

# Unit VI - Answer Key

## Learning

### Module 26 - How We Learn and Classical Conditioning

#### While You Read

#### 26-1

1. Learning is defined as acquiring through experience new and relatively enduring information or behaviors.

Answers will vary but should say that we generally do not think of behaviors when considering learning.

- 2.

Behavior #1:

Answers will vary but should demonstrate an understanding of how the behavior came to be associated with the accompanying event.

Behavior #2:

Answers will vary.

- 3.

- a. classical conditioning—learning to expect and prepare for significant events such as food or pain
- b. operant conditioning—learning to repeat acts that bring rewards and to avoid acts that bring unwanted results
- c. cognitive learning-- Observational learning, one form of cognitive learning, lets us learn from others' experiences.

4. This response is associative learning: The lion has associated the trainer with the pain experienced by the trainer's slap.

**26-2**

1. He laid the groundwork for Watson and others by discarding references to inner thoughts, feelings, and motives. He suggested that psychology instead should study how organisms respond to stimuli in their environments.

**26-3**

- 1.

<b>Component</b>	<b>Full Term</b>	<b>Definition</b>	<b>Pavlovian Example</b>
US	unconditioned stimulus	a stimulus that naturally (unconditionally) triggers a response	food
UR	<i>unconditioned response</i>	<i>an unlearned, naturally occurring response to an unconditioned response</i>	<i>salivation to the food in the mouth</i>
NS	neutral stimulus	a stimulus that elicits no response before conditioning	things the dog could see and hear but didn't associate with food
CS	conditioned stimulus	an originally irrelevant stimulus that, after association with a US,	tone

		comes to trigger a conditioned response	
CR	conditioned response	a learned response to a previously neutral (but now conditioned) stimulus	salivation in response to the tone

**2.**

**a.**

US: Pleasant thoughts

UR: Date/Young Woman

NS: Roses

CS: Roses

CR: Happy memories/pleasant thoughts

**b.**

US: thunder boom

UR: fear/startled reaction/wincing

NS: lightning

CS: lightning

CR: fear/startled reaction/wincing

**26-4**

1. In higher-order conditioning, a new NS can be added onto an existing CS and become a new CS, separate from the original existing CS. This is also called second-order conditioning.

2. Answers will vary but should show association of the new stimulus to the previously conditioned stimulus.
3. Pavlov sounded the tone (the CS) over and over again without providing the food (the US) again.
4. A student may be fearful of a larger dog or a specific types of dog that may have attacked them, they would then, due to generalization, be afraid of all types of dogs
5. Discrimination is the ability to respond to one stimulus but not to another, perhaps similar stimulus. For instance, Pavlov could have conditioned his dogs to salivate to a tone, but not to a bell by providing food when the tone (CS) sounds, but not when the bell rings.

#### 25-5

1. Answers will vary but the text uses this phrasing: “classical conditioning is one way that virtually all organisms learn to adapt to their environment.”

#### 26-6

- 1.

<b>Component</b>	<b>Example #1</b>	<b>Example #2</b>	<b>Example #3</b>
	<b>Former Drug User</b>	<b>Body’s Immune System</b>	<b>Little Albert</b>
US	drug	particular drug	hammer on steel bar
UR	<i>craving</i>	influence on immune response	fear/startled reaction/tears
NS	people or places where they used the drug	<i>taste</i>	white rat

CS	people or places where they used the drug	taste	white rat
CR	craving	influence on immune response	<i>fear</i>

**After You Read**

**Module 26 Review**

1. US: parents' lecture  
UR: heart racing  
NS: garage door opening  
CS: garage door opening  
CR: heart racing
2. US: shellfish  
UR: sick  
NS: restaurant  
CS: restaurant  
CR: sick/nauseous
3. US: boring clips  
UR: tired/fall asleep  
NS: TV/VCR  
CS: TV/VCR  
CR: drowsy
4.
  - a. US: feeding Lassie—filling up her bowl  
UR: Lassie running to you/experiencing hunger

NS: coming in the door

CS: coming in the door

CR: Lassie running to you/experiencing hunger

- b.** Any two stimuli (doorbell, hand clapping, special phrase, for example) will be attached to the already established CS of the backpack drop and trials will occur to cement learning. For example: Hand clap + backpack drop + feeding Lassie = Lassie comes running.

