pajares, 2005). When psychologists talk about self-concept and self-esteem, they're typically describing a fairly general self-view that pervades a broad range of activities (e.g., "Am I a good student?") and may encompass feelings as well as beliefs (e.g., "How proud am I of my classroom performance?").

See Chapter 3 for a discussion of other aspects of a learner's sense of self (e.g., self-concept, identity).



Students tend to choose and enjoy topics for which they have high self-efficacy. Hear 12-year-old Claudia express her high self-efficacy for math in "Motivation: Early Adolescence."

Chapter 11 examines the development of value in greater detail.



Interpret reluctance and lack of persistence as possible indicators of low self-efficacy.

In contrast, self-efficacy is more task or situation specific and involves judgments (rather than feelings) almost exclusively (e.g., "Can I learn how to solve quadratic equations?").

HOW SELF-EFFICACY AFFECTS BEHAVIOR AND COGNITION

Learners' sense of self-efficacy affects their choice of activities, their goals, and their effort and persistence in classroom activities. Ultimately, then, it also affects their learning and achievement (Bandura, 1982, 2000; Pajares, 2009; Schunk & Pajares, 2005).

Choice of activities Imagine yourself on registration day, perusing the hundreds of courses in the semester schedule. You fill most of your schedule with required courses, but you have room for an elective. Only two courses are offered at the time slot you want to fill. Do you sign up for Advanced Psychoceramics, a challenging seminar taught by the world-renowned Dr. Josiah S. Carberry? Or do you sign up for an English literature course known across campus as being an "easy A"? Perhaps you find the term *psychoceramics* a bit intimidating, and you think you can't possibly pass such a course, especially if Dr. Carberry is as demanding as everyone claims. So you settle for the literature course, knowing it's one in which you can succeed.

Learners tend to choose tasks and activities at which they believe they can succeed and to avoid those at which they think they'll fail. Eventually they also place greater value on activities in which they think they'll do well (Bandura, 1986; Pajares, 2009).

Goals Learners set higher goals for themselves when they have high self-efficacy in a particular domain. For example, adolescents' choices of careers and occupational levels reflect subject areas in which they have high rather than low self-efficacy. On average, their choices tend to be consistent with traditional gender stereotypes: Boys are more likely to have high self-efficacy for (and so choose) careers in science and technology, whereas girls are more likely to have high self-efficacy for (and so choose) careers in education, health, and social services (Bandura, Barbaranelli, Caprara, & Pastorelli, 2001; Plante & O'Keefe, 2010).

Effort and persistence Learners with a high sense of self-efficacy are more likely to exert effort when attempting a new task, and they're more likely to persist—to "try, try again"—when they confront obstacles. In contrast, learners with low self-efficacy about a task will put in little effort and give up quickly in the face of difficulty. For example, in the opening case study, Nathan is convinced he can't learn French, and so he quickly abandons assignments when he encounters something he doesn't immediately understand.

Learning and achievement Learners with high self-efficacy tend to learn and achieve more than those with low self-efficacy, even when the two groups initially have similar ability levels (Bandura, 1986; Klassen, 2002; T. Williams & Williams, 2010). Learners with high self-efficacy may achieve at superior levels partly because they're more likely to engage in cognitive processes that promote learning—paying attention, elaborating, organizing, and so on (Berger & Karabenick, 2010; Bong & Skaalvik, 2003; Liem, Lau, & Nie, 2008; Schunk & Pajares, 2005).

SOME OVERCONFIDENCE—BUT NOT TOO MUCH—CAN BE BENEFICIAL

Most 4- to 6-year-olds are quite confident about their ability to perform various tasks (R. Butler, 1990, 2005; Eccles et al., 1998). As they move through the elementary grades, however, they can better recall their past successes and failures, and they become increasingly aware of and concerned about how their performance compares with that of their peers. Presumably as a result of these changes, students gradually become less confident—although usually more realistic—about what they can and can't do (R. Butler, 2005; Dijkstra, Kuyper, van der Werf, Buunk, & van der Zee, 2008; Wigfield & Wagner, 2005).

