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- ✓ **CARTOON** Obedience Training
- ✓ **DIAGRAM** Swimming: A Response Chain
- ✓ **IMAGE** Edward Thorndike
- ✓ **SELF-CHECK QUIZ**



## LESSON 2

# Operant Conditioning

Reading **HELP**DESK



### Academic Vocabulary

- affect
- obtain

### Content Vocabulary

- operant conditioning
- reinforcement
- secondary reinforcer
- primary reinforcer
- shaping
- response chain
- aversive control
- negative reinforcement
- escape conditioning
- avoidance conditioning

### TAKING NOTES:

#### Integration of Knowledge and Ideas

**IDENTIFYING** Use a graphic organizer like the one below to list reinforcers and methods that impact behavior.

Behaviors


**ESSENTIAL QUESTION** • How do our experiences change our behavior?

## IT MATTERS BECAUSE

*Our actions have consequences. Sometimes these consequences make us more likely to repeat a certain behavior. Other consequences may make us more likely to avoid a certain behavior. Both sets of actions and consequences are operant conditioning. Operant conditioning occurs when the consequences that follow a behavior increase or decrease the likelihood of that behavior occurring again.*

## Reinforcement

**GUIDING QUESTION** What are the central features of operant conditioning?

Suppose your dog is wandering around the neighborhood, sniffing trees, checking garbage cans, looking for a squirrel to chase. A kind neighbor sees your dog and tosses a bone out the kitchen door to it. The next day, the dog is likely to stop at the same door on its rounds, and maybe even go to the door directly. When your dog shows up again your neighbor produces another bone, and the same thing happens the next day. Your dog now visits your neighbor on a daily basis.

This story is an example of **operant conditioning**—that is, learning from the consequences of behavior. The term *operant* is used because the subject, the wandering dog in our example, operates on or causes some change in the environment. This produces a result that influences whether the subject will operate or respond in the same way in the future. Depending on the effect of the operant behaviors, the learner will repeat or eliminate these behaviors to get rewards or avoid punishment.

How does operant conditioning differ from classical conditioning? One difference lies in how the researcher conducts the experiment. In classical conditioning, the researcher presents the conditioned and unconditioned stimuli independent of the participant's behavior. The unconditioned response is drawn out of the participant. Reactions to the conditioned stimulus are then observed by the researcher. In operant conditioning, the participant must engage in a behavior in order for the programmed outcome to occur. In other words, the study of operant conditioning is a study of how voluntary behavior is **affected**, or influenced, by its consequences.

