Chapter Six
LEARNING

Review of Key Ideas

CLASSICAL CONDITIONING

1. Describe Pavlov's demonstration of classical conditioning and the key elements in this form of learning.

1-1. Classical conditioning is a type of learning that occurs when two stimuli are paired or associated closely in time. In Pavlov's initial demonstration, the two stimuli were a bell and _____.

1-2. The response to one of the two stimuli occurs naturally and does not have to be learned or acquired through conditioning. This "unlearned" stimulus, in this case the food, is technically known as the _____ stimulus.

1-3. The other stimulus is said to be neutral in the sense that it does not initially produce a response. The response to this neutral stimulus is *learned*, and the technical name for it is the _____ stimulus. In Pavlov's initial study the conditioned stimulus was the sound of a _____.

1-4. The unconditioned stimulus in Pavlov's original study was the _____ and the conditioned stimulus was the _____. Salivation to the meat powder is known as the _____ response; salivation to the bell is termed the _____ response.

1-5. Label the parts of the classical conditioning sequence. Place the commonly used abbreviations for these terms in the parentheses.

(a) meat _____ ( )

(b) salivation to meat: _____ ( )

(c) bell: _____ ( )

(d) salivation to bell: _____ ( )

2. Clarify how classical conditioning may shape emotions and physiological processes, including drug effects.

2-1. The kids in the neighborhood where I (R.S.) grew up used to dig tunnels in a neighbor's backyard. One day someone got stuck in the tunnel and couldn't get out. Eventually he got out, but after that he didn't want to play in tunnels again. To this day that person still has an intense fear not only of tunnels but of closed-in spaces in general. Label the parts of the classical conditioning process involved in the acquisition of the phobia of closed-in spaces. Use the abbreviations CS, CR, US, and UR. (Hint: Even though "getting stuck" involves a behavior or response, it also has stimulus components.)

_____ getting stuck

_____ fear produced by getting stuck

_____ tunnels and closed-in spaces

_____ fear of tunnels and closed-in spaces

2-2. The individual described above had developed an intense fear or phobia, acquired in part through the process of _____ conditioning. Other emotions can be conditioned as well. For example, the smell of smoke and Beemans' gum described in your text, the playing of "our song," and the sight of one's home after a long absence could all produce a pleasant emotional response (or perhaps a slightly weepy, sentimental feeling). The emotional responses to such smells, sounds, or sights are learned, so the stimuli that produce these responses would be considered _____ stimuli.

2-3. Similarly, certain physiological responses can be conditioned. Label the parts of the conditioning process in the study on immunosuppression in rats described in the text. (Use the abbreviations CS, CR, US, and UR.)

_____ the immunosuppressive drug

_____ unusual taste

_____ decreased antibody production produced by the drug

_____ decreased antibody production produced by the taste

2-4. Sexual arousal can be classically conditioned as well. In quail as in humans, stimuli routinely paired with sex (e.g., red lights in the quail study; lingerie, mood music, etc. in humans) evidently become _____ _____ stimuli for sexual arousal.

2-5. In one variation of Domjan's studies with quail the conditioned stimuli even produced an increased release of _____ in males, a conditioned response with a clear evolutionary advantage. One implication of this study for evolutionary theory, then, is that the capacity for classical conditioning, in this case conditioning of sexual arousal, has _____ value for a species.

2-6. Conditioning may account for some aspects of responsiveness to drugs and stimuli associated with drugs. For example, administration of a drug may function as a _____ stimulus, and events surrounding the drug (e.g., syringe, pill box) as a _____ stimulus, so that eventually the associated stimuli alone produce a CR.

2-7. In addition, it is somewhat surprising to learn that conditioning may play a role in drug _____, the gradual decrease in responsiveness that occurs with repeated drug use.

2-8. Drug tolerance is usually thought of as an entirely physiological process. It turns out, however, that the CS (e.g., drug paraphernalia) elicits not only effects *similar* to the drug effects but reactions that are exactly *opposite*. These "other" CRs are called _____ CRs because they partially compensate for the effects of the drug.

2-9. Paraphernalia surrounding drugs may elicit two types of responses, the regular _____ response and the _____ conditioned response that partially cancels the effects of the drugs. In this way conditioning may contribute to the drug _____ that occurs with increased usage.

3. Describe acquisition, extinction, and spontaneous recovery in classical conditioning.

3-1. *Acquisition* of a conditioned response occurs when the CS and US are contiguous, or paired. Not all pairings result in conditioning, however. What characteristics of a CS are more likely to produce acquisition of a CR?

3-2. Acquisition refers to the formation of a conditioned response. What is the term that refers to the weakening or disappearance of a CR? _____

3-3. Extinction in classical conditioning occurs when the _____ stimulus is presented *alone*, without the _____ stimulus.

3-4. After CRs are extinguished they may reappear, even without further conditioning.

(a) For example, after extinction of a response, a dog may again show the conditioned response (e.g., salivation to a bell) when returned to the apparatus in which it was originally conditioned. What is the name of this type of "reappearance" of the CR? _____ _____

(b) When, or under what circumstance, is spontaneous recovery likely to occur?