Ideally learners should have a reasonably accurate sense of what they can and cannot accomplish, putting them in a good position to capitalize on their strengths and address their weaknesses (P. P. Chen, 2003; Försterling & Morgenstern, 2002; J. Wang & Lin, 2005). However, a tad of overconfidence can often be beneficial, because it may entice learners to take on challenging activities that will help them develop new skills and abilities (Assor & Connell, 1992; Bandura, 1997; Pajares, 2009). Within this context it's useful to distinguish between *self-efficacy for learning*

("I can learn this if I put my mind to it") and *self-efficacy for performance* ("I already know how to do this") (Lodewyk & Winne, 2005; Schunk & Pajares, 2004). Self-efficacy for learning—for what one can *eventually* do with effort—should be on the optimistic side, while self-efficacy for performance should be more in line with current ability levels.

Sometimes students—especially girls—*underestimate* their chances of success, perhaps because they've had a few bad experiences or are especially attuned to how their own performance falls short relative to that of peers (D. A. Cole, Martin, Peeke, Seroczynski, & Fier, 1999; Dijkstra et al., 2008; Schunk & Pajares, 2005). For example, a girl who gets a C in science from a teacher with exceptionally strict grading criteria may erroneously believe that she's "no good" in science. Or a new boy at school whose attempts at being friendly are rejected by two or three thoughtless classmates may erroneously believe that "no one" likes him. In such circumstances students set unnecessarily low goals for themselves and give up easily in the face of small obstacles.

But it's also possible to have too much of a good thing. When learners are *too* overconfident, they can set themselves up for failure by forming unrealistically high expectations or exerting insufficient effort to succeed. Moreover, students will hardly be inclined to address weaknesses they don't realize they have (Bandura, 1997; Sinatra & Mason, 2008; Sweeny, Carroll, & Shepperd, 2006; Zimmerman & Moylan, 2009).

*FACTORS IN THE DEVELOPMENT OF SELF-EFFICACY

At least five distinct factors affect learners' self-efficacy: their previous successes and failures, their current emotional state, other people's messages, other people's successes and failures, and successes and failures that learners experience as members of a particular group (Bandura, 1986, 1997; Usher & Pajares, 2009).

PREVIOUS SUCCESSES AND FAILURES

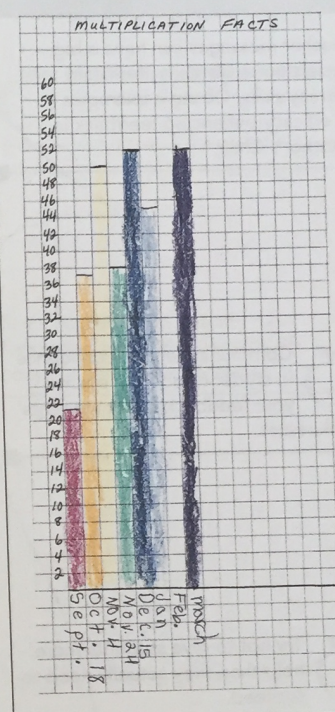
Without a doubt, the most important factor affecting learners' self-efficacy for an activity is the extent to which they've previously succeeded at that activity or similar ones (Bandura, 1986; Usher & Pajares, 2008; T. Williams & Williams, 2010). For example, Edward is more likely to believe he can learn to divide fractions if he has previously mastered fraction multiplication, and Elena will be more confident about learning to play rugby or field hockey if she's already acquired reasonable soccer skills. However, learners show developmental differences in *how far back* they look when they consider their prior successes and failures. Perhaps because of more limited cognitive abilities, children in the early elementary grades typically recall only their most recent experiences when predicting the likelihood of future success. In contrast, older children and adolescents are apt to consider a long-term pattern of prior successes and failures (Eccles et al., 1998).

As you can see, then, one important strategy for enhancing students' self-efficacy is to help them be successful at a variety of tasks in different content domains. Ideally we should tailor task difficulty to students' current self-efficacy levels: Students with little or no confidence in their ability to perform in a particular domain may initially respond more favorably if we give them tasks at which they'll almost certainly do well. But ultimately, students develop higher self-efficacy tasks at which they'll almost certainly do well. But ultimately, students develop higher self-efficacy when they can successfully accomplish *challenging* tasks, perhaps initially with some degree of structure—that is, *scaffolding*—to increase the likelihood of successful performance (Falco, 2008; Lodewyk & Winne, 2005).

Nonetheless, mastery of important knowledge and skills, even fairly basic ones, often comes only slowly over time. Consequently, it's often important to define success in terms of *improvement* rather than mastery (R. Butler, 1998a; M.-T. Wang & Holcombe, 2010). In such instances we may need to provide concrete mechanisms that highlight day-to-day progress—for instance, giving students progress charts they can fill in themselves (e.g., see Figure 10.4) and providing frequent verbal or written feedback about the little things students are doing well.