**5.**

**a.** US: tossing up in the air

UR: giggles and feelings of love

NS: father

CS: father

CR: feelings of love and enjoyment

- b.** AnnaBeth sees in her friends' fathers the qualities that exist in her father (bright smile, warm response, kind voice, and so on) and has generalized her love/hugging response to them.

- c.** In order to teach her to discriminate and only respond to HER father, she will need to be rewarded (hugged back, greeted fondly, thrown up into the air, and such) only by HER father and the other fathers will not reward her hugging behavior.

**6. d.** extinction of the conditioned response.

**7. a.** Spontaneous recovery

**8. d.** stimulus discrimination.

**9. a.** being reinforced for desired behaviors.

**10. e.** extinction.

## Module 27 - Operant Conditioning

### While You Read

#### 27-1

1. Answers will vary but strong answers will cite that classical conditioning forms associations between stimuli and respondent behavior, while operant conditioning reinforces associations based on reward and punishment.
2. Answers will vary.

#### 27-2

1. Organisms will repeat behavior that is rewarded—if the cat is rewarded by getting out of the box it will repeat the same behaviors the next time it is in a similar situation.
2. A “Skinner box” is an operant chamber containing a bar or key that an animal can manipulate to obtain a food or water reinforcer. Attached devices record the animal’s rate of bar pressing or key pecking. It is used to test Skinner’s concept of reinforcement.
3. In shaping, behaviors are actions are gradually guided by reinforcers toward closer and closer approximations until the desired behavior is reached.

Answers will vary.

4. Answers will vary.

#### 27-3

1. Reinforcement will continue a behavior

2. With positive enforcement, a desirable stimulus is added (for example, giving a treat to your dog when you call it). With negative reinforcement, an aversive stimulus is removed (for example, taking painkillers to end a headache).
3. Answers will vary. The answer should demonstrate something being taken away to continue a behavior.
4. Answers will vary.
5. Innately satisfying, primary reinforcers are unlearned.  
Conditioned or secondary reinforcers get their power through learned associations with primary reinforcers.
6. Answers will vary.
7. Yes, people can be drawn to immediate reinforcers even though they know it might not benefit them. Example from the textbook: Watching television late at night gratifies the need for entertainment but causes one to be more tired and less alert the next day.

**27-4**

1. Partial, or intermittent, reinforcement schedules result in slower acquisition of a response but much greater resistance to extinction. Continuous reinforcement is good for introducing new responses to an organism and working to have them rapidly conditioned.
- 2.

<b>Reinforcement Schedule</b>	<b>Definition</b>	<b>Example From Text</b>	<b>Original Example</b>
Continuous	a reinforcement schedule that	a candy machine that always delivers a	Answers will vary.



	reinforces a desired response every time it occurs	chocolate bar when money is put in	
Fixed-ratio	a reinforcement schedule that reinforces a response only after a specified number of responses	coffee shops rewarding a free drink after every 10 purchased	Answers will vary.
Fixed-interval	a reinforcement schedule that reinforces a response only after a specified time	checking for mail more frequently as the delivery time approaches	Answers will vary.
Variable-ratio	a reinforcement schedule that reinforces a response after an unpredictable number of responses	winning when gambling on a slot machine	Answers will vary.
Variable-interval	a reinforcement schedule that reinforces a response	receiving responses in, say, e-mail or Facebook	Answers will vary.

	at unpredictable time intervals		
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3. VR schedules require the player to play to win. Players keep playing because the schedule leads them to believe that ‘this time’ will be the time they will win.

