Module 26

How We Learn and Classical Conditioning

Before You Read

Module Summary

Module 26 defines learning and identifies some basic forms of learning. The components of classical conditioning and behaviorism's view of learning are presented alongside a discussion of the specific processes of acquisition, extinction, spontaneous recovery, generalization and discrimination. The module concludes with an explanation of the applications and evidence of the importance of Ivan Pavlov's and John B. Watson's work.

Before beginning the module, take a moment to read each of the following terms and names you will encounter. You may wish to make vocabulary cards for each.

Key Terms

learning

habituation

associative learning

stimulus

respondent behavior

operant behavior

cognitive learning

classical conditioning

behaviorism

neutral stimulus (NS)

unconditioned response (UR)

unconditioned stimulus (US)

conditioned response (CR)

conditioned stimulus (CS)

acquisition

higher-order conditioning

extinction

spontaneous recovery

generalization

discrimination

Key Names

Ivan Pavlov

John B. Watson

While You Read

Answer the following questions/prompts.

26-1

1. What is the text's definition of learning? How is that different from the way the term is usually used?

2. The text states that we learn by association or linking two sequential events. Think of two learned behaviors from your life and detail the process of how you associated the events leading to each.

   Behavior #1:

   Behavior #2:

3. List and include a brief explanation of each of the three types of learning described in your textbook.

   a.

   b.

   c.

4. A circus lion repeatedly receives a smack on the nose just after the trainer walks into the cage. The lion shrinks from the trainer's slap each time and eventually cowers in the corner of the cage when the trainer enters. What would a behaviorist call this increased withdrawal response? Explain your answer.

26-2

1. Why were Pavlov's findings so important to behaviorism?

26-3

1. Complete the table below with the term, definition, and example from Pavlov's classic experiment. One has been filled in for you.

Component	Full Term	Definition	Pavlovian Example
US			
UR	unconditioned response	an unlearned, naturally occurring response to an unconditioned response	salivation to the food in the mouth
NS			
CS			
CR			

2. Using Figure 26.4 and the chart above, properly label the two associative learning examples below.

a. A young man and woman are on a date. The woman is wearing a perfume that smells like roses. Later, when the young man smells roses in his garden he has happy memories of his date.

US:

UR:

NS:

CS:

CR:

b. Look at Figure 26.1 on page 271 of your text and correctly label the components of the classically conditioned relationship between thunder and lightning.

US:

UR:

NS:

CS:

CR:

26-4

1. How does higher-order conditioning differ from the initial acquisition of the stimulus-response relationship?

2. Write two examples that demonstrate how higher-order conditioning can be applied to the two examples above, roses and thunder and lightning.

3. How did Ivan Pavlov extinguish the conditioned response (CR) in his dogs? Use classical conditioning terms in your response.

4. How might generalization apply to a fear of dogs?

5. Define discrimination in classical conditioning. Then, describe how a researcher would teach an animal to discriminate between relevant and irrelevant stimuli. Use classical conditioning terms in your response.

26-5

1. In your own words explain why Pavolv's work remains important today.

26-6

1. Complete the chart below to apply the principles of classical conditioning to the three examples discussed in the text.

Component	Example #1 Former Drug User	Example #2 Body's Immune System	Example #3 Little Albert
US			
UR	*craving*		
NS		*taste*	
CS			
CR			*fear*

After You Read

Module 26 Review

Label the five basic components of classical conditioning in each of the scenarios below.

1. Ahmed is a mediocre student in school and over the years has received many lectures from his parents about his poor study habits. He received another report card full of Cs and Ds today, and he knows that once his parents come home from work they will want to lecture him again. To distract himself from his nervousness, he plays his video games for several hours but later, as he hears the garage door open, Ahmed's heart begins to race.

   US:

   UR:

   NS:

   CS:

   CR:

2. Alex went out to dinner with her family two months ago and ordered the most expensive lobster dish on the menu. It turns out she is allergic to shellfish and was violently ill for several days. Last week they all went out to eat at the same restaurant and she felt nauseous just sitting waiting for their table to be ready.

US:

UR:

NS:

CS:

CR:

3. Your history instructor enjoys showing lots of old video clips on VHS tapes to illustrate examples from the past. You find these clips to be dreadfully boring and almost always fall asleep in class when he shows them. Walking into class last week you saw his old TV and VCR ready to go and felt drowsy as soon as you sat down.

