CHAPTER 6

Behavioral Views of Learning

Teachers' Casebook: What Would You Do? 205
Understanding Learning 206
Learning: A Definition 206
Learning Is Not Always What It Seems 207
Early Explanations of Learning: Contiguity and Classical Conditioning 208
Operant Conditioning: Trying New Responses 210
Types of Consequences 210
Reinforcement Schedules 212
Antecedents and Behavior Change 214
Applied Behavior Analysis 215
Methods for Encouraging Behaviors 216
Coping with Undesirable Behavior 219
Reaching Every Student: Functional Behavioral Assessment and Positive Behavior Support 222
Behavioral Approaches to Teaching and Management 224
Group Consequences 226
Contingency Contracts 226
Token Reinforcement 227
Reaching Every Student: Severe Behavior Problems 228
Observational Learning and Cognitive Behavior Modification: Thinking about Behavior 229
Observational Learning 229
Elements of Observational Learning 230
Observational Learning in Teaching 233
Self-Management 234
Cognitive Behavior Modification and Self-Instruction 236
Problems and Issues 238
Criticisms of Behavioral Methods 238
Ethical Issues 238
Diversity and Convergences in Behavioral Learning 240
Diversity 240
Convergences 240
Summary Table 241
Teachers' Casebook: Connections to PRAXIS II®/What Would They Do? 245
What Would You Do?

Teachers’ Casebook

You were hired in January to take over the classes of a teacher who moved away. This is a great district and a terrific school. If you do well, you might be in line for a full-time opening next fall. As you are introduced around the school, you get a number of sympathetic looks and many—too many—offers of help: “Let me know if I can do anything for you.”

After the first hour, you begin to understand why so many teachers volunteered their help. Evidently the previous teacher had no management system—no order. Several students walk around the room while you are talking to the class, interrupt you when you are working with a group, torment each other, and open their lunches (or those of other students) for a self-determined snack. There is one very charismatic leader who causes regular disruptions, resists your authority, and destroys your efforts to develop a community of learners. Simply taking roll and introducing the first activity lasts 10 minutes. You end the first day exhausted and discouraged, having lost both your voice and your patience. You wonder how you can possibly establish a workable management system and still teach students what they will need to know for the spring proficiency tests.

Critical Thinking
- How would you approach the situation?
- Which problem behaviors would you tackle first?
- Would giving rewards or administering punishments be useful in this situation?
- Why or why not?

Collaboration
With 2 other members of your class, role play an orientation meeting between this new teacher and the mentor teacher assigned to help. How should the mentor prepare the new teacher for the assignment? What plans could be made to handle the situation?

We begin this chapter with a general definition of learning that takes into account the opposing views of different theoretical groups. We will highlight one group, the behavioral theorists, in this chapter; another major group, the cognitive theorists, in Chapters 7 and 8; and then look at current social-cognitive views and constructivism in Chapter 9.

Our discussion in this chapter will focus on four behavioral learning processes: contiguity, classical conditioning, operant conditioning, and observational learning, with the greatest emphasis on the last two processes. After examining the implications of applied behavior analysis for teaching, we look at two recent directions in behavioral approaches to learning—self-management and cognitive behavior modification.

By the time you have completed this chapter, you should be able to answer these questions:
- What is learning?
- What are the similarities and differences among contiguity, classical conditioning, and operant conditioning?
- What are examples of four different kinds of consequences that can follow any behavior, and what effect is each likely to have on future behavior?
- How could you use applied behavior analysis (group contingencies, contingency contracts, token economies or functional behavioral analysis) to solve common academic or behavior problems?
- What and how can students learn through observation?
- What is cognitive behavior modification, and how does it apply to teaching?
Understanding Learning

When we hear the word learning, most of us think of studying and school. We think about subjects or skills we intend to master, such as algebra, Spanish, chemistry, or karate. But learning is not limited to school. We learn every day of our lives. Babies learn to kick their legs to make the mobile above their cribs move, teenagers learn the lyrics to all their favorite songs, middle-aged people like me learn to change their diet and exercise patterns, and every few years we all learn to find a new style of dress attractive when the old styles (the styles we once loved) go out of fashion. This last example shows that learning is not always intentional. We don’t try to like new styles and dislike old ones; it just seems to happen that way. We don’t intend to become nervous when we hear the sound of a dentist’s drill or when we step onto a stage, yet many of us do. So what is this powerful phenomenon called learning?

Learning: A Definition

In the broadest sense, learning occurs when experience causes a relatively permanent change in an individual’s knowledge or behavior. The change may be deliberate or unintentional, for better or for worse, correct or incorrect, and conscious or unconscious (Hill, 2002). To qualify as learning, this change must be brought about by experience—by the interaction of a person with his or her environment. Changes simply caused by maturation, such as growing taller or turning gray, do not qualify as learning. Temporary changes resulting from illness, fatigue, or hunger are also excluded from a general definition of learning. A person who has gone without food for two days does not learn to be hungry, and a person who is ill does not learn to run more slowly. Of course, learning plays a part in how we respond to hunger or illness.

Our definition specifies that the changes resulting from learning are in the individual’s knowledge or behavior. Most psychologists would agree with this statement, but some tend to emphasize the change in knowledge, others the change in behavior. Cognitive psychologists, who focus on changes in knowledge, believe learning is an internal mental activity that cannot be observed directly. As you will see in the next chapter, cognitive psychologists studying learning are interested in unobservable mental activities such as thinking, remembering, and solving problems (Schwartz, Wasserman, & Robbins, 2002).

The psychologists discussed in this chapter, on the other hand, favor behavioral learning theories. The behavioral view generally assumes that the outcome of learning is change in behavior, and it emphasizes the effects of external events on the individual. Some early behaviorists such as J. B. Watson took the radical position that because think-

What is learning? Behavioral theorists emphasize the role of outside stimuli, focusing on behavior and observable responses.
ing, intentions, and other internal mental events could not be seen or studied rigorously and scientifically, these "mentalisms," as he called them, should not even be included in an explanation of learning. Before we look in depth at behavioral explanations of learning, let's step into an actual classroom and note the possible results of learning.

**Learning Is Not Always What It Seems**

After weeks of working with her cooperating teacher in an 8th-grade social studies class, Elizabeth was ready to take over on her own. As she moved to the front of the room, she saw another adult approach the classroom door. It was Mr. Ross, her supervisor from college. Elizabeth's neck and facial muscles suddenly became very tense and her hands trembled.

"I've stopped by to observe your teaching," Mr. Ross said. "This will be my first of six visits. I couldn't reach you last night to tell you."

Elizabeth tried to hide her reaction, but her hands trembled as she gathered the notes for the lesson.

"Let's start today with a kind of game. I will say some words, then I want you to tell me the first words you can think of. Don't bother to raise your hands. Just say the words out loud, and I will write them on the board. Don't all speak at once, though. Wait until someone else has finished to say your word. Okay, here is the first word: Slavery."

"Civil War," "Lincoln," "Freedom," "Emancipation Proclamation." The answers came quickly, and Elizabeth was relieved to see that the students understood the game.

"All right, very good," she said. "Now try another one: South."

"South Carolina. South Dakota. South Street Seaport. "No, the Confederacy, you dummy." "Cold Mountain." "Jude Law." With this last answer, a ripple of laughter moved across the room.

"Jude Law!" Elizabeth sighed dreamily. "Cold Mountain was on television last week." Then she laughed too. Soon all the students were laughing. "Okay, settle down," Elizabeth said. "Here is another word: North."


More laughter and a few appropriate gestures.

"Just a minute," Elizabeth pleaded. "These ideas are getting a little off base!"

"Off base, Baseball," shouted the boy who had first mentioned Jude Law. He stood up and started throwing balls of paper to a friend in the back of the room, simulating the style of Roger Clemens.


"Okay, because you know so much about the Civil War, close your books and take out a pen," Elizabeth said, obviously angry. She passed out the worksheet that she had planned as a cooperative, open-book project. "You have 20 minutes to finish this test!"

"You didn't tell us we were having a test! "This isn't fair! "We haven't even covered this stuff yet!" "I didn't do anything wrong!" There were moans and disgusted looks, even from the most mellow students. "I'm reporting you to the principal; it's a violation of students' rights!"

This last comment hit hard. The class had just finished discussing human rights as preparation for this unit on the Civil War. As she listened to the protests, Elizabeth felt terrible. How was she going to grade these "tests?" The first section of the worksheet involved facts about events during the Civil War, and the second section asked students to create a news-style program interviewing ordinary people touched by the war.

"All right, all right, it won't be a test. But you do have to complete this worksheet for a grade. I was going to let you work together, but your behavior this morning tells me that you are not ready for group work. If you can complete the first section of the sheet working quietly and seriously, you may work together on the second section." Elizabeth knew that her students would like to work together on writing the script for the news interview program.

Elizabeth was afraid to look back at her supervisor. What was he writing on his observation form?

It appears, on the surface at least, that very little learning of any sort was taking place in Elizabeth's classroom. In fact, Elizabeth had some good ideas, but she also made some
mistakes in her application of learning principles. We will return to this episode several times in the chapter to analyze various aspects of what took place. To get us started, four events can be singled out, each possibly related to a different learning process.

First, the students were able to associate the words Carolina and Dakota with the word South. Second, Elizabeth’s hands trembled when her college supervisor entered the room. Third, one student continued to disrupt the class with inappropriate responses. And fourth, after Elizabeth laughed at a student comment, the class joined in her laughter. The four learning processes represented are contiguity, classical conditioning, operant conditioning, and observational learning. In the following pages we will examine these four kinds of learning, starting with contiguity.

Early Explanations of Learning: Contiguity and Classical Conditioning

One of the earliest explanations of learning came from Aristotle (384–322 B.C.). He said that we remember things together (1) when they are similar, (2) when they contrast, and (3) when they are contiguous. This last principle is the most important, because it is included in all explanations of learning by association. The principle of contiguity states that whenever two or more sensations occur together often enough, they will become associated. Later, when only one of these sensations (a stimulus) occurs, the other will be remembered too (a response) (Rachlin, 1991; Wasserman & Miller, 1997). For example, when Elizabeth said “South,” students associated the words “Carolina” and “Dakota.” They had heard these words together many times. Other learning processes may also be involved when students learn these phrases, but contiguity is a factor. Contiguity also plays a major role in another learning process best known as classical conditioning.

STOP | THINK | WRITE
Close your eyes and focus on a vivid image of the following: The smell of French fries cooking. A time you were really embarrassed in school. The taste of chocolate fudge. The sound of a dentist’s drill. What did you notice as you formed these images?

If you are like me, imagining the sound of the dentist’s drill tightens your neck muscles. I can actually salivate when I imagine salty fries or smooth rich chocolate (especially because it is 3:01 p.m. and I haven’t had lunch yet). The first embarrassing school incident I remembered was falling flat as I did a cartwheel in front of the whole high school. A small cringe still accompanies the memory. Classical conditioning focuses on the learning of involuntary emotional or physiological responses such as fear, increased muscle tension, salivation, or sweating. These sometimes are called respondents because they are automatic responses to stimuli. Through the process of classical conditioning, humans and animals can be trained to react involuntarily to a stimulus that previously had no effect—or a very different effect—on them. The stimulus comes to elicit, or bring forth, the response automatically.

Classical conditioning was discovered in the 1920s by Ivan Pavlov, a Russian physiologist trying to determine how long it took a dog to secrete digestive juices after it had been fed. But the intervals of time kept changing. At first, the dogs salivated as expected while they were being fed. Then the dogs began to salivate as soon as they saw the food and then as soon as they heard the scientists walking toward the lab. Pavlov decided to make a detour from his original experiments and examine these unexpected interferences.

In one of his first experiments, Pavlov began by sounding a tuning fork and recording a dog’s response. As expected, there was no salivation. At this point, the sound of the tuning fork was a neutral stimulus because it brought forth no salivation. Then Pavlov fed the dog. The response was salivation. The food was an unconditioned stimulus (US) because no prior training or “conditioning” was needed to establish the natural connection between food and salivation. The salivation was an unconditioned response (UR), again because it was elicited automatically—no conditioning required.

Using these three elements—the food, the salivation, and the tuning fork—Pavlov demonstrated that a dog could be conditioned to salivate after hearing the tuning fork. He
did this by contiguous pairing of the sound with food. He sounded the bell and then quickly fed the dog. After Pavlov repeated this several times, the dog began to salivate after hearing the sound, but before receiving the food. Now the sound had become a **conditioned stimulus (CS)** that could bring forth salivation by itself. The response of salivating after the tone was now a **conditioned response (CR)**.

If you think that Pavlovian conditioning is of historical interest only, consider this excerpt from USA Today describing an advertising campaign for products aimed at “Gen Y,” those people born between 1977 and 1994:

Mountain Dew executives have their own term for this [advertising strategy]; the Pavlovian connection. By handing out samples of the brand at surfing, skateboard and snowboard tournaments, “There’s a Pavlovian connection between the brand and the exhilarating experience,” says Dave Burwick, a top marketing executive at Pepsi, which makes Mountain Dew. (Horovitz, April 22, 2002, p. B2)

Maybe they could hand out math homework too!

It is possible that many of our emotional reactions to various situations are learned in part through classical conditioning. Physicians have a term, “white coat syndrome,” that describes people whose blood pressure (an involuntary response) goes up when tested in the doctor’s office, usually by someone in a white coat. Another example, Elizabeth’s trembling hands when she saw her college supervisor, might be traced to previous unpleasant experiences during past evaluations of her performance. Now just the thought of being observed elicits a pounding heart and sweaty palms. Classical conditioning has implications for teachers as well as marketing managers. Remember that emotions and attitudes as well as facts and ideas are learned in classrooms. This emotional learning can sometimes interfere with academic learning. Procedures based on classical conditioning also can be used to help people learn more adaptive emotional responses, as the Guidelines suggest.

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**Guidelines:** Applying Classical Conditioning

Associate positive, pleasant events with learning tasks.

**EXAMPLES:**

1. Emphasize group competition and cooperation over individual competition. Many students have negative emotional responses to individual competition that may generalize to other learning.
2. Make division drills fun by having students decide how to divide refreshments equally, then letting them eat the results.
3. Make voluntary reading appealing by creating a comfortable reading corner with pillows, colorful displays of books, and reading props such as puppets (see Morrow & Weinstein, 1986, for more ideas).

Help students to risk anxiety-producing situations voluntarily and successfully.

**EXAMPLES:**

1. Assign a shy student the responsibility of teaching two other students how to distribute materials for map study.
2. Devise small steps toward a larger goal. For example, give ungraded practice tests daily, and then weekly, to students who tend to “freeze” in test situations.

3. If a student is afraid of speaking in front of the class, let the student read a report to a small group while seated, then read it while standing, then give the report from notes instead of reading it verbatim. Next, move in stages toward having the student give a report to the whole class.

Help students recognize differences and similarities among situations so they can discriminate and generalize appropriately.

**EXAMPLES:**

1. Explain that it is appropriate to avoid strangers who offer gifts or rides, but safe to accept favors from adults when parents are present.
2. Assure students who are anxious about taking college entrance exams that this test is like all the other achievement tests they have taken.