### 27-5

1. Punishment *decreases* the behavior that it follows. Reinforcement *increases* the behavior that it follows.
2. Answers will vary but strong answers cite examples to illustrate that negative reinforcement aims to strengthen a behavior, while punishment aims to decrease a behavior.
3. Positive punishment is adding (+) a negative (-) stimulus: such as a fine or a slap.  
Negative punishment is taking away (-) a positive (+) stimulus: such as taking a teen’s car or cell phone.
4. Check the increase or decrease in the behavior being targeted: If it is increasing, it is likely being reinforced; if it is decreasing, it is likely being punished.
5.
  - a. Punished behavior is suppressed, not forgotten. This temporary state may negatively reinforce parents’ punishing behavior.
  - b. Punishment teaches discrimination among situations.
  - c. Punishment can teach fear.
  - d. Physical punishment may increase aggression by modeling aggression as a way to cope with problems.

6. After you finish your homework, come see me and I'll give you money for a movie.

7.

	<b>Reinforcement</b>	<b>Punishment</b>
<b>Positive</b>	Answers will vary. For example, reward the dog with a treat when she brings the paper to you.	Answers will vary. For example, you could add a swat with a rolled-up newspaper when your dog does not bring the paper to you.
<b>Negative</b>	Answers will vary. For instance, you could blow a loud dog whistle that annoys your dog and stop blowing it only when she bring the paper to you.	Answers will vary. For example, you might remove a favorite play toy if your dog does not bring the paper to you.

27-6

1. Some thought he dehumanized people by neglecting their personal freedom and by seeking to control their actions.

2.

a. Answers will vary. For example, you might offer to take your friend to a movie if she gets a higher grade on the next test (positive reinforcement). Or perhaps you offer to occupy her annoying younger brother for a few hours if she'll use the time to study (negative reinforcement).

b. Answers will vary.

c. Answers will vary.

## After You Read

### Module 27 Review

1. positive reinforcement
2. How is Dante's behavior being reinforced?  
positive punishment  
How is the teacher's behavior being reinforced?  
negative reinforcement
3. positive punishment
4. negative punishment
5. negative reinforcement
6. fixed-ratio
7. variable-interval
8. variable-ratio
9. fixed-interval
10. fixed-ratio

## **Module 28 - Operant Conditioning's Applications, and Comparison to Classical Conditioning**

### **While You Read**

#### **28-1**

1. Answers will vary.
2. Biofeedback electronically records, amplifies, and feeds back information regarding a physiological state. In this way, a person can learn techniques for controlling the particular physiological response.
3. Biofeedback instruments mirror the results of a person's own efforts. So, if a person is making an effort to calm their heart rate or slow their breathing, for example, the tone or signal from the biofeedback machine will lower and calm. This is a "reward" to the person, indicating they are performing the correct behavior, which will increase the likelihood that they will try to perform that behavior again.

#### **28-2**

1. Answers will vary.

### **After You Read**

#### **Module 28 Review**

Answer the prompt to see if you have mastered the basics.

1. Punishment: When Shereen experiences anxiety about her academics or sports, she can self-limit her time with an enjoyable activity such as a movie or time with social media.

Positive reinforcement: Each time Shereen successfully goes out onto the field or passes a test, she can treat herself to an enjoyable activity such as a movie or a new CD.

Schedule of reinforcement: A variable-ratio schedule would most ensure a tough-to-extinguish behavior, so Shereen should reinforce herself only after a varying number of successful behaviors.

2. Students should indicate understanding of punishment (either removing a positive stimulus or adding a negative stimulus) in order to decrease the likelihood they will continue that behavior

Students should show an understanding of positive reinforcement (adding a positive stimulus) to encourage the new behavior.

Students should show an understanding that negative reinforcement will remove something unpleasant so that a behavior will continue.

Students should exhibit an understanding of reinforcement schedules by appropriately choosing, labeling, and explaining one of the four mentioned in the text.

## Module 29 - Biology, Cognition, and Learning

### While You Read

#### 29-1

1. The basic laws of learning are the same for all animals, including humans. Researchers have better control over animals subjects and most data can be generalized to human beings.
2. Answers will vary. Students should refer to Figure 29.1 from the text
3. He exposed rats to a taste/sound/sight and then later to radiation/drugs that caused nausea. He found that even if hours passed between the two exposures (to taste and then to drugs, for example), the rats still associated the two and avoided the first stimulus. That meant the US might not have to directly follow the CS in conditioning trials.

