FOCUS ON VOCABULARY AND LANGUAGE

Learning breeds hope. The fact that we can change and adapt as a result of experience (*learn*) in so many different areas gives rise to optimism (*breeds hope*) about our future prospects. The study of **learning** has played an important role in psychological research and no topic is closer to the heart of psychology.

How Do We Learn?

. . . watching a TV character get *mugged* . . . To be *mugged* means to be attacked, (sometimes) beaten, and robbed. This example shows how associations are formed between events, such as between the sounds that precede an attack and the *mugging* itself. In movies and on TV, a certain type of music is often played before a frightening event or scene. After a few such associations, the music itself can elicit fear before you actually see the frightening or scary event. This is an example of **classical conditioning**.

Such associations can make it hard to *kick a smoking habit*. When back in the smoking *context*, the urge *to light up* can be powerful (Siegel, 2005). *Learned associations* contribute to (*feed*) our habitual behaviors. For those who are trying to stop smoking cigarettes (trying to *kick the smoking habit*), the *context* in which the smoking had previously occurred can elicit a strong desire to smoke once more (*to light up again*). The place or situation (*context*) has become associated with the pleasure of smoking cigarettes.

Classical Conditioning

For many people, the name Ivan Pavlov (1849–1936) *rings a bell*. Myers is making a little joke here. A common expression when hearing something familiar but vague is to say, "*That rings a bell*." Pavlov's name is familiar to many people, who may also be vaguely aware that his research involved dogs and ringing bells (**classical conditioning**).

Pavlov's Experiments

. . . what the dog was *thinking and feeling* as it *drooled* . . . To *drool* means to salivate or produce spit. When food (the US) is placed in a dog's mouth, the dog will automatically salivate or drool (the UR). If a tone (the CS) is sounded before (or precedes) the US over a number of trials, then the CS alone (the tone) will be able to elicit salivation (the CR). Note that before conditioning, the tone is a **neutral stimulus** (NS) because it does not elicit the target response of salivation. The basic classical conditioning procedure does not require knowledge of the dog's cognitions. Thus, Pavlov decided that the dog's internal mental state (its *thinking and feeling*) was not important in reaching an understanding of fundamental learning principles, and that focusing attention on cognitive processes only led to futile arguments (*fruitless debates*).

They [male quail] developed a preference for their *cage's red-light district* . . . Traditionally, a red lamp hung in the window identified a house as a brothel; the area of town populated by many brothels became known as the *red-light district*. In Domjan's experiments with male quail a red light (CS) was used to signal the arrival of a receptive female quail (US), which elicited sexual arousal (UR). Eventually, the red light (CS) alone elicited sexual arousal (CR), and the male quail appeared to develop a general liking (*preference*) for the cage with the red light (*the cage's red-light district*).

(Margin note) If the *aroma* of cake baking *sets your mouth to watering,* what is the US? The CS? The CR? When you bake a cake in the oven, there is a lovely smell (*aroma*) that makes you salivate or drool

(it *sets your mouth to watering*). This is an example of classical conditioning: The taste of the cake in your mouth is the US (it automatically produces saliva, the UR), the aroma is the CS, and, because of the aroma's past associations with the US, it can now by itself elicit saliva (the CR).

Confronted by a guard dog, *your heart may race*; confronted by a guide dog, it probably will not. Guard dogs are generally perceived as aggressive and potentially dangerous; guide dogs are usually gentle and friendly. Thus, when you encounter a guard dog, you may experience physiological arousal (*your heart may race*) and you may experience fear, but the sight of a guide dog will not likely cause the same reaction. To be able to tell the difference (***discriminate***) between two stimuli (in this case, two types of dogs) is an adaptive ability that has obvious survival value.

Pavlov's Legacy

But if *we see further* than Pavlov did, it is because we *stand on his shoulders*. This phrase is not to be taken literally; it simply means that we now know more than Pavlov did (*we see further)* because we can build and expand on his great work (*stand on his shoulders*).