If you would like to learn more about classical conditioning, see these sites: http://www.class.rutgers.edu/psy390/lessons/lesson02/lesson2.htm http://www.dushkin.com/connedtext/psy/ch06/ecapps.shtml
Operant Conditioning: Trying New Responses

So far, we have concentrated on the automatic conditioning of involuntary responses such as salivation and fear. Clearly, not all human learning is so automatic and unintentional. Most behaviors are not involuntary responses. People actively "operate" on their environment to produce different kinds of consequences. These deliberate actions are called operants. The learning process involved in operant behavior is called operant conditioning because we learn to behave in certain ways as we operate on the environment.

The person generally thought to be responsible for developing the concept of operant conditioning is B. F. Skinner (1953). Skinner began with the belief that the principles of classical conditioning account for only a small portion of learned behaviors. Many human behaviors are operants, not respondents. Classical conditioning describes only how existing behaviors might be paired with new stimuli; it does not explain how new operant behaviors are acquired.

Behavior, like response or action, is simply a word for what a person does in a particular situation. Conceptually, we may think of a behavior as sandwiched between two sets of environmental influences: those that precede it (its antecedents) and those that follow it (its consequences) (Skinner, 1950). This relationship can be shown very simply as antecedent-behavior-consequence, or A-B-C. As behavior is ongoing, a given consequence becomes an antecedent for the next ABC sequence. Research in operant conditioning shows that operant behavior can be altered by changes in the antecedents, the consequences, or both. Early work focused on consequences, often using rats or pigeons as subjects.

Types of Consequences

STOP | THINK | WRITE 

Think back over teachers you have had who used rewards or punishments. Try to remember different types of rewards:

- Concrete rewards (stickers, food, prizes, certificates)
- Activity rewards (free time, puzzles, free reading)
- "Exemption" rewards (no homework, no weekly test)
- Social rewards (praise, recognition)

What about punishments?

- Loss of privileges (cannot sit where you want, cannot work with friends)
- Fines (lost points, grades, money)
- Extra work (homework, laps, push-ups)

According to the behavioral view, consequences determine to a great extent whether a person will repeat the behavior that led to the consequences. The type and timing of consequences can strengthen or weaken behaviors. We will look first at consequences that strengthen behavior.

Reinforcement. Although reinforcement is commonly understood to mean "reward," this term has a particular meaning in psychology. A reinforcer is any consequence that strengthens the behavior it follows. So, by definition, reinforced behaviors increase in frequency or duration. Whenever you see a behavior persisting or increasing over time, you can assume the consequences of that behavior are reinforcers for the individual involved (Landrum & Kauffman, 2006). The reinforcement process can be diagrammed as follows:

\[
\text{Behavior} \rightarrow \text{Reinforcer} \rightarrow \text{Strengthened or repeated behavior}
\]
We can be fairly certain that food will be a reinforcer for a hungry animal, but what about people? It is not clear why an event acts as a reinforcer for an individual, but there are many theories about why reinforcement works. For example, some psychologists suggest that reinforcers satisfy needs, while other psychologists believe that reinforcers reduce tension or stimulate a part of the brain (Rachlin, 1991). Whether the consequences of any action are reinforcing probably depends on the individual’s perception of the event and the incoming it holds for her or him. For example, students who repeatedly get themselves sent to the principal’s office for misbehaving may be indicating that something about this consequence is reinforcing for them, even if it doesn’t seem desirable to you. By the way, Skinner did not speculate about why reinforcers increase behavior. He believed that it was useless to talk about “imaginary constructs” such as meaning, expectations, needs, or tensions. Skinner simply described the tendency for a given operant to increase after certain consequences (Hill, 2002; Skinner, 1953, 1989).

There are two types of reinforcement. The first, called positive reinforcement, occurs when the behavior produces a new stimulus. Examples include pecking on the red key producing food for a pigeon, wearing a new outfit producing many compliments, or falling out of your chair producing cheers and laughter from classmates.

Notice that positive reinforcement can occur even when the behavior being reinforced (falling out of a chair) is not “positive” from the teacher’s point of view. In fact, positive reinforcement of inappropriate behaviors occurs unintentionally in many classrooms. Teachers help maintain problem behaviors by inadvertently reinforcing them. For example, Elizabeth may have unintentionally reinforced problem behavior in her class by laughing the first time the boy answered, “Jude law.” The problem behavior may have persisted for other reasons, but the consequence of Elizabeth’s laughter could have played a role.

When the consequence that strengthens a behavior is the appearance (addition) of a new stimulus, the situation is defined as positive reinforcement. In contrast, when the consequence that strengthens a behavior is the disappearance (subtraction) of a stimulus, the process is called negative reinforcement. If a particular action leads to avoiding or escaping an aversive situation, the action is likely to be repeated in a similar situation. A common example is the car seatbelt buzzer. As soon as you put on your seatbelt, the irritating buzzer stops. You are likely to repeat this behavior (putting on the seatbelt) in the future because the action made the aversive stimulus (buzzing) disappear. Consider students who continually “get sick” right before a test and are sent to the nurse’s office. The behavior allows the students to escape aversive situations—tests—so getting “sick” is being maintained, in part, through negative reinforcement. It is negative because the stimulus (the test) disappears, it is reinforcement because the behavior that caused the stimulus to disappear (getting “sick”) increases or repeats. It is also possible that classical conditioning plays a role. The students may have been conditioned to experience unpleasant physiological reactions to tests.

The “negative” in negative reinforcement does not imply that the behavior being reinforced is necessarily negative or bad. The meaning is closer to that of “negative” numbers—something is subtracted. Associate positive and negative reinforcement with adding or subtracting something following a behavior that strengthens (reinforces) the behavior.

Punishment. Negative reinforcement is often confused with punishment. The process of reinforcement (positive or negative) always involves strengthening behavior. Punishment, on the other hand, involves decreasing or suppressing behavior. A behavior followed by a punisher is less likely to be repeated in similar situations in the future. Again, it is the effect that defines a consequence as punishment, and different people have different perceptions of what is punishing. One student may find suspension from school punishing, while another student wouldn’t mind at all. The process of punishment is diagrammed as follows:

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Punisher</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Weakened or decreased behavior</td>
</tr>
</tbody>
</table>

Operant Conditioning: Trying New Responses
Like reinforcement, punishment may take one of two forms. The first type has been called Type I punishment, but this name isn’t very informative, so I use the term presentation punishment. It occurs when the appearance of a stimulus following the behavior suppresses or decreases the behavior. When teachers assign demerits, extra work, running laps, and so on, they are using presentation punishment. I call the other type of punishment (Type II punishment) removal punishment because it involves removing a stimulus. When teachers or parents take away privileges after a young person has behaved inappropriately, they are applying removal punishment. With both types, the effect is to decrease the behavior that led to the punishment. Figure 6.1 summarizes the processes of reinforcement and punishment.

**Reinforcement Schedules**

When people are learning a new behavior, they will learn it faster if they are reinforced for every correct response. This is a continuous reinforcement schedule. Then, when the new behavior has been mastered, they will maintain it best if they are reinforced intermittently rather than every time. An intermittent reinforcement schedule helps students to maintain skills without expecting constant reinforcement.

There are two basic types of intermittent reinforcement schedules. One—called an interval schedule—is based on the amount of time that passes between reinforcers. The other—a ratio schedule—is based on the number of responses learners give between reinforcers. Interval and ratio schedules may be either fixed (predictable) or variable (unpredictable). Table 6.1 summarizes the five possible reinforcement schedules (the continuous schedule and the four kinds of intermittent schedules).

---

**FIGURE 6.1**

*Kinds of Reinforcement and Punishment*

Negative reinforcement and punishment are often confused. It may help you to remember that reinforcement is always associated with increases in behaviors, and punishment always involves decreasing or suppressing behavior.

**Behavior Encouraged**

- **Presentation Punishment** (Type I Punishment)
  - Example: after school detention

- **Negative Reinforcement** ("Escape")
  - Example: excused from chores

**Behavior Suppressed**

- **Removal Punishment** (Type II Punishment)
  - Example: no TV for a week
## TABLE 6.1

<table>
<thead>
<tr>
<th>Schedule</th>
<th>Definition</th>
<th>Example</th>
<th>Response Pattern</th>
<th>Reaction When Reinforcement Stops</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous</td>
<td>Reinforcement after every response</td>
<td>Turning on the television</td>
<td>Rapid learning of response</td>
<td>Very little persistence; rapid disappearance of response</td>
</tr>
<tr>
<td>Fixed-interval</td>
<td>Reinforcement after a set period of time</td>
<td>Weekly quiz</td>
<td>Response rate increases as time for reinforcement approaches, then drops after reinforcement</td>
<td>Little persistence; rapid drop in response rate when time for reinforcement passes and no reinforcer appears</td>
</tr>
<tr>
<td>Variable-interval</td>
<td>Reinforcement after varying lengths of time</td>
<td>Pop quizzes</td>
<td>Slow, steady rate of responding; very little pause after reinforcement</td>
<td>Greater persistence; slow decline in response rate</td>
</tr>
<tr>
<td>Fixed-ratio</td>
<td>Reinforcement after a set number of responses</td>
<td>Piece work Bake sale</td>
<td>Rapid response rate; pause after reinforcement</td>
<td>Little persistence; rapid drop in response rate when expected number of responses are given and no reinforcer appears</td>
</tr>
<tr>
<td>Variable-ratio</td>
<td>Reinforcement after a varying number of responses</td>
<td>Slot machines</td>
<td>Very high response rate; little pause after reinforcement</td>
<td>Greatest persistence; response rate stays high and gradually drops off</td>
</tr>
</tbody>
</table>

What are the effects of different schedules? Speed of performance depends on control. If reinforcement is based on the number of responses you give, then you have more control over the reinforcement. The faster you accumulate the correct number of responses, the faster the reinforcement will come. A teacher who says, “As soon as you complete these 10 problems correctly, you may go to the student lounge,” can expect higher rates of performance than a teacher who says, “Work on these ten problems for the next 20 minutes. Then I will check your papers and those with 10 correct may go to the lounge.”

Persistence in performance depends on unpredictability. Continuous reinforcement and both kinds of fixed reinforcement (ratio and interval) are quite predictable. We come to expect reinforcement at certain points and are generally quick to give up when the reinforcement does not meet our expectations. To encourage persistence of response, variable schedules are most appropriate. In fact, if the schedule is gradually changed until it becomes very “lean” — meaning that reinforcement occurs only after many responses or a long time interval — then people can learn to work for extended periods without any reinforcement at all. Just watch gamblers playing slot machines to see how powerful a lean reinforcement schedule can be.

Casino slot machines are a good example of the effectiveness of intermittent reinforcement: People “learn” to persist in losing their money, because they might be rewarded with a jackpot, albeit infrequently and unpredictably.
Reinforcement schedules influence how persistently we will respond when reinforcement is withheld. What happens when reinforcement is completely withdrawn?

**Extinction.** In classical conditioning, the conditioned response is extinguished (disappears) when the conditioned stimulus appeared, but the unconditioned stimulus did not follow (tone, but no food). In operant conditioning, a person or an animal will not persist in a certain behavior if the usual reinforcer is withheld long enough. The behavior will eventually be extinguished (stop). For example, if you repeatedly e-mail a professor but never get a reply, you may give up. Removal of reinforcement altogether leads to extinction. The process may take a while, however, as you know if you have tried to extinguish a child’s tantrums by withholding your attention. Often the child wins—you give up ignoring and instead of extinction, intermittent reinforcement occurs. This, of course, may encourage even more persistent tantrums in the future.

**Antecedents and Behavior Change**

In operant conditioning, antecedents—the events preceding behaviors—provide information about which behaviors will lead to positive consequences and which will lead to unpleasant ones. Skinner’s pigeons learned to peck for food when a light was on, but not to bother when the light was off, because no food followed pecking when the light was off. In other words, they learned to use the antecedent light as a cue to discriminate the likely consequence of pecking. The pigeons’ pecking was under stimulus control, controlled by the discriminative stimulus of the light.

We all learn to discriminate—to read situations. When should you ask to borrow your roommate’s car after a major disagreement or after you both have had a good time at a party? The antecedent cue of a school principal standing in the hall helps students discriminate the probable consequences of running or attempting to break into a locker. We often respond to such antecedent cues without fully realizing that they are influencing our behavior. But teachers can use cues deliberately in the classroom.

**Cueing.** By definition, cueing is the act of providing an antecedent stimulus just before a particular behavior is supposed to take place. Cueing is particularly useful in setting the stage for behaviors that must occur at a specific time, but are easily forgotten. In working with young people, teachers often find themselves correcting behaviors after the fact. For example, they may ask students, “When are you going to start remembering to . . .?”. Such reminders often lead to irritation. The mistake is already made, and the young person is left with only two choices: to promise to try harder or to say, “Why don’t you leave me alone?” Neither response is very satisfying. Presenting a nonjudgmental cue can help prevent these negative confrontations. When a student performs the appropriate behavior after a cue, the teacher can reinforce the student’s accomplishment instead of punishing the student’s failure.

**Prompting.** Sometimes students need help learning to respond to a cue in an appropriate way so the cue becomes a discriminative stimulus. One approach is to provide an additional cue, called a prompt, following the first cue. There are two principles for using a cue and a prompt to teach a new behavior. First, make sure the environment is the same immediately before the prompt you are using, so students will learn to respond to the cue and not rely only on the prompt. Second, fade the prompt as soon as possible so students do not become dependent on it (Alberto & Troutman, 2006).

An example of cueing and prompting is providing students with a checklist or reminder sheet. Figure 6.2 is a checklist for the steps in peer tutoring. Working in pairs is the cue; the checklist is the prompt. As students learn the procedures, the teacher may stop using the checklist, but may remind the students of the steps. When no written or oral prompts are necessary, the students have learned to respond appropriately to the environmental cue of working in pairs—they have learned how to behave in tutoring situations. However, the teacher should continue to monitor the process, recognize good work, and correct mistakes. Before a tutoring session, the teacher might ask students to close their eyes.
and “see” the checklist, focusing on each step. As students work, the teacher could listen to their interactions and continue to coach students as they improve their tutoring skills.

**Applied Behavior Analysis**

Applied behavior analysis is the application of behavioral learning principles to change behavior. The method is sometimes called behavior modification, but this term has negative connotations for many people and is often misunderstood (Alberto & Troutman, 2006; Kazdin, 2001).

Ideally, applied behavior analysis requires clear specification of the behavior to be changed, careful measurement of the behavior, analysis of the antecedents and reinforcers that might be maintaining inappropriate or undesirable behavior, interventions based on behavioral principles to change the behavior, and careful measurement of changes. In research on applied behavior analysis, an ABAB design (described in Chapter 1) is common. That is, researchers take a baseline measurement of the behavior (A), then apply the intervention (B), then stop the intervention to see if the behavior goes back to the baseline level (A), and then reintroduce the intervention (B).

In classrooms, teachers usually cannot follow all the ABAB steps, but they can do the following:

1. Clearly specify the behavior to be changed and note the current level. For example, if a student is “careless,” does this mean 2, 3, 4, or more computation errors for every 10 problems?