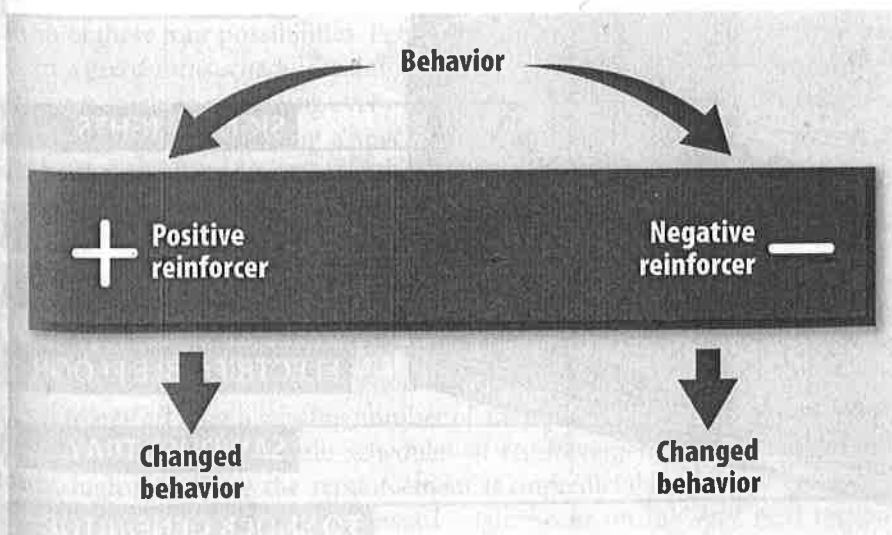
## Positive and Negative Reinforcement

Burrhus Frederic (B.F.) Skinner has been the psychologist most closely associated with operant conditioning. He believed that most behavior is influenced by a person's history of rewards and punishments. Skinner trained (or shaped) rats to respond to lights and sounds in a special enclosure called a Skinner box. To conduct this experiment, a rat is placed inside the box. The rat must learn how to solve the problem of how to get food to appear in the cup, which can be done by pressing a bar on the cage wall. The rat first explores the box. When the rat moves toward the bar, the experimenter drops food into the cup. The food is important to the hungry rat. After the rat begins to approach the cup for food consistently, the experimenter begins to drop food into the cup only if the rat presses the bar. Eventually, when the rat is hungry it will press the bar to get food.

The food that appears in the cup is a reinforcer in this particular demonstration. **Reinforcement** can be defined as a stimulus or an event that increases the likelihood that the preceding behavior will be repeated. Whether or not a particular stimulus is a reinforcement depends on the effect the stimulus has on the learner. Examples of reinforcers that people usually respond to are social approval, money, and extra privileges.

Suppose you want to teach a dog to shake hands. One way would be to give the animal a treat every time it lifts its paw up to you. The treat is called a *positive reinforcer*. In this example, the dog will eventually learn to shake hands in order to get the reward. Your dog will stop shaking hands when you forget to reward it for the trick. Extinction will occur because the reinforcement is withheld, but it will take a period of time. Remember, in classical conditioning, extinction is the disappearance of a conditioned response when an unconditioned stimulus no longer follows a conditioned stimulus. In fact, for a while after you stop rewarding the dog, it will probably become impatient, bark, and paw even more insistently than it did before to get you to provide the reward. However, the dog will give up shaking hands. Later the dog will try to shake hands again, indicating that spontaneous recovery has occurred.

Whereas positive reinforcement occurs when something desirable is *added* after an action, negative reinforcement occurs when something undesirable is *removed*, or stopped, after an action. For instance, there are automobiles that when driven produce an unpleasant dinging sound if the driver has left her seat belt unbuckled. When the driver buckles her seat belt, the dinging sound goes away. She has to perform the action of buckling her seat belt to receive the desired result of the removal of the dinging sound. This is negative reinforcement.



## operant conditioning

learning in which a certain action is reinforced or punished, resulting in corresponding increases or decreases in occurrence

**affected** influenced or changed by a set of consequences

**reinforcement** stimulus or event that follows a response and increases the likelihood that the response will be repeated

### < DIAGRAM

#### OPERANT CONDITIONING

A change in behavior is often the result of both positive and negative reinforcement.

#### ► CRITICAL THINKING

- 1. Analyzing Visuals** According to the diagram, what must happen for behavior to change?
- 2. Differentiating** How is operant conditioning different from classical conditioning?

**primary reinforcer**  
stimulus that is naturally  
rewarding, such as food or water

**secondary reinforcer**  
stimulus such as money that  
becomes rewarding through its link  
with a primary reinforcer

**obtain** to get possession of  
something, especially by making  
an effort or having the necessary  
qualifications

## Primary and Secondary Reinforcers

Reinforcers come in many varieties. Some reinforcers are primary and some are secondary. A **primary reinforcer** is one that satisfies a biological need such as hunger, thirst, or sleep. Food and water are examples of primary reinforcers. A **secondary reinforcer** is one that has been paired with a primary reinforcer and through classical conditioning has acquired value and the ability to reinforce. With conditioning, almost any stimulus can acquire value and become a secondary reinforcer, such as a warm bed or spoken praise.

An experimenter named Wolfe demonstrated this in 1936 with chimpanzees. Poker chips have no value for chimps—they are not edible and they are not very much fun to play with. This experimenter, however, used operant and classical conditioning to teach chimps to value poker chips as much as humans value money. He provided the animals with a “Chimp-O-Mat” that dispensed peanuts or bananas, which are primary reinforcers to chimpanzees. To **obtain** food, the chimps had to pull down on a heavily weighted bar to obtain poker chips, and then insert the chips in a slot in the machine. With repetition, the poker chips became conditioned, or secondary reinforcers. Their value was evident from the fact that the chimpanzees would work for the poker chips, save them, and sometimes try to steal them from one another.