Once students have developed a high sense of self-efficacy, an occasional failure is unlikely to dampen their optimism much. In fact, when these students encounter small setbacks, they know they *can* succeed if they try, and they also develop a realistic attitude about failure—that at worst it's a temporary setback and at best it can give them useful information about how to improve their performance. In other words, students develop **resilient self-efficacy** (Bandura, 1989, 2008; Dweck, 2000).

FIGURE 10.4 Nine-year-old Sophie has been charting her monthly progress in remembering multiplication facts. Although she has had minor setbacks, her general progress is upward. (She was absent for February's assessment.)



Adjust the initial difficulty of tasks to students' existing self-efficacy levels. Then gradually increase the challenge, providing structure to guide students' efforts.

resilient self-efficacy Belief that one can perform a task successfully even after experiencing setbacks.



Teacher messages can have a big impact on students' self-efficacy for literacy skills. Observe examples of efficacy-enhancing feedback in "Author's Chair."



Communicate your confidence in students' abilities even in your feedback about students' weaknesses.



Try not to give students more help than they actually need to succeed.

CURRENT EMOTIONAL STATE

Learners' current emotional state—for instance, their general mood and the extent to which they feel anxious or stressed—can significantly affect their self-efficacy for the task at hand. For example, a student who feels excessively anxious or agitated during an important academic task may interpret that feeling as a sign of low ability for the task, even if the feeling has come from an unrelated source (Bandura, 1997; Schunk & Pajares, 2005; Usher & Pajares, 2009). The resulting low self-efficacy will, of course, undermine the student's performance, perhaps to the point that the task itself subsequently evokes anxiety and stress.

MESSAGES FROM OTHERS

When learners' successes aren't obvious, we can enhance their self-efficacy by explicitly pointing out ways in which they've previously done well or are now excelling. Occasionally we may also be able to boost their self-efficacy by giving them reasons to believe they can be successful in the future (Usher & Pajares, 2008). Statements such as "You can do this problem if you work at it" and "I bet Judy will play with you if you ask her" might give students a slight boost in self-confidence. The effects of optimistic predictions will be modest and short lived, however, unless learners' efforts at a task ultimately *do* meet with success (Schunk, 1989a; Valentine, DuBois, & Cooper, 2004).

Even negative feedback can promote high self-efficacy if it gives guidance about how to improve and communicates confidence that improvement is likely—in other words, if it boosts *self-efficacy for learning* (Deci & Ryan, 1985; Narciss, 2008; Pintrich & Schunk, 2002). For example, consider the following statement:

In the first draft of your research paper, many of your paragraphs don't lead logically to the ones that follow. A few headings and transitional sentences would make a world of difference. Let's find a time to discuss how you might use these techniques to improve the flow of your paper.

The statement indirectly communicates the message "With a little effort and new strategies, I know you can do better."

In some cases we communicate our beliefs about learners' competence through our actions rather than our words. For example, if we offer after-school assistance to students who are struggling to master a particular mathematical procedure or musical technique, we're communicating that with a little persistence, improvement is possible. We must be careful not to go overboard, however. If we give struggling students more assistance than they really need, we may inadvertently communicate the message "I don't think you can do this on your own" (Schunk, 1989b).

SUCCESSSES AND FAILURES OF OTHER INDIVIDUALS

We often form opinions about our probability of success by observing the successes and failures of other people, especially those whose ability levels are seemingly similar to our own (Dijkstra et al., 2008; Usher & Pajares, 2008; Zeldin & Pajares, 2000). For example, you're more likely to enroll in Dr. Carberry's Advanced Psychoceramics class if most of your friends have done well in the course, but if, instead, numerous friends have dropped the course in frustration, you may suspect that your own chances of succeeding are pretty slim. Likewise, recall Nathan's pessimism about learning French in the opening case study—pessimism based largely on the experiences of three low-achieving friends.

Another way of enhancing learners' self-efficacy, then, is to point out that others like them have mastered the knowledge and skills at hand (Schunk, 1983, 1989c). For example, a class of chemistry students who seem overwhelmed by the many chemical symbols they must learn might be reassured with a statement such as this:

I know it seems like a lot to learn in such a short time. My students last year thought so, too, but they found that they could learn the symbols within three weeks if they studied a few new symbols each day.

