

CHAPTER 5: BEHAVIORAL THEORIES of LEARNING

Chapter Outline

- What Are Behavioral Learning Theories?
- What Are Some Principles of Behavioral Learning?
- How Has Social Learning Theory Contributed to Our Understanding of Human Learning?

Learning Outcomes

Learning Outcomes

At the end of this chapter, you should be able to:

- Define the concept of “learning”
- Describe principles of behavioral learning theories
- Discuss the implications of behavioral learning principles for classroom practice
- Describe social learning theories and their implications for classroom practice

Julia Esteban, first-grade teacher at Tanner Elementary School, is trying to teach her students appropriate classroom behavior.

“Children,” she says one day, “we are having a problem in this class that I’d like to discuss with you. Whenever I ask a question, many of you shout out your answers instead of raising your hand and waiting to be called on. Can anyone tell me what you should do when I ask the class a question?” Rebecca’s hand shoots into the air. “I know, I know!” she says. “Raise your hand and wait quietly!”

Ms. Esteban sighs to herself. She tries to ignore Rebecca, who is doing exactly what she had just been told not to do, but Rebecca is the only student with her hand up, and the longer she delays, the more frantically Rebecca waves her hand and shouts her answer.

“All right, Rebecca. What are you supposed to do?”

“We’re supposed to raise our hands and wait quietly for you to call on us.”

“If you know the rule, why were you shouting out your answer before I called on you?”

“I guess I forgot.”

“All right. Can anyone remind the class of our rule about talking out of turn?”

Four children raised their hands and shouted together.

“One at a time!”

“Take turns!”

“Don’t talk when someone else is talking!”

Ms. Esteban calls for order. “You kids are going to drive me crazy!” she says. “Didn’t we just talk about how to raise your hands and wait for me to call on you?”

“But Ms. Esteban,” says Stephen without even raising his hand. “You called on Rebecca and she wasn’t quiet!”

USING YOUR EXPERIENCE

Critical and Creative Thinking Reflect on what Ms. Esteban might do differently in this situation to accomplish her goal.

Cooperative Learning Discuss with another student what went wrong here. Also discuss similar ways in which you have seen inappropriate behavior reinforced in the past. Share some of these anecdotes with the class.

behavioral learning theories

- Explanations of learning that emphasize **observable changes in behavior**

social learning theories

- Learning theories that emphasize not only reinforcement but also **the effects of cues on thought and of thought on action**

cognitive learning theories

- Explanations of learning that focus on mental processes.

What Is Learning?

- A change in an individual that results from **experience**.
- Learning is usually defined as a change in an individual caused by experience

Mayer (2008a) defines learning as “**long-lasting change in the learner’s knowledge as a result of the learner’s experiences**”

Learning

- humans do so much learning from the day of their birth **that learning and development are inseparably linked**.
- Learning to walk (A young child takes her first steps) is mostly a developmental progression but also **depends on experience with crawling and other activities**.
- A child's anxiety on seeing a doctor with a needle (A child feels anxious when he sees the doctor coming with a needle) is definitely **learned behavior**. The child has learned to associate the needle with pain, and his body reacts emotionally when he sees the needle. This reaction may be unconscious or involuntary, but it is learned nonetheless.

Learning

- Learning takes place in many ways. Sometimes it **is intentional**, as when students acquire information presented in a classroom or when they look something up on the Internet. Sometimes it **is unintentional**, as in the case of the child's reaction to the needle.
- All sorts of learning are going on all the time. As you are reading this chapter, you are learning something about learning.

What Is Learning?