He also found that the rats developed aversions to the tastes but not the sights or sounds. This challenged the behaviorists' idea that any stimulus, if perceivable, could function as a CS.

For rats, they taste food to identify if it is tainted, so it makes sense.

#### 4.

	<b>Example #1</b>	<b>Example #2</b>	<b>Example #3</b>
<b>Component</b>	<b>Pavlov's Dogs</b>	<b>John Garcia's Rats</b>	<b>Sheep-eating coyotes</b>
US	food	<i>radiation or drugs</i>	poison
UR	<i>drooling</i>	nausea/vomiting	sickening
NS	tone	flavored water	<i>sheep</i>
CS	tone	flavored water	sheep
CR	drooling	nausea/vomiting	sickening—avoid the sheep

5. Our ancestors were unlikely to eat the same toxic food more than once and were more likely to survive and leave descendants.
6. There are simply certain physical behaviors organisms are incapable of performing, despite the most appropriate reinforcers.
7. These biological constraints predispose organisms to learn associations that are naturally adaptive—so, using food to reinforce a hamster's behavior that has nothing to do with food or hunger won't work.
8. Answers will vary but should demonstrate that this is not a natural behavior for a gerbil and may not be successful.

## 29-2

1. Humans' thoughts, perceptions, and expectations impact the success of associating. Humans consider the predictability of an event as well.
2. If a shock is preceded by a tone, the rat learns to respond to the tone. If it then is preceded by a light that accompanies the tone, the rat will react with fear to the tone, but not the light. Although the light is always followed by a shock, it adds no new information. A variable-ratio schedule, not knowing how many responses would be required before reinforcement, is the best way to prevent extinction because organisms cannot predict how many more responses they will need before a reward and thus keep responding. They have an expectancy that a reward will occur, as Rescorla's rats had an expectancy that the shock would occur.
3. There does seem to be an expectancy working here as well: Animals reinforced on a fixed-interval schedule responded more and more frequently as the time approached when a response would produce a reinforcer.



4. Tolman put rats in a maze with no obvious rewards. The rats formed cognitive maps, which they demonstrated only once a reward was placed in the goal box. There is more to learning than associating a response with a consequence, there is also cognition.
5. Insight learning is an abrupt, true-seeming, and often satisfying solution. Latent learning occurs but is not apparent until there is an incentive to demonstrate it.
6. Answers will vary students need to understand that the intrinsic motivation is their own enjoyment and the extrinsic motivation is likely getting something (trophy, recognition, etc) for playing well.

### **29-3**

1. Problem-focused coping is directly addressing the stressor—the friend or family member, for example. Emotion-focused coping is perhaps avoiding the stressor by exercising or focusing on hobbies, for example. Specific examples will vary, but the impacts of the two coping methods on individuals should be explained. The adaptive and maladaptive results of emotion-focused coping and the sense of control we feel when engaging in problem-focused coping should be part of the strong answer.

### **29-4**

1. Seligman strapped dogs in harnesses and gave them repeated shocks with no opportunity to avoid them. Later, when placed in another situation where they could avoid the shock by leaping a hurdle, the dogs cowered as if without hope; he called this learned helplessness. The dogs felt unable to control their situation and began to feel hopeless and depressed.
2. Answers will vary.

3. When a person perceives a loss of control, they become more vulnerable to stress and health issues because losing control provokes an outpouring of stress hormones. Experiencing more control often improves health and morale.
4. People with an internal locus of control believe they control their own destiny, and this leads to more success in school and work, better health, and less depression.  
People with an external locus of control believe that outside forces determine their fate. They have higher rates of depression, ill health, increased obesity and hypertension, and are less independent.

## 29-5

1. Self-control is the ability to control impulses and delay short-term gratification for greater long-term rewards. High levels of self-control lead to good adjustment, better grades and social success, as well as lower rates of depression.
7. Self-control is weakened after an exertion, replenishes with rest, and becomes stronger after exercise. However, exercising self-control temporarily depletes the mental energy needed for self-control on other tasks.