But even more than *telling* learners about others' successes, *seeing* is believing. Learners who actually observe similar-ability peers successfully reach a goal are especially likely to believe that

they, too, can achieve the goal. Hence, students sometimes develop greater self-efficacy when they see a classmate model a behavior than when they see their teacher model it. In one study (Schunk & Hanson, 1985), elementary school students who were having trouble with subtraction were given 25 subtraction problems to complete. Students who had seen another student successfully complete the problems got an average of 19 correct, whereas those who saw a teacher complete the problems got only 13 correct, and those who saw no model at all solved only 8! It may be even more beneficial for students to see one or more peers struggling with a task or problem at first—as they themselves might do—and then eventually mastering it (Kitsantas et al., 2000; Schunk, Hanson, & Cox, 1987; Schunk & Pajares, 2005). Presumably observing such a **coping model** shows learners that success doesn't necessarily come easily—that they must work and practice to achieve success—and allows them to observe the strategies the model uses to gain proficiency.

What we *don't* want to do, however, is to *define* success in terms of how students' performance compares with that of their peers—perhaps identifying the “best” writer, science student, or basketball player. Such comparison sets up a competitive situation in which the majority of students must inevitably lose. Most students have higher self-efficacy and achieve at higher levels if they *don't* evaluate their own performance in terms of how they stack up against others (Graham & Golen, 1991; Shih & Alexander, 2000; Stipek, 1996).

5 SUCCESSES AND FAILURES AS PART OF A GROUP

Learners can often think more intelligently and acquire a more complex understanding of a topic when they collaborate with peers to master and apply classroom subject matter (e.g., D. W. Johnson & Johnson, 2009a; Pea, 1993; Slavin, 2011). Collaboration with peers has a possible additional benefit: Learners may have greater self-efficacy when they work in a group rather than alone. Such **collective self-efficacy** depends not only on students' perceptions of their own and others' capabilities but also on their perceptions of how effectively they can work together and coordinate their roles and responsibilities (Bandura, 1997, 2000; George & Feltz, 1995; Klassen & Usher, 2010).

Whether we ask students to tackle challenging tasks as individuals or in small groups, we must keep in mind that the school day shouldn't necessarily pose one challenge after another. Such a state of affairs would be absolutely exhausting, and probably quite discouraging as well. Instead, we should strike a balance between easy tasks, which will boost students' self-confidence over the short run, and the challenging tasks so critical for an optimistic sense of self-efficacy for the long term (Spaulding, 1992; Stipek, 1996). The Into the Classroom feature “Fostering Productive Self-Efficacy Levels” presents several research-based strategies.

TEACHER SELF-EFFICACY

Not only should our students have high self-efficacy about their ability to succeed in the classroom but so, too, should we teachers have high self-efficacy about our ability to *help* them succeed. Students are more likely to achieve at high levels when their teachers have confidence that they can help students master classroom topics (Skaalvik & Skaalvik, 2008; Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998; Ware & Kitsantas, 2007). Some of this teacher confidence may take the form of collective self-efficacy: When teachers at a school believe that, as a group, they can make a significant difference in the lives of children and adolescents, their students, too, have higher self-efficacy themselves and are more likely to achieve at high levels (Goddard, 2001; Goddard, Hoy, & Woolfolk Hoy, 2000; Tschannen-Moran et al., 1998).

When teachers have high self-efficacy about their effectiveness in the classroom—both individually and collectively—they influence students' achievement in several ways:

- They are more willing to experiment with new teaching strategies that can better help students learn.
- They set higher goals for students' performance.
- They put more effort into their teaching and are more persistent in helping students learn. (Bandura, 1997; Roeser, Marachi, & Gehlbach, 2002; Skaalvik & Skaalvik, 2008; Tschannen-Moran et al., 1998)

Such effects should look familiar: Just as self-efficacy affects students' choice of activities, goals, effort, and persistence, so, too, does it affect *teachers'* choices, goals, effort, and persistence.

coping model Model who initially struggles with a task but successfully overcomes obstacles.

collective self-efficacy People's beliefs about their ability to be successful when they work together on a task.



Minimize students' awareness of classmates' performance levels.

See Chapter 8 and Chapter 12 for discussions of the benefits of cooperative learning activities.



Collaborate with colleagues to identify effective ways of fostering all students' academic and social success at school.