Former *crack* cocaine users often feel a *craving* when they are again with people or in places they associate with previous *highs*. Crack cocaine users are drug addicts who use a drug that is a synthetic, but very potent, form of cocaine (*crack*). For those who are attempting abstinence, the strong desire (*craving*) for the drug may be a classically conditioned response (a CR) to the sight or presence of people or places (the CSs). These people or places (the CSs) were associated with taking the drug (the US) that produced the UR (the euphoric feelings or *highs*). Drug addicts are therefore advised to avoid (*steer clear of*) settings, equipment, or people related to previous drug-taking activity.

Operant Conditioning
Skinner's Experiments

. . . *to pull habits out of a rat*. Here, David Myers is having fun playing with the English language. The expression "to pull rabbits out of a hat" refers to stage magicians who are able to extract rabbits from a seemingly empty hat. Can you see the way Myers has twisted this expression? Both classical and operant conditioning involve teaching new habits to various organisms, including rats. Following classical conditioning the CS triggers a new response from the animal (i.e., the CS "*pulls a habit out of the rat*"). Or, after **operant conditioning**, the sight of the lever may elicit the habit of lever pressing. Note that Skinner's research on learning has been very important to the field of psychology and has done much more than simply demonstrate habitual responses (the *habits pulled out of a rat*).

Or consider a teacher who pastes *gold stars on a wall chart* after the names of children scoring 100 percent on spelling tests. Teachers often use extrinsic rewards such as small, bright stickers (*gold stars*) and typically display them on a classroom bulletin board (*paste them on a wall chart*) for, say, the very best spellers in the class. Unfortunately, if only the top few students (*the academic all-stars*) are recognized in this way, the rest of the students may lose motivation because, even if they improve their spelling and work very hard (but still don't score 100 percent), they won't receive any reinforcers (*gold stars*). Myers suggests that it might be better if teachers used a **shaping** procedure that rewards even small improvements and recognizes the child for making the effort to do better and better.

. . . pushing the *snooze button* will silence your annoying alarm. When your radio alarm goes off in the morning, you may press the switch (the *snooze button*), which turns off the irritating tone for a brief period of time. The ensuing quiet period may allow you to go back to sleep for a while (*snooze*) and the absence of the buzzer becomes a negative reinforcer for pushing the *snooze button*. (Your button-pushing

behavior has been strengthened because it removed an aversive event, the alarm.) Likewise, a regular drug user (a *drug addict*) may be **negatively reinforced** for continuing or resuming drug taking because doing so diminishes the pain associated with going without the drug (the *withdrawal pangs*).

Salespeople don't make a sale with every *pitch*. The *pitch* referred to here is the sales talk (*pitch*) that the salesperson uses to promote the product or service. The idea is that much of our behavior is not **continuously reinforced** but persists, nevertheless, by being **partially reinforced** (you make a sale only once in a while despite many responses). Thus, intermittent rewards encourage the expectation of future reinforcement (*hope springs eternal*) and create greater resistance to **extinction** of the behavior compared to a continuous reinforcement schedule.

. . . *fly casting* . . . This refers to a style of fishing in which artificial insects, such as flies, are used as bait to catch fish. People who fly fish (*fly-casting anglers*) are reinforced only once in a while, despite making many responses. This **variable-ratio schedule** of reinforcement makes the target behavior very persistent and hard to suppress (the behavior is very resistant to extinction) because, ultimately, the more a person responds, the more he or she is reinforced.

. . . *a choppy stop-start pattern* . . . When reinforcement is for the first response after a set time period (a **fixed-interval schedule**), responding is typically more frequent as the expected time for the reinforcer gets closer (*draws near*) and is much less frequent after the reward has been received. The pattern of responding is consequently uneven (*choppy*) because cycles of post-reinforcement pauses followed by higher levels of responding (a *stop-start pattern*) are characteristic of the fixed-interval schedule.

. . . *"You've got mail"* . . . E-mails can arrive at unpredictable times. If you are expecting an e-mail from someone, it is best to check online every once in a while. This type of slow, steady responding, typical of a **variable-interval schedule**, may be reinforced with the "You've got mail" announcement.

. . . *drawbacks* . . . This means problems or bad consequences. One problem (*drawback*) with using **punishment** is that the behavior may be temporarily suppressed in the presence of the punisher but may reappear in other, safer settings. In addition, punishment may elicit aggression, create fear and apprehension, and generate avoidance behavior in those being punished. As Myers notes, *punishment tells you what not to do; reinforcement tells you what to do*.