(c) If an animal is *extinguished in a different environment* from the one in which conditioning took place, it is likely to again show a CR when *returned to the original environment*. What is the name of this effect? _____ _____

4. Compare the processes of generalization and discrimination and review the classic study of Little Albert.

4-1. With regard to the case of Little Albert:

(a) What was the CS? _____

(b) The US? _____

4-2. Albert was also afraid of white dogs and white rabbits. What is the name of the process that resulted in his acquisition of these additional fear responses? _____

4-3. Why would Albert be more likely to develop a fear of a white rabbit, say, than a white car or a dark horse?

4-4. The more similar stimuli are to the CS, the more likely the organism will _____ from the CS to the other stimuli. The less similar stimuli are to the CS, the more likely the organism is to _____ _____ them from the CS.

4-5. Casey (R.S's cat, now deceased) salivated when she heard the sound of food being dumped into her bowl. The process by which this salivary response was learned is _____ conditioning. The food is a(n) (CS/US/CR/UR). The sound of the food is a(n) (CS/US/CR/UR). Salivation to the sound is a(n) (CS/US/CR/UR).

4-6. Pets are also likely to salivate when they hear other, similar sounds, like bags rustling in the kitchen or dishes being pulled from the cupboard. Salivation to these other sounds represents stimulus _____.

4-7. With continued training, in which food is paired only with the sound of food entering the bowl and not with the other sounds, the animal will learn to salivate only to the rattling bowl. The process of learning to respond only to one particular stimulus and not to a range of similar stimuli is termed _____.

5. Explain what happens in higher-order conditioning.

5-1. Suppose that a *bell* and *meat powder* are paired, as in the original Pavlovian study. At some point a conditioned salivary response will occur to the bell. Suppose that in a new series of trials a *clicking sound* (a new, neutral stimulus) is paired with the bell. Assuming that the stimuli are potent enough, that the timing is right, and so on, a _____ response will occur to the clicking sound.

5-2. This process, in which a stimulus that previously functioned as a "learned" or *conditioned* stimulus is used as an *unconditioned* stimulus, is known as _____ conditioning.

5-3. In our example, in which the clicking sound and bell were paired, which stimulus acted as the US? _____

OPERANT CONDITIONING

6. Contrast operant and classical conditioning and articulate Thorndike's law of effect.

6-1. A major feature of Pavlovian or classical conditioning is that conditioned responses occur when two stimuli are paired or associated. For example, when a sound and food are paired together, a conditioned salivary response occurs to the _____.

6-2. In contrast, in operant conditioning, learning or conditioning occurs from stimuli that (precede/follow) the response, that is, the stimuli that are the "payoff" or _____ of that particular behavior.

6-3. Learning theorists originally supposed that the two types of conditioning controlled different types of responses, that classical conditioning controlled reflexive or (voluntary/involuntary) responses (such as salivation or leg flexion) while operant conditioning controlled voluntary responses. While this distinction holds up (all of the time/much of the time), it is now clear that the only absolute distinction is in terms of procedure.

6-4. E.L. Thorndike's pioneering work provided an important foundation for operant conditioning. In one variation of Thorndike's demonstrations a cat could escape a puzzle box (e.g., by pulling a wire) and gain access to food. Thorndike noted that the amount of time that the cats took to solve the puzzles decreased (gradually/all at once) over a series of trials, which indicated to Thorndike that thinking (was/was not) involved in the cat's learned behavior. In other words, the solution to the puzzle did not depend on understanding but on a more mechanical process.

6-5. Thorndike asserted that if a response leads to a *satisfying effect* in the presence of a stimulus, then the association between the stimulus and response is strengthened. Thorndike referred to this relationship as the law of _____: successful responses are gradually "stamped in" by their favorable effects. Thorndike's view is similar to Skinner's concept of reinforcement in that both emphasize the _____ of behavior.

7. Explain Skinner's principle of reinforcement and describe the terminology and procedures in operant research.

7-1. A reinforcer is a stimulus or event that (1) is presented *after* a response and that (2) increases the tendency for the response to be repeated. Apply that definition to this example: Grundoon, a captive monkey, occasionally swings on a bar in his cage. Suppose that at some point Grundoon's trainers decide to give him a spoonful of applesauce whenever he swings. His rate of swinging increases. Is the applesauce a reinforcer? ____ In terms of the definition above, how do you know that applesauce is a reinforcer? You know it is a reinforcer because (1) the applesauce is presented _____ (not before) the response occurs and (2) the rate of responding _____.

7-2. The trainers switch to vinegar. Grundoon, an unusual primate, swings quite frequently when this behavior is followed by vinegar. Is vinegar a reinforcer here? How do you know?

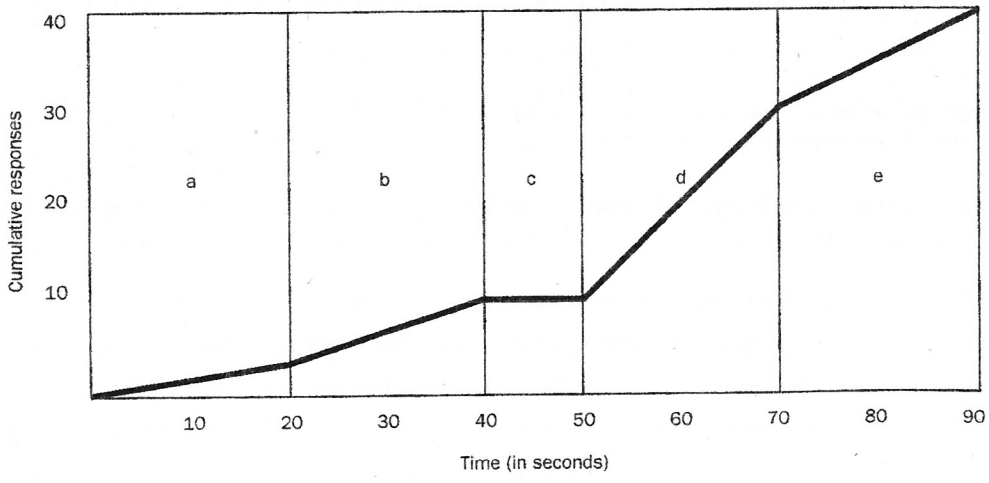
7-3. The trainers try another approach. They present Grundoon with fresh fruit *just before* they think he is likely to jump. It so happens that Grundoon's rate of jumping does increase. Is the fruit a reinforcer here? Why or why not?