US:

UR:

NS:

CS:

CR:

In the following two scenarios, label the five basic components of classical conditioning and then respond to the prompt that follows it.

4. a. Each time you come home from school, you head to the kitchen to fill up your dog Lassie's food bowl. Lassie excitedly devours her food with her tail swinging. You notice after a few weeks that Lassie has conditioned your arrival home from school with a filled food bowl and eagerly comes running to the door to greet you when you come in.

US:

UR:

NS:

CS:

CR:

b. After learning about higher-order classical conditioning, you become interested in teaching Lassie to respond to additional cues. Describe how you will teach Lassie to associate two new neutral stimuli with being fed.

5. a. Your 2-year-old cousin AnnaBeth giggles delightedly every time her father picks her up and tosses her into the air. Now each time she sees her father, she feels great love and enjoyment at being with him.

   US:

   UR:

   NS:

   CS:

   CR:

   b. Using the principle of generalization explain why AnnaBeth now runs up to her friends' fathers with the same delight and excitement with which she approaches her father.

   c. Using the principle of discrimination, explain how you can teach AnnaBeth only to respond this way to her father.

Choose the best answers to the following questions.

6. The repeated presenting of the conditioned stimulus without being followed by the uncondi-
tioned stimulus will result in
   a. discrimination of the unconditioned response.
   b. generalization of the conditioned response.
   c. extinction of the neutral stimulus.
   d. extinction of the conditioned response.
   e. generalization of the unconditioned response.

7. Imagine based on #3 above, that for several months the clips were not that bad and you enjoyed
them. Then one day you saw the VCR and got sleepy again. Which of the
following terms best describes your renewed drowsiness?
   a. Spontaneous recovery
   b. Unconditioned stimulus
   c. Generalized stimulus
   d. Extinction
   e. Acquisition

8. A pigeon pecking at an orange oval and not a red circle in order to receive a food reward is an
example of
   a. shaping.
   b. extinction.
   c. stimulus generalization.
   d. stimulus discrimination.
   e. acquisition.

Module 27

Operant Conditioning

Before You Read

Module Summary

Module 27 defines and describes operant conditioning and presents the difference between positive and negative reinforcement. B. F. Skinner's experiments and their importance to behavioral psychology are discussed. The basic types of reinforcers and the schedules in which those reinforcers most affect behavior are reviewed. This module also includes a detailed discussion of punishment and its effect on behavior as well as how it differs from negative reinforcement. The module wraps up with a discussion of the controversy surrounding B.F. Skinner's views of human behavior.

Before beginning the module, take a moment to read each of the following terms and names you will encounter. You may wish to make vocabulary cards for each.

Key Terms

operant conditioning

law of effect

operant chamber

reinforcement

shaping

discriminative stimulus

positive reinforcement

negative reinforcement

primary reinforcer

conditioned reinforcer

reinforcement schedule

continuous reinforcement schedule

partial (intermittent) reinforcement
 schedule

fixed-ratio schedule

variable-ratio schedule

fixed-interval schedule

variable-interval schedule

punishment

Key Names

B. F. Skinner

Edward Thorndike

While You Read

Answer the following questions/prompts.

27-1

1. How is operant conditioning different from classical conditioning? Describe these differences in your own words.

2. Give an example from your own life of operant conditioning.

27-2

1. How does the Puzzle Box demonstrate Thorndike's law of effect?

2. What is a Skinner box and what is its purpose?

3. How does the process of shaping work? Describe how one of your behaviors has been shaped.

4. Explain how you could use the principles of shaping to teach a particular behavior to a person or animal in your life.

27-3

1. What is the purpose of reinforcement?

2. How does positive reinforcement differ from negative reinforcement? Give an example of each.

3. Create an example of negative reinforcement and explain why it is negative reinforcement.

4. Give an example from your life in school of a situation where positive and negative reinforcement both work to strengthen a particular behavior.

5. How do primary and conditioned (secondary) reinforcers differ?

6. Give an example of a conditioned (secondary) reinforcer in your life and explain why it is a conditioned reinforcer.

7. Are there circumstances in which people are drawn to immediate reinforcers even though they know it might not be to their benefit? Explain.

27-4

1. Explain why an animal trainer would prefer using partial (intermittent) reinforcement schedules to continuous reinforcement schedules when teaching a lion to perform in a circus act. Are there times the trainer would prefer using continuous reinforcement? Explain.