Money is the best example of a secondary reinforcer in human society. You have learned that getting money is associated with buying food or other material things. A dollar bill in and of itself is not a reinforcer; being able to purchase food, water, and other primary reinforcers with the dollar is what gives it its value or reinforcement to humans. Other examples of secondary reinforcers would include praise, status, and prestige. Most likely you have been the recipient of a secondary reinforcer because of your efforts at school. For example, you have to write a paper for your history class. You work several hours researching information on a specific event and then carefully write, edit, and proofread your paper. As a result, you receive an A+ on the paper. The final grade is an example of a secondary reinforcer. All of these items are associated with a primary reinforcer and have acquired value, so they reinforce certain types of behavior when they are earned.

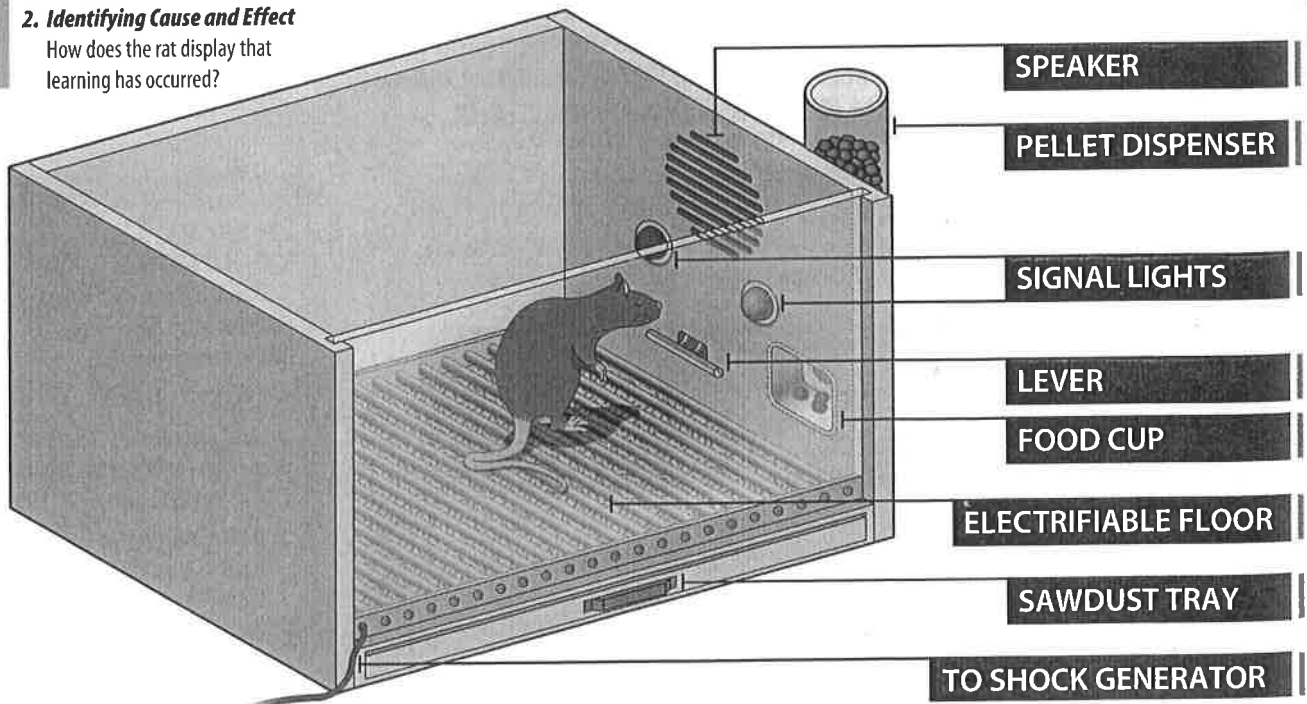
### DIAGRAM

#### SKINNER BOX

The Skinner box is a basic apparatus used to test theories of operant conditioning. When the rat presses the bar located on the side of the box, food is delivered to the cup.