7-4. The prototypic apparatus used in operant conditioning studies is the operant chamber, better known as the _____. On one wall of the chamber is mounted a manipulandum, a device that makes for an easily discernible response. For rats, the manipulandum is usually a small _____; for pigeons, the device is a _____ that the bird learns to peck.

7-5. A press of the lever or peck at the disk may produce a reinforcer, generally a small bit of food dispensed into the food cup mounted to one side or below the manipulandum. Each of these responses is recorded on a _____ _____, a device that creates a graphic record of the number of responses per unit time.

7-6. The cumulative recorder records the *rate* of the behavior, that is, the number of _____ made per unit _____.

7-7. Below is a highly stylized version of a cumulative record. About how many responses were made during the first 40 seconds? _____ Which section of the graph (a, b, c, d, or e) has the steepest slope? _____ Which section of the graph illustrates the fastest rate of responding? _____ About how many responses were made between the 40th and 70th seconds? _____



8. Describe acquisition, shaping, and extinction in operant conditioning.

8-1. Acquisition refers to the formation of new responses. In classical conditioning, acquisition occurs through a simple pairing of the CS and US. In operant conditioning, acquisition usually involves the procedure known as _____.

8-2. What is shaping? When is it used?

8-3. Extinction in classical conditioning involves removing the US while still presenting the CS.

(a) What is the extinction procedure in operant conditioning?

(b) What is the effect of extinction on behavior (response rate)?

(c) What does the term *resistance to extinction* mean?

9. Explain how stimuli govern operant behavior through generalization and discrimination.

9-1. Suppose that a rat has been shaped so that when it presses a lever it receives a food pellet. With further training, the rat may respond only when a light (or sound, etc.) in the chamber is on and not when it is off. The food pellet (which follows the response) is a _____. The light (which precedes the response) is a _____ stimulus.

9-2. Reinforcers occur (after/before) the response occurs. Discriminative stimuli occur _____ the response occurs.

9-3. To create a discriminative stimulus, one reinforces a response only in the presence of a particular stimulus and not in its absence. In time that stimulus will gain control of the response: Animals will tend to emit the response only if the discriminative stimulus is (present/absent) and not if it is _____.

9-4. For example, rats can be trained to press a lever when a light comes on and not to press when the light is off. Lever presses that occur when the light is on are followed by a food pellet; those that occur in the dark are not. Label each component of this operant-conditioning process by placing the appropriate letters in the blanks below.

_____ light	a. discriminative stimulus
_____ lever press	b. response
_____ food	c. reinforcer

9-5. "Heel Fido!" says Ralph. Fido runs to Ralph's side. Fido gets a pat on the head. Label the parts of the operant conditioning sequence by placing the appropriate letters in the blanks. (To avoid confusion, the behavior or response of interest in this example is already labeled.)

_____ Heel Fido!"	a. discriminative stimulus
_____ Fido gets a pat on the head.	b. response
__b__ Fido runs to Ralph's side.	c. reinforcer

9-6. Phyllis will lend money to Ralph, but only after Ralph promises to pay her back. Ralph is also careful to thank Phyllis for her help. The behavior we are looking at here is Phyllis's lending behavior.

_____ Thank you very much, Phyllis."	a. discriminative stimulus
__b__ Phyllis lends.	b. response
_____ "I promise I'll pay you back."	c. reinforcer

9-7. Generalization occurs in operant as well as classical conditioning. For example, when I put dishes in the sink, our cat would *run to her bowl* looking for food. In technical terms, our cat _____ between the sound of food dropping in her bowl and the *similar* sound of dishes going into the sink. Despite the fact that food does not follow the sound of clattering dishes, our cat did *not* learn to _____ between the sounds in our kitchen.

10. Identify various types of schedules of reinforcement and discuss their typical effects.

10-1. Schedules of reinforcement are either continuous or intermittent. If reinforcers follow *every* response, the schedule is referred to as a(n) _____-reinforcement schedule. If reinforcers only follow some responses and not others (e.g., FR, VR), or occur as a function of the passage of time (e.g., FI, VI), the schedule is referred to as a(n) _____ schedule.

10-2. Identify the following schedules of reinforcement by placing the appropriate abbreviations in the blanks: continuous reinforcement (CRF), fixed ratio (FR), variable ratio (VR), fixed interval (FI), variable interval (VI).