2. Complete the chart below.

Reinforcement Schedule	Definition	Example From Text	Original Example
Continuous			
Fixed-ratio			
Fixed-interval			
Variable-ratio			
Variable-interval			

3. Why do gambling behaviors rely on variable-ratio schedules to keep players playing?

27-5

1. How does a punishment differ from reinforcement?

2. Explain, using examples to illustrate your response, how punishment differs from negative reinforcement? (TIP: This is one of the most commonly confused pair of terms in the course—be sure that you know how they are different).

3. How is positive punishment different from negative punishment? Give an example of each in your response.

4. Sometimes what seems to be punishment is actually reinforcement. (Consider the misbehaving child who is sent to his room to calm down and now has access to all of his favorite toys.) How can you determine if a behavior has been reinforced or punished?

5. What are four drawbacks of physical punishment?

   a.

   b.

c.

d.

6. As the author notes at the end of 27-5, many threats of punishment can be more effective when rephrased positively. Therefore, complete the author's prompt from the text here: "If you don't get your homework done, I'm not giving you money for a movie!" would be better phrased as . . .

Note to remember: Punishment tells you what not to do; reinforcement tells you what to do.

7. Use the chart below to give an example of how you would use each of the following four types of operant conditioning techniques to train your dog to pick up the newspaper off of the driveway.

	Reinforcement	Punishment
Positive		
Negative		

27-6

1. Why did Skinner's ideas provoke controversy?

2. Now that you have studied B. F. Skinner's operant principles, how would you attempt to

   a. influence your classmate to study more thoroughly for tests?

   b. shape your teacher's treatment of you?

   c. increase the likelihood of having your stepmother say "Yes" more frequently to your requests to drive her car?

After You Read

Module 27 Review

Complete the following questions by identifying which response is being applied to shape the behavior of the subject in each example.

> Positive reinforcement
>
> Negative reinforcement
>
> Positive punishment
>
> Negative punishment

1. Juanita asks a useful and timely question in class and her teacher responds, "I am glad you asked that, Juanita." Juanita soon regularly raises her hand to contribute in class.

2. Dante cannot sit still in his kindergarten class and his teacher tells him he will have to remain inside while the other students go out for recess. Dante learns to sit still.

How is Dante's behavior being reinforced?

How is the teacher's behavior being reinforced?

3. Your sister gives your hand a slap every time you try and take some ice cream from her bowl.

4. After promising your parents that you will follow the school rules and not use your cell phone in class, you check your text messages during Algebra and have your phone confiscated by the teacher. When your parents find out, they take your cell phone from you for 2 weeks. When you finally get your phone back, you do not check your texts in class any longer.

5. Even though she knows it is bad for her, Barbara smokes. When she is asked why, she reports that it helps her to relax and destress.

Complete the following questions by identifying which intermittent reinforcement schedule is being applied to shape behavior

> Variable-ratio
>
> Variable-interval
>
> Fixed-ratio
>
> Fixed-interval
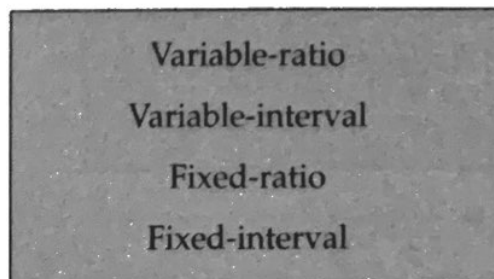
6. The coffee shop gives you 5 points for each dollar that you spend. After you earn 200 points they give you a free coffee.

7. Your neighbors just had a new baby and are learning to be parents for the first time. They decide not to respond to every cry their new infant makes but instead allow the baby to fuss and cry for a while before they go to see what is wrong. From the baby's perspective, on what schedule is her crying behavior being reinforced by her parents' attention?

8. Annie is desperate for a date to the dance. She walks down the hallway asking different people if they will go to the dance with her.

9. Sasha works for a shoe store that pays her weekly and likes that she doesn't have to make a quota or sell a certain number of shoes in order to get paid. Her check comes every week regardless of how many customers come in and this gives her time to text on her phone, or finish homework in the back of the store.

10. On the other hand, Sasha's friend Monty works next door at the suit shop and receives a bonus for every 3 suits he sells. As he is trying to save for college, the bonus could really come in handy and this compels Monty to work hard to learn about suits and perfect his sales techniques so that he can sell more of them.