**Connect and Extend**

**to PRAXIS II™**

**Applied Behavior Analysis (I, C4)**

When teachers need to change inappropriate or ineffective classroom behaviors that have not changed in response to standard behavioral techniques (e.g., response cost), they often employ applied behavior analysis. Familiarize yourself with the steps in developing and implementing an intervention based on that technique.

**Applied behavior analysis** The application of behavioral learning principles to understand and change behavior.

**Behavior modification** Systematic application of antecedents and consequences to change behavior.
Connect and Extend to the Research

2. Plan a specific intervention using antecedents, consequences, or both. For example, offer the student one extra minute of computer time for every problem completed with no errors.
3. Keep track of the results, and modify the plan if necessary.

Let's consider some specific methods for accomplishing step 2—the intervention.

Methods for Encouraging Behaviors
As we discussed earlier, to encourage behavior is to reinforce it. See the Stories of Learning/Tributes to Teaching feature to read how one educator remembers the positive practices of her teacher over a half-century ago.

There are several specific ways to encourage existing behaviors or teach new ones. These include praise, the Premack principle, shaping, and positive practice.

Reinforcing with Teacher Attention. Many psychologists advise teachers to “accentuate the positive”—praise students for good behavior, while ignoring misbehavior. In fact, some researchers believe that “the systematic application of praise and attention may be the most powerful motivational and classroom management tool available to teachers” (Alber & Heward, 1997, p. 277; Alber & Heward, 2000). A related strategy is differential reinforcement, or ignoring inappropriate behaviors, while being sure to reinforce appropriate behaviors as soon as they occur. For example, if a student is prone to making irrelevant comments (“When is the game this Friday?”), you should ignore the off-task comment, but recognize a task-related contribution as soon as it occurs (Landrum & Knuffman, 2006).

This praise-and-ignore approach can be helpful, but don’t expect it to solve all classroom management problems. Several studies have shown that disruptive behaviors persist when teachers use positive consequences (mostly praise) as their only classroom management strategy (McGecy & DuPaul, 2000; Piffner & O’Leary, 1987; Sullivan & O’Leary, 1990). Also, if peer attention is maintaining the problem behaviors, the teacher’s ignoring them won’t help much.

STORIES OF LEARNING

TRIBUTES TO TEACHING

MY THIRD-GRADE TEACHER taught a really comprehensive program. She was a good model. She brought in home economics, she read stories, she did all kinds of things that made you know that you could do anything in the world.

I can remember hearing about New York City from her reading a book, and I got the idea back then: “One of these days, I’m going to go to New York City.”

She talked about the high-rise apartments and the elevators, and I could just feel myself going up the elevators and coming down, and I’d never seen an elevator before, growing up in rural Mississippi!

She was the kind who always gave you incentives for doing something. She would take two people from the class, either weekly or monthly, to go to her house for a meal. She had all kinds of ways you could earn that privilege—maybe by coming to school every day, by doing your work every day, or by being a good citizen, all kinds of things. It was possible for everybody to earn that nice gift. You didn’t have to be an A student, you could always do other things. I am sure that she had it set up so that every student got a chance to go to her house during the school year. The way she had it fixed, everybody was a winner; nobody would lose. When we went to her house, we would help her to prepare the meal. She would teach us how to set the table because we didn’t have the silver at home to do it. She taught us that you put the fork on the left and the knife and the spoon on the right.

—Virgie Binford, Educational Consultant, Richmond, Virginia

Source: From Mentors, Masters, and Mrs. MacGregor (pp. 229–230) by J. Bluestein. Copyright © 1995 by Health Communications. Adapted by permission of the publisher.
There is a second consideration in using praise. The positive results found in research occur when teachers carefully and systematically praise their students (Landrum & Kaufman, 2006). Merely "handing out compliments" will not improve behavior. To be effective, praise must (1) be contingent on the behavior to be reinforced, (2) specify clearly the behavior being reinforced, and (3) be believable (O'Leary & O'Leary, 1977). In other words, the praise should be a sincere recognition of a well-defined behavior so students understand what they did to warrant the recognition. Teachers who have not received special training often violate these conditions (Brophy, 1981). Ideas for using praise effectively, based on Brophy’s extensive review of the subject, are presented in the Guidelines.

Some psychologists have suggested that teachers’ use of praise tends to focus students on learning to win approval rather than on learning for its own sake. Perhaps the best advice is to be aware of the potential dangers of the overuse or misuse of praise and to navigate accordingly.

Selecting Reinforcers: The Premack Principle. In most classrooms, there are many readily available reinforcers other than teacher attention, such as the chance to talk to other students or feed the class animals. However, teachers tend to offer these opportunities in a rather haphazard way. Just as with praise, by making privileges and rewards directly contingent on learning and positive behavior, the teacher can greatly increase both learning and desired behavior.

---

**Guidelines:** Using Praise Appropriately

- **Be clear and systematic in giving praise.**
  - **EXAMPLES:**
    1. Make sure praise is tied directly to appropriate behavior.
    2. Make sure the student understands the specific action or accomplishment that is being praised. Say, “You returned this poster on time and in good condition,” not, “You were very responsible.”

- **Recognize genuine accomplishments.**
  - **EXAMPLES:**
    1. Reward the attainment of specified goals, not just participation.
    2. Do not reward uninvolved students just for being quiet and not disrupting the class.
    3. Tie praise to students’ improving competence or to the value of their accomplishment. Say, “I noticed that you double-checked all your problems. Your score reflects your careful work.”

- **Set standards for praise based on individual abilities and limitations.**
  - **EXAMPLES:**
    1. Praise progress or accomplishment in relation to the individual student’s past efforts.
    2. Focus the student’s attention on his or her own progress, not on comparisons with others.

- **Attribute the student’s success to effort and ability so the student will gain confidence that success is possible again.**
  - **EXAMPLES:**
    1. Don’t imply that the success may be based on luck, extra help, or easy material.
    2. Ask students to describe the problems they encountered and how they solved them.

- **Make praise really reinforcing.**
  - **EXAMPLES:**
    1. Don’t attempt to influence the rest of the class by singling out some students for praise. This tactic frequently backfires, because students know what’s really going on. In addition, you risk embarrassing the student you have chosen to praise.
    2. Don’t give undeserved praise to students simply to balance failures. It is seldom consoling and calls attention to the student’s inability to earn genuine recognition.

For more information on teacher praise, see: [http://moodle.edsu.edu/wikied/index.php/Praise](http://moodle.edsu.edu/wikied/index.php/Praise)

To assess students’ preferences for praise, see: [http://www.csut.edu.au/research/staff/burnett/PraisePereScale.htm](http://www.csut.edu.au/research/staff/burnett/PraisePereScale.htm)
A helpful guide for choosing the most effective reinforcers is the Premack principle, named for David Premack (1965). According to the Premack principle, a high-frequency behavior (a preferred activity) can be an effective reinforcer for a low-frequency behavior (a less-preferred activity). This is sometimes referred to as “Grandma’s rule”: First, do what I want you to do, then you may do what you want to do. Elizabeth used this principle in her class when she told them they could work together on their Civil War news program after they quietly completed the first section of the worksheet on their own.

If students didn’t have to study, what would they do? The answers to this question may suggest many possible reinforcers. For most students, talking, moving around the room, sitting near a friend, being exempt from assignments or tests, reading magazines, using the computer, or playing video games are preferred activities. The best way to determine appropriate reinforcers for your students may be to watch what they do in their free time.

For the Premack principle to be effective, the low-frequency (less preferred) behavior must happen first. In the following dialogue, notice how the teacher loses a perfect opportunity to use the Premack principle:

**Students**: Oh, no! Do we have to work on grammar again today? The other classes got to discuss the film we saw in the auditorium this morning.

**Teacher**: But the other classes finished the lesson on sentences yesterday. We’re almost finished too. If we don’t finish the lesson, I’m afraid you’ll forget the rules we reviewed yesterday.

**Students**: Why don’t we finish the sentences at the end of the period and talk about the film now?

**Teacher**: Okay, if you promise to complete the sentences later.

Discussing the film could have served as a reinforcer for completing the lesson. As it is, the class may well spend the entire period discussing the film. Just as the discussion becomes fascinating, the teacher will have to end it and insist that the class return to the grammar lesson.

**Shaping**. What happens when students continually fail to gain reinforcement because they simply cannot perform a skill in the first place? Consider these examples:

- A 4th-grade student looks at the results of the latest mathematics test. “No credit on almost half of the problems again because I made one dumb mistake in each problem. I hate math!”
- A 10th-grade student tries each day to find some excuse for avoiding the softball game in gym class. The student cannot catch a ball and now refuses to try.

In both situations, the students are receiving no reinforcement for their work because the end product of their efforts is not good enough. A safe prediction is that the students will soon learn to dislike the class, the subject, and perhaps the teacher and school in general. One way to prevent this problem is the strategy of shaping, also called successive approximations. Shaping involves reinforcing progress instead of waiting for perfection.

In order to use shaping, the teacher must take the final complex behavior the student is expected to master and break it down into a number of small steps. One approach that identifies the small steps is task analysis, originally developed by R. B. Miller (1962) to help the armed services train personnel. Miller’s system begins with a definition of the final performance requirement, what the trainee (or student) must be able to do at the end of the program or unit. Then, the steps that will lead to the final goal are specified. The procedure simply breaks skills and processes down into subskills and subprocesses.

Consider an example of task analysis in which students must write a position paper based on library research. If the teacher assigned the position paper without analyzing the task in this way, what could happen? Some of the students might not know how to do computer research. They might search through one or two encyclopedias, then write a
summary of the issues based only on the encyclopedia articles. Another group of students might know how to use computers, tables of contents, and indexes, but have difficulty reaching conclusions. They might hand in lengthy papers listing summaries of different ideas. Another group of students might be able to draw conclusions, but their written presentations might be so confusing and grammatically incorrect that the teacher could not understand what they were trying to say. Each of the groups would have failed in fulfilling the assignment, but for different reasons.

A task analysis gives a picture of the logical sequence of steps leading toward the final goal. An awareness of this sequence can help teachers make sure that students have the necessary skills before they move to the next step. In addition, when students have difficulty, the teacher can pinpoint problem areas. Many behaviors can be improved through shaping, especially skills that involve persistence, endurance, increased accuracy, greater speed, or extensive practice to master. Because shaping is a time-consuming process, however, it should not be used if success can be attained through simpler methods such as cueing.

**Positive Practice.** In positive practice, students replace one behavior with another. This approach is especially appropriate for dealing with academic errors. When students make a mistake, they must correct it as soon as possible and practice the correct response (Gibbs & Luyben, 1985; Kazdin, 1984). The same principle can be applied when students break classroom rules. Instead of being punished, the student might be required to practice the correct alternative action.

The Guidelines on the next page summarize approaches encouraging positive behavior.

**Coping with Undesirable Behavior**

No matter how successful you are at accentuating the positive, there are times when you must cope with undesirable behavior, either because other methods fail or because the behavior itself is dangerous and calls for direct action. For this purpose, negative reinforcement, satiation, reprimands, response cost, and social isolation all offer possible solutions.

**Negative Reinforcement.** Recall the basic principle of negative reinforcement: if an action stops or avoids something unpleasant, then the action is likely to occur again in similar situations. Negative reinforcement was operating in Elizabeth's classroom. When they moaned and complained, her students escaped the test, so they may have learned to complain more in the future through negative reinforcement.

Negative reinforcement can also be used to enhance learning. To do this, you place students in mildly unpleasant situations so they can "escape" when their behavior improves. Consider these examples:

Teacher to a 3rd-grade class: "When the supplies are put back in the cabinet and each of you is sitting quietly, we will go outside. Until then, we will miss our recess."

High-school teacher to a student who seldom finishes in-class assignments: "As soon as you complete the assignment, you may join the class in the auditorium. But until you finish, you must work in the study hall."

Actually, a true behaviorist might object to identifying these situations as examples of negative reinforcement because too much student thinking and understanding is required to make them work. Teachers cannot treat students like lab animals, delivering a mild shock to their feet until they give a right answer, then turning off the shock briefly. But teachers can make sure that unpleasant situations improve when student behavior improves.

You may wonder why the negative reinforcement examples above are not considered punishment. Surely staying in during recess or not accompanying the class to a special program is punishing. But the focus in each case is on strengthening specific behaviors.
Guidelines: Encouraging Positive Behaviors

Make sure you recognize positive behavior in ways that students value.

**EXAMPLES:**
1. When presenting class rules, set up positive consequences for following rules as well as negative consequences for breaking rules.
2. Recognize honest admissions of mistakes by giving a second chance: “Because you admitted that you copied your paper from a book, I’m giving you a chance to rewrite it.”
3. Offer desired rewards for academic efforts, such as extra recess time, exemptions from homework or tests, or extra credit on major projects.

When students are tackling new material or trying new skills, give plenty of reinforcement.

**EXAMPLES:**
1. Find and comment on something right in every student’s first life drawing.
2. Reinforce students for encouraging each other. “French pronunciation is difficult and awkward at first. Let’s help each other by eliminating all giggles when someone is brave enough to attempt a new word.”

After new behaviors are established, give reinforcement on an unpredictable schedule to encourage persistence.

**EXAMPLES:**
1. Offer surprise rewards for good participation in class.
2. Start classes with a short, written extra-credit question. Students don’t have to answer, but a good answer will add points to their total for the semester.
3. Make sure the good students get compliments for their work from time to time. Don’t take them for granted.

Use the Premack principle to identify effective reinforcers.

**EXAMPLES:**
1. Watch what students do with their free time.
2. Notice which students like to work together. The chance to work with friends is often a good reinforcer.

Use cueing to help establish new behaviors.

**EXAMPLES:**
1. Put up humorous signs in the classroom to remind students of rules.
2. At the beginning of the year, as students enter class, call their attention to a list on the board of the materials they should have with them when they come to class.

Make sure all students, even those who often cause problems, receive some praise, privileges, or other rewards when they do something well.

**EXAMPLES:**
1. Review your class list occasionally to make sure all students are receiving some reinforcement.
2. Set standards for reinforcement so that all students will have a chance to be rewarded.
3. Check your biases. Are boys getting more opportunities for reinforcement than girls, or vice versa? How about students of different races?

Establish a variety of reinforcers.

**EXAMPLES:**
1. Let students suggest their own reinforcers or choose from a “menu” of reinforcers with “weekly specials.”
2. Talk to other teachers or parents about ideas for reinforcers.

For more ideas about building positive behaviors, see these sites:
http://www.afsee.org/tipforteachers/tips_c4.html

(putting away supplies or finishing in-class assignments). The teacher strengthens (reinforces) the behaviors by removing something aversive as soon as the desired behaviors occur. Because the consequence involves removing or “subtracting” a stimulus, the reinforcement is negative.

Negative reinforcement also gives students a chance to exercise control. Missing recess and staying behind in study hall are unpleasant situations, but in each case, the students retain control. As soon as they perform the appropriate behavior, the unpleasant situation ends. In contrast, punishment occurs after the fact, and a student cannot so easily control or terminate it.