____ A pigeon is reinforced whenever it has pecked a disk exactly 20 times.

____ A pigeon is reinforced for pecking a disk, on the average, 20 times.

____ A rat is always reinforced for the first response that follows a two-minute interval.

____ A slot machine delivers a payoff, on the average, after every 10th pull of the lever.

____ Every time the pigeon pecks a disk, it receives a pellet of food.

____ A rat is reinforced, on the average, for the first response following a two-minute interval.

____ A pig is reinforced for the first response after 30 seconds, then for the first response after 42 seconds, then for the first response after 5 seconds, and so on.

____ Every two weeks Ralph picks up his payroll check at the office.

____ A rat is reinforced after the 73rd response, then after the 22nd response, then after the 51st response, and so on.

10-3. Resistance to extinction refers to the extent to which responses occur during a period of extinction. What is the general effect of the intermittent schedules of reinforcement on resistance to extinction?

10-4. In terms of the effect on *rate* of responding, what is the general difference between the *ratio* schedules (FR and VR) and the *interval* schedules (FI and VI)?

10-5. In terms of the effect on *pattern* of responding, what is the general difference between *fixed* schedules and *variable* schedules?

11. Distinguish between positive and negative reinforcement.

11-1. Some Skinner boxes may be set up so that a mild electric shock can be delivered to the feet of the animal through the floor of the box. Suppose that whenever the animal presses the bar, the shock is turned *off* for a period of time. Will the lever-pressing behavior be *strengthened* or *weakened*? _____

11-2. By definition, what effect does reinforcement have on behavior? What is the effect of positive reinforcement on behavior? Negative reinforcement?

11-3. With positive reinforcement, a stimulus is *presented* after the response. What is the procedure with negative reinforcement?

12. Compare escape learning and avoidance learning.

12-1. Review the section on escape and avoidance learning. In escape learning the animal first experiences the aversive stimulus and then makes a response that escapes it. In avoidance learning the animal responds to a cue that permits it to respond *before* the aversive stimulus is delivered, thereby avoiding it altogether. Label the following examples E for escape and A for avoidance.

____ The weather has changed and Fred is getting cold. He goes inside.

____ Little Sandra rapidly removes her hand from the hot stove.

____ A cue light comes on in the dog's shuttle box. It jumps the hurdle to the other side.

____ Randolph has been told that he will be mugged if he goes outside, so he stays inside.

____ Sue has learned some new verbal behavior. If she simply says, "No, I don't want that" shortly after a salesman starts his pitch, the salesman will stop bothering her.

____ Alice knows that Ruppert shows up at about noon. If Ruppert sees her he will ask for her course notes, which she doesn't want to lend him. Alice leaves at 11:55.

12-2. What is the major difference between escape learning and avoidance learning?

13. Describe punishment and assess issues related to punishment as a disciplinary procedure.

13-1. Punishment involves *weakening* a response by presenting an aversive stimulus after the response has occurred. Review the concepts of reinforcement and punishment by labeling each of the following with one of these terms: *positive reinforcement, negative reinforcement,* or *punishment.*

(a) A stimulus is *presented* after the response; response rate *increases*_____

(b) A stimulus is *presented* after the response; response rate *decreases*:_____

(c) A stimulus is *removed* after the response; response rate *increases*: _____

13-2. Response rate *increases*. Which of the following procedures may have been used?

a. positive reinforcement

b. negative reinforcement

c. punishment

d. either a or b above

13-3. Response rate *decreases*. Which of the following procedures may have been used?

a. positive reinforcement

b. negative reinforcement

c. punishment

d. either *b* or *c* above

13-4. When a rat presses a bar in an operant chamber, the electric shock stops. Bar pressing increases. What procedure has been used?

a. positive reinforcement

b. negative reinforcement

c. punishment

d. extinction

13-5. When the dog ran after the car, his master immediately threw a bucket of water on him. This sequence of events was repeated only twice, and the dog stopped running after the car. What has occurred?

a. positive reinforcement

b. negative reinforcement

c. punishment

d. extinction

13-6. When Randolph stepped out in his new outfit, everyone stared. If Randolph tends *not* to wear this outfit in the future, what has occurred?

a. positive reinforcement

b. negative reinforcement

c. punishment

d. extinction

13-7. Punishment is a technical term, defined above, and it is also a word in our everyday vocabulary. The two uses of the word may refer to different things. What are the effects of using physical punishment in disciplining children? Gershoff's recent summary of 88 studies asserts that physical punishment is associated with (increased/decreased) aggression, criminal behavior, anxiety, delinquency, and child abuse.

13-8. Critics of Gershoff's review point out that it (1) failed to distinguish between the effects of harsh _____ _____ punishment and occasional mild spankings, and that it (2) involves (correlational/experimental) evidence, which does not justify causal conclusions. For example, it may be that parents' use of punishment causes aggression in children, but it could also be the case that a child's _____ tends to produce physical punishment.

13-9. While critics may disagree with Gershoff's conclusions in their inclusion of mild spankings, there is nonetheless agreement that harsh, abusive punishment is detrimental to children and that parents should (maximize/minimize) their dependence on physical punishment.