Into the Classroom

Fostering Productive Self-Efficacy Levels

Teach basic knowledge and skills to mastery.

A biology teacher makes sure all students clearly understand the basic structure of DNA before moving to mitosis and meiosis, two topics that require a knowledge of DNA structure.

Assure students that they can be successful at challenging tasks, and point out that others like them have been successful in the past.

Early in the school year, students in beginning band express frustration in learning to play their instruments. Their teacher reminds them that, like themselves, students in last year's beginning band started out with little knowledge but eventually mastered their instruments. A few weeks later, the beginning band class attends a concert at which the school's advanced band (last year's beginning band class) play a medley from the Broadway musical *Wicked*.

Have students see peers with similar ability successfully accomplishing challenging tasks.

To convince his students from low-income, minority-group families that they can do almost anything if they put their minds to it, a high school math teacher shows his class the film *Stand and Deliver*. The film depicts the true story of 18 Mexican American high school students from a low-income neighborhood in East Los Angeles who, through hard work and perseverance, earned college credit by passing the national Advanced Placement (AP) calculus exam.

Help students track their progress on challenging tasks.

As first graders are learning how to weave on small circular looms, one student approaches her teacher in tears, frustrated that her first few rows are full of mistakes. The teacher responds, "Look, Dorothy, this is the history, your own history, of learning to weave. You can look at this and say, 'Why, I can see how I began, here I didn't know how very well, I went over two instead of one; but I learned, and then—it is perfect all the way to the end!'" The student returns to her seat, very much comforted, and finishes her piece. She follows it with another, flawless one and proudly shows it to her teacher.

After students have mastered basic skills, present some tasks at which they can succeed only with effort and perseverance.

A physical education teacher tells his students, "Today we've determined how far each of you can go in the broad jump. We'll continue to practice good form a little bit each week. Some of your future efforts will be more successful than others, but let's see if every one of you can jump at least two inches farther when I test you again at the end of the month."

Have students tackle especially challenging tasks in small, cooperative groups.

A fifth-grade teacher has students work in groups of three or four to write research papers about early colonial life in North America. The teacher makes sure that the students in each group collectively have the skills in library research, writing, word processing, and art necessary to complete the task. She also makes sure that every student has some unique skills to contribute to the group effort.

If students are unrealistically overconfident—so much so that they don't exert the effort and strategies needed to master the material—help them learn how to accurately evaluate their current knowledge and skill levels.

Many students in math classes at a technical school are quite confident that they're solving problems correctly, even though their past grades in the class have been poor. To help them more realistically assess their current understandings, a teacher in one of the classes begins giving frequent short quizzes in which students have to predict their ability to correctly solve each problem before actually trying to solve it; they must also evaluate the accuracy of their problem solutions. Then, when they get back their graded quizzes, they get extra points for critiquing the accuracy of their problem-specific self-evaluations and for explaining and correcting their errors. Students in this class begin to achieve at higher levels than their peers in other classes.

Sources: Bandura, 1986, 1989, 1997, 2000; R. Butler, 1998a; Eccles et al., 1998; Hawkins, 1997, p. 332 (weaving example); Lodewyk & Winne, 2005; Mathews, 1988; Menéndez, 1988 (*Stand and Deliver* example); Schunk, 1983, 1989a, 1989c; Usher & Pajares, 2008; Zeldin & Pajares, 2000; Zimmerman & Moylan, 2009 (math example).

As is true for students, however, it's possible for teachers to have too much of a good thing. Occasionally teachers have so much confidence in their existing knowledge and skills that they find little benefit in professional development activities that would enhance their effectiveness (Guskey, 1988; Middleton & Abrams, 2004; Tschannen-Moran et al., 1998). We teachers are *learners* as well, and we'll always have room for improvement in our classroom strategies.

Self-Regulation

Although high self-efficacy can certainly enhance students' classroom performance, it's by no means the only thing that affects their performance. Students must also master the knowledge and skills that make high performance levels possible. Some knowledge and skills are specific to particular topics and academic domains, but one set of skills—those related to **self-regulation**—can have a pervasive influence on students' achievement across the board. To get a sense of your own self-regulation skills, try the following exercise.

definition

self-regulation Process of setting goals for oneself and engaging in behaviors and cognitive processes that lead to goal attainment.