There are several rules for negative reinforcement: Describe the desired change in a positive way. Don’t bluff. Make sure you can enforce your unpleasant situation. Follow
through despite complaints. Insist on action, not promises. If the unpleasant situation terminates when students promise to be better next time, you have reinforced making promises, not making changes (Alberto & Troutman, 2006; O’Leary, 1995).

**Satiation.** Another way to stop problem behavior is to insist that students continue the behavior until they are tired of doing it. This procedure, called satiation, should be applied with care. Forcing students to continue some behaviors may be physically or emotionally harmful, or even dangerous.

An example of an appropriate use of satiation is related by Krumholz and Krumholz (1972). In the middle of a 9th-grade algebra class, the teacher suddenly noticed four students making all sorts of unusual motions. In response to persistent teacher questioning, the students finally admitted they were bouncing imaginary balls. The teacher pretended to greet this idea with enthusiasm and suggested the whole class do it. At first, there was a great deal of laughing and joking. After a minute, this stopped, and one student even quit. The teacher, however, insisted that all the students continue. After 5 minutes and a number of exhausted sighs, the teacher allowed the students to stop. No one bounced an imaginary ball in that class again.

Teachers also can allow students to continue some action until they stop by themselves, if the behavior is not interfering with the rest of the class. A teacher can do this by simply ignoring the behavior. Remember that responding to an ignorable behavior may actually reinforce it.

In using satiation, a teacher must take care not to give in before the students do. It is also important that the repeated behavior be the one you are trying to end. If the algebra teacher above had insisted that the students write, “I will never bounce imaginary balls in class again” 500 times, the students would have become satiated with writing rather than with bouncing balls.

**Reprimands.** In the *Junction Journal*, my daughter’s elementary-school newspaper, I read the following lines in a story called “Why I Like School,” written by a 4th grader: “I also like my teacher. She helps me understand and learn. She is nice to everyone I like it when she gets mad at somebody, but she doesn’t yell at them in front of the class, but speaks to them privately.”

Soft, calm, private reprimands are more effective than loud, public reprimands in decreasing disruptive behavior (Landrum & Kauffman, 2006). Research has shown that when reprimands are loud enough for the entire class to hear, disruptions increase or continue at a constant level. Some students enjoy public recognition for misbehavior, or they don’t want classmates to see them “lose” to the teacher. If they are not used

Research has shown that scolding a student in front of the entire class may actually reinforce his or her disruptive behavior by drawing more attention to it; thus, calm, private reprimands may be more effective.

**Connect and Extend to Your Teaching Portfolio**

*Satiation:* A 5th-grade teacher discovered one of his students making paper airplanes during an independent work time. He gave that student a stack of paper and told her to continue making airplanes until the stack of paper was gone. The student thought it was great fun for the first 10 minutes, but then she got weary and wanted to stop. After this experience, this student made better use of her independent work times.

*Reprimands:* During reading in Miss McCormick’s 1st-grade class, she noticed that Kenny wasn’t concentrating on his book. She was working with a group at the time and could have called out, “Kenny, you’d better get back to work. You’re not concentrating,” but she decided this would embarrass him as well as disturb the concentration of others. Instead, Miss McCormick walked over to him, asked him a couple of questions about the story, and asked him to let her know how the story ended. She achieved her goal without causing embarrassment, and she provided Kenny with an impetus and motive to concentrate on his story again.

*Satiation:* Requiring a person to repeat a problem behavior past the point of interest or motivation.

*Reprimands:* Criticisms for misbehavior; rebukes.
too often, and if the classroom is generally a positive, warm environment, then students usually respond quickly to private reprimands (Kaplan, 1991; Van Houten & Dooley, 1983).

Response Cost. The concept of response cost is familiar to anyone who has ever paid a fine. For certain infractions of the rules, people must lose some reinforcer—money, time, privileges (Walker, Shea, & Bauer, 2004). In a class, the concept of response cost can be applied in a number of ways. The first time a student breaks a class rule, the teacher gives a warning. The second time, the teacher makes a mark beside the student's name in the grade book. The student loses 2 minutes of recess for each mark accumulated. For older students, a certain number of marks might mean losing the privilege of working in a group or going on a class trip.

Social Isolation. One of the most controversial behavioral methods for decreasing undesirable behavior is the strategy of social isolation, often called time out from reinforcement. The process involves removing a highly disruptive student from the classroom for 5 to 10 minutes. The student is placed in an empty, uninteresting room alone—the punishment is brief isolation from other people. A trip to the principal's office or confinement to a chair in the corner of the regular classroom does not have the same effect as sitting alone in an empty room.

Some Cautions. Punishment in and of itself does not lead to any positive behavior. Harsh punishment communicates to students that "might makes right" and may encourage retaliation (Alberto & Trontman, 2006; Walker et al., 2004). Thus, whenever you consider the use of punishment, you should make it part of a two-pronged attack. The first goal is to carry out the punishment and suppress the undesirable behavior. The second goal is to make clear what the student should be doing instead and to provide reinforcement for those desirable actions. Thus, while the problem behaviors are being suppressed, positive alternative responses are being strengthened. As you will see next, recent approaches really emphasize supporting positive behaviors. The Guidelines give ideas for using punishment for positive purposes.

Reaching Every Student: Functional Behavioral Assessment and Positive Behavior Support

Teachers in both regular and special education classes have had success with a new approach that begins by asking, "What are students getting out of their problem behaviors—what functions do these behaviors serve?" The focus is on the why of the behavior, not on the what (Lane, Falk, & Wehby, 2006). The reasons for problem behaviors generally fall into four categories (Barnhill, 2005; Maag & Kemp, 2003) Students act out to:

1. receive attention from others—teachers, parent, or peers.
2. escape from some unpleasant situation—an academic or social demand.
3. get a desired item or activity.
4. meet sensory needs, such as stimulation from rocking or flapping arms for some children with autism.

If the reason for the behavior is known, then the teacher can devise ways of supporting positive behaviors that will serve the same "why" function. For example, I once worked with a middle-school principal who was concerned about a boy who had lost his father a few years earlier and was having trouble in a number of subjects, especially math. The student disrupted the math at least twice a week and ended up in the principal's office. When he arrived, the boy got the principal's undivided attention. After a scolding, they talked about sports because the principal liked the student and was concerned that he had no male role models. It is easy to spot the function of the classroom disruptions—
**Guidelines:** Using Punishment

Try to structure the situation so you can use negative reinforcement rather than punishment.

**EXAMPLES:**
1. Allow students to escape unpleasant situations (completing additional workbook assignments, weekly tests of math facts) when they reach a level of competence.
2. Insist on actions, not promises. Don’t let students convince you to change the terms of the agreement.

Be consistent in your application of punishment.

**EXAMPLES:**
1. Avoid inadvertently reinforcing the behavior you are trying to punish. Keep confrontations private, so that students don’t become heroes for standing up to the teacher in a public showdown.
2. Let students know in advance the consequences of breaking the rules by posting major class rules for younger students or outlining rules and consequences in a course syllabus for older students.
3. Tell students they will receive only one warning before punishment is given. Give the warning in a calm way, then follow through.
4. Make punishment as unavoidable and immediate as is reasonably possible.

Focus on the students’ actions, not on the students’ personal qualities.

**EXAMPLES:**
1. Reprimand in a calm but firm voice.

2. Avoid vindictive or sarcastic words or tones of voice. You might hear your own angry words later when students imitate your sarcasm.
3. Stress the need to end the problem behavior instead of expressing any dislike you might feel for the student.
4. Be aware that students of color are disproportionately punished, sent to detention, and expelled from school—are your policies fair?

Adapt the punishment to the infraction.

**EXAMPLE:***
1. Ignore minor misbehaviors that do not disrupt the class, or stop these misbehaviors with a disapproving glance or a move toward the student.
2. Make sure the punishment fits the crime—don’t take away all the free time a student has earned for one infraction of the rules, for example (Landrum & Kauffman, 2006).
3. Don’t use homework as a punishment for misbehaviors such as talking in class.
4. When a student misbehaves to gain peer acceptance, removal from the group of friends can be effective, because this is really time out from a reinforcing situation.
5. If the problem behaviors continue, analyze the situation and try a new approach. Your punishment may not be very punishing, or you may be inadvertently reinforcing the misbehavior.

For more information on punishment, see http://www.ext.vt.edu/pubs/family/350-111/350-111.html

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they always led to (1) escape from math class (negative reinforcement) and (2) one-on-one time with the principal (positive reinforcement after a little bit of reprimanding). The principal, teacher, and I developed a way to support the students positive behaviors in math by getting him some extra tutoring and by giving him time with the principal when he completed math problems instead of when he acted up in class. The new positive behaviors served many of the same functions as the old problem behaviors.

**Positive Behavioral Supports.** The Individuals with Disabilities Education Improvement Act (IDEA, 2004) discussed in Chapter 4 requires positive behavioral supports (PBS) for students with disabilities and those at-risk for special education placement. **Positive behavioral supports** are interventions designed to replace problem behaviors with new actions that serve the same purpose for the student. The process of understanding the problem behavior is known as a functional behavioral assessment (FBA)—“a collection of methods or procedures used to obtain information about antecedents, behaviors, and consequences to determine the reason or function of the behavior” (Barkham, 2005, p. 132). With information from this assessment, teachers can develop an intervention package, as we did above with the math student.

Positive behavior supports based on functional behavioral assessments can help students with disabilities succeed in inclusion classrooms. For example, the disruptive behavior of a five-year-old boy with mental retardation was nearly eliminated in a relatively
short time through a PBS intervention that was based on a functional assessment conducted by the regular teaching staff and the special education teacher. The intervention included making sure tasks assigned were at the right difficulty level, providing assistance with these tasks, teaching the student how to request assistance, and teaching the student how to request a break from assigned work (Soodak & McCarthy, 2006; Umbreit, 1995). But these approaches are not only for students with special needs. Research shows that disciplinary referrals decrease when the whole school uses these approaches for all students (Lewis, Sugai, & Co lin, 1998). Because about 5% of students account for half of the discipline referrals, it makes sense to develop interventions for these students. Positive behavior interventions based on functional assessments can reduce these behavior problems by 80% (Crone & Horner, 2005).

**Doing Functional Behavioral Assessments.** Many different procedures might help you determine the functions of a behavior. You can simply interview students about their behaviors. In one study, students were asked to describe what they did that got them in trouble, what happened just before, and what happened right after they acted out. Even though the students were not always sure why they acted out, they seemed to benefit from talking to a concerned adult who was trying to understand their situation, not just reprimand them (Murdock, O’Neill, & Cunningham, 2005). Teachers also can observe students with these questions in mind: When and where does the problem behavior occur? What people or activities are involved? What happens right before—what do others do or say and what did the target student do or say? What happens right after the behavior—what did you, other students, or the target student do or say? What does the target student gain or escape from—what changes after the student acts out? A more structured approach is shown in Figure 6.3—an observation and planning worksheet for functional behavioral assessment.

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**Connect and Extend to PRAXIS II**

Teaching and Management (I, A1; II, A3; I, C4)

Identify major approaches to teaching and classroom management that are based on behavioral principles. Understand the advantages and disadvantages of each.

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The behavioral approach to learning has made several important contributions to instruction, including systems for specifying learning objectives, mastery learning, and direct instruction (we will look at these topics in Chapter 13 when we discuss teaching) and class management systems such as group consequences, contingency contracts and token economies (Landrum & Kauffman, 2006). These approaches are useful when the goal is to learn explicit information or change behaviors and when the material is sequential and factual.

First, let's consider one element that is part of every behavioral learning program—specific practice of correct behaviors. Contrary to popular wisdom, practice does not make perfect. Instead, practice makes permanent the behaviors practiced, so practicing...
FIGURE 6.3

A Structured Observation Guide for Functional Behavioral Analysis

Student Name: ___________________________ Date: _______________________

Target Behavior: Operationally define the behavior that most interferes with the student's functioning in the classroom. Include intensity (high, medium, or low), frequency, and duration.

When, where, with whom, and in what condition is the target behavior least likely to occur?

Setting Events or Context Variables (i.e., hunger, lack of sleep, medications, problems on bus):

<table>
<thead>
<tr>
<th>Antecedents</th>
<th>Immediate Antecedents &amp; Consequences</th>
<th>Consequences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demand/Request</td>
<td>Unstructured setting</td>
<td>Behavior ignored</td>
</tr>
<tr>
<td>Difficult task</td>
<td>Unstructured activity</td>
<td>Reprimanded</td>
</tr>
<tr>
<td>Time of day</td>
<td>Individual seat work</td>
<td>Verbal redirection</td>
</tr>
<tr>
<td>Interruption in routine</td>
<td>Group work</td>
<td>Time-out (duration: ___)</td>
</tr>
<tr>
<td>Peer tease/provoked</td>
<td>Specials</td>
<td>Loss of incentives</td>
</tr>
<tr>
<td>No materials/activities</td>
<td>Specific subject/task</td>
<td>Physical redirection</td>
</tr>
<tr>
<td>Could not get desired item</td>
<td>Crowded setting</td>
<td>Physical restraint</td>
</tr>
<tr>
<td>People</td>
<td>Noisy setting</td>
<td>Sent to office</td>
</tr>
<tr>
<td>Alone</td>
<td>Other</td>
<td>Suspension</td>
</tr>
<tr>
<td>Other</td>
<td>Other</td>
<td>Other</td>
</tr>
</tbody>
</table>

What function(s) does the target behavior seem to serve for the student?

_ ___ Escape from: ___ demand/request ___ person ___ activity/task ___ school ___ other 
_ ___ Attention from: ___ adult ___ peer ___ other 
_ ___ Gain desired: ___ Item ___ activity ___ area ___ other 
_ ___ Automatic sensory stimulation: ___

Hypothesis:

When ___________________________ occurs in the context of ___________________________, the student exhibits ___________________________ in order to ___________________________. This behavior is more likely to occur when ___________________________.

(antecedent) (problematic setting) (target behavior) (perceived function) (setting event/context variables)

Replacement or competing behavior that could still serve the same function for the student:

Is the replacement behavior in the student's repertoire, or will it need to be taught directly?

If so, how will it be taught?

List some potential motivators for student:

---


accurate behaviors is important. Describing Tiger Woods in a Newsweek article, Devin Gordon (2001) said,

Tiger's habit of pounding golf ball after golf ball long into the twilight—often during tournament play—has already become part of his legend. During his so-called slump earlier this year, Woods claimed he was simply working on shots he would need for the Masters in April. People rolled their eyes. Until he won the Masters. (p. 45)

No doubt Tiger has continued specific practice of the shots he needs for each tournament.

As an example of a behavioral approach, consider group consequences.
Group Consequences

A teacher can base reinforcement for the class on the cumulative behavior of all members of the class, usually by adding each student's points to a class or a team total. The good behavior game is an example of this approach. Teachers and students discuss what would make the classroom a better place. Then, they identify behaviors that get in the way of learning. Based on this discussion, class rules are developed and the class is divided into two teams. Each time a student breaks one of the rules, that student's team is given a mark. The team with the fewest marks at the end of the period receives a special reward or privilege (longer recess, first to lunch, and so on). If both teams earn fewer than a prestablished number of marks, both teams receive the reward. Most studies indicate that even though the game generates only small improvements in academic achievement, it can produce definite improvements in the behaviors listed in the good behavior rules and it can prevent many behavior problems (Embry, 2002).