13-10. The text suggests the following guidelines for use of punishment: (a) Apply punishment (immediately/after a delay) following the undesirable behavior. (b) Use a level of punishment that is the (quite severe/just severe enough) to be effective. (c) Punish the response (consistently/occasionally), that is, every time it occurs. (d) When administering punishment (explain/do not explain) why it is being given. (e) In general, when employing punishment try to use (physical punishment/withdrawal of privileges), a noncorporal form of punishment

CHANGING DIRECTIONS IN THE STUDY OF CONDITIONING

14. Articulate the theoretical significance of conditioned taste aversion and preparedness.

14-1. If the distinctive taste of a particular food is followed some hours later by sickness that produces nausea, that taste will become aversive and will itself come to elicit the response of nausea. This phenomenon, referred to as conditioned taste aversion, seems to be a special case of (classical/operant) conditioning in which *taste* functions more or less as a CS and *nausea* as a ____. The theoretical importance of this phenomenon is that its occurrence seems to (violate/support) what were assumed to be basic principles of classical conditioning.

14-2. Why is the occurrence of conditioned taste aversion surprising and of theoretical importance? Discuss this question in terms of classical conditioning relating to (1) CS-US delays and (2) the sense of taste compared with other senses.

14-3. Organisms seem to be predisposed to be more readily conditioned to some stimuli than to others, a phenomenon that Seligman called _____. For example, people are more likely to develop phobias of (spiders/electrical outlets) even if they have received a severe electrical shock and never been bitten by a spider.

14-4. Researchers have elaborated Seligman's concept to suggest that we have an _____ module for fear learning, such that we are more likely to develop fear of some stimuli (spiders, rats, heights) than others.

14-5. Contrary to the original implications of classical conditioning, conditioned stimuli (CSs) are (entirely/not necessarily) neutral, and conditioned responses (CRs) are not entirely learned. Instead, survival threats in our _____ history have prepared us to be more readily conditioned to some stimuli than others.

15. Explain the importance of ecologically relevant conditioned stimuli and discuss whether the laws of learning are universal.

15-1. Domjan (2005) proposes that taste aversion is not a unique phenomenon but represents the rapid conditioning that may occur when the CS is (neutral/ecologically relevant) with regard to the US. Such a CS-US relationship generally occurs in (the laboratory/natural environment).

15-2. In a traditional laboratory conditioning experiment, the CS is assumed to be an arbitrary or _____ stimulus. For example, a tone or clicking sound may be artificially paired with food. In the natural environment, the CS is not "neutral" but is generally _____ relevant to the US. For example, in the natural environment food is not preceded by a bell but by specific smells or tastes; copulation by specific mating signals; danger from animals by specific sounds or smells, etc.

15-3. For Domjan species-specific differences in conditioning are the norm rather than the exception, and he urges researchers to shift their focus from the study of neutral to ecologically relevant CS-US pairings. When more naturally related CS-US associations are used, several differences are likely to occur: conditioning may occur (more/less) rapidly, may be more resistant to extinction, etc.

15-4. Are laws of learning universal across species? Current thinking is that while there are some differences in learning across species, organisms have faced similar demands in their evolutionary history. So, current thinking is that the basic mechanisms of learning are (absolutely the same/highly similar) across species.

16. Describe Tolman's research on latent learning and it's theoretical importance.

16-1. Is reinforcement (e.g, food reward) really needed for learning, as traditional learning theorists have contended? In the 1940s Edward C. Tolman, an early dissenter from conventional learning theory, found that rats allowed to wander a complicated maze without reinforcement learned to get to the goal box rapidly once food was presented. In fact, they learned as rapidly as another group of rats reinforced on every trial. What does this prove? First, rats appeared to learn the complicated series of left and right turns without _____; second, they appeared to learn something about the layout of the maze, what Tolman termed a _____ map.

16-2. Tolman referred to this type of learning as _____ learning. Latent learning is not apparent from behavior when it first occurs, but it appears later if the incentive is present. Tolman was prophetic, in a sense, well ahead of his time. His views were rejected by mainstream theorists for the next several decades but, as this chapter makes clear, current models of conditioning (include/do not include) cognition as a factor in conditioning.

17. Understand the theoretical implications of research on signal relations and response-outcome relations.

17-1. In the example of a signal relations study described, the number of conditioning trials in which CS and US were paired was the same for two groups, 20 trials. The difference between the two treatment groups was that for one group the (CS/US) was presented *alone* for an additional series of 20 trials. In other words, for this group the CS-UCS pairing occurred on only ____% of the trials.

17-2. Theorists originally assumed that classical conditioning is an automatic, reflexive phenomenon that does not depend at all on higher mental processes. If that actually were true, then what should have been the effect of presenting the US alone for additional trials? Remember that both groups received exactly the same number of conditioning trials (CS-US pairings).

a. Extinction would occur.

b. The additional US trials would weaken conditioning.

c. The additional US trials would have no effect on conditioning.

17-3. In fact, what did occur in the signal relations studies?

a. Extinction.

b. The additional US trials weakened conditioning.

c. The additional US trials had no effect on conditioning.

17-4. These results suggest that the CS *signals* the occurrence of the US and that additional trials with the US alone weaken the _____ value of the CS. What is surprising about these results? Rather than being an automatic, mechanical process, these studies suggest that classical conditioning involves _____ processes.

17-5. Response-outcome relations refers to the connection between an operant response and its consequences. For example, for a rat in a Skinner box the relationship between the lever press (the response) and the food pellet (the outcome) is this: the rat gets the food *only if* it presses the lever. In other words, the reinforcer is (contingent/not contingent) on the response.