No wonder *spanking is a hit* with so many U.S. parents of 3- and 4-year-olds . . . *Hit* has a number of meanings; it can mean to physically strike someone or something (hit the ball), but it can also mean to be popular (*to be a hit*). Parents who physically punish (*hit or swat*) their young children are negatively reinforced for doing so if the bad behavior is suppressed or eliminated. It is not surprising then that spanking (*hitting or swatting*) is popular (*it is a hit*) with so many parents.

Which is the chicken and which is the egg? The old question, "Which came first, the chicken or the egg?" implies that it is not always clear what is *cause* and what is *effect*. Studies show a correlation between physical punishment (*spanking*) and risk for aggression (and depression and low self-esteem). However, some critics note that correlations do not provide cause-effect answers (*Which is the chicken and which is the egg?*). Perhaps preexisting tendencies (such as aggression) elicited stricter or harsher punishment than might otherwise be the case, rather than the other way around.

Skinner's Legacy

. . . *stirred a hornet's nest* . . . A *hornet* is a large yellow and black stinging insect belonging to the wasp family. Up to 200 *hornets* live together in a sheltered home (*nest*); if disturbed or agitated (*stirred*), they will attack in an angry and aggressive manner. B. F. Skinner aroused a great deal of anger and hostility

and was vehemently attacked by many people (*he stirred a hornet's nest*) for insisting that mental events and free will (*internal thoughts and feelings*) were of little relevance as determinants of behavior when compared to environmental factors such as rewards and punishments (*external influences*).

Stand in Skinner's shoes for a moment . . . Pretend that you are Skinner (*stand in his shoes*). You observe teachers whose students vary in ability from highly competent learners (*whiz kids*) to slow learners. *Whiz kids* find it relatively easy to understand math concepts (they *breeze through* them), but slow learners find the concepts more difficult. Skinner's idea was to have individualized instruction matched to each student's ability level, something that is now feasible through interactive software, Web-based learning, and online testing.

Biology, Cognition, and Learning

Cognitive Processes and Classical Conditioning

In classical conditioning, it is (especially with humans) not simply the CS–US pairing, but also *the thought that counts*. The expression "it's the thought that counts" recognizes that a person's intentions and motivations (*thoughts*) are just as important as his or her actual behavior. Myers is making the point that cognitions (*thoughts, perceptions, expectations*) are now viewed as being critically important in the process of learning through classical conditioning. For example, in therapy, people with alcohol dependence may be given a drink that has had a drug added to it to make the drinker sick (*alcohol spiked with a nauseating drug*). If the drinker is aware that the drug induced the sickness, the association between drinking alcohol and feeling nausea is weakened (*the thought counts*).

Cognitive Processes and Operant Conditioning

Promising people a reward for a task they already enjoy can *backfire*. If children enjoy doing something because it is fun (**intrinsic motivation**), they may lose interest in the task if they are promised a reward for it (**extrinsic motivation**). Thus, in some circumstances, offering material gains (a *payoff*) may have an effect opposite to the one expected (it can *backfire*). Applied properly, however, rewards can motivate high performance levels (*they fuel your efforts*), increase creativity, enhance enjoyment of tasks, and raise (*boost*) feelings of competence, especially if they suggest (*signal*) that a job was well done.

Learning by Observation

Compared with other children in the study, those who viewed the model's actions were much more likely to *lash out at* the doll. Bandura's experiments on **observational learning** demonstrated that children who saw an adult engage in (**model**) violent behavior (an *aggressive outburst*) were more inclined to attack and beat up (*lash out at*) a Bobo doll and to copy (*imitate*) the words and gestures used by the role model.

. . . *flabbergasted* . . . Researchers were amazed and astonished (*flabbergasted*) when they accidentally discovered (*stumbled onto*) a previously unknown type of neuron, now called a **mirror neuron**. It was one of those strange (*quirky*) events that happen in the growth of science. The activity of these neurons provides a neural basis for empathy, imitation, and observational learning, and helps children develop the ability to infer another's mental state (*we grasp others' states of mind*).