#### ► CRITICAL THINKING

- 1. Sequencing** How does the researcher teach the rat to press the lever?
- 2. Identifying Cause and Effect** How does the rat display that learning has occurred?



## Schedules of Reinforcement

One important factor in operant conditioning is the timing and frequency of reinforcement. Behavior that is reinforced every time it occurs is said to be on a *continuous schedule* of reinforcement. You might suppose that behavior would best be maintained by reinforcing every response. However, when positive reinforcement occurs only intermittently, or on a *partial schedule*, the responses are generally more stable and last longer once they are learned. A person or animal that is continuously reinforced for a behavior tends to maintain that behavior only when the reinforcement is given. If the reinforcement stops, the behavior quickly undergoes extinction. For example, a rat learns to press a bar most rapidly when it receives food each time it does so. When the rat stops receiving food each time it presses the bar, however, it quickly stops its bar-pressing.

Behaviors that are acquired on partial schedules of reinforcement are established more slowly but are more persistent. For example, a rat that is only sometimes rewarded with food for pressing a bar will continue to press even though no food appears. Rats and humans that are reinforced on partial schedules of reinforcement cannot always predict when the next reinforcement will occur, so they learn to be persistent. Skinner discovered the strength of partial reinforcement when his apparatus kept breaking down. Skinner found that the rats kept responding even though they were reinforced randomly. In fact, the rats responded with even greater endurance.

Although intermittent reinforcement may be arranged in a number of ways, four basic methods, or schedules, have been studied in the laboratory. Schedules of partial reinforcement may be based either on the *number* of correct responses that the animal makes between reinforcements (*ratio* schedule) or on the *amount of time* that elapses before reinforcement is given (*interval* schedule). In either case, reinforcement may appear on a *fixed*, or predictable, schedule or on a *variable*, or unpredictable, schedule. The four basic schedules result from the combination of these four possibilities. People and animals respond differently to each.

In a *fixed-ratio schedule*, reinforcement depends on a specified quantity of responses, such as rewarding every fourth response. The student who receives a good grade after completing a specified amount of work and the typist who is paid by the number of pages completed are on fixed-ratio schedules. People tend to work hard on fixed-ratio schedules. Another example would be dentists who get paid \$150 for *each* cavity repaired or filled.

A *variable-ratio schedule* does not require that a fixed or set number of responses be made for each reinforcement, as in the fixed-ratio schedule. Rather, the number of responses needed for a reinforcement changes from one reinforcer to the next. Slot machines are a good example of a variable-ratio schedule. They are set to pay off after a varying number of attempts at pulling the handle. Generally, animals on variable-ratio schedules of reinforcement tend to respond at a steady, high rate. Since the reinforcement is unpredictable, there is typically no pause after a reward because a reward might occur on the very next response.

## Quick Lab

### WHAT REINFORCEMENT SCHEDULES OPERATE IN YOUR CLASSROOM?

Do you think that students would do schoolwork if there were no grading system? What reinforcements would operate if grades were abolished?

#### Procedure

1. Identify the types of reinforcers that operate in your classroom.
2. Make a chart that lists the type of reinforcer (primary, secondary, positive, negative) and the classroom behavior it usually elicits.
3. Devise a system for your classroom that could replace the existing reinforcers with new ones (and achieve the same results).

#### Analysis

1. Describe how the new reinforcers operate.
2. Indicate what responses the new reinforcers are supposed to elicit.

Door-to-door salespeople and individuals who do telephone surveys are also operating on variable-ratio schedules since they never know how many doorbells they will have to ring or how many calls they will have to make before they make a sale or find someone who will answer the survey.

On a *fixed-interval schedule*, the first correct response after a specified amount of time is reinforced. The time interval is always the same. Once animals gain experience with a fixed-interval reinforcement schedule, they adjust their response rates. Since no reinforcement occurs for a period of time no matter what their behavior, they learn to stop responding immediately after reinforcement is given and then begin to respond again toward the end of the interval. The result is regular, recurring periods of inactivity followed by short bursts of responding, producing a “scalloped” response curve. Tests are often given on a fixed-interval schedule. It is likely that you will study feverishly the day before a test but study much less immediately afterwards.

