

**Study
Guide****9-2****Operant Conditioning***For use with textbook pages 250–258***Key Terms**

operant conditioning a form of learning in which a certain action is reinforced or punished, resulting in corresponding increases or decreases in the likelihood that similar actions will occur again (page 250)

reinforcement a stimulus or event which follows a response and increases the likelihood that the response will be repeated (page 251)

primary reinforcer a stimulus that is naturally rewarding, such as food or water (page 252)

secondary reinforcer a stimulus such as money that becomes reinforcing through its link with a primary reinforcer (page 252)

fixed-ratio schedule a schedule of reinforcement in which a specific number of correct responses is required before reinforcement can be obtained (page 253)

variable-ratio schedule a schedule of reinforcement in which an unpredictable number of responses are required before reinforcement can be obtained each time (page 254)

fixed-interval schedule a schedule of reinforcement in which a specific amount of time must elapse before a response will elicit reinforcement (page 254)

variable-interval schedule a schedule of reinforcement in which changing amounts of time must elapse before a response will obtain reinforcement each time (page 255)

shaping the technique of operant conditioning in which the desired behavior is “molded” by first rewarding any act similar to that behavior and then requiring closer and closer approximations to the desired behavior before giving the reward (page 255)

response chain learned reactions that follow one another in sequence, each reaction producing the signal for the next (page 256)

aversive control the process of influencing behavior by means of unpleasant stimuli (page 256)

negative reinforcement increasing the strength of a given response by removing or preventing a painful stimulus when the response occurs (page 256)

escape conditioning the training of an organism to remove or terminate an unpleasant stimulus (page 257)

avoidance conditioning the training of an organism to remove or withdraw from an unpleasant stimulus before it starts (page 257)

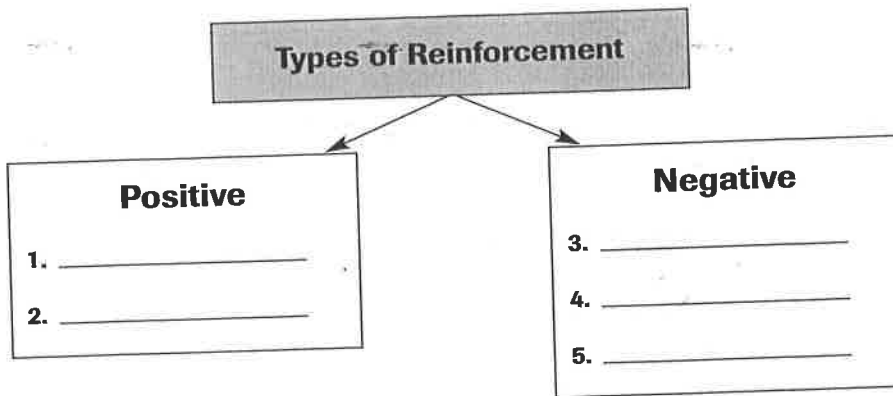
Drawing From Experience

Have you ever touched a hot iron and immediately pulled your hand away? Would you touch the iron again without testing it? We learn not to repeat behaviors that are harmful to us.

In the last section, you read about classical conditioning. Classical conditioning is one type of learning. In this section you will read about another type of learning called **operant conditioning**. This type of learning occurs when we receive rewards or punishments for our behavior.

Organizing Your Thoughts

Use the diagram below to help you take notes as you read the summaries that follow. Think about the various kinds of reinforcement that affect behavior and fill in examples of reinforcers.



Read to Learn

Introduction (page 250)

Every day we do many things. How things turn out affects what we do in the future. We learn from our actions. We tend to repeat actions that result in rewards and avoid actions that result in punishment. This is operant conditioning.

6. Name something you did in the past 24 hours that resulted in some kind of reward.

Reinforcement (page 251)

B.F. Skinner believed that people do things based on whether or not they will receive a reward or a punishment. If a reward makes you more likely to do something, it is called a **reinforcement**. There are two kinds of reinforcement. You can give people something as a reward for their behavior. This is called positive reinforcement. You can also reward people by taking away something unpleasant or painful. This is called negative reinforcement.