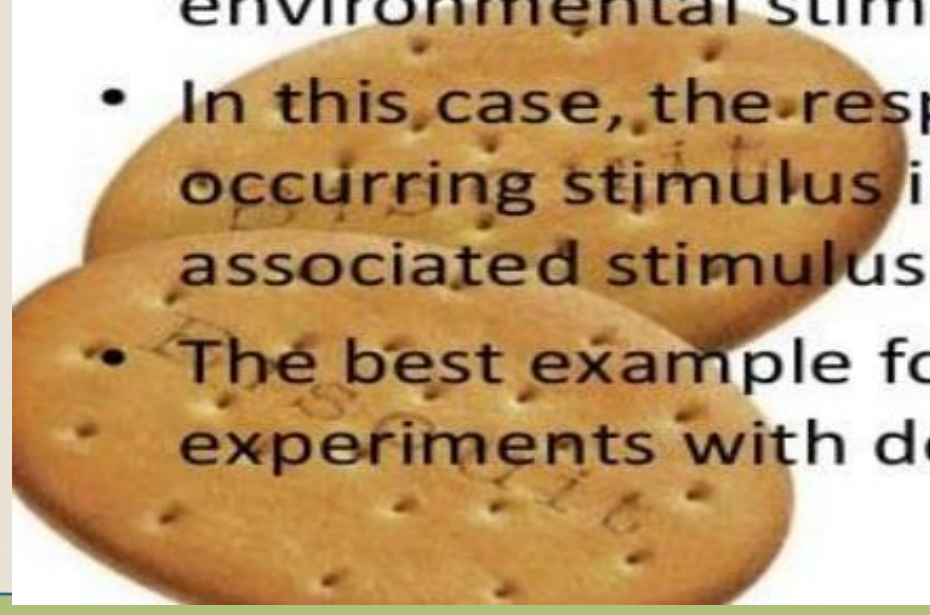
- “Learning is the relatively permanent change in **a person’s knowledge or behavior due to experience**. This definition has three components:
 - 1) **the duration of the change is long-term rather than short-term;**
 - 2) **the locus of the change is the content and structure of knowledge in memory or the behavior of the learner;**
 - 3) **the cause of the change is the learner’s experience in the environment rather than fatigue, motivation, drugs, physical condition or physiologic intervention**

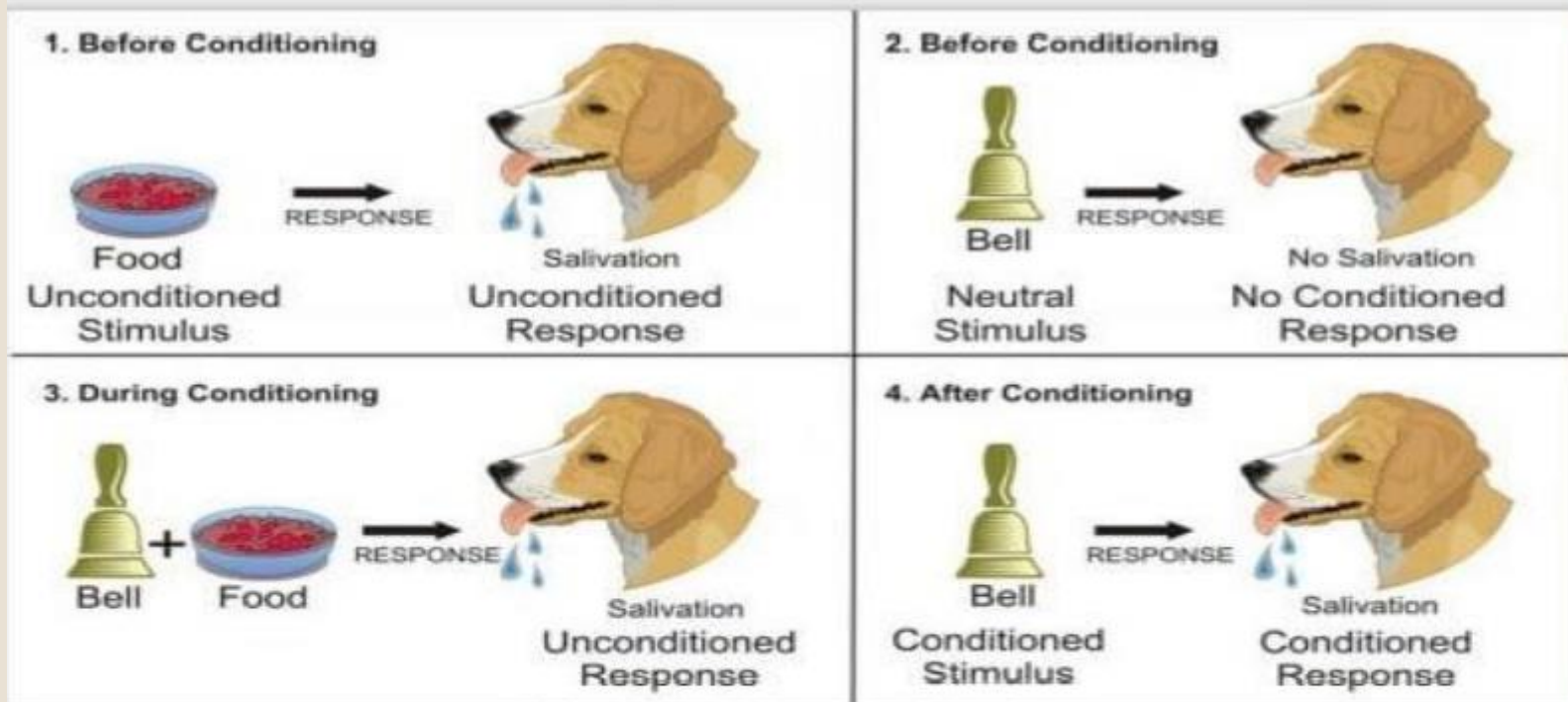
What Are Behavioral Learning Theories?