17-6. But does the animal "know" the connection between the response and reinforcer, or is the connection stamped in automatically? That is the crux of the response-outcome relations issue. Evidence suggests that

a. reinforcement and punishment are relatively automatic, mindless processes.
b. cognition is not involved in an organism's responding in an operant chamber
c. humans and other animals actively try to figure out the contingencies, the relationship between response and outcome

17-7. Why are the latent learning, signal relations (in classical conditioning) and response-outcome relations (in operant conditioning) studies surprising and of theoretical importance?

OBSERVATIONAL LEARNING

18. Explain the nature and importance of observational learning.

18-1. Observational learning occurs when an organism learns by observing others, who are called _____. This type of learning occurs in (humans/animals/both).

18-2. Why is the concept of observational learning so important? For one thing the idea was surprising to theorists who assumed that all learning could be accounted for by operant and classical conditioning. For another, it extends classical and operant conditioning to include not only *direct* experience but _____ or vicarious experience. We learn not only when we behave but when we _____ the behavior of others.

19. List the basic processes in observational learning and discuss Bandura's distinction between acquisition and performance.

19-1. In the space below list and define the four processes that Bandura has identified as crucial components of observational learning. The first letter of each concept is listed at the left.

A_____:

R_____:

R_____:

M_____:

19-2. Bandura asked the question that Tolman asked decades earlier: Is reinforcement essential for learning? Many learning theorists used to think so, but in Bandura's view reinforcement is essential only for (learning/performance). Bandura asserts that we may learn without being reinforced simply by _____ the behavior of a model, but we are unlikely to perform the response unless we are _____ for doing so.

20. Describe the Featured Study profiling Bandura's classic research on TV models and aggression.

20-1. Decades ago Bandura and his colleagues demonstrated that children will imitate the aggressive behavior of both a live model, basically an adult beating up a large inflatable doll, and a TV depiction of the same thing. In the featured study these researchers examined this question: What are the effects on imitation when the _____ experienced by the aggressive models are manipulated?

20-2. Subjects were 80 four-year old children, half boys and half girls, individually invited to play in a toy room. There were _____ experimental conditions, three of which involved watching a film about Rocky and Johnny before going to the toy room. In one of the films, Rocky strikes Johnny, and the consequence is that Rocky then enjoys playing with the toys and eating cookies. This is the aggressive-model _____ condition.

20-3. In a second five-minute film, observed by a second one-fourth of the subjects, Rocky also strikes Johnny, but in this case Johnny strikes back and causes Rocky to cower in a corner. This is the aggressive-model _____ condition. In the third film, Rocky and Johnny are shown playing in a non-aggressive manner, the _____-model control condition. And in a fourth condition, no film is shown.

20-4. After participating in one of these brief conditions, each child was then individually escorted to the toy room, where the number of their aggressive acts was tabulated during a 20-minute period. Which group engaged in the most aggressive play?

a. the aggressive-model rewarded group

b. the aggressive-model punished group

c. the non-aggressive model group

d. the no-model group

20-5. In other words, consequences matter in observational learning. We imitate what we see, but we are even more likely to imitate when the model we observe is _____.

21. Discuss research on observational learning as it relates to the controversy about the effects of media violence.

21-1. Young children are exposed to an enormous amount of violence on T.V. Does televised violence increase the likelihood that they will engage in aggressive acts? Is it a *causal* factor in aggression? In hundreds of experimental laboratory studies, the answer is clearly (yes/no/maybe). Individuals exposed to media violence, even for short periods of time in a laboratory setting, are both verbally and physically more _____ immediately after the exposure.

21-2. What are the real-world effects? A large number of studies have found that the more violence children watch on television, the more aggressive they are at home and at school. These are _____ studies, not experiments, and alternative causal explanations could be inferred.

21-3. There is, however, particularly convincing evidence in long-term studies of the same individuals: the more televised violence individuals watch as children, the more likely they are to be _____ as adolescents and young adults. Since media aggression (follows/precedes) the aggressive behavior that occurs much later, these studies, when considered with the laboratory experiments, make alternative explanations unlikely.

21-4. Thus, watching televised violence seems to cause aggressive behavior. Since most of us have been exposed to media violence, why aren't we all violent? The reason is that aggression is influenced by a (few/large number) of factors, so the resulting increase may be relatively modest. Still, a modest effect multiplied by millions of people can have big repercussions.

REFLECTING ON THE CHAPTER'S THEMES

22. Identify the two unifying themes highlighted in this chapter.

22-1. Many learning theorists once believed that all behavior was determined by environment. One of our unifying themes, however, is that environment doesn't act alone — environment _____ with heredity. We are affected by conditioning, but conditioning itself is a function of biological as well as environmental factors.

22-2. For example, we seem to be biologically pre-wired to associate taste (and smell) and nausea and not sounds (or sights) and nausea, as demonstrated in the phenomenon of conditioned taste _____. And we are biologically equipped to more readily develop conditioned fear of snakes than hot stoves, the phenomenon termed _____.

22-3. The second theme well illustrated in this chapter is that psychology evolves in a _____ context. Skinner's _____ psychology, for example, with its emphasis on positive _____, has clearly influenced trends in education, child rearing, and business.

PERSONAL APPLICATION • ACHIEVING SELF-CONTROL THROUGH BEHAVIOR MODIFICATION

23. Describe how to specify your target behavior and gather baseline data for a self-modification program.

23-1. What behavior do you want to change? The question sounds simple, but the task of defining a _____ behavior is frequently quite tricky.