You can also use group consequences without dividing the class into teams; that is, you can base reinforcement on the behavior of the whole class. Wilson and Hopkins (1973) conducted a study using group consequences to reduce classroom noise levels. Radio music served effectively as the reinforcer for students in a family and consumer science class. Whenever noise in the class was below a predetermined level, students could listen to the radio; when the noise exceeded the level, the radio was turned off. Given the success of this simple method, such a procedure might be considered in any class where music does not interfere with the task at hand.

However, caution is needed using group approaches. The whole group should not suffer for the misbehavior or mistakes of one individual if the group has no real influence over that person (Epanchin, Townsend, & Stoddard, 1994). I saw an entire class break into cheers when the teacher announced that one boy was transferring to another school. The chant “No more points! No more points!” filled the room. The “points” referred to the teacher's system of giving one point to the whole class each time anyone broke a rule. Every point meant 5 minutes of recess lost. The boy who was transferring had been responsible for many losses. He was not very popular to begin with, and the point system, though quite effective in maintaining order, had made the boy an outcast in his own class.

Peer pressure in the form of support and encouragement, however, can be a positive influence. Group consequences are recommended for situations in which students care about the approval of their peers (Theodore, Bray, Kehle, & Jenson, 2001). If the misbehavior of several students seems to be encouraged by the attention and laughter of other students, then group consequences could be helpful. Teachers might show students how to give support and constructive feedback to classmates. If a few students seem to enjoy sabotaging the system, those students may need separate arrangements.

Contingency Contracts

In a contingency contract program, the teacher draws up an individual contract with each student, describing exactly what the student must do to earn a particular privilege or reward. In some programs, students suggest behaviors to be reinforced and the rewards that can be gained. The negotiating process itself can be an educational experience, as students learn to set reasonable goals and abide by the terms of a contract. And, if students participate in setting the goals, they often are more committed to reaching them (Locke & Latham, 2002; Pintrich & Schunk, 2002).

An example of a contract for completing assignments that is appropriate for intermediate and upper-grade students is presented in Figure 6.4. This chart serves as a contract, assignment sheet, and progress record. Information about progress can support student motivation (Schunk, 2004). Something like this might even help you keep track of assignments and due dates in your college classes.

The few pages devoted here to token reinforcement and contingency contracts can offer only an introduction to these programs. If you want to set up a large-scale reward program in your classroom, you should probably seek professional advice. Often, the school psychologist, counselor, or principal can help.
**A Contingency Contract for Completing Assignments**

The teacher and student agree on the due dates for each assignment, marking them in blue on the chart. Each time an assignment is turned in, the date of completion is marked in black on the chart. As long as the actual completion line is above the planned completion line, the student earns free time or other contracted rewards.

<table>
<thead>
<tr>
<th>Assignments completed—hurrah!</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapt. 13 Soc. Stud.</td>
</tr>
<tr>
<td>Book report</td>
</tr>
<tr>
<td>Chapt. 12 Soc. Stud.</td>
</tr>
<tr>
<td>Math problem set 9</td>
</tr>
<tr>
<td>Math reading-notes 9</td>
</tr>
<tr>
<td>Chapt. 11 Soc. Stud.</td>
</tr>
<tr>
<td>Lab. report Science</td>
</tr>
<tr>
<td>Math problem set 8</td>
</tr>
<tr>
<td>Math reading-notes 8</td>
</tr>
<tr>
<td>Oral present—lit.</td>
</tr>
<tr>
<td>Written outline—lit.</td>
</tr>
<tr>
<td>Play read</td>
</tr>
<tr>
<td>Math problem set 7</td>
</tr>
<tr>
<td>Math reading-notes 7</td>
</tr>
<tr>
<td>Chapt. 10 Soc. Stud.</td>
</tr>
<tr>
<td>Read last act play</td>
</tr>
<tr>
<td>Lab. report Science</td>
</tr>
<tr>
<td>Chapt. 9 Science</td>
</tr>
<tr>
<td>Math problem set 6</td>
</tr>
<tr>
<td>Math reading-notes 6</td>
</tr>
<tr>
<td>Read Act II play</td>
</tr>
<tr>
<td>Chapt. 8 Soc. Stud.</td>
</tr>
<tr>
<td>Lab. report Science</td>
</tr>
<tr>
<td>Chapt. 5 Science</td>
</tr>
<tr>
<td>Read Act I play</td>
</tr>
<tr>
<td>Select play to read</td>
</tr>
<tr>
<td>Math problem set 5</td>
</tr>
<tr>
<td>Math reading-notes 5</td>
</tr>
<tr>
<td>Shop project done</td>
</tr>
</tbody>
</table>

**Progress chart**

| 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |

October


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**Token Reinforcement**

**STOP THINK WRITE** Have you ever participated in a program where you earned points or credits that you could exchange for a reward? Are you a member of a frequent flyer club, or do you get points on your credit card? Do you collect Subway Club stamps? (My husband has hundreds right now.) Do you get one free movie for every 10 rentals? Does being a part of such a program affect your buying habits? How? Go to http://www. bookitprogram.com and see a reading incentive club for pizza eaters.

Often, it is difficult to provide positive consequences for all the students who deserve them. A token reinforcement system can help solve this problem by allowing all students to earn tokens for both academic work and positive classroom behavior. The tokens may be points, checks, holes punched in a card, chips, play money, or anything else that is easily identified as the student's property. Periodically, the students exchange the tokens they have earned for some desired reward (Kazdin, 2001; Alberto & Troutman, 2006).

Token reinforcement system

System in which tokens earned for academic work and positive classroom behavior can be exchanged for some desired reward.
Depending on the age of the student, the rewards could be small toys, school supplies, free time, special class jobs, or other privileges. When a "token economy," as this kind of system is called, is first established, the tokens should be given out on a fairly continuous schedule, with chances to exchange the tokens for rewards often available. Once the system is working well, however, tokens should be distributed on an intermittent schedule and saved for longer periods of time before they are exchanged for rewards.

Another variation is to allow students to earn tokens in the classroom and then exchange them for rewards at home. These plans are very successful when parents are willing to cooperate. Usually a note or report form is sent home daily or twice a week. The note indicates the number of points earned in the preceding time period. The points may be exchanged for minutes of television viewing, access to special toys, or private time with parents. Points can also be saved up for larger rewards such as trips. Do not use this procedure, however, if you suspect the child might be severely punished for poor reports.

Token reinforcement systems are complicated and time-consuming. Generally, they should be used in only three situations: (1) to motivate students who are completely uninterested in their work and have not responded to other approaches; (2) to encourage students who have consistently failed to make academic progress; and (3) to deal with a class that is out of control. Some groups of students seem to benefit from token economies more than others. Students with mental retardation, children who have failed often, students with few academic skills, and students with behavior problems all seem to respond to the concrete, direct nature of token reinforcement.

Before you try a token system, you should be sure that your teaching methods and materials are right for the students. Sometimes, class disruptions or lack of motivation indicate that teaching practices need to be changed. Maybe the class rules are unclear or are enforced inconsistently. Maybe the text is too easy or too hard. Maybe the pace is wrong. If these problems exist, a token system may improve the situation temporarily, but the students will still have trouble learning the academic material.

Many of the systematic applications of behavioral principles focus on classroom management. The next section describes two examples that successfully applied behavioral principles to improve behaviors of students with special needs.

Reaching Every Student: Severe Behavior Problems

Students with severe behavior problems provide some of the most difficult challenges for teachers. Two studies show how behavioral principles can be useful in helping these students.

Lea Theodore and her colleagues (2001) worked with the teacher of five adolescent males who were diagnosed as having severe emotional disorders. A short list of clear rules was established (e.g., no obscene words, comply with teacher's requests within five seconds, no verbal putdowns). The rules were written on index cards taped to each student's desk. The teacher had a checklist on his desk with each student's name to note any rule-breaking. This checklist was easily observable, so students could monitor their own and each others' performance. At the end of the 45-minute period, a student chose a "criterion" from a jar. The possible criteria were: performance of the whole group, student with the highest score, student with the lowest score, the average of all students, or a random single student. If the student or students selected to be the criterion had five checks or fewer for rule-breaking, then the whole class got a reward, also chosen randomly from a jar. The possible rewards were things like a soda, a bag of chips, a candy bar, or a late-class pass. An ABAB design was used—baseline, two-week intervention, two-week withdrawal of intervention, and two-week return to group consequences. All students showed clear improvement in following the rules when the reward system was in place, as you can see in Figure 6.5, a chart for one of the students. Students liked the approach and the teacher found it easy to implement.

In the second study, Kara McGrey and George DuPaul (2000) worked with teachers in three preschool classrooms to address problem behaviors of four students diagnosed as having Attention-Deficit Hyperactive Disorder. The teachers tried both a token reinforcement program (students carried small and large buttons on a chart for following class
Using an ABAB Design to Evaluate an Improvement Strategy with a Student Who Had Severe Behavior Problems


rules), and a response cost system (students began with five small buttons and one large button per activity each day and lost buttons for not following rules). Both procedures were effective in lowering rule-breaking, but the teachers found the response cost system easier to implement.

As behavioral approaches to learning developed, some researchers added a new element—thinking about behavior.

Observational Learning and Cognitive Behavior Modification: Thinking about Behavior

In recent years, most behavioral psychologists have found that operant conditioning offers too limited an explanation of learning. Many have expanded their view of learning to include the study of cognitive processes that cannot be directly observed, such as expectations, thoughts, mental maps, and beliefs. Three examples of this expanded view are observational learning, self-management, and cognitive behavior modification.

Observational Learning

Over 50 years ago, Albert Bandura noted that the traditional behavioral views of learning were accurate—but incomplete—because they gave only a partial explanation of learning and overlooked important elements, particularly social influences. His early work on learning was grounded in the behavioral principles of reinforcement and punishment, but he added a focus on learning from observing others. This expanded view was labeled social learning theory; it was considered a neobehavioral approach (Bandura, 1977; Hill, 2002, Zimmermann & Schunk, 2003).

To explain some limitations of the behavioral model, Bandura distinguished between the acquisition of knowledge (learning) and the observable performance based on that knowledge (behavior). In other words, Bandura suggested that we all may know more than we show. An example is found in one of Bandura's early studies (1965). Preschool children saw a film of a model kicking and punching an inflatable "Bobo" doll. One group saw the model rewarded for the aggression, another group saw the model punished, and a third group saw no consequences. When they were moved to a room with the Bobo

Connect and Extend to PRAXIS II™
Observational Learning (II, B2)
Identify situations in which observational learning may be a wise approach, and describe the essential elements of effective observational learning.

Social learning theory Theory that emphasizes learning through observation of others.
dolly, the children who had seen the punching and kicking reinforced on the film were the most aggressive toward the doll. Those who had seen the attacks punished were the least aggressive. But when the children were provided rewards for imitating the model's aggression, all of them demonstrated that they had learned the behavior.

Thus, incentives can affect performance. Even though learning may have occurred, it may not be demonstrated until the situation is appropriate or there are incentives to perform. This might explain why some students don't perform "bad behaviors" such as swearing or smoking that they see modeled by adults, peers, and the media. Personal consequences may discourage them from performing the behaviors. In other examples, children may have learned how to write the alphabet, but perform badly because their fine motor coordination is limited, or they may have learned how to simplify fractions, but perform badly on a test because they are anxious. In these cases, their performance is not an indication of their learning.

Recently, Bandura has focused on cognitive factors such as beliefs, self-perceptions, and expectations, so his theory is now called a social cognitive theory (Hill, 2002). Social cognitive theory (discussed more thoroughly in Chapters 9 and 10) distinguishes between enactive and vicarious learning. Enactive learning is learning by doing and experiencing the consequences of your actions. This may sound like operant conditioning all over again, but it is not, and the difference has to do with the role of consequences. Proponents of operant conditioning believe that consequences strengthen or weaken behavior. In enactive learning, however, consequences are seen as providing information. Our interpretations of the consequences create expectations, influence motivation, and shape beliefs (Schunk, 2004). We will see many examples of enactive learning—learning by doing—throughout this book.

Vicarious learning is learning by observing others. People and animals can learn merely by observing another person or animal learn, and this fact challenges the behaviorist idea that cognitive factors are unnecessary in an explanation of learning. If people can learn by watching, they must be focusing their attention, constructing images, remembering, analyzing, and making decisions that affect learning. Thus, much is going on mentally before performance and reinforcement can even take place. Cognitive apprenticeships, discussed in Chapter 9, are examples of vicarious learning—learning by observing others.

Elements of Observational Learning

**STOP! THINK! WRITE!** Your interview for a position in the middle school is going well. The next question is: "Who are your models as teachers? Do you hear yourself saying or see yourself doing things that other teachers have done? Are there teachers from films or books that you would like to be like?"

Through observational learning, we learn not only how to perform a behavior but also what will happen to us in specific situations if we do perform it. Observation can be a very efficient learning process. The first time children hold hairbrushes, cups, or tennis racquets, they usually brush, drink, or swing as well as they can, given their current muscle development and coordination. Let's take a closer look at how observational learning occurs. Bandura (1986) notes that observational learning includes four elements: paying attention, retaining information or impressions, producing behaviors, and being motivated to repeat the behaviors.

**Attention.** In order to learn through observation, we have to pay attention. In teaching, you will have to ensure students' attention to the critical features of the lesson by making clear presentations and highlighting important points. In demonstrating a skill (for example, threading a sewing machine or operating a lathe), you may need to have students look over your shoulder as you work. Seeing your hands from the same perspective as they see their own directs their attention to the right features of the situation and makes observational learning easier.

**Retention.** In order to imitate the behavior of a model, you have to remember it. This involves mentally representing the model's actions in some way, probably as verbal steps
("Itwa-Rang, the eighth form in Tae Kwan Do karate, is a palm-heal block, then a middle riding stance punch, then...") , or as visual images, or both. Retention can be improved by mental rehearsal (imaging imitating the behavior) or by actual practice. In the retention phase of observational learning, practice helps us remember the elements of the desired behavior, such as the sequence of steps.

**Production.** Once we "know" how a behavior should look and remember the elements or steps, we still may not perform it smoothly. Sometimes, we need a great deal of practice, feedback, and coaching about subtle points before we can reproduce the behavior of the model. In the production phase, practice makes the behavior smoother and more expert.

**Motivation and Reinforcement.** As mentioned earlier, social learning theory distinguishes between acquisition and performance. We may acquire a new skill or behavior through observation, but we may not perform that behavior until there is some motivation or incentive to do so. Reinforcement can play several roles in observational learning. If we anticipate being reinforced for initiating the actions of a model, we may be more motivated to pay attention, remember, and reproduce the behaviors. In addition, reinforcement is important in maintaining learning. A person who tries a new behavior is unlikely to persist without reinforcement (Ollendick, Dailey, & Shapiro, 1983; Schunk, 2004). For example, if an unpopular student adopted the dress of the "in" group, but was ignored or ridiculed, it is unlikely that the imitation would continue.