Module 28

Operant Conditioning's Applications, and Comparison to Classical Conditioning

Before You Read

Module Summary

Module 28 offers an application of the theories presented in Modules 26 and 27 and identifies key areas in home, work, and school where operant principles can be used. In addition, the module presents an easy-to-understand chart of the characteristics that distinguish operant from classical conditioning.

Before beginning the module, take a moment to read each of the following term you will encounter. You may wish to make a vocabulary card for it.

Key Terms

biofeedback

While You Read

Answer the following prompts, and complete the diagram below.

28-1

1. Give an example (that is not mentioned in the text) of how operant principles can be applied

   a. in school

   b. in sports

   c. at work

d. at home

e. for self-improvement

2. How does biofeedback work to reduce tension headaches?

3. In what way are the principles of operant conditioning illustrated in the use of biofeedback to train people to reduce stress?

28-2

1. Using the information in Table 28.1 and the material in Modules 26 and 27, complete the Venn diagram below on the similarities and differences between operant and classical conditioning. Use your own words when possible.

Classical Conditioning   Operant Conditioning
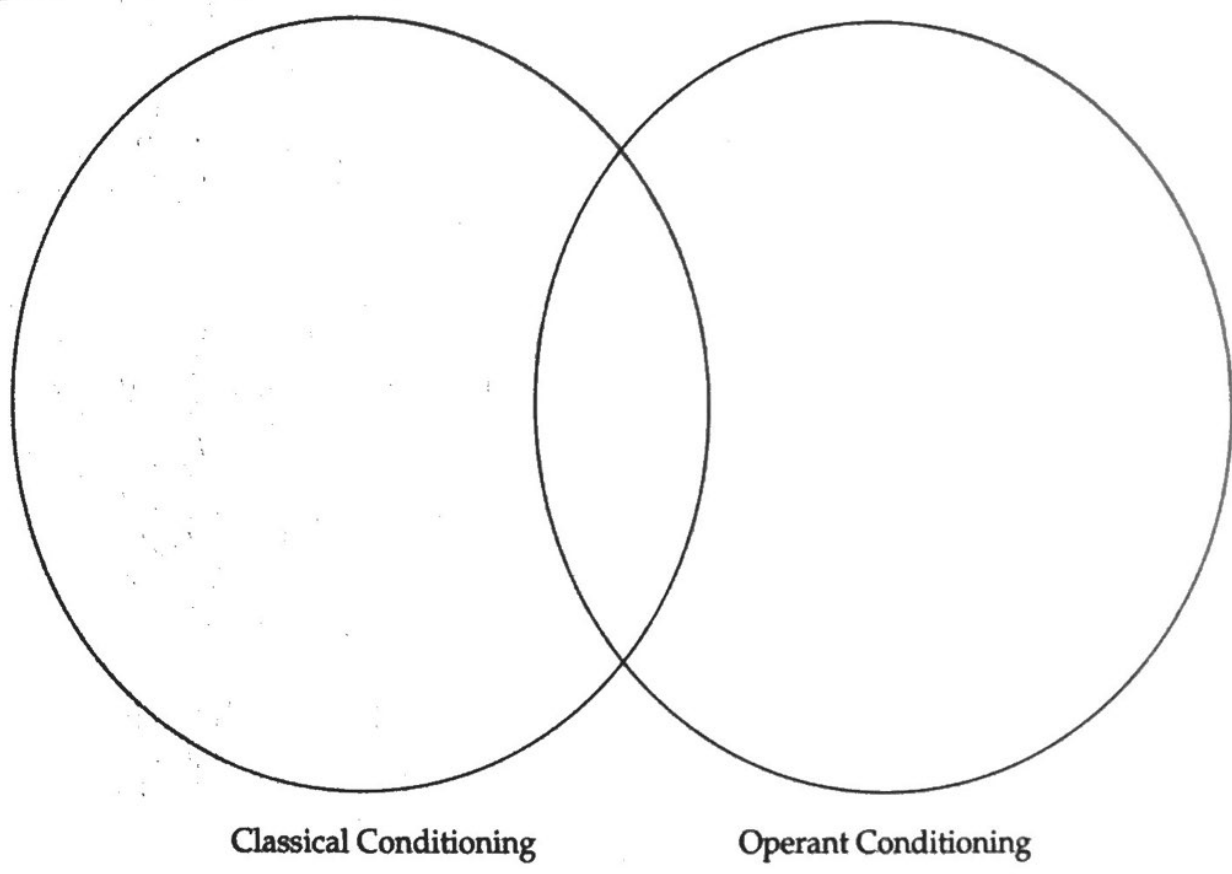
Module 29

Biology, Cognition, and Learning

Module Summary

Module 29 explains how biological constraints and cognitive processes affect classical and operant conditioning. A detailed discussion of how different methods of coping with personal problems and feeling control over your life can impact people's health and behavior concludes the module.