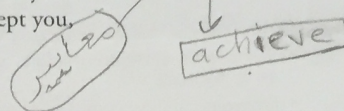
EXPERIENCING FIRSTHAND

SELF-REFLECTION ABOUT SELF-REGULATION

For each of the following situations, choose the alternative that most accurately describes your attitudes, thoughts, and behaviors as a college student. No one will see your answers except you, so be honest!

1. With regard to my final course grades, I'm trying very hard to
 - a. Earn all As.
 - b. Earn all As and Bs.
 - c. Keep my overall grade point average at or above the minimally acceptable level at my college.
2. As I'm reading or studying a textbook,
 - a. I often notice when my attention is wandering, and I immediately get my mind back on my work.
 - b. I sometimes notice when my attention is wandering, but not always.
 - c. I often get so lost in daydreams that I waste a lot of time.
3. Whenever I finish a study session,
 - a. I write down how much time I've spent on my schoolwork.
 - b. I make a mental note of how much time I've spent on my schoolwork.
 - c. I don't really think much about the time I've spent on my schoolwork.
4. When I turn in an assignment,
 - a. I usually have a good idea of the grade I'll get on it.
 - b. I'm often surprised by the grade I get.
 - c. I don't think much about the quality of what I've done.
5. When I do exceptionally well on an assignment,
 - a. I feel good about my performance and might reward myself in some way.
 - b. I feel good about my performance but don't do anything special for myself afterward.
 - c. I don't feel much different than I did before I received my grade.

self-regulated behavior Self-chosen and self-directed behavior that leads to the fulfillment of personally constructed standards and goals.



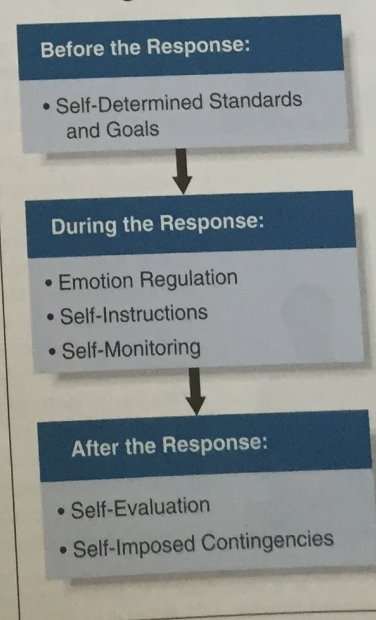
Regardless of how you answered Item 1, you could probably identify a particular goal toward which you're striving. Your response to Item 2 should give you an idea of how much you monitor and try to control your thoughts when you're studying. Your responses to Items 3 and 4 tell you something about how frequently and accurately you evaluate your performance. And your response to Item 5 indicates whether you're likely to reinforce yourself for desired behaviors. To the extent that we establish our own priorities and goals, take charge of our own thoughts and actions, and reflect on and evaluate our own behaviors, we are self-regulating individuals (e.g., Bandura, 2008).

Thanks, in part, to brain maturation over the course of childhood and adolescence, most learners become increasingly self-regulating as they grow older (more on this point in an Applying Brain Research feature later in the chapter). Table 10.2 presents typical advancements in the elementary and secondary school years. Some of the entries in the table, such as self-instructions and self-evaluation of actions, reflect self-regulation in *behavior*. Others, such as ability to control attention and self-motivation, reflect self-regulation in *learning*. We'll look here at both self-regulated behavior and self-regulated learning, as well as at self-regulated problem solving.

SELF-REGULATED BEHAVIOR

When we behave in particular ways and observe how our environment reacts—reinforcing some behaviors and punishing or otherwise discouraging others—we begin to distinguish between productive and unproductive responses, and most of us increasingly control and monitor our own actions (Bandura, 1986, 2008). In other words, we engage in **self-regulated behavior**. Self-regulated behavior has at least six important components, which are summarized in Figure 10.5. As you'll see, all six of them have cognitive elements as well as behavioral ones.