The strongest reinforcers are the ones that satisfy the basic needs of our body. These are called **primary reinforcers**. For example, food is a basic need. We need food to live. Food is a primary reinforcer. Reinforcers that are not directly connected to the needs of our body are called **secondary reinforcers**. Secondary reinforcers only work when we are conditioned to associate them with a primary reinforcer. If someone gives us money as a reward, it will strongly affect our behavior. Money is just a piece of paper or a round piece of metal. We cannot eat it or drink it. We have been conditioned, however, to associate money with our basic needs. We know we can buy food and other basic

needs with money. Money is a secondary reinforcer.

7. Would you use a primary or secondary reinforcer to train a dog to shake hands? Why?

Schedules of Reinforcement (page 253)

Rewards can be given in various ways. The plan for giving rewards is called a reinforcement schedule. You can reward people based on how often they do something. This is called a ratio schedule. If you reward people after they do something a specific number of times, you are using a **fixed-ratio schedule**. For example, if you pay a typist every time he or she types 10 pages for you, the typist is on a fixed-ratio schedule.

If people know they will be rewarded for their behavior, but do not know how often they have to do the behavior to get the reward, they are on a **variable-ratio schedule**. A slot machine uses a variable-ratio schedule. If you pull the handle enough times, eventually the machine will pay out money. The problem is that you do not know when you will be rewarded for pulling the handle.

Reinforcement schedules can also be based on time. This is called an interval schedule. You can reward people at specific times regardless of how often they have done something. If you reward people at the exact same time, you are using a **fixed-interval schedule**. Many teachers use a fixed-interval schedule for tests. The students know that the test will take place whether they study a lot or very little.

If you reward at random times, you are using a **variable-interval schedule**. A surprise quiz is an example of a teacher using a variable-interval schedule. Students know that a quiz could come at any time. In order to be ready, students need to study regularly since they cannot predict when they will be tested.

8. Which types of schedules have a long-lasting effect on behavior? Why?

Shaping and Chaining (page 255)

Operant conditioning can be used to teach new skills. One type of operant conditioning that is good for teaching skills is called **shaping**. Shaping teaches a new behavior step by step. At first, you are given a reward for behavior similar to the skill you are learning. To keep getting the rewards, however, you must get better at the skill. The rewards shape your behavior.

If you want to learn a complex skill, you need to learn several different behaviors. You also have to learn how to put the behaviors together in the right order. For example, if you want to learn how to swim, you have to learn several

behaviors. You have to learn how to kick your feet. You have to learn how to stroke with your arms. You have to learn how to breathe. Then you have to link these behaviors together. Linking behaviors together is called a **response chain**. Many complex activities require you to learn several response chains. You then have to put the chains together. Once you master the response chains, you will no longer have to think about each chain. Your actions become natural. You have learned a new skill.

9. You have to teach a friend a cheerleading routine. Would you be more likely to use shaping or chaining to teach the skill? Defend your choice.

Aversive Control (page 256)

Another way to condition someone is to use an unpleasant or painful stimulus. This is called **aversive control**. There are two kinds of aversive control. You can reward someone by taking away something that is unpleasant or painful. This is called **negative reinforcement**. You can also inflict something unpleasant or painful on someone to make them do something. This is called punishment.

Negative reinforcement works in two different ways. People can learn to behave a certain way to stop something unpleasant or painful. This is called **escape conditioning**. For example, a child who dislikes liver whines and gags when liver is placed in front of her. When her father removes the liver, the gagging and whining stop. The liver is a negative reinforcement. The child has learned that gagging and whining make liver go away. She has been conditioned to whine in order to escape from the liver.

People can also learn to behave a certain way to prevent something unpleasant or painful from starting. This is called **avoidance conditioning**. If the child's father dislikes hearing his daughter whine, he may stop serving liver. In his case, the whining is a negative reinforcement. The father has been conditioned to avoid the whining by not serving liver.

The other type of aversive control is punishment. Most people are familiar with how punishment works. If you do not change your behavior, something painful or unpleasant happens to you. Punishment is the opposite of negative reinforcement. Negative reinforcement makes people repeat their behavior. Punishment makes people stop their behavior.

Punishment can change behavior, but it can also cause fear, aggression, or rage. It can also teach someone that the way to avoid punishment is to stay away from the punisher. Punishment can teach you what not to do, but it cannot teach you the right behavior. Children need to be taught acceptable behavior as well as be punished for wrong behavior.

10. How might a child use avoidance conditioning to escape punishment for her action?