- Behaviorism or the behavioral learning theory is a popular concept that focuses on how students learn. Behaviorism focuses on the idea that all behaviors are learned through interaction with the environment.
- Pavlov: Classical Conditioning
- Skinner: Operant Conditioning

Ivan Pavlov and his Classical Conditioning

- Classical Conditioning occurs when a naturally occurring stimulus is associated with another environmental stimulus.
- In this case, the response to the naturally occurring stimulus is carried over to the associated stimulus.
- The best example for this is Pavlov's experiments with dogs.





Classical Conditioning

Pavlov's experiment with dogs taught them to associate the ringing of the bell with the arrival of food.



Classical Conditioning

- In classical conditioning, a neutral stimulus (such as a bell) that at first prompts no response becomes paired with an unconditioned stimulus (such as meat) and gains the power of that stimulus to cause a response (such as salivation).

Skinner: Operant Conditioning

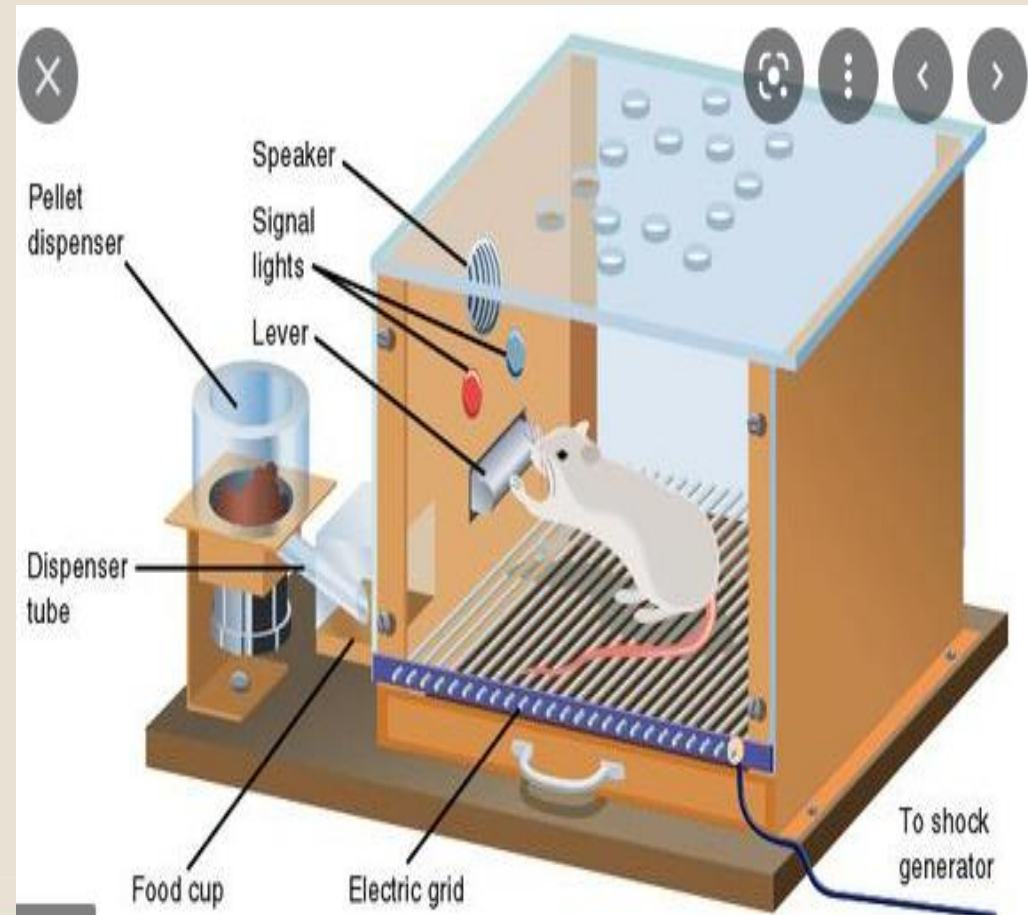
- Skinner proposed that reflexive behavior accounts for only a small proportion of all actions. Skinner proposed another class of behavior, which he labeled operant behaviors because they operate on the environment in the apparent absence of any unconditioned stimuli, such as food. **Skinner's work focused on the relation between behavior and its consequences.**
- For example, if an individual's behavior is immediately followed by pleasurable consequences, the individual will engage in that behavior more frequently. **The use of pleasant and unpleasant consequences to change behavior is often referred to as operant conditioning.**

Operant conditioning

- Skinner's work focused on placing subjects in controlled situations and observing the changes in their behavior produced by systematic changes in the consequences of their behavior

Operant conditioning

- Skinner is famous for his development and use of the Skinner box, a device that contains a very simple apparatus for studying the behavior of animals, usually **rats and pigeons**.