On a *variable-interval schedule*, the time at which the reinforcement is given changes. If a teacher announced at the beginning of the year that your grade will include random quizzes given throughout the year on material that was covered the day before, what would you do if you wanted to get an A in that class? You would do a quick nightly review of what you covered in class that day in case there was a quiz the next day. The reinforcer is gained the first time you are given a pop quiz, but you do not know when that is going to occur. The usual response rate on a variable-interval schedule is slow, but steady—slower than on any other schedule of partial reinforcement. In fact, your eagerness to score well on the quizzes probably will determine roughly how often you review your notes for that class each day.

In summary, ratio schedules are based on numbers of responses, while interval schedules are based on time. Responses are more resistant to extinction when reinforced on a variable rather than on a fixed schedule. To be most effective, however, the reinforcement must be consistent for the same type of behavior, although it may not occur each time the behavior does. The complexity of our behavior means that most reinforcers in human relationships are on a variable schedule. How people will react cannot always be predicted.

#### CHART

### PARTIAL SCHEDULES OF REINFORCEMENT

B.F. Skinner pointed out many examples of how schedules of reinforcement maintain and control different behaviors. The different schedules produce different response rates.

#### ► CRITICAL THINKING

- Analyzing Visuals** Which type of schedule is like playing a slot machine? Why?
- Contrasting** How does a fixed-ratio schedule differ from a fixed-interval schedule of reinforcement?

#### ✓ READING PROGRESS CHECK

**Analyzing** How are different types of reinforcers used to change behavior?

<b>Fixed schedules</b>	
<p><b>Fixed Ratio</b> (reinforcement after a fixed number of responses)</p> <ul style="list-style-type: none"> <li>• being paid for every 10 pizzas made</li> <li>• being ejected from a basketball game after five fouls</li> </ul>	<p><b>Fixed Interval</b> (reinforcement of first response after a fixed amount of time has passed)</p> <ul style="list-style-type: none"> <li>• cramming for an exam</li> <li>• picking up your check from your part-time job</li> </ul>
<b>Ratio</b>	<b>Interval</b>
<p><b>Variable Ratio</b> (reinforcement after varying number of responses)</p> <ul style="list-style-type: none"> <li>• playing a slot machine</li> <li>• sales commissions</li> </ul>	<p><b>Variable Interval</b> (reinforcement of first response after varying amounts of time)</p> <ul style="list-style-type: none"> <li>• surprise (pop) quizzes in class</li> <li>• checking your favorite blog for an update</li> </ul>
<b>Variable schedules</b>	



## Shaping and Chaining

**GUIDING QUESTION** *How do we learn complex processes?*

Operant conditioning is not limited to simple behaviors. When you acquire a complex skill such as knitting, photography, playing basketball, or talking persuasively, you learn more than just a single new stimulus-response relationship. You learn a large number of them, and you learn how to put them together into a large, flowing unit. In learning complex processes such as these, you are engaging in both shaping and chaining.

### Shaping

**Shaping** is a process in which reinforcement is used to sculpt new responses out of old ones. An experimenter can use this method to teach a rat to do something it has never done before and would never do if left to itself. He or she can shape it, for example, to raise a miniature flag. The rat is physically capable of standing on its hind legs and using its mouth to pull a miniature flag-raising cord, but at present it does not do so. The rat probably will not perform this by accident, so the experimenter begins by rewarding any action similar to the wanted responses, using reinforcement, such as food pellets, to produce closer and closer approximations of the desired behavior.

Imagine the rat roaming around on a table with the flag apparatus in the middle. The rat inspects everything and finally sniffs at the flagpole. The experimenter immediately reinforces this response by giving the rat a food pellet each time it comes to the pole. Now the rat frequently sniffs the flagpole, hoping to get another pellet, but the experimenter waits until the rat lifts a paw before he gives it another reward. Now the experimenter waits until the rat stands on its hind legs before giving another reward. This process continues with the experimenter reinforcing close responses and then waiting for even closer ones.