Bandura identifies three forms of reinforcement that can encourage observational learning. First, of course, the observer may reproduce the behaviors of the model and receive direct reinforcement, as when a gymnast successfully executes a front flip round-off combination and the coach/model says, "Excellent!"

But the reinforcement need not be direct—it may be **vicarious reinforcement**. The observer may simply see others reinforced for a particular behavior and then increase his or her production of that behavior. For example, if you compliment two students on the attractive illustrations in their lab reports, several other students who observe your compliments may turn in illustrated lab reports next time. Most TV ads hope for this kind of effect. People in commercials become deliriously happy when they drive a particular car or drink a specific juice, and the viewer is supposed to do the same; the viewer's behavior is reinforced vicariously by the actors' obvious pleasure. Punishment can also be vicarious. You may slow down on a stretch of highway after seeing several people get speeding tickets there.
The final form of reinforcement is self-reinforcement, or controlling your own reinforcers. This sort of reinforcement is important for both students and teachers. We want our students to improve not because it leads to external rewards, but because the students value and enjoy their growing competence. And as a teacher, sometimes self-reinforcement is all that keeps you going.

**Factors That Influence Observational Learning.** What causes an individual to learn and perform modeled behaviors and skills? Several factors play a role, as shown in Table 6.2. The developmental level of the observer makes a difference in learning. As children grow older, they are able to focus attention for longer periods of time, use memory strategies to retain information, and motivate themselves to practice. A second influence is the status of the model. Children are more likely to imitate the actions of others who seem competent, powerful, prestigious, and enthusiastic; so parents, teachers, older siblings, athletes, action heroes, rock stars, or film personalities may serve as models, depending on the age and interests of the child. Third, by watching others, we learn about what behaviors are appropriate for people like ourselves, so models who are seen as similar are more readily imitated (Pintrich & Schunk, 2002). All students need to see successful, capable models who look and sound like them, no matter what their ethnicity, socioeconomic status, or gender.

Look at Table 6.2. The last three influences involve goals and expectations. If observers expect that certain actions of models will lead to particular outcomes (such as particular practice regimens leading to improved athletic performance) and the observers value those outcomes or goals, then the observers are more likely to pay attention to the models and try to reproduce their behaviors. Finally, observers are more likely to learn from models if the observers have a high level of self-efficacy—that is, if they believe they are capable of doing the actions needed to reach the goals, or at least of learning how to do so (Bandura, 1997; Pintrich & Schunk, 2002). We will discuss goals, expectations, and self-efficacy in greater depth in Chapter 10 on motivation.

**TABLE 6.2**

<table>
<thead>
<tr>
<th>Factors That Affect Observational Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristic Effects of Modeling</td>
</tr>
<tr>
<td>Developmental Status</td>
</tr>
<tr>
<td>Improvements with development include longer attention and increased capacity to process information, use strategies, compare performances with memorial representations, and adopt intrinsic motivators.</td>
</tr>
<tr>
<td>Model Prestige and Competence</td>
</tr>
<tr>
<td>Observers pay greater attention to competent, high-status models. Consequences of modeled behaviors convey information about functional value. Observers attempt to learn actions they believe they will need to perform.</td>
</tr>
<tr>
<td>Vicarious Consequences</td>
</tr>
<tr>
<td>Consequences to models convey information about behavioral appropriateness and likely outcomes of actions. Valued consequences motivate observers. Similarity in attributes or competence signals appropriateness and heightens motivation.</td>
</tr>
<tr>
<td>Outcome Expectations</td>
</tr>
<tr>
<td>Observers are more likely to perform modeled actions they believe are appropriate and will result in rewarding outcomes.</td>
</tr>
<tr>
<td>Goal Setting</td>
</tr>
<tr>
<td>Observers are likely to attend to models who demonstrate behaviors that help observers attain goals.</td>
</tr>
<tr>
<td>Self-efficacy</td>
</tr>
<tr>
<td>Observers attend to models when they believe they are capable of learning or performing the modeled behavior. Observation of similar models affects self-efficacy (“If they can do it, I can too”).</td>
</tr>
</tbody>
</table>

Observational Learning in Teaching

STOP | THINK | WRITE How would you incorporate observational learning into your teaching? What are the skills, attitudes, and strategies that can be modeled in teaching your subject?

There are five possible outcomes of observational learning: directing attention, encouraging existing behaviors, changing inhibitions, teaching new behaviors and attitudes, and arousing emotions. Let’s look at each of these as they occur in classrooms.

**Directing Attention.** By observing others, we not only learn about actions but also notice the objects involved in the actions. For example, in a preschool class, when one child plays enthusiastically with a toy that has been ignored for days, many other children may want to have the toy, even if they play with it in different ways or simply carry it around. This happens, in part, because the children’s attention has been drawn to that particular toy.

**Fine-Tuning Already-Learned Behaviors.** All of us have had the experience of looking for cues from other people when we find ourselves in unfamiliar situations. Observing the behavior of others tells us which of our already-learned behaviors to use; the proper fork for eating the salad, when to leave a gathering, what kind of language is appropriate, and so on. Adapting the dress and grooming styles of TV or music idols is another example of this kind of effect.

**Strengthening or Weakening Inhibitions.** If class members witness one student breaking a class rule and getting away with it, they may learn that undesirable consequences do not always follow rule breaking. If the rule breaker is a well-liked, high-status class leader, the effect of the modeling may be even more pronounced, as we saw in the case at the beginning of this chapter. This “ripple effect” (Kounin, 1970) can work for the teacher’s benefit. When the teacher deals effectively with a rule breaker, especially a class leader, the idea of breaking this rule may be inhibited for the other students viewing the interaction. This does not mean that teachers must reprimand each student who breaks a rule, but once a teacher has called for a particular action, following through is an important part of capitalizing on the ripple effect.

**Teaching New Behaviors.** Modeling has long been used, of course, to teach dance, sports, and crafts, as well as skills in subjects such as food science, chemistry, and welding. Modeling can also be applied deliberately in the classroom to teach mental skills and to broaden horizons—to teach new ways of thinking. Teachers serve as models for a vast range of behaviors, from pronouncing vocabulary words, to reacting to the seizure of a student with epilepsy, to being enthusiastic about learning. For example, a teacher might model sound critical thinking skills by thinking “out loud” about a student’s question. Or a high-school teacher concerned about girls who seem to have stereotyped ideas about careers might invite women with nontraditional jobs to speak to the class. Studies indicate that modeling can be most effective when the teacher makes use of all the elements of observational learning described in the previous section, especially reinforcement and practice.

Models who are the same age as the students may be particularly effective. For example, Schunk and Hanson (1985) compared two methods for teaching subtraction to 2nd graders who had difficulties learning this skill. One group of students observed other 2nd graders learning the procedures, while another group watched a teacher’s demonstration. Then both groups participated in the same instructional program. The students who observed peer models learning not only scored higher on tests of subtraction after instruction but also gained more confidence in their own ability to learn. For students who doubt their own abilities, a good model is a low-achieving student who keeps trying and finally masters the material (Schunk, 2004).

Connect and Extend to PRAXIS II
Modeling (J1, B2)
Teachers often utilize modeling to teach students new behaviors. Identify the characteristics that tend to make models effective in instructional context.

Ripple effect “Contagious” spreading of behaviors through imitation.

Modeling Changes in behavior, thinking, or emotions that occur through observing another person—a model.
Guidelines: Using Observational Learning

Model behaviors and attitudes you want your students to learn.

**Examples:**
1. Show enthusiasm for the subject you teach.
2. Be willing to demonstrate both the mental and the physical tasks you expect the students to perform. Once saw a teacher sit down in the sandbox while her 4-year-old students watched her demonstrate the difference between “playing with sand” and “throwing sand.”
3. When reading to students, model good problem solving.
   Stop and say, “Now let me see if I remember what happened so far,” or “That was a hard sentence. I’m going to read it again.”
4. Model good problem solving—think out loud as you work through a difficult problem.

Use peers, especially class leaders, as models.

**Examples:**
1. In group work, pair students who do well with those who are having difficulties.
2. Ask students to demonstrate the difference between “whispering” and “silence—no talking.”

Make sure students see that positive behaviors lead to reinforcement for others.

**Examples:**
1. Point out the connections between positive behavior and positive consequences in stories.
2. Be fair in giving reinforcement. The same rules for rewards should apply to the problem students as to the good students.

Enlist the help of class leaders in modeling behaviors or the entire class.

**Examples:**
1. Ask a well-liked student to be friendly to an isolated, fearful student.
2. Let high-status students lead an activity when you need class cooperation or when students are likely to be reluctant at first. Popular students can model dialogues in foreign-language classes or be the first to tackle dissection procedures in biology.

For more information on observational learning, see:
http://mentalthelp.net/psych/chap4/chap4g.htm

Connect and Extend
to Your Teaching Portfolio

Concern with self-management is not restricted to any one group or theory. Psychologists who study Vygotsky’s ideas about cognitive development (Chapter 2) are involved, as are cognitive psychologists interested in learning strategies (Chapters 7 and 8) and motivational psychologists pointing to self-regulation as a critical factor in motivation (Chapters 10 and 11).

Self-management Use of behavioral learning principles to change your own behavior.

Arousing Emotion. Finally, through observational learning, people may develop emotional reactions to situations they have never experienced personally, such as flying or driving. A child who watches a friend fall from a swing and break an arm may become fearful of swings. After the terrible events of September 11, 2001, children may be anxious when they see airplanes flying close to the ground. News reports of shark attacks have many of us anxious about swimming in the ocean. Note that fear is an emotional reaction to a situation and that fear is based on emotion. Some terrible examples of modeling occur with “copy cat killings” in schools. When frightening things happen to people who are similar in age or circumstances to your students, they may need to talk about their emotions.

The Guidelines will give you some ideas about using observational learning in the classroom.

Self-Management

**WHAT WOULD YOU SAY?**
The Physical Therapy unit where you are interviewing is a state-of-the-art facility. You feel as though the interview for a patient-educator position is going well. The next question asked of you is: “One of our biggest problems here, and in most rehabilitation centers for that matter, is getting our clients to stick to an exercise program. What ideas do you have for helping these clients maintain their prescribed regimens?”

If one goal of education is to produce people who are capable of educating themselves, then students must learn to manage their own lives, set their own goals, and provide their own reinforcement. In adult life, rewards are sometimes vague and goals often take a long time to reach. Think about how many small steps are required to complete an education and find your first job. Life is filled with tasks that call for this sort of self-management (Rachlin, 2000).
Students may be involved in any or all of the steps in implementing a basic behavior change program. They may help set goals, observe their own work, keep records of it, and evaluate their own performance. Finally, they can select and deliver reinforcement.

**Goal Setting.** It appears that the goal-setting phase is very important in self-management (Pintrich & Schunk, 2002; Reeve, 1996). In fact, some research suggests that setting specific goals and making them public may be the critical elements of self-management programs. For example, S. C. Hayes and his colleagues identified college students who had serious problems with studying and taught them how to set specific study goals. Students who set goals and announced them to the experimenters performed significantly better on tests covering the material they were studying than students who set goals privately and never revealed them to anyone (Hayes, Rosenfarb, Wulfert, Munt, Korn, & Zettie, 1985).

Higher standards tend to lead to higher performance (Locke & Latham, 2002). Unfortunately, students-set goals have a tendency to reflect lower and lower expectations. Teachers can help students maintain high standards by monitoring the goals set and reinforcing high standards.

**Monitoring and Evaluating Progress.** Students may also participate in the monitoring and evaluation phases of a behavior change program (Mace, Belfiore, & Hutchinson, 2001). Some examples of behaviors that are appropriate for self-monitoring are the number of assignments completed, time spent practicing a skill, number of books read, number of problems correct, and time taken to run a mile. Tasks that must be accomplished without teacher supervision, such as homework or private study, are also good candidates for self-monitoring. Students keep a chart, diary, or checklist that records the frequency or duration of the behaviors in question. A progress record card can help older students break down assignments into small steps, determine the best sequence for completing the steps, and keep track of daily progress by setting goals for each day. The record card itself serves as a prompt that can be faded out.

Self-evaluation is somewhat more difficult than simple self-recording because it involves making a judgment about quality. Students can evaluate their behavior with reasonable accuracy, especially if they learn standards for judging a good performance or product. For example, Swiney, Salva, Cooper, and Talbert-Johnson (1993) taught secondary students how to evaluate their handwriting for size, slant, shape, and spacing. One key to accurate self-evaluation seems to be for the teacher to periodically check students' assessments and give reinforcement for accurate judgments. Older students may learn accurate self-evaluation more readily than younger students. Again, bonus points can be awarded when the teachers' and students' evaluations match (Kaplan, 1991). Self-correction can accompany self-evaluation. Students first evaluate, then alter and improve their work, and finally, compare the improvements to the standards again (Mace, Belfiore, & Hutchinson, 2001).

**Self-Reinforcement.** The last step in self-management is self-reinforcement. There is some disagreement, however, as to whether this step is actually necessary. Some psychologists believe that setting goals and monitoring progress alone are sufficient and that self-reinforcement adds nothing to the effects (Hayes et al., 1985). Others believe that rewarding yourself for a job well done can lead to higher levels of performance than simply setting goals and keeping track of progress (Bandura, 1966). If you are willing to be tough and really deny yourself something you want until your goals are reached, then perhaps the promise of the reward can provide extra incentive for work. With that in mind, you may want to think of some way to reinforce yourself when you finish reading this chapter. A similar approach helped me write the chapter in the first place.

At times, families can be enlisted to help their children develop self-management abilities. Working together, teachers and parents can focus on a few goals and, at the same time, support the growing independence of the students. The Family and Community Partnerships Guidelines on the next page give some ideas.

---

**Connect and Extend to the Research**

Here is a checklist, taken from Belfiore & Hornyak (1998) to help students manage their homework:

1. Did I turn in yesterday's homework?
2. Did I write all homework assignments in my notebook?
3. Is all the homework in the homework folder?
4. Are all my materials to complete my homework with me?
5. Begin homework.
6. Are all homework papers completed?
7. Did someone check homework to make sure it was completed?
8. After checking, did I put all homework back in folder?
9. Did I give this paper to teacher? (p. 190)
Guidelines: Student Self-Management

Introduce the system to parents and students in a positive way.

**EXAMPLES:**
1. Invite family participation and stress possible benefits to all family members.
2. Consider starting the program just with volunteers.
3. Describe how you use self-management programs yourself.

Help families and students establish reachable goals.

**EXAMPLES:**
1. Have examples of possible self-management goals for students such as starting homework early in the evening, or keeping track of books read.
2. Show families how to set goals and keep track of progress. Encourage everyone in the family to work on a goal.

Give families ways to record and evaluate their child’s progress (or their own).

**EXAMPLES:**
1. Divide the work into easily measured steps.
2. Provide models of good work where judgments are more difficult, such as in creative writing.
3. Give families a record form or checklist to keep track of progress.