23-2. The behavior that you select must be defined in terms of observable events (usually things you can count or measure) so that you will know if and when it changes. For example, for the problem of anger control, which of the following would be the most directly observable definition of "anger"?

a. inner conflict, unconscious turmoil

b. intense hostility, uncontrollable anger

c. unresolved family tension, dysfunctional working environment

d. loud voice, clenched fists, arguing with children

23-3. How frequently does the behavior occur? Once you specify the target behavior, and prior to your intervention, you must gather _____ data on the behavior.

23-4. When gathering baseline data, you should also keep track of events that precede the target behavior, the _____ events, and also the positive and negative reinforcers that follow it, the _____ _____ of your behavior.

24. Describe how to design, execute, and evaluate a self-modification program.

24-1. To increase a target behavior you would use _____. The reinforcer (can/cannot) be something that you already are receiving, but you may have to re-arrange when it occurs. For example, you probably already watch TV, go to movies, or buy things for yourself, so you could make one of these events _____ on an increased frequency of the target behavior.

24-2. You would specify exactly what behavioral goals must be met before you receive the reinforcer; that is, you would arrange the _____. If your goal is to increase studying, you might specify that TV watching for one hour is _____ on having studied for two hours.

24-3. It is possible to use reinforcement, in an indirect way, to *decrease* behavior. For example, if you want to gradually reduce the amount that you smoke, you could reinforce yourself whenever you smoke fewer than a particular number of cigarettes per day. Paradoxically, you are using _____ to decrease behavior.

24-4. For some situations you may be able to identify events that reliably *precede* the behaviors you are trying to stop. For example, for some people smoking is at least under partial control of certain types of social events. So, one strategy for decreasing a behavior is to identify the (antecedent/consequent) events that may control the behavior.

24-5. People can also decrease a target behavior using the _____ procedure, that is, by presenting an aversive stimulus after the behavior. The problem with this approach is that it is difficult to follow through with self-punishment. So, there are two guidelines to keep in mind when using punishment in a self-control program: (1) Use punishment only in conjunction with _____ reinforcement, and (2) use a relatively _____ punishment that you actually will be able to administer.

24-6. Successful execution of the program depends on several factors. To avoid "cheating" try creating a formal written behavioral _____. Or, make an arrangement so that (only you/someone else) delivers the reinforcers and punishments.

24-7. It is generally a good idea to specify in advance the conditions under which you would end the program. It may be a good idea to phase it out by having a/an (gradual/immediate) reduction in the frequency or potency of reinforcers.

25. Recognize how classical conditioning is used to manipulate emotions.

25-1. It is easy to forget that Pavlovian conditioning involves more than salivating dogs. It involves emotion and in that respect is important for a range of reactions — from phobias to sexual arousal to the effects of advertising. Manipulation employs a special subtype of classical conditioning in which the elicited responses are emotion-laden likes and dislikes. This type of conditioning, known as _____ conditioning, is especially resistant to extinction.

25-2. For practice with classical conditioning concepts, especially as they relate to evaluative conditioning, label each of the following:

(a) A glamorous woman is shown entering an automobile. Label each of the following with CS, US, CR, and UR. (Assume, for the sake of this example, that the target audience is initially more attracted to the woman than the car. It could work the other way, too.)

_____ the woman

_____ the car

_____ attraction to the car

_____ attraction to the woman

(b) An American politician stands in front of an American flag.

What is the CS? _____

the US? _____

(c) A salesman takes you to lunch.

What is the CS? _____

The US? _____

The CR? _____

25-3. Of course, there's more going on in these examples than just classical conditioning. When we receive a favor, we are not only being conditioned but may feel obliged to pay back or _____ the person's favor.

25-4. While the examples we've used involve liking or attraction, other emotions may be conditioned as well—such as feelings of masculinity and femininity. Want to be more masculine? Smoke these cigarettes, ads may suggest. Not that we must be conscious of manipulation attempts, for conditioning (does/does not) seem to require our awareness.

25-5. How do we protect ourselves against attempts to manipulate our emotions? One suggestion from research on persuasion is that merely being _____ of the pervasiveness of conditioning will by itself provide some protections against manipulation strategies.

Review of Key Terms

Acquisition
Avoidance learning
Behavior modification
Behavioral contract
Classical conditioning
Conditioned reinforcers
Conditioned response (CR)
Conditioned stimulus (CS)
Continuous reinforcement
Cumulative recorder
Discriminative stimuli
Elicit
Emit
Escape learning
Evaluative conditioning
Extinction
Fixed-interval (FI) schedule
Fixed-ratio (FR) schedule
Higher-order conditioning
Intermittent reinforcement
Latent learning
Law of effect
Learning
Negative reinforcement
Observational learning
Operant chamber
Operant conditioning
Partial reinforcement
Pavlovian conditioning
Phobias
Positive reinforcement
Preparedness
Primary reinforcers
Punishment
Reinforcement
Reinforcement contingencies
Renewal effect
Resistance to extinction
Schedule of reinforcement
Secondary reinforcers
Shaping
Skinner box
Spontaneous recovery
Stimulus discrimination
Stimulus generalization
Trial
Unconditioned response (UR)
Unconditioned stimulus (US)
Variable-interval (VI) schedule
Variable-ratio (VR) schedule

_____ **1.** A relatively durable change in behavior or knowledge that is due to experience.

_____ **2.** Irrational fears of specific objects or situations.

_____ **3.** The most common name of a type of learning in which a neutral stimulus acquires the ability to evoke a response that was originally evoked by another stimulus.