- A Skinner box for rats consists of a bar that is easy for the rat to press, a food dispenser that can give the rat a pellet of food, and a water dispenser. The rat cannot see or hear anything outside of the box, so all stimuli are controlled by the experimenter



Skinner Box & Pigeons



VIDEO

Skinner conditioned the pigeon's to peck at a particular colored disk only when a light was on the cage and thus, getting rewarded by food and water.

This is based on Skinner's theory of **Operant Conditioning**- behaviours are repeated if they are rewarded, and **behaviours that are punished will be avoided**

Light=Primary Reinforcer

Food & Water: Secondary Reinforcer



operant conditioning

- The use of pleasant or unpleasant consequences to control the occurrence of behavior.

What Are Some Principles of Behavioral Learning?

- Behavioral learning theory has its own language to describe how consequences of behavior shape later behavior:
- The Role of Consequences
- Reinforcers
- Punishers
- Immediacy of Consequences
- Shaping
- Extinction
- Schedules of Reinforcement
- Maintenance
- The Role of Antecedents

The Role of Consequences

- Skinner's pioneering work with rats and pigeons established a set of principles of behavior that have been supported in hundreds of studies involving humans as well as animals. Perhaps the most important principle of behavioral learning theories is **that behavior changes according to its immediate consequences**.
- Pleasurable consequences strengthen behavior; unpleasant consequences weaken it. In other words, **pleasurable consequences increase the frequency with which an individual engages in a behavior, whereas unpleasant consequences reduce the frequency of a behavior**.
- If students enjoy reading books, they will probably read more often. If they find stories boring or are unable to concentrate, they may read less often, choosing other activities instead. **Pleasurable consequences are called reinforcers; unpleasant consequences are called punishers**.