## After You Read

### Module 29 Review

#### *Terms or Names*

- I   1. John Garcia
- H   2. insight
- E   3. problem-focused coping

#### *Definitions or Associations*

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

- |              |                              |   |
|--------------|------------------------------|---|
| <u>  G  </u> | 4. emotion-focused coping    | <b>B.</b> the ability to control impulses and delay short-term gratification for greater long-term rewards                                    |
| <u>  A  </u> | 5. learned helplessness      | <b>C.</b> the perception that chance or outside forces beyond our personal control determine our fate   |
| <u>  C  </u> | 6. external locus of control | <b>D.</b> sense of controlling our environment rather than feeling helpless   |
| <u>  J  </u> | 7. internal locus of control | <b>E.</b> attempting to alleviate stress directly-by changing the stressor or the way we interact with that stressor                          |
| <u>  B  </u> | 8. self-control              | <b>F.</b> tested cognitive maps in rats   |
| <u>  D  </u> | 9. personal control          | <b>G.</b> attempting to alleviate stress by avoiding or ignoring a stressor and attending to emotional needs related to one's stress reaction |
| <u>  F  </u> | 10. Edward Chase Tolman      | <b>H.</b> a sudden realization of a problem's solution  |
|              |                              | <b>I.</b> tested taste aversion in rats   |
|              |                              | <b>J.</b> the perception that you control your own  |

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

- 12.** Animals may learn from experience even when reinforcement is not available. When learning is not apparent until reinforcement has been provided, latent learning is said to have occurred.
- 13.** The desire to perform a behavior for its own sake is called intrinsic motivation, while motivation to seek external rewards and avoid punishments is called extrinsic motivation.
- 14. a.** Robert Rescorla through his work on the cognitive component of associative learning.
- 15. c.** an external locus of control.

## Module 30 - Observational Learning

### While You Read

#### 30-1

1. Bandura had adults interact with a Bobo doll by pushing, hitting, and kicking it while children watched. When children had their opportunity to interact with Bobo, they imitated the actions of the adults they had viewed. Children who had not viewed an adult model prior to interacting with Bobo were less likely to lash out at the doll. It appears that by watching a model, we experience vicarious reinforcement or punishment and learn how to interact.
2. Modeling is a process by which we learn by imitating and observing others, whereas vicarious reinforcement or punishment involves anticipating the consequences of the behavior we are observing and then basing our learning on the consequences. When we observe someone like ourselves receiving a reward, our own brain reward systems activate much as if we ourselves had won the award.
3. Mirror neurons are located in the frontal lobe and they fire when performing certain actions OR when watching someone else doing so. This may be how we experience empathy.
4. The child's brain enables empathy and the ability to infer another's mental state, an ability known as theory of mind. This may be due to mirror neurons that allow them to imitate the actions of adults.

#### 30-2

1. Prosocial modeling leads to prosocial—positive, humanitarian—behavior.  
Answers will vary.
2. Antisocial modeling leads to antisocial—negative, aggressive—behavior.

Answers will vary.

### 30-3

#### 1.

- a. If people watch an aggressive model, they are more likely to imitate the model's actions.

Research has shown a correlation between the amount of violent media viewed and the prevalence of fights at school.

- b. Answers will vary.

- c. Answers will vary

### After You Read

#### Module 30 Review

1. c. kick and throw Bobo as the adults did
2. e. all of the above.
3. a. imitation and empathy.
4. b. observational learning.
5. d. Ahad learns to care for his younger brother by watching his father feed and change him.