_____ **4.** Another name for classical conditioning derived from the name of the person who originally discovered the conditioning phenomenon.

_____ **5.** A type of classical conditioning, especially resistant to extinction, in which responses involved are emotion-laden likes and dislike.

_____ **6.** A stimulus that evokes an unconditioned response.

_____ **7.** The response to an unconditioned stimulus.

_____ **8.** A previously neutral stimulus that has acquired the capacity to evoke a conditioned response.

_____ **9.** A learned reaction to a conditioned stimulus that occurs because of previous conditioning.

_____ **10.** To draw out or bring forth, as in classical conditioning.

_____ **11.** Any presentation of a stimulus or pair of stimuli in classical conditioning.

_____ **12.** The formation of a new response tendency.

_____ **13.** Learning without reinforcement that is not apparent from behavior when the learning first occurs.

_____ **14.** The gradual weakening and disappearance of a conditioned response tendency.

_____ **15.** The reappearance of an extinguished response after a period of nonexposure to the conditioned stimulus.

_____ **16.** Occurs when an organism responds to new stimuli that are similar to the stimulus used in conditioning.

_____ **17.** Occurs when an organism learns not to respond to stimuli that are similar to the stimulus used in conditioning.

_____ **18.** Occurs when a conditioned stimulus functions as if it were an unconditioned stimulus.

_____ **19.** This term, introduced by Skinner, refers to learning in which voluntary responses come to be controlled by their consequences.

_____ **20.** Seligman's idea of species-specific predispositions to be conditioned in certain ways and not in others (e.g., as an explanation of phobias).

_____ **21.** Law stating that if a response in the presence of a stimulus leads to satisfying effects, the association between the stimulus and the response is strengthened.

_____ **22.** Occurs when an event following a response strengthens the tendency to make that response.

_____ **23.** A standard operant chamber in which an animal's responses are controlled and recorded.

_____ **24.** Production of voluntary responses in responding in operant conditioning.

_____ **25.** The circumstances or rules that determine whether responses lead to presentation of reinforcers; or, the relationship between a response and positive consequences.

_____ **26.** Device that creates a graphic record of operant responding as a function of time.

_____ **27.** The reinforcement of closer and closer approximations of the desired response.

_____ **28.** A small enclosure in which an animal's responses are recorded and followed by specified consequences; a Skinner box.

_____ **29.** Occurs when an organism continues to make a response after delivery of the reinforcer for it has been terminated.

_____ **30.** Cues that influence operant behavior by indicating the probable consequences (reinforcement or nonreinforcement) of a response.

_____ **31.** Stimulus events that are inherently reinforcing because they satisfy biological needs.

_____ **32.** Stimulus events that acquire reinforcing qualities by being associated with primary reinforcers.

_____ **33.** A specific pattern of presentation of reinforcers over time.

_____ **34.** Occurs when every instance of a designated response is reinforced.

_____ **35.** The name for all schedules of reinforcement in which a designated response is reinforced only some of the time.

_____ **36.** The schedule in which the reinforcer is given after a fixed number of nonreinforced responses.

_____ **37.** The schedule in which the reinforcer is given after a variable number of nonreinforced responses.

_____ **38.** The schedule in which the reinforcer is given for the first response that occurs after a fixed time interval has elapsed.

_____ **39.** The schedule in which the reinforcer is given for the first response that occurs after a variable time interval has elapsed.

_____ **40.** Occurs when a response is strengthened because it is followed by the arrival of a rewarding (presumably pleasant) stimulus.

_____ **41.** Occurs when a response is strengthened because it is followed by the removal of an aversive (unpleasant) stimulus.

_____ **42.** Occurs when an organism engages in a response that brings aversive stimulation to an end.

_____ **43.** Occurs when an organism engages in a response that prevents aversive stimulation from occurring.

_____ **44.** Occurs when an event that follows a response weakens or suppresses the tendency to make that response.

_____ **45.** If an animal is extinguished in an environment different from the one in which the response was acquired, the response will reappear when it is returned to the original environment.

_____ **46.** Occurs when an organism's responding is influenced by the observation of others, who are called models.

_____ **47.** A systematic approach to changing behavior through the application of the principles of conditioning.

_____ **48.** When a designated response is reinforced only some of the time; another name for intermittent reinforcement.

_____ **49.** Another name for secondary reinforcers.

_____ **50.** A written agreement outlining a promise to adhere to the contingencies of a behavior-modification program.

Review of Key People

Albert Bandura
John Garcia
Ivan Pavlov
Robert Rescorla
Martin Seligman
B.F. Skinner
E.L. Thorndike
Edward C. Tolman
John B. Watson

_____ **1.** The first to describe the process of classical conditioning.

_____ **2.** Founded behaviorism; examined the generalization of conditioned fear in a boy known as "Little Albert."

_____ **3.** Developed a principle known as the law of effect; coined the term *instrumental learning*.

_____ **4.** Elaborated the learning process known as operant conditioning; investigated schedules of reinforcement; developed programmed learning.

_____ **5.** Asserted that environmental stimuli serve as signals and that some stimuli in classical conditioning are better signals than others.

_____ **6.** Described and extensively investigated the process of observational learning.

_____ **7.** Discovered that taste aversion was conditioned only through taste and nausea pairings and not through other stimulus pairings, such as taste and shock.