Reinforcers

- A reinforcer is **defined as any consequence that strengthens** (that is, increases the frequency of) **a behavior**.
- **We say it reinforces the behavior, it strengthens it makes more likely. The reinforcements always increased behavior.**
- For example, candy might generally be considered a reinforcer for young children, but after a big meal a child might not find candy pleasurable, and some children do not like candy at all.
- A teacher who says, “I reinforced him with praise for staying in his seat during math time, but it didn’t work,” may be misusing the term reinforced if there is no evidence that praise is in fact a reinforcer for this particular student.
- **No reward can be assumed to be a reinforcer for everyone under all conditions**

primary and secondary reinforcers

- Reinforcers fall into two broad categories: **primary** and **secondary**.
- Primary reinforcers satisfy basic human needs: (just naturally reinforcing)
- Some examples are food, water, security, warmth.
- Secondary reinforcers are reinforcers that acquire their value by being associated with primary reinforcers or other well-established secondary reinforcers.
- For example, money has no value to a young child until the child learns that money can be used to buy things that are themselves primary or secondary reinforcers. Secondary reinforcers have to be learned.
- Grades have little value to **students unless their families** notice and value good grades, and families' praise is of value because it is associated with love, warmth, security, and other reinforcers.

primary and secondary reinforcers

- There are three basic categories of secondary reinforcers.
- One is social reinforcers, such as **praise, smiles, hugs, or attention**.
- When Ms. Esteban recognized Rebecca, she was inadvertently giving Rebecca a social reinforcer: her own attention.
- Other types of secondary reinforcers are activity reinforcers (**such as access to toys, games, or fun activities**)
- and token (or symbolic) reinforcers (**such as money, grades, stars, or points that individuals can exchange for other reinforcers**)

positive and negative reinforcers

- Most often, the reinforcers used in schools are positive reinforcers that include **praise, grades, and stars**. Positive reinforcement involves giving you something that's good. If I give you an ice cream every time you do your homework, then that's going to increase the likelihood that you'll do your homework the next day.
- However, another way to strengthen a behavior is if its consequence **is an escape from an unpleasant situation or a way of preventing something unpleasant from occurring**.

positive and negative reinforcers

- Negative reinforcement is also going to increase the behavior, but in this way we do it by taking away something bad.
- If you have a headache and you take an aspirin. So the behavior is taking an aspirin. The result is that it makes your headache go away. If that works then next time you have a headache you are going to reach for the aspirin. You are taking away something in order to increase a behavior
- For example, a parent might release a student from doing the dishes for completing homework. If doing the dishes is seen as an unpleasant task, release from it will be reinforcing. Escapes from unpleasant situations are called negative reinforcers

reinforcers

- Primary(naturelly) reinforce: Food, water, or other consequence that satisfies a basic need.
- Secondary(have to be learned) reinforce: A consequence that people learn to value through its association with a primary reinforce
- Positive(good things) reinforce: Pleasurable consequence given to strengthen behavior.
- Negative(escaped) reinforce: Release from an unpleasant situation, given to strengthen behavior.

Punishers

- Consequences that weaken behavior are called **punishers**. Punishment always reduces the behavior.
- Note that there is the same catch in the definition of punishment as in the definition of reinforcement: If an apparently unpleasant consequence does not reduce the frequency of the behavior it follows, it is not necessarily a punisher.
- For example, some students like being sent to the principal's office or out to the hall because it releases them from the classroom, which they see as an unpleasant
- **Some students like to be scolded** because it gains them your attention and perhaps enhances their status among their peers. As with reinforcers, the effectiveness of a punisher cannot be assumed but must be demonstrated. Punishment can take two primary forms.