Encourage families to check the accuracy of student records from time to time, and help their children to develop forms of self-reinforcement.

**EXAMPLES:**
1. Have many checkups when students are first learning, and fewer later.
2. Have siblings check one another’s records.
3. Where appropriate, test the skills that students are supposed to be developing at home and reward students whose self-evaluations match their test performances.
4. Have students brainstorm ideas with their families for rewarding themselves for jobs well done.

For a self-management checklist, see: http://www.coun.uvic.ca/learn/program/bmdonts/plann.html

Sometimes, teaching students self-management can solve a problem for teachers and provide fringe benefits as well. For example, the coaches of a competitive swim team with members aged 9 to 16 were having difficulty persuading swimmers to maintain high work rates. Then the coaches drew up four charts indicating the training program to be followed by each member and posted the charts near the pool. The swimmers were given the responsibility of recording both their numbers of laps and their completion of each training unit. Because the recording was public, swimmers could see their own and their teammates progress and keep accurate track of the work units completed. Work output increased by 27%. The coaches also liked the system because swimmers could begin to work immediately without waiting for instructions (McKenzie & Rushall, 1974).

**Cognitive Behavior Modification and Self-Instruction**

Self-management generally means getting students involved in the basic steps of a behavior change program. Cognitive behavior modification adds an emphasis on thinking and self-talk. For this reason, many psychologists consider cognitive behavior modification more a cognitive approach than a behavioral one. I present it here because it serves as a bridge to Chapters 7 and 8 on cognitive learning.

As noted in Chapter 2, there is a stage in cognitive development when young children seem to guide themselves through a task using private speech. They talk to themselves, often repeating the words of a parent or teacher. In cognitive behavior modification, students are taught directly how to use self-instruction. Meichenbaum (1977) outlined the steps:

1. An adult model performs a task while talking to himself or herself out loud (cognitive modeling).
2. The child performs the same task under the direction of the model’s instructions (overt, external guidance).

**Cognitive behavior modification**
Procedures based on both behavioral and cognitive learning principles for changing your own behavior by using self-talk and self-instruction.

**Self-instruction**
Talking oneself through the steps of a task.
3. The child performs the task while instructing him- or herself aloud (overt, self-guidance).
4. The child whispers the instructions to him- or herself as he/she goes through the task (faded, overt self-guidance).
5. The child performs the task while guiding his/her performance via private speech (covert self-instruction). (p. 32)

Brenda Manning and Beverly Payne (1996) list four skills that can increase student learning: listening, planning, working, and checking. How might cognitive self-instruction help students develop these skills? One possibility is to use personal booklets or class posters that prompt students to “talk to themselves” about these skills. For example, one 5th-grade class designed a set of prompts for each of the four skills and posted the prompts around the classroom. The prompts for listening included “Does this make sense?” “Am I getting this?” “I need to ask a question now before I forget.” “Pay attention!” “Can I do what he’s saying to do?” Planning prompts were “Do I have everything together?” “Do I have my friends tuned out for right now?” “Let me get organized first.” “What order will I do this in?” “I know this stuff!” Posters for these and the other two skills, working and checking, are shown in Figure 6.6. Part of the power of this process is in getting students involved in thinking about and creating their own guides and prompts. Having the discussion and posting the ideas makes students more self-aware and in control of their own learning.

Actually, cognitive behavior modification as it is practiced by Meichenbaum and others has many more components than just teaching students to use self-instruction.

**FIGURE 6.6**

<table>
<thead>
<tr>
<th>Poster 1</th>
<th>Poster 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>While Listening:</strong></td>
<td><strong>While Planning:</strong></td>
</tr>
</tbody>
</table>
| 1. Does this make sense? | 1. Think about the different goals and get back to work.
| 2. Am I getting tired? | 2. How much time is left? |
| 3. I need to ask a question now before I forget. | 4. Do I need to stop and start over? |
| 4. Pay attention. | 5. This is hard for me, but I can manage. |
| 5. Can I do what he’s saying to do? | |

**Poster 4**

<table>
<thead>
<tr>
<th><strong>While Checking:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Did I finish everything?</td>
</tr>
<tr>
<td>2. What do I need to recheck?</td>
</tr>
<tr>
<td>3. Am I proud of this work?</td>
</tr>
<tr>
<td>4. Did I write all the words?</td>
</tr>
<tr>
<td>5. I think I finished. I organized myself. Did I daydream too much?</td>
</tr>
</tbody>
</table>

*Source: From Self-Talk for Teachers and Students: Metacognitive Strategies for Personal and Classroom Use by Brenda M. Manning, Beverly D. Payne. Published by Allyn and Bacon, Boston, MA. Copyright © 1996 by Pearson Education. Adapted by permission of the publisher.*
Meichenbaum’s methods also include dialogue and interaction between teacher and student, modeling, guided discovery, motivational strategies, feedback, careful matching of the task with the student’s developmental level, and other principles of good teaching. The student is even involved in designing the program (Harris, 1990; Harris & Pressley, 1991). Given all this, it is no surprise that students seem to be able to generalize the skills developed with cognitive behavior modification to new learning situations (Harris, Graham, & Pressley, 1992).

## Problems and Issues

The preceding sections provide an overview of several strategies for changing classroom behavior. However, you should be aware that these strategies are tools that can be used both responsibly or irresponsibly. What, then, are some issues you should keep in mind?

### Criticisms of Behavioral Methods

**WHAT WOULD YOU SAY?**

During your job interview, the principal asks, “A teacher last year got in trouble for bribing his students with homework exemptions to get them to behave in class. What do you think about using rewards and punishments in teaching?” What do you say? ■

While you think about your answer to this question, look at the Point/Counterpoint on “Should Students Be Rewarded for Learning?” to see two different perspectives. Properly used, the strategies in this chapter can be effective tools to help students learn academically and grow in self-sufficiency. Effective tools, however, do not automatically produce excellent work, and behavioral strategies are often implemented haphazardly, inconsistently, incorrectly, or superficially (Landrum & Kauffman, 2006). The indiscriminate use of even the best tools can lead to difficulties.

Some psychologists fear that rewarding students for all learning will cause them to lose interest in learning for its own sake (Deci, 1975; Deci & Ryan, 1985; Kohn, 1993, 1996; Lepper & Greene, 1978; Lepper, Kounin, & Drake, 1996; Ryan & Deci, 1996). Studies have suggested that using reward programs with students who are already interested in the subject matter may, in fact, cause students to be less interested in the subject when the reward program ends, as you can see in the Point/Counterpoint. In addition, there is some evidence that praising students for being intelligent when they succeed can undermine their motivation if they do not perform as well the next time. After they fail, students who had been praised for being smart may be less persistent and enjoy the task less compared to students who had been praised earlier for working hard (Mueller & Dweck, 1998).

Just as you must take into account the effects of a reward system on the individual, you must also consider its impact on other students. Using a reward program or giving one student increased attention may have a detrimental effect on the other students in the classroom. Is it possible that other students will learn to be “bad” in order to be included in the reward program? Most of the evidence on this question suggests that using individual adaptations such as reward programs does not have any adverse effects on students who are not participating if the teacher believes in the program and explains the reasons for using it to the nonparticipating students. After interviewing 98 students in grades 1 through 6, Cindy Fulk and Paula Smith (1995) concluded that “Teachers may be more concerned about equal treatment of students than students are” (p. 416). If the conduct of some students does seem to deteriorate when their peers are involved in special programs, many of the same procedures discussed in this chapter should help them return to previous levels of appropriate behavior (Chance, 1992, 1993).

## Ethical Issues

The ethical questions related to the use of the strategies described in this chapter are similar to those raised by any process that seeks to influence people. What are the goals? How
Point/Counterpoint

Should Students Be Rewarded for Learning?

FOR YEARS, EDUCATORS and psychologists have debated whether students should be rewarded for school work and academic accomplishments. In the early 1990s, Paul Chance and Alfie Kohn exchanged opinions in several issues of Phi Delta Kappan (March 1991; November 1992; June 1993). Then, Judy Cameron and W. David Pierce (1996) published an article on reinforcement in the Review of Educational Research that precipitated extensive criticisms and rebuttals in the same journal from Mark Lepper, Mark Kearney, Michael Drake, Alfie Kohn, Richard Ryan, and Edward Deci. Many of the same people exchanged opinions in the November 1999 issue of Psychological Bulletin. What are the arguments?

POINT Students are punished by rewards.

Alfie Kohn (1993) argues that “Applied behaviorism, which amounts to saying, ‘do this and you’ll get that,’ is essentially a technique for controlling people. In the classroom it is a way of doing things to children rather than working with them” (p. 784). He contends that rewards are ineffective because when the praise and prizes stop, the behaviors stop too. After analyzing 128 studies of extrinsic rewards, Edward Deci, Richard Koestner, and Richard Ryan (1999) concluded that “tangible rewards tend to have a substantial effect on intrinsic motivation, with the limiting conditions we have specified. Even when tangible rewards are offered as indicators of good performance, they typically decrease intrinsic motivation for interesting activities” (pp. 658–659).

The problem with rewards does not stop here. According to Kohn, rewarding students for learning actually makes them less interested in the material:

All of this means that getting children to think about learning as a way to receive a sticker, a gold star, or a grade—or even worse, to get money or a toy for a grade, which amounts to an extrinsic motivator for an extrinsic motivator—is likely to turn learning from an end into a means. Learning becomes something that must be gotten through in order to receive the reward. Take the depressingly pervasive program by which children receive certificates for pizzas when they have read a certain number of books. John Nichols of the University of Illinois comments, only half in jest, that the likely consequence of this program is “a lot of fat kids who don’t like to read.” (p. 785)

COUNTERPOINT Learning should be rewarding.

According to Paul Chance (1993):

Behavioral psychologists in particular emphasize that we learn by acting on our environment. As B. F. Skinner put it:

“[People] act on the world, and change it, and are changed in turn by the consequences of their actions.” Skinner, unlike Kohn, understood that people learn best in a responsive environment. Teachers who praise or otherwise reward student performance provide such an environment. If it is immoral to let students know they have answered questions correctly, to pat students on the back for a good effort, to show joy at a student’s understanding of a concept, or to recognize the achievement of a goal by providing a gold star or a certificate—if this is immoral, then count me a sinner (p. 786).

Do rewards undermine interest? In their review of research, Cameron and Pierce (1994) concluded, “When tangible rewards (e.g., gold star, money) are offered contingent on performance on a task (not just on participation) or are delivered unexpectedly, intrinsic motivation is maintained” (p. 49). In a later review of research, Eisenberg, Pierce, and Cameron (1999) added that “Reward procedures requiring specific high task performance convey a task’s personal or social significance, increasing intrinsic motivation” (p. 577). Even psychologists such as Edward Deci and Mark Lepper who suggest that rewards might undermine intrinsic motivation agree that rewards can also be used positively. When rewards provide students with information about their growing mastery of a subject or when the rewards show appreciation for a job well done, then the rewards bolster confidence and make the task more interesting to the students, especially students who lacked ability or interest in the task initially. Nothing succeeds like success. As Chance points out, if students master reading or mathematics with the support of rewards, they will not forget what they have learned when the praise stops. Would they have learned without the rewards? Some would, but some might not. Would you continue working for a company that didn’t pay you, even though you liked the work? Will freelance writer Alfie Kohn, for that matter, lose interest in writing because he gets paid fees and royalties?

WHAT DO YOU THINK?

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do these goals fit with those of the school as a whole? What effect will a strategy have on the individuals involved? Is too much control being given to the teacher, or to a majority?

**Goals.** The strategies described in this chapter could be applied exclusively to teaching students to sit still, raise their hands before speaking, and remain silent at all other times (Winett & Winkler, 1972). This certainly would be an unethical use of the techniques. It is true that a teacher may need to establish some organization and order, but stopping with improvements in conduct will not ensure academic learning. On the other hand, in some situations, reinforcing academic skills may lead to improvements in conduct. Whenever possible, emphasis should be placed on academic learning. Academic improvements generalize to other situations more successfully than do changes in classroom conduct.

**Strategies.** Punishment can have negative side effects: It can serve as a model for aggressive responses, and it can encourage negative emotional reactions. Punishment is unnecessary and even unethical when positive approaches, which have fewer potential dangers, might work as well. When simpler, less-restrictive procedures fail, then more complicated procedures should be tried.

A second consideration in the selection of a strategy is the impact of the strategy on the individual student. For example, some teachers arrange for students to be rewarded at home with a gift or special activity based on good work in school. But if a student has a history of being severely punished at home for bad reports from school, a home-based reinforcement program might be very harmful to that student. Reports of unsatisfactory progress at school could lead to increased abuse at home.

---

**Diversity and Convergences in Behavioral Learning**

**Diversity**

There is great diversity in the learning histories of students. Every person in your class will come to you with different fears and anxieties. Some students may be terrified of speaking in public or of failure in competitive sports. Others will be anxious around various animals. Different activities or objects will serve as reinforcers for some students, but not others. Some students will work for the promise of good grades—others could care less. All of your students will have learned from different models in their homes, neighborhoods, churches, or communities.

The research and theories presented in this chapter should help you understand how the learning histories of your students might have taught them to respond automatically to tests with sweaty palms and racing hearts—possible classical conditioning at work. Their learning histories might have included being reinforced for persistence or for whining—operant conditioning at work. The chance to work in a group may be a reinforcer for some students and a punisher for others. Some teachers use questionnaires such as the one in Table 6.3, to identify effective reinforcers for their students. Remember, what works for one student may not be right for another. And students can get "too much of a good thing"; reinforcers can lose their potency if they are overused.

In addition to providing a diversity of reinforcers, teachers, classrooms, and schools should provide a diversity of models because students learn through observation. Do students see themselves in the social studies and science texts? Are there characters and authors in literature that reflect the background and values of the students and the community? Whose work is posted in the room? Who gets the privileges and responsibilities?

**Convergences**

Even though your classroom will be filled with many different learning histories, there are some convergences—principles that apply to all people:
<table>
<thead>
<tr>
<th>Name</th>
<th>Grade</th>
<th>Date</th>
</tr>
</thead>
</table>

1. The school subjects I like best are:
2. Three things I like most to do in school are:
3. If I had 30 minutes' free time at school each day to do what I really liked, it would be:
4. My two favorite snacks are:
5. At recess I like most to (three things):
6. If I had $1 to spend on anything, I would buy:
7. Three jobs I would enjoy in the class are:
8. The two people I most like to work with in school are:
9. At home I really enjoy (three things):


1. No one eagerly repeats behaviors that have been punished or ignored. Without some sense of progress, it is difficult to persist.
2. When actions lead to consequences that are positive for the person involved, those actions are likely to be repeated.
3. Teachers often fail to use reinforcement to recognize appropriate behavior; they respond instead to inappropriate behaviors, sometimes providing reinforcing attention in the process.
4. To be effective, praise must be a sincere recognition of a real accomplishment.
5. Whatever their current level of functioning, students can learn to be more self-managing.