Before beginning the module, take a moment to read each of the following terms and names you will encounter. You may wish to make vocabulary cards for each.

Key Terms

preparedness
instinctive drift
cognitive map
latent learning
insight
intrinsic motivation
extrinsic motivation

problem-focused coping
emotion-focused coping
personal control
learned helplessness
external locus of control
internal locus of control
self-control

Key Names

John Garcia
Robert Rescorla
Edward Chase Tolman

While You Read

Answer the following questions/prompts.

29-1

1. Why is a great deal of learning research conducted using animals, such as rats, instead of humans?

2. Explain how learning is a biopsychosocial process.

3. Summarize and explain the importance of John Garcia's work with taste aversion in rats.

4. Complete the chart below with components from Pavlov's work with dogs, Garcia's work with rats, and the work on sheep-eating coyotes.

Component	Example #1 Pavlov's Dogs	Example #2 John Garcia's Rats	Example #3 Sheep-eating coyotes
US		radiation or drugs	
UR	drooling		
NS			sheep
CS			
CR			

5. What is an evolutionary explanation for the development of taste aversions in both humans and animals?

6. What does it mean when psychologists say that there are biological constraints on classical conditioning?

7. What are the biological constraints on operant conditioning?

8. Shayna wants to put operant principles to use to train her pet gerbil to stand on its hind legs and raise its right paw in order to get food. Based on your knowledge of biological constraints on learning, how would you advise her?

29-2

1. What are the limitations of classical conditioning in addressing the cognitive processes of humans?

2. Summarize and discuss the importance of Robert Rescorla's work with rats' responses to tones and shocks. Relate this to the idea of a variable-ratio schedule of reinforcement and explain why this schedule is the best to prevent extinction.

3. How do cognitive processes impact operant conditioning? Why is this important to understand when training humans or animals?

4. Summarize Edward Chase Tolman's work with rats in a maze. What does this research teach us about learning?

5. Contrast insight learning and latent learning?

6. Imagine that you enjoy playing soccer. How would intrinsic and extrinsic motivation be related to your continued enjoyment of the game?

29-3

1. How does problem-focused coping differ from emotion-focused coping? Provide a specific example and explain how each can impact individuals in different ways.

29-4

1. Summarize and discuss the importance of Martin Seligman's work with harnessed dogs. How does the issue of control impact the behavior of the dogs?

2. Describe how a student in high school might develop learned helplessness in one or more of her classes.

3. What is the relationship between learned helplessness and stress and health problems?

4. How does an internal locus of control differ from an external locus of control? How do each of these impact stress and health levels?

29-5

1. As defined by the text, what is self-control? How can high levels of self-control impact the outcome of a situation? Provide a specific example.

2. How is self-control depleted? Strengthened?

After You Read

Module 29 Review

Complete the Matching Questions below to see if you have mastered the basics.

Terms or Names

_____ 1. John Garcia

_____ 2. insight

_____ 3. problem-focused coping

_____ 4. emotion-focused coping

_____ 5. learned helplessness

_____ 6. external locus of control

_____ 7. internal locus of control

_____ 8. self-control

_____ 9. personal control

_____ 10. Edward Chase Tolman

Definitions or Associations

A. the hopelessness and passive resignation an animal or human learns when unable to avoid repeated aversive events

B. the ability to control impulses and delay short-term gratification for greater long-term rewards

C. the perception that chance or outside forces beyond our personal control determine our fate

D. sense of controlling our environment rather than feeling helpless

E. attempting to alleviate stress directly-by changing the stressor or the way we interact with that stressor

F. tested cognitive maps in rats

G. attempting to alleviate stress by avoiding or ignoring a stressor and attending to emotional needs related to one's stress reaction

H. a sudden realization of a problem's solution

I. tested taste aversion in rats

J. the perception that you control your own

Answer the following questions.