Punishment can take two primary forms.

- **PRESENTATION PUNISHMENT(positive punishment)** The use of unpleasant consequences, or aversive stimuli, characterizes presentation punishment, **as when a student is scolded.**
- **REMOVAL PUNISHMENT(negative punishment)** The withdrawal of a pleasant consequence describes removal punishment. Examples **include loss of a privilege, having to stay in during recess, or receiving detention after school.** Or If you passed speed limit on highway likelihood I will take a punishment letter and next time you'll be very careful on same way

Immediacy of Consequences

- One very important principle of behavioral learning theories is that consequences **that follow behaviors closely in time affect behavior** far more than delayed consequences.
- **A smaller reinforcer that is given immediately generally has a much larger effect than does a large reinforcer given later**
- Particularly for younger students, praise for a job well done that is given immediately **can be a stronger reinforcer** than a good grade given much later. Moving close to a student who is misbehaving, touching his or her shoulder, or making a gesture (e.g., finger to lips to ask for silence) may be much more effective than a scolding or warning given at the end of class
- **One very important principle of behavioral learning theories is that consequences that follow behaviors closely in time affect behavior far more than delayed consequences.**

Shaping

- Immediacy of reinforcement is important to teaching, but so is the decision of what to reinforce.
- Should a kindergarten teacher withhold reinforcement until a child knows the sounds of all 26 letters?
- Certainly not. **It would be better to praise children for recognizing one letter, then for recognizing several, and finally for learning the sounds of all 26 letters.**
- Should a music teacher withhold reinforcement until a young student has played a piano piece flawlessly? Or should the teacher praise the first halting runthrough?
- **Most students need reinforcement along the way.** When you guide students toward goals by reinforcing the many steps that lead to success, you are using a technique called shaping.

shaping

The teaching of a new skill or behavior by means of reinforcement for small steps toward the desired goal.



Extinction

- The weakening and eventual elimination of a learned behavior as reinforcement is withdrawn.
- Extinction is rarely a smooth process. When reinforcers are withdrawn, individuals often increase their rate of behavior for a while.
- For example, think of a door that you've used as a shortcut to somewhere you go frequently. Imagine that one day the door will not open. You may push even harder for a while, shake the door, turn the handle both ways, perhaps even kick the door. You are likely to feel frustrated and angry. However, after a short time you will realize that the door is locked and go away. If the door is permanently locked (without your knowing it), you may try it a few times over the next few days and then perhaps once after a month; only eventually will you give up on it

Extinction

- Extinction of a previously learned behavior can be hastened when some stimulus or cue informs the individual that behaviors that were once encouraged will no longer be reinforced. In the case of the locked door, a sign saying, “**Door permanently locked— use other entrance**” would have greatly reduced the number of times you tried the door before giving up on it.
- **Call-outs will be reduced much more quickly** if Ms. Esteban tells her class, “I will no longer respond to children unless they are silent and are raising their hand,” and **then ignores all other attempts to get her attention.**

Schedules of Reinforcement

- The effects of reinforcement on behavior depend on many factors, one of the most important of which is the schedule of reinforcement.
- **This term refers to the frequency with which reinforcers are given**, the amount of time that elapses between opportunities for reinforcement, and the predictability of reinforcement.

Maintenance

- **when new behaviors are being introduced, reinforcement for correct responses should be frequent and predictable.** However, once the behaviors are established, reinforcement for correct responses should become less frequent and less predictable. The reason for this is that variable schedules of reinforcement and schedules that require many behaviors before reinforcement is given are much more resistant to extinction than are fixed schedules or easy ones.
- For example, if you praise a student every time the student does a math problem but then stop praising, the student may stop doing math problems. In contrast, if you gradually increase the number of math problems a student must do to be praised and praise the student at random intervals (a variable-ratio schedule), then the student is likely to continue to do math problems for a long time with little or no reinforcement from you.