## SUMMARY TABLE

<table>
<thead>
<tr>
<th>Understanding Learning (pp. 206–208)</th>
<th>Early Explanations of Learning: Contiguity and Classical Conditioning (pp. 208–209)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What is learning?</strong> Although theorists disagree about the definition of learning, most would agree that learning occurs when experience causes a change in a person’s knowledge or behavior. Changes simply caused by maturation, illness, fatigue, or hunger are excluded from the general definition of learning. Behavioral theorists emphasize the role of environmental stimuli in learning and focus on behavior—observable responses. Behavioral learning processes include contiguity learning, classical conditioning, operant conditioning, and observational learning.</td>
<td><strong>How does a neutral stimulus become a conditioned stimulus?</strong> In classical conditioning, which was discovered by Pavlov, a previously neutral stimulus is repeatedly paired with a stimulus that evokes an emotional or physiological response. Later, the previously neutral stimulus alone evokes the response—that is, the neutral stimulus is conditioned to bring forth a conditioned response. The neutral stimulus has become a conditioned stimulus.</td>
</tr>
<tr>
<td><strong>Learning Process</strong> through which experience causes permanent change in knowledge or behavior.</td>
<td><strong>What are some everyday examples of classical conditioning?</strong> Here are a few; add your own. Salivating when you smell your favorite foods, tension when you hear a dentist’s drill, nervousness when you step on stage, ...</td>
</tr>
</tbody>
</table>

*Behavioral learning theories* Explanations of learning that focus on external events as the cause of changes in observable behaviors.
Contiguity Association of two events because of repeated pairing.
Stimulus Event that activates behavior.
Response Observable reaction to a stimulus.
Classical conditioning Association of automatic responses with new stimuli.
Respondents Responses (generally automatic or involuntary) elicited by specific stimuli.
Neutral stimulus Stimulus not connected to a response.
Unconditioned stimulus (US) Stimulus that automatically produces an emotional or physiological response.
Unconditioned response (UR) Naturally occurring emotional or physiological response.
Conditioned stimulus (CS) Stimulus that evokes an emotional or physiological response after conditioning.
Conditioned response (CR) Learned response to a previously neutral stimulus.

Operant Conditioning: Trying New Responses (pp. 210–215)

What defines a consequence as a reinforcer? As a punisher?
According to Skinner’s concept of operant conditioning, people learn through the effects of their deliberate responses. For an individual, the effects of consequences following an action may serve as either reinforcers or punishers. A consequence is defined as a reinforcer if it strengthens or maintains the response that brought it about, whereas a consequence is defined as a punishment if it decreases or suppresses the response that brought it about.

Negative reinforcement is often confused with punishment. How are they different? The process of reinforcement (positive or negative) always involves strengthening behavior. The teacher strengthens (reinforces) desired behaviors by removing something aversive as soon as the desired behaviors occur. Because the consequence involves removing or “subtracting” a stimulus, the reinforcement is negative. Punishment, on the other hand, involves decreasing or suppressing behavior. A behavior followed by a “punisher” is less likely to be repeated in similar situations in the future.

How can you encourage persistence in a behavior? Ratio schedules (based on the number of responses) encourage higher rates of response, and variable schedules (based on varying numbers of responses or varying time intervals) encourage persistence of responses.

What is the difference between a prompt and a cue? A cue is an antecedent stimulus just before a particular behavior is to take place. A prompt is an additional cue following the first cue. Make sure the environmental stimulus that you want to become a cue occurs immediately before the prompt you are using, so students will learn to respond to the cue and not rely only on the prompt. Then, fade the prompt as soon as possible so students do not become dependent on it.

Operants Voluntary (and generally goal-directed) behaviors emitted by a person or an animal.
Operant conditioning Learning in which voluntary behavior is strengthened or weakened by consequences or antecedents.
Antecedents Events that precede an action.
Consequences Events that follow an action.
Reinforcement Use of consequences to strengthen behavior.
Reinforcer Any event that follows a behavior and increases the chances that the behavior will occur again.
Positive reinforcement Strengthening behavior by presenting a desired stimulus after the behavior.
Negative reinforcement Strengthening behavior by removing an aversive stimulus when the behavior occurs.
Aversive Irritating or unpleasant.
Punishment Process that weakens or suppresses behavior.
Presentation punishment Decreasing the chances that a behavior will occur again by presenting an aversive stimulus following the behavior; also called Type I punishment.
Removal punishment Decreasing the chances that a behavior will occur again by removing a pleasant stimulus following the behavior; also called Type II punishment.
Continuous reinforcement schedule Presenting a reinforcer after every appropriate response.
Intermittent reinforcement schedule Presenting a reinforcer after some but not all responses.
Interval schedule Length of time between reinforcers.
Ratio schedule Reinforcement based on the number of responses between reinforcers.
Extinction The disappearance of a learned response.
Stimulus control Capacity for the presence or absence of antecedents to cause behaviors.
Cueing Providing a stimulus that “sets up” a desired behavior.
Prompt A reminder that follows a cue to make sure the person reacts to the cue.

Applied Behavior Analysis (pp. 215–224)

What are the steps in applied behavior analysis? The steps are: (1) Clearly specify the behavior to be changed and note the current level. (2) Plan a specific intervention using antecedents, consequences, or both. (3) Keep track of the results, and modify the plan if necessary.

How can the Premack principle help you identify reinforcers? The Premack principle states that a high-frequency behavior (a preferred activity) can be an effective reinforcer for a low-frequency behavior (a less-preferred activity). The best way to determine appropriate reinforcers for your students may be to watch what they do in their free time. For most students, talking, moving around the room, sitting near a friend, being exempt from assignments or tests, reading magazines, or playing games are preferred activities.

When is shaping an appropriate approach? Shaping helps students develop new responses a little at a time, so it is useful
for building complex skills, working toward difficult goals, and increasing persistence, endurance, accuracy, or speed. Because shaping is a time-consuming process, however, it should not be used if success can be attained through simpler methods such as cueing.

What are some caution in using punishment? Punishment in and of itself does not lead to any positive behavior. Thus, whenever you consider the use of punishment, you should make it part of a two-pronged attack. First, carry out the punishment and suppress the undesirable behavior. Second, make clear what the student should be doing instead and provide reinforcement for those desirable actions. Thus, while the problem behaviors are being suppressed, positive alternative responses are being strengthened.

How can functional behavioral assessment and positive behavioral supports be used to improve student behaviors? In doing a functional behavioral assessment, a teacher studies the antecedents and consequences of problem behaviors to determine the reason or function of the behavior. Then, positive behavioral supports are designed to replace problem behaviors with new actions that serve the same purpose for the student, but do not have the same problems.

Applied behavior analysis The application of behavioral learning principles to understand and change behavior.

Behavior modification Systematic application of antecedents and consequences to change behavior.

Premack principle Principle stating that a more-preferred activity can serve as a reinforcer for a less-preferred activity.

Shaping Reinforcing each small step of progress toward a desired goal or behavior.

Successive approximations Small components that make up a complex behavior.

Task analysis System for breaking down a task hierarchically into basic skills and subskills.

Positive practice Practicing correct responses immediately after errors.

Satiation Requiring a person to repeat a problem behavior past the point of interest or motivation.

Reprimands Criticisms for misbehavior; rebukes.

Response cost Punishment by loss of reinforcers.

Social isolation Removal of a disruptive student for 5 to 10 minutes.

Time out Technically, the removal of all reinforcement. In practice, isolation of a student from the rest of the class for a brief time.

Positive behavioral supports (PBS) Interventions designed to replace problem behaviors with new actions that serve the same purpose for the student.

Functional behavioral assessment (FBA) Procedures used to obtain information about antecedents, behaviors, and consequences to determine the reason or function of the behavior.

Behavioral Approaches to Teaching and Management (pp. 224–229)

Describe the managerial strategies of group consequences, contracts, and token programs. Using group consequences involves basing reinforcement for the whole class on the behavior of the whole class. In a contingency contract program, the teacher draws up an individual contract with each student, describing exactly what the student must do to earn a particular privilege or reward. In token programs, students earn tokens (points, checks, holes punched in a card, chips, etc.) for both academic work and positive classroom behavior. Periodically, the students exchange the tokens they have earned for some desired reward. A teacher must use these programs with caution, emphasizing learning and not just “good” behavior.

Good behavior game Arrangement where a class is divided into teams and each team receives demerit points for breaking agreed-upon rules of good behavior.

Group consequences Rewards or punishments given to a class as a whole for adhering to or violating rules of conduct.

Token reinforcement system System in which tokens earned for academic work and positive classroom behavior can be exchanged for some desired reward.

Contingency contract A contract between the teacher and a student specifying what the student must do to earn a particular reward or privilege.

Observational Learning and Cognitive Behavior Modification: Thinking about Behavior (pp. 229–238)

Distinguish between social learning and social cognitive theories. Social learning theory was an early neobehavioral theory that expanded behavioral views of reinforcement and punishment. In behavioral views, reinforcement and punishment directly affect behavior. In social learning theory, seeing another person, a model, reinforced or punished can have similar effects on the observer's behavior. Social cognitive theory expands social learning theory to include cognitive factors such as beliefs, expectations, and perceptions of self.

Distinguish between enactive and vicarious learning. Enactive learning is learning by doing and experiencing the consequences of your actions. Vicarious learning is learning by observing, which challenges the behaviorist idea that cognitive factors are unnecessary in an explanation of learning. Much is going on mentally before performance and reinforcement can even take place.

What are the elements of observational learning? In order to learn through observation, we have to pay attention to aspects of the situation that will help us learn. In order to imitate the behavior of a model, you have to retain the information.
This involves mentally representing the model's actions in some way, probably as verbal steps. In the production phase, practice makes the behavior smoother and more expert. Sometimes, we need a great deal of practice, feedback, and coaching about subtle points before we can reproduce the behavior of the model. Finally, motivation shapes observational learning through incentives and reinforcement. We may not perform a learned behavior until there is some motivation or incentive to do so. Reinforcement can focus attention, encourage reproduction or practice, and maintain the new learning.

What are the steps in self-management? Students can apply behavior analysis on their own to manage their own behavior. Teachers can encourage the development of self-management skills by allowing students to participate in setting goals, keeping track of progress, evaluating accomplishments, and selecting and giving their own reinforcers. Teachers can also use cognitive behavior modification, a behavior change program described by Meichenbaum in which students are directly taught how to use self-instruction.

Social learning theory Theory that emphasizes learning through observation of others.

Social cognitive theory Theory that adds concern with cognitive factors such as beliefs, self-perceptions, and expectations to social learning theory.

Observational learning Learning by observation and imitation of others.

Vicarious reinforcement Increasing the chances that we will repeat a behavior by observing another person being reinforced for that behavior.

Self-reinforcement Controlling your own reinforcers.

Self-efficacy A person's sense of being able to deal effectively with a particular task.

Ripple effect "Contagious" spreading of behaviors through imitation.

Modeling Changes in behavior, thinking, or emotions that occur through observing another person—a model.

Self-management Use of behavioral learning principles to change your own behavior.

Cognitive behavior modification Procedures based on both behavioral and cognitive learning principles for changing your own behavior by using self-talk and self-instruction.

Self-instruction Talking oneself through the steps of a task.

Problems and Issues (pp. 238–240)

What are the main criticisms of behavioral approaches? The misuse or abuse of behavioral learning methods is unethical. Critics of behavioral methods also point out the danger that reinforcement could decrease interest in learning by overemphasizing rewards and could have a negative impact on other students. Teachers can use behavioral learning principles appropriately and ethically.
What Would They Do?

Here is how some practicing teachers responded to the teaching situation presented at the beginning of this chapter about an out-of-control class.

**Timothy Norfleet** High School Teacher, Grades 9-12, Linden McKinley High School, Columbus, Ohio

One of the first steps in establishing order in the classroom is to set up daily routines that students are expected to follow. Having the warm-up activity, objective, and assignment posted daily on the board encourages the students to begin working right away. The next goal should be to establish class rules, rewards, and consequences with student input. Students respond well to a fair governance structure in which they have had input. They are more likely to adhere to the rules and their peers will help regulate inappropriate behavior. I use class managers for this purpose. Students are responsible for specific classroom management functions such as taking attendance, answering the door, and collecting homework. Allowing students to have roles in the management of the classroom provides an outlet for those who show leadership, and the jobs can be rotated to give several students opportunities to develop positive leadership skills.

**Jolita Harper** Third Grade Teacher, Preparing Academic Leaders Academy, Maple Heights, Ohio

As I began day two with my new class, I would work with the students to establish an agreed-upon set of classroom rules. I feel it is important to include students in this process because they are aware of the disruptions and problems that exist within the classroom. My next goal would be to establish a relationship of mutual respect with the charismatic classroom leader; once we establish a respectful rapport, other students will be inclined to imitate behaviors conducive to learning exhibited by this individual. Finally, I would periodically remind my students of the classroom rules by verbally praising those students who are on-task. Drawing attention to appropriate behavior is far more effective than frequent yelling and public reprimands, which may inadvertently draw attention to and reinforce misbehavior.

**Jamaal Allan** Language Arts Teacher, Seventh Grade, J. W. Perry Middle School, Hillsboro, Oregon

The ambiguity, or absence, of structure has told these students that they are free to create their own behavioral guidelines. New to this classroom, I would have the advantage of a fresh start. To create a structure conducive to learning, I would start by introducing myself, my learning goals, and my classroom expectations. The expectations must be simple and understandable. An expectation of “treat the classroom and everyone in it with respect” serves as a blanket covering any “rule.” We would follow up by discussing different theoretical situations and deciding which types of behavior are permitted within our expectations. Because the students have been involved in the process of creating the behavioral guidelines, they will be more apt to follow them. Once the behavioral expectations are understood, a learning environment will have been created and learning will be able to take place.

**Danielle Hartman** Second Grade Teacher, Claymont Elementary School, Ballwin, Missouri

Walking into a situation like this is never easy. Try to stay positive. Remember that these are not bad kids. They just may not know what is expected of them. Therefore, you need to start by setting aside time to build community and establish your expectations. Be prepared, this will take a lot of time. Don’t worry about not getting to every lesson plan for a few weeks. Taking this time now will pay off greatly in the end. Set up a schedule and routines. Students need and want structure in their classroom. I would really work on getting to know the one student who is causing a lot of the disruptions in class. Try to find out why he is behaving this way. Maybe he just needs some extra attention. Show him that you care about him and his success in school.

One way to build community is by having morning meetings to discuss any concerns the students may have and work on ways to solve these problems. Don’t forget to also share compliments and positive things that are happening. These meetings give the students ownership of their classroom. Let them know you value their ideas and opinions. Once you have built a positive climate, there will be a greater amount of time for you and the students to focus on their learning.

**Felicia Lowman-Sikes** Kindergarten Teacher, Meadowview Elementary School, Meadowview, Virginia

Teachers: Expecting a placement mid-year need to be patient and firm. Changes in student behavior will not happen immediately. Students must become accustomed to new classroom rules and consequences. If the teacher follows through with a clearly delineated discipline plan—the rules and consequences for breaking the rules—the students will learn which behaviors are acceptable and which are not, leading to a calmer classroom environment. Both teacher and students can develop a mutual respect and all involved in the reshaping of the classroom may feel a new sense of pride.