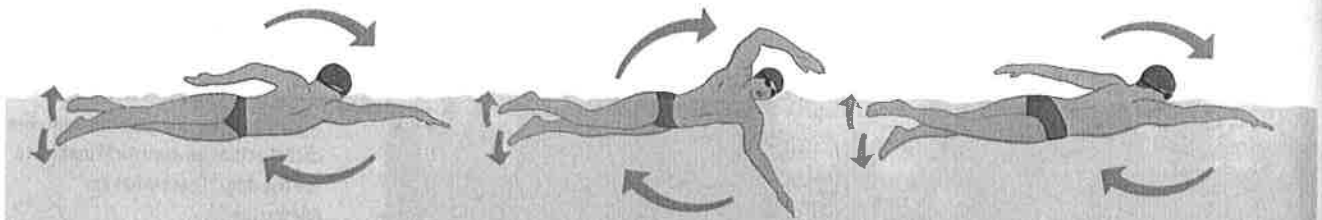
Eventually, the experimenter has the rat on its hind legs nibbling at the cord. Suddenly the rat seizes the cord in its teeth and yanks it. Immediately the rat is rewarded, and it begins pulling rapidly on the cord. A new response has been shaped. Shaping is used to teach animals tricks. For example, when a television character points her finger to the ground and her dog immediately lies down, shaping was involved in the dog's behavior. If shaping is done properly, almost any animal can learn some unusual tricks.

Clicker training is a common form of shaping. The trainer waits for the dog to perform the desired action on its own. The instant it performs, the trainer hits the clicker (an audio signal) and the dog gets the treat. The clicker acts as an acoustical marker to tell the dog, "That's what I'm reinforcing."

### ► CRITICAL THINKING

**Predicting Consequences** How might you use shaping to teach a dog to "shake hands"?

**shaping** technique in which the desired behavior is "molded" by first rewarding any act similar to that behavior and then requiring ever-closer approximations to the desired behavior before giving the reward



To learn to swim, you must first learn the arm stroke, then how to breathe properly, and finally how to kick your legs.

#### DIAGRAM ^

### SWIMMING: A RESPONSE CHAIN

To learn to swim, you must first learn the arm stroke, then how to breathe properly, and finally how to kick your legs.

#### CRITICAL THINKING

- 1. Comparing** What similar response chains can you describe that you would have to develop to learn other skills?
- 2. Identifying Central Issues** How does chaining allow us to learn complex processes?

**response chain** learned reactions that follow one another in sequence, each reaction producing the signal for the next

**aversive control** process of influencing behavior by means of unpleasant stimuli

**negative reinforcement** increasing the strength of a given response by removing or preventing a painful stimulus when the response occurs

**escape conditioning** training of an organism to remove or terminate an unpleasant stimulus

### Combining Responses: Chaining

In order to learn a skill, a person must be able to put various new responses together. Responses that follow one another in a sequence are combined into **response chains**. Each response is the signal for the next one.

In learning, chains of responses are organized into larger *response patterns*. For example, the complex skill of swimming has three major chains that are combined to make up the whole swimming pattern—an arm-stroking chain, a breathing chain, and a leg-kicking chain. After much practice, you no longer have to think about the different steps involved. The behavior takes on a rhythm of its own: the chains of responses flow naturally as soon as you dive into the water.

It is usually necessary to learn simple responses before mastering a complex pattern. Before a person can learn to perform a particular skill, he or she must learn all the lower skills that make the larger skill possible. A woodcarver does not produce a masterpiece the first time he picks up a carving tool. He first learns which tools to use for each purpose and how to hold his tools. He works from simple to complex designs. Only after much practice is he able to carve an intricate and ornate masterpiece.

#### READING PROGRESS CHECK

**Analyzing** How can skills be taught using operant conditioning over time?

### Aversive Control

**GUIDING QUESTION** *How can unpleasant stimuli affect our behavior?*

Reinforcement refers to anything that increases the frequency of an immediately preceding behavior. Aversive, or unpleasant, consequences influence much of our everyday behavior. **Aversive control** refers to this type of conditioning or learning. There are two ways in which unpleasant events can affect behavior—as negative reinforcers or as punishers.