11. When a well-learned route in a maze is blocked, rats sometimes choose an alternative route, acting as if they were consulting a _____ _____ .

12. Animals may learn from experience even when reinforcement is not available. When learning is not apparent until reinforcement has been provided, _____ _____ is said to have occurred.

13. The desire to perform a behavior for its own sake is called _____ _____ , while motivation to seek external rewards and avoid punishments is called _____ _____ .

14. The researcher(s) most likely to challenge Ivan Pavlov's concept of the simplistic and mechanistic associations dogs seem to make between two stimuli would be

   a. Robert Rescorla through his work on the cognitive component of associative learning.
   b. Charles Chase Tolman through his research on latent learning.
   c. B. F. Skinner because of his work on shaping pigeons.
   d. John Garcia with his studies on taste aversion in rats.
   e. John B. Watson and Rosalie Rayner based on their work with Little Albert.

15. No matter how hard you study you find yourself unable to earn a good grade in your Engineering course. Even though you keep studying you really feel like the teacher will never give you a good grade, even if you earn it. Your beliefs most illustrate

   a. latent learning.
   b. learned helplessness.
   c. an external locus of control.
   d. an internal locus of control.
   e. self-control.

Module 30

Observational Learning

Module Summary

Module 30 describes the process of observational learning and the impact of mirror neurons. A discussion of modeling and viewing media violence and their impacts on human behavior concludes the module.

Before beginning the module, take a moment to read each of the following terms and names you will encounter. You may wish to make vocabulary cards for each.

Key Terms

observational learning

modeling

mirror neurons

prosocial behavior

Key Name

Albert Bandura

While You Read

Answer the following questions/prompts.

30-1

1. Summarize and explain the implications of Albert Bandura's work with the Bobo doll and the modeling of aggression.

2. How does vicarious reinforcement or punishment differ from modeling?

3. What are mirror neurons?

4. How does the work with mirror neurons explain children's theory of mind?

30-2

1. What are some outcomes of prosocial modeling? Provide an example from your life.

2. What are some outcomes of antisocial modeling? Provide an example from your life.

30-3

1. Connect the work of Bandura to the question of violence-viewing.

   a. How would his research support the view that media violence triggers violent behavior?

   b. Suggest two alternative explanations for the existence of this violent behavior.

   c. What is your opinion of the violence-viewing effect?

After You Read

Module 30 Review

Select the best answers below to see if you have mastered the basics.

1. After viewing adults kick and throw an inflatable Bobo doll around a room, children who are purposely frustrated and then placed in a room with the same Bobo will be most likely to

   a. attempt to make up for the poor adult treatment of Bobo by playing nicely with it.
   b. invent new and unique ways to treat Bobo.
   c. kick and throw Bobo as the adults did.
   d. ignore Bobo and choose other more appropriate toys.
   e. fear that the adults will treat them as they treated Bobo.

2. According to Bandura's research on vicarious reinforcement and punishment, we are especially likely to learn from people we perceive to be

   a. similar to ourselves.
   b. successful.
   c. admirable.
   d. likable.
   e. all of the above.

3. Mirror neurons are believed to play a role in

   a. imitation and empathy.
   b. facial recognition.
   c. personal self-esteem.
   d. occipital lobe visual processing.
   e. language.

4. When Jennie was trying to learn to play baseball, her mother noticed that she was holding the bat wrong. Jennie's mom said, "Here, Jennie, let me show you how you hold it." This method of teaching is best explained by

   a. cognitive maps.
   b. observational learning.
   c. vicarious learning.
   d. classical conditioning.
   e. latent learning.

5. Which of the following is an example of a prosocial behavior that might be learned through modeling?

   a. Justin acts like a bully to the kids at school after watching his favorite TV character bully on a TV show.
   b. Manahil learns to lie by watching her older brother get away with it.
   c. Emma learns to tease her cousin James by watching her aunt tease him as well.
   d. Ahad learns to care for his younger brother by watching his father feed and change him.
   e. Melissa thinks women are incapable of a career in business because all the important women in her life are stay-at-home mothers.

✓ Check Yourself   Now that you have mastered the basics, work through the problems below to see if you can *synthesize*, *evaluate*, and *analyze* what you have learned.