### ✓ Check Yourself

#### 1.

Taste aversion: **Classical conditioning:**

violently sick (US) = unpleasant and avoidance (UR)

food item (NS) + violently sick (US) = unpleasant and avoidance

food item (CS) = unpleasant and avoidance

**Operant conditioning:**

eating a food item(behavior) = violently sick (positive punishment)

decreased likelihood that you will eat that food item again

**Observational learning:**

watch someone eat food item and become sick (vicarious learning)

decreased likelihood of eating same food item

Superstitious behavior: **Operant conditioning:** A randomly timed reward can produce superstitious behaviors. If a behavior occurs before a random, unplanned reward, it can reinforce the behavior. For instance, if a family makes a joke of doing a “traffic dance” before heading out on a long road trip and then finds no traffic and easy commuting, they may decide the dance worked and repeat the behavior in the future.

**Observational learning:** If a young softball player watches an Olympic athlete dust off her bat three times, spit on her hands and salute the spectators, before hitting a grand slam, the little girl may mimic those behaviors as well, thinking they will bring her luck at bat!

Learned helplessness: **Classical conditioning:** Unavoidable electric shock (US) = cower and shake (UR); pen (NS) + unavoidable electric shock (US) = cower and shake (UR); pen (CS) = cower and shake (CR); dog generalizes fear of electrified pen to all pens, even those that would allow for avoidance of electric shock (such as with a hurdle to jump)

**Operant conditioning:** Dog in harness leaps hurdle (behavior) when shocked—eliminate shock (negative reinforcement); increase likelihood dog will jump hurdle in future; dog in

harness, shocked, no opportunity for release behavior—dog stops trying; bad event + no sense of behavior that could eliminate event = no behavior

**Observational learning:** Watching others try to no avail increases likelihood that you will not try either

2.

**Biofeedback:** utilizes electronic recordings that amplify and give information regarding a physiological state, such as blood pressure or muscle tension. Austin may become enraged or experience increased SNS activity leading to his rage and acting out that could be measured using biofeedback techniques. Austin may be able to learn when his body is reacting physiologically in this manner and practice techniques to control anger, for example.

**Coping strategies:** Austin may use problem-focused coping skills and address the stressors or problems in his life (such as a family fight or disagreement with an adult) by going directly to that person to work things out. If Austin feels a sense of control over the situation, or actually thinks he can change the circumstances, this may be a successful approach. Austin may also use emotion-focused coping if he believes he cannot change the situation. If Austin simply cannot get along with the adults he is resistant to, he could reach out to friends for support or exercise or keep busy with a hobby to avoid thinking about it.

**Self-control:** self-control weakens after exertion and exercising willpower may temporarily deplete mental energy needed for self-control on other tasks. Studies have shown that giving people a sweetened drink when their self-control is depleted strengthened effortful thinking and reduced financial impulsiveness. Austin may benefit from training on developing his self-control, just as he develops his muscles. He may also benefit from sugar.



**3.**

- a.** Pavlov conditioned salivation to stimulation of the thigh. The graph shows the greatest number of drops of saliva correlated to the stimulation of the thigh. When Pavlov began to stimulate other areas of the dog's body, he found that the closer to the thigh the stimulation occurred, the more saliva was emitted. The dog generalized its salivary response to electric stimulation of nearby parts—the pelvis, the trunk. The dog discriminated its response when the stimulation occurred very far from the thigh—the front paw stimulation yielded significantly fewer drops of saliva.
- b.** The strength of the conditioned response in Pavlovian conditioning increases during the training phase as the US is presented with the NS. Once the CR reaches a peak, the CS is then presented without the US. The response wears off until it is extinguished. There is a time break and then when the CS is reintroduced, there is spontaneous recovery of the CR, although at a lower strength than the previous peak and then with repeated introduction of the CS without the US, the CR extinguishes once again.
- c.**
  - 1. Ratio schedules (number of responses) produce higher numbers of responses than interval schedules.
  - 2. Fewer reinforcers are needed with variable ratio schedules than with fixed ratio schedules to achieve the same # of responses.
  - 3. Responses increase near times of reinforcement in fixed interval schedules
  - 4. Variable schedules produce more consistent responding than fixed schedules.
- d.** Performance improves with more success. Behaviors that worked become more likely.

4. Examples will vary. Students must demonstrate that the purpose of punishment is to stop a behavior and the purpose of negative reinforcement is to continue a behavior by removing something unpleasant/aversive from the environment.