### Negative Reinforcement

In **negative reinforcement**, a painful or unpleasant stimuli is reduced or removed. The removal of unpleasant consequences increases the frequency of a behavior. It may help you to understand negative reinforcement if you remember that it *follows* and *negates*, or takes away, an aversive stimulus. B.F. Skinner provided this example: If walking with a stone in your shoe causes you to limp, removing the stone (negating it) allows you to walk without pain. Other examples of negative reinforcers are fear reduction and experiencing disapproval of unwelcome behavior.

Two uses of negative reinforcement that psychologists have studied in detail are *escape conditioning* and *avoidance conditioning*. In **escape conditioning**, a person's behavior causes an unpleasant event to stop. Consider the case of a child who hates liver and is served it for dinner. She whines about the food and gags

while eating it. At this point, her father removes the liver. The whining and gagging behavior has been thus negatively reinforced, and the child is likely to whine and gag in the future when given an unpleasant meal. This kind of learning is called escape conditioning because the behavior of the child allowed her to escape the dreaded liver meal.

In **avoidance conditioning**, the person's behavior has the effect of preventing an unpleasant situation from happening. In our example, if the child starts whining and gagging when the father removes the liver from the refrigerator to cook it, he may decide to put it back and fix something else. We would identify the situation as avoidance conditioning; the child avoided the unpleasant consequences by whining early enough. The reinforcer here is the reduction of the child's disgust—not having to eat liver.

You may have begun your day with the negative reinforcement of an alarm clock. The unpleasant sound of the alarm does not end until you wake up enough to shut it off. Shutting off the alarm clock is an example of escape conditioning. Learning to wake up just before the alarm sounds is avoidance conditioning.

Aversive conditioning is also used to treat some forms of addictions. An unpleasant stimulus is applied while a person is participating in the behavior being targeted. A person being treated for a tobacco or alcohol addiction would be given, while smoking or drinking, a medicine that produces nausea. The addictive behavior becomes associated with the unpleasant stimulus, encouraging the person to avoid the addictive behavior.

**avoidance conditioning**  
training of an organism to respond so as to prevent the occurrence of an unpleasant stimulus

## Connecting Psychology to History

### THORNDIKE AND THE LAW OF EFFECT

As you have read, behaviorism is a method to understand actions in terms of the stimuli that produce them. Classical conditioning uses a stimulus to produce a desired response. Operant conditioning uses consequences of responses to produce desired behavior.

Edward Thorndike (1874–1949) was a pioneer in the study of behavior. As an educator, he wanted to understand how people learned. He tested his ideas with chickens and cats to observe trial-and-error learning. Thorndike placed cats in a “puzzle box” and placed fish outside the box. By watching the behavior of cats learning to escape from a “puzzle box,” Thorndike determined that behaviors which produced satisfaction (here escape from the box and being fed the fish) were “stamped in” and more readily repeated. Responses leading to failure, or dissatisfaction, were “stamped out,” or less likely to be repeated. This led Thorndike to formulate the Law of Effect, one of the two laws of learning he proposed from his study. The Law of Effect says that behaviors leading to satisfactory outcomes are likely to be repeated while behaviors leading to unsatisfactory outcomes are less likely to be repeated.

The Law of Exercise, his second law of learning, states that associations which are practiced are “stamped in” while others are extinguished. These two laws of learning set out the principle that behavior is associated with reward and punishment. Thorndike's work laid the groundwork for the field of operant conditioning.



▲ Edward Thorndike's work helped lay the foundation for educational psychology.

#### ► CRITICAL THINKING

- 1. Interpreting Significance** How is the Law of Effect important to understanding the way people learn?
- 2. Making Connections** How is the Law of Effect similar to trial-and-error?





## CARTOON ^

### OBEDIENCE TRAINING

Aversive control pairs a painful response with a neutral stimulus in order to change behavior.

#### ► CRITICAL THINKING

##### 1. Identifying Perspectives

What type of conditioning has the owner been subjected to?

2. **Explaining** How could the dog use avoidance conditioning on its owner?