1. Apply the principles of operant, classical, and observational learning, and your knowledge of psychological vocabulary, to explain

   Taste aversion:

   Superstitious behavior:

   Learned helplessness:

2. Austin is a teenager who has been suspended from school for possessing illegal substances. He has a long history of acting out, enraged resistance to adult authority and other antisocial behaviors. Suggest how the following can be used to address Austin's behavioral problems:

   • biofeedback

   • coping strategies

   • self-control

3. Interpret the graphs below and show how they depict the components of classical and operant conditioning. Be sure to incorporate correct usage of psychological terms.
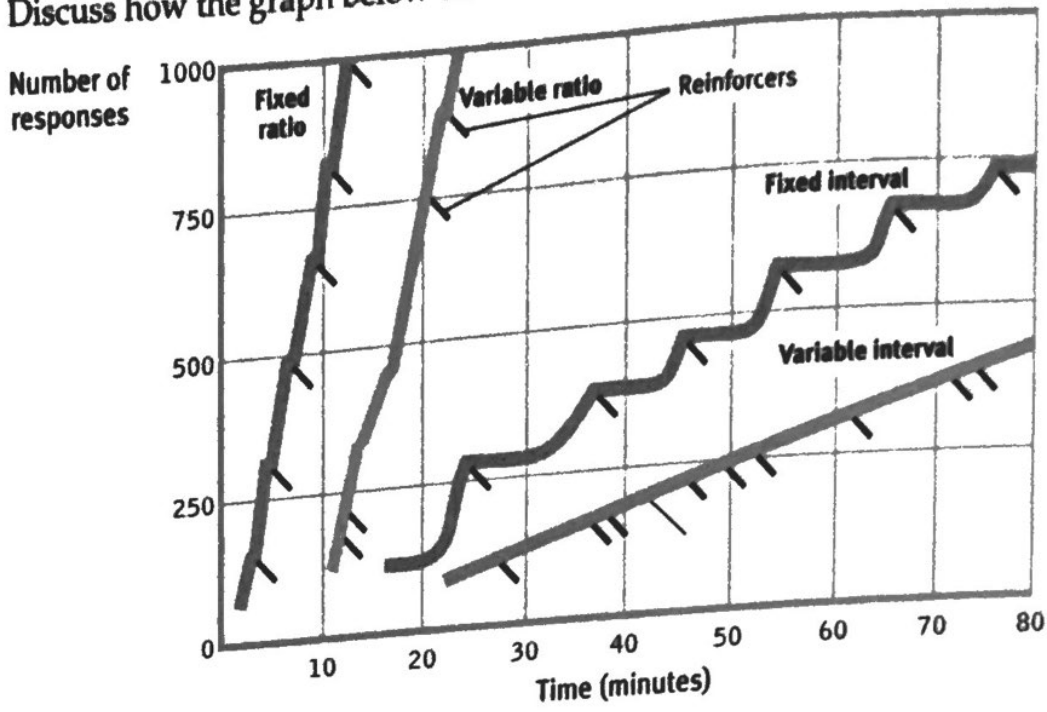
a. Discuss how the graph below, based on Pavlov's experiments with salivating dogs, demonstrates generalization and discrimination.
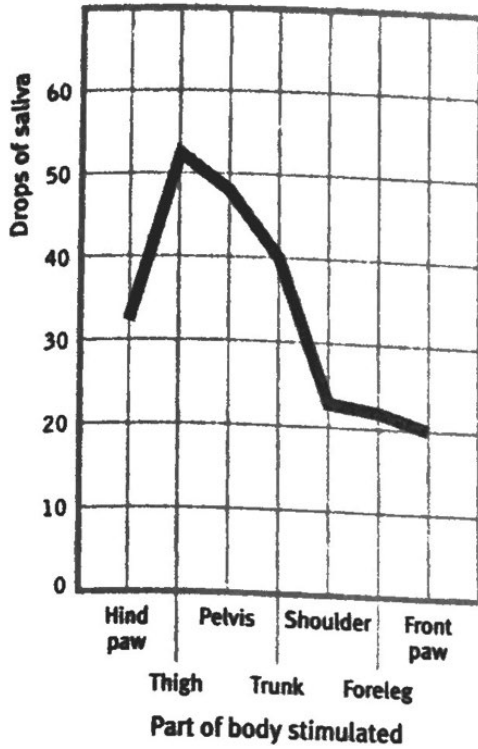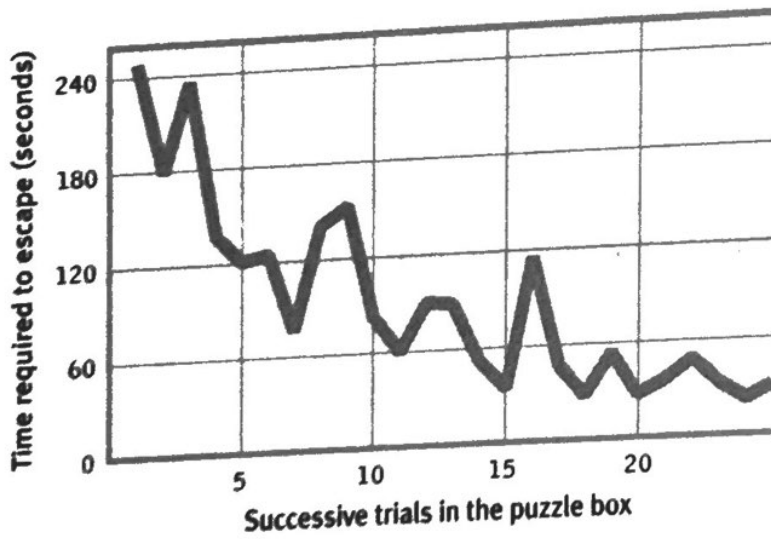