The Role of Antecedents

- We have seen that the consequences of behavior strongly influence behavior. **Yet it is not only what follows a behavior that has influence. The stimuli that precede a behavior also play an important role**
- **Events that precede behaviors** are the role of antecedents.
- <https://www.youtube.com/watch?v=H6LEcM0E0io>

Bandura: Modeling and Observational Learning

- Bandura noted that the Skinnerian emphasis on the effects of the consequences of behavior largely ignored the phenomena of modeling—the imitation of others' behavior— and of vicarious experience—learning from others' successes or failures.
- He felt that much of human learning is not shaped by its consequences but is more efficiently learned directly from a model.
- The physical education teacher demonstrates jumping jacks, and students imitate. Bandura calls this no-trial learning because students do not have to go through a shaping process but can reproduce the correct response immediately.
- Bandura's (1986) analysis of observational learning involves four phases: attentional, retention, reproduction, and motivational phases.

- 1. Attentional phase. The first phase in observational learning is paying attention to a model. In general, students pay attention to role models who are attractive, successful, interesting, and popular. This is why so many students copy the dress, hairstyle, and mannerisms of pop culture stars. In the classroom you gain the students' attention by presenting clear and interesting cues, by using novelty or surprise, and by motivating students.
- 2. Retention phase. Once teachers have students' attention, it is time to model the behavior they want students to imitate and then give students a chance to practice or rehearse. For example, you might show how to write the letter A. Then students would imitate your model by trying to write A's themselves.

- 3. Reproduction. During the reproduction phase, students try to match their behavior to the model's. In the classroom the assessment of student learning takes place during this phase. For example, after seeing the letter A modeled and practicing it several times, can the student reproduce the letter so that it looks like your model?
- 4. Motivational phase. The final stage in the observational learning process is motivation. Students will imitate a model because they believe that doing so will increase their own chances to be reinforced. In the classroom the motivational phase of observational learning often entails praise or grades given for matching your model. Students pay attention to the model, practicing and reproducing it because they have learned that this is what you like and they want to please you. When the child makes a recognizable A, you say, "Nice work!"

Chapter Summary

- What Is Learning?
- Learning involves the acquisition of abilities that are not innate. Learning depends on experience, including feedback from the environment.
- What Are Behavioral Learning Theories?
- Early research into learning studied the effects of stimuli on reflexive behaviors. Ivan Pavlov contributed the idea of classical conditioning, in which neutral stimuli can acquire the capacity to evoke behavioral responses through their association with unconditioned stimuli that trigger reflexes. B. F. Skinner continued the study of the relationship between behavior and consequences. He described operant conditioning, in which reinforcers and punishers shape behavior.

What Are Some Principles of Behavioral Learning?

- Reinforcers increase the frequency of a behavior, and punishers decrease its frequency. Reinforcement can be primary or secondary, positive or negative. Intrinsic reinforcers are rewards inherent in a behavior itself. Extrinsic reinforcers are praise or rewards. Punishment involves weakening behavior by either introducing aversive consequences or removing reinforcers. The Premack Principle states that a way to increase less-enjoyed activities is to link them to more-enjoyed activities. Shaping through timely feedback on each step of a task is an effective teaching practice based on behavioral learning theory. Extinction is the weakening and gradual disappearance of behavior as reinforcement is withdrawn. Schedules of reinforcement are used to increase the probability, frequency, or persistence of desired behavior. Reinforcement schedules may be based on ratios or intervals and may be fixed or variable. Antecedent stimuli serve as cues indicating which behaviors will be reinforced or punished. Discrimination involves using cues to detect differences between stimulus situations, whereas generalization involves responding to similarities between stimuli. Generalization involves the transfer or carryover of behaviors learned under one set of conditions to other situations.