### Punishment

The most obvious form of aversive control is punishment. In punishment, an unpleasant consequence occurs and decreases the frequency of the behavior that produced it. Negative reinforcement and punishment operate in opposite ways. In negative reinforcement, escape or avoidance behavior is *repeated* and increases in frequency. In punishment, behavior that is punished decreases or is *not repeated*. If you want to stop a dog from pawing at you when it wants attention, you should loudly say, "NO!" and reprimand it when it paws at you. Such actions are called *punishers*. They are intended to reduce the frequency of the dog pawing at you.

As with reinforcers, the events or actions that serve as punishers depend on their effect on the learner. For example, if a young child in a large family seeks extra attention from her parents, that child may misbehave. In response the parents punish the child by reprimanding her. The reprimands are meant to be punishers. They, however, may actually serve as reinforcers for the child because she is getting the attention she is seeking from her parents. Perhaps a more appropriate punisher would be to send her to her room or to another place in the house every time she misbehaved. In this way, she would not get the attention she was seeking. This unpleasant stimulus would discourage the child from repeating the behavior.

Remember that the goal of negative reinforcement is to increase the occurrence of behavior that ends an unpleasant stimulus. The goal of punishment is to decrease the occurrence of a particular behavior. Reinforcement can be either positive or negative. Punishment can be positive and negative also. Negative reinforcement occurs when something desirable is taken away. In the case of the child who sought attention, the reprimands were a form of positive punishment. Sending her to her room or to an equally "lonely" place would have been negative punishment since it took away something she wanted—attention. Parents of a student who fails to complete his homework may find that they can use negative punishment by requiring their son to finish his homework before he is allowed to hang out with his friends, watch TV, play video games, or take part in any other desirable activity. Until his work is completed, he cannot participate in the activities he enjoys most. Doing the homework is an unpleasant situation, but the activities he is missing are a stronger negative situation and one that he would be willing to avoid.

## Disadvantages of Punishment

Psychologists have found several disadvantages in using aversive stimuli (punishment) to change behavior. For one thing, aversive stimuli can produce unwanted side effects such as rage, aggression, and fear. Then, instead of having to change only one problem behavior, additional behaviors may need to change. For example, children whose parents rely on spanking to control disobedience may also have to deal with the problem of their children's increased aggressiveness toward other children. The child may become confused because the spanking itself, or use of a physical action, may seem like an acceptable behavior in her or others.

A second problem with punishment is that people learn to avoid the person delivering the aversive consequences. Children learn to stay away from their parents or teachers who often punish them. Children may also learn to act one way around their parents or teachers to avoid the punishment, while they continue the same behavior when they are around their peers. One consequence of this is that parents and teachers have less opportunity to correct the children's inappropriate behavior because they will not be near them when they are acting in this way. Also, punishment is likely to merely suppress, but not eliminate, the behavior. The punished behavior is likely to occur at some other time or in some other place. The child may have learned something from the punishment, but it was not the lesson the parent or teacher intended.

Punishment alone does not teach appropriate and acceptable behavior. It must be accompanied by modeling of the desired behaviors. Without positive coaching and modeling, the child may never learn the correct behavior or understand what the parents think is the acceptable behavior in a given situation. Punishment is even less likely to be effective if a child sees a parent or other trusted adult performing the same behavior for which he or she has been punished.

### READING PROGRESS CHECK

**Classifying** What is the difference between negative reinforcement and punishment?



Punishment is a form of aversive control that seeks to reduce a specific behavior.

#### CRITICAL THINKING

**Predicting Consequences** What additional problem behaviors may a young child exhibit after receiving punishment?

## LESSON 2 REVIEW



### Reviewing Vocabulary

- Summarizing** How do the four schedules of partial reinforcement work?
- Identifying** What is the difference between escape conditioning and avoidance conditioning?

### Using Your Notes

- Interpreting** Use the notes from your graphic organizer to explain the relationship between the various reinforcers and behavior.

### Answering the Guiding Questions

- Identifying** What are the central features of operant conditioning?
- Describing** How do we learn complex processes?
- Specifying** How can unpleasant stimuli affect our behavior?

### Writing Activity

- Informative/Explanatory** Using principles of operant conditioning, write a description of the process you would use to teach a puppy a new trick.