b. Discuss how the graph below demonstrates extinction and spontaneous recovery.
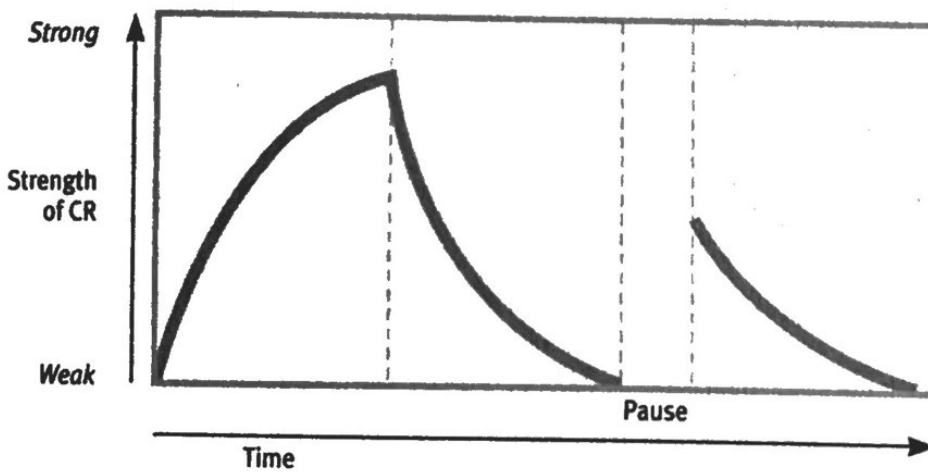
c. Discuss how the graph below demonstrates the impact of various reinforcement schedules on learning.

d. Discuss how the graph below demonstrates Thorndike's law of effect.

4. The distinction between punishment and negative reinforcement is very important to understand. Provide an original example of each and explain it well enough to demonstrate an understanding of the terms.

Before You Move On

Use the checklist below to verify your understanding of the unit's main points.

☐ Do I know the difference between classical conditioning, operant conditioning and observational learning?

Can I describe the basic components of classical conditioning?

☐ acquisition

☐ extinction

☐ spontaneous recovery

☐ generalization

☐ discrimination

☐ higher-order learning

Can I describe the basic components of operant conditioning and their effects on behavior?

☐ positive reinforcement

☐ negative reinforcement

☐ positive and negative punishment

Do I understand the difference between schedules of reinforcement?

☐ continuous

☐ partial (intermittent): fixed-interval, fixed-ratio, variable-interval, variable-ratio

☐ Can I provide examples of how biological constraints create learning predispositions?

☐ Can I describe the characteristics and differences between insight learning, latent learning and social learning?

☐ Can I apply learning principles to explain emotional learning, taste aversion, superstitions and learned helplessness?

☐ Can I describe how operant conditioning techniques can be used for behavior modification?

☐ Can I describe how biofeedback, coping strategies, and self-control can be used to address behavioral problems?

Can I describe the work of:

☐ Albert Bandura

☐ John Garcia

☐ Ivan Pavlov

☐ Robert Rescorla

☐ B. F. Skinner

☐ Edward Thorndike

☐ Edward Chase Tolman

☐ John B. Watson