FIGURE 10.5 Components of self-regulated behavior



DEVELOPMENTAL TRENDS

TABLE 10.2 • Self-Regulation at Different Grade Levels

GRADE LEVEL	AGE-TYPICAL CHARACTERISTICS	EXAMPLE	SUGGESTED STRATEGIES
 K-2	- Some internalization of adults' standards for behavior - Emerging ability to set self-chosen goals for learning and achievement - Some use of self-instructions (self-talk) to guide behavior - Some self-evaluation of effectiveness and appropriateness of actions; feelings of guilt about wrongdoings - Individual differences in self-control of impulses, emotions, and attention; peer relationships and classroom performance affected by amount of self-control in these areas	Most of the children in a kindergarten class can sit quietly and listen when their teacher reads a storybook. But a few of them squirm restlessly and occasionally poke or otherwise distract their classmates.	- Discuss rationales for classroom rules. - Show students how some behaviors can help them reach their goals and how other behaviors interfere with goal attainment. - Organize the classroom so that students can carry out some activities on their own (e.g., have reading centers where children can listen to storybooks on tape). - When students show impulsiveness or poor emotion control, provide guidelines and consistent consequences for behavior.
 3-5	- Improving ability to self-assess performance and progress - Guilt and shame about unsatisfactory performance and moral transgressions - Emerging self-regulated learning strategies (e.g., conscious attempts to focus attention, ability to do short assignments independently at home) - Persistent difficulties with self-control for some students	Every Thursday evening, 8-year-old Logan studies for the weekly spelling test his teacher will give his class the following day. Sometimes he asks his father or older brother to test him on especially difficult words.	- Have students set specific, concrete goals for their learning. - Encourage students to assess their own performance; provide criteria they can use to evaluate their work. - Ask students to engage in simple, self-regulated learning tasks (e.g., small-group learning activities, short homework assignments); provide some structure to guide students' efforts. - Encourage students to use their peers as resources when they need help. - If students have continuing difficulty with self-control, teach self-instructions that can help them control their behavior.
 6-8	- Increasing ability to plan future actions, due in part to increased capacity for abstract thought - Increasing mastery of some self-regulating learning strategies, especially those that involve overt behaviors (e.g., keeping a calendar of assignments and due dates) - Self-motivational strategies (e.g., minimizing distractions, devising ways to make a boring task more interesting and enjoyable, reminding oneself about the importance of doing well) - Decrease in help-seeking behaviors during times of confusion, especially if teachers appear to be aloof and nonsupportive	For fear of looking "stupid" in her math class, 13-year-old Katherine rarely asks questions when she doesn't understand a new concept or procedure.	- Assign homework and other tasks that require age-appropriate independent learning. - Provide concrete strategies for keeping track of learning tasks and assignments (e.g., provide monthly calendars on which students can write due dates). - Provide concrete guidance about how to learn and study effectively (e.g., give students questions they should answer as they complete reading assignments at home). - Give students frequent opportunities to assess their own learning; have them compare your evaluations with theirs.
 9-12	- More long-range goal setting - Continuing development of strategies for emotion regulation, especially in contexts that can evoke strong emotions (e.g., sports, theater productions) - Wide variability in ability to self-regulate learning, especially when out-of-school assignments conflict with attractive leisure activities; few self-regulating learning strategies among many low-achieving high school students - For a small number of older adolescents, persistent difficulties in self-control that can adversely affect classroom behavior and peer relationships	After moving from fairly small middle schools to a much larger, consolidated high school, some students diligently complete their homework each night. But many others are easily enticed into more enjoyable activities with friends—hanging out at a local fast-food restaurant, instant-messaging on cell phones, and so on—and their grades decline significantly as a result.	- Relate classroom learning tasks to students' long-range personal and professional goals. - Encourage students to experiment with various emotions and emotion-control strategies through role-playing and drama. - Assign complex independent learning tasks, providing the necessary structure and guidance for students who are not yet self-regulating learners. - Have high-achieving students describe their strategies for resisting attractive alternatives and keeping themselves on task when doing homework.

Sources: Blair, 2002; Bronson, 2000; Corno & Mandinach, 2004; Damon, 1988; Dunning, Heath, & Suls, 2004; Eccles, Wigfield, & Schiefele, 1998; Fries, Dietz, & Schmid, 2008; Hampson, 2008; M. Hofer, 2010; M. H. Jones, Estell, & Alexander, 2008; Kochanska, Gross, Lin, & Nichols, 2002; Larson & Brown, 2007; Marchand & Skinner, 2007; J. S. Matthews, Ponitz, & Morrison, 2009; Meichenbaum & Goodman, 1971; Meltzer et al., 2007; S. D. Miller, Heafner, Massey, & Strahan, 2003; S. G. Paris & Paris, 2001; Posner & Rothbart, 2007; Schneider, 2010; Valiente, Lemery-Caillet, Swanson, & Reiser, 2008; Wolters & Rosenthal, 2000.