FOCUS ON VOCABULARY AND LANGUAGE

Page 291: ***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.

How Do We Learn?

Page 292: . . . 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**.

Page 292: 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. **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 smoking had previously occurred can elicit a strong desire to smoke once more (to *light up* again). The place or situation (the *context*) has become associated with the pleasure of smoking cigarettes.

Page 293: . . . the clever [Japanese] *rancher* outfitted his *herd* with electronic *pagers*, which he calls from his cellphone. In this conditioning example, the cattle farmer (*rancher*) has trained his animals (*steers* or *cattle*) to gather together and move (he *herds* them) to the feeding station (*food trough*). They have learned to associate the sound of the tone (the *beep*) made by the signaling device (*electronic pager*) with the delivery of food (**classical conditioning**). They have also learned that moving fast (*hustling*) to the food container (the *trough*) is followed by the good feeling of satiated hunger (**operant conditioning**).

Classical Conditioning

Page 294: 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*).

Page 294: . . . 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 (*precedes*) the US over a number of trials, then the CS alone (the tone) will be able to elicit salivation (the CR). Pavlov decided that the dog's *internal mental state* (thinking and feeling) was not important in reaching an understanding of fundamental learning principles. Rather, focusing attention on cognitive processes only led to futile arguments (*fruitless debates*).

Page 296: (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*), which makes you salivate or drool (*sets your mouth to watering*). This is an example of classical conditioning. The taste of the cake in your mouth is the US , which automatically produces saliva (the UR). The *aroma* is the CS and, because of its past associations with the US, it can now, by itself, elicit saliva (the CR).

Page 296: 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, and 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 (*to herald*) 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 (a *preference*) for the cage with the red light (the *red-light district*).

Page 298: After *breaking up* with his *fire-breathing heartthrob*, Tirrell also experienced extinction and spontaneous recovery. He recalls that "the smell of onion breath (CS), no longer paired with the kissing (US), lost its ability to *shiver my timbers.*" This paragraph describes the end of Tirrell's relationship (the *break up*) with his girlfriend (the *heartthrob*) who loved to eat onions and thus had hot, smelly breath (*fire-breathing*). The repeated smell of onions or onion breath (CS) without the kissing (US) resulted in **extinction** of his conditioned aroused state (CR). Consequently, the CS lost its ability to get him excited (to *shiver his timbers*). He later experienced **spontaneous recovery** (that is, the extinguished CR returned briefly) when he smelled onion breath once more. [The idiom "*shiver my timbers*" has no simple explanation; it may be an old expression dating back to the days of wooden (*timbered*) sailing ships that would tremble or shiver in a storm. Alternatively, it may have been used in the game of cricket to describe what happens when the cricket ball shakes and scatters (*shivers*) the wooden wicket and stumps (*timbers*).]

Page 299: Confronted by a pit bull, *your heart may race;* confronted by a golden retriever, it probably will not. Pit bulls are dogs (not cattle) that are generally perceived as aggressive and potentially dangerous; golden retrievers are dogs that are usually gentle and friendly. Thus, when you encounter a pit bull, you may experience physiological arousal (*your heart may race*) and you may experience fear. The sight of a golden retriever 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.

Page 299: So, even in classical conditioning, it is (especially with humans) not simply the CS-US association 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 actual behavior. Myers is making the point that cognitions (*thoughts, perceptions, expectations*) are now viewed as being critically important to the process of learning through classical conditioning.

Page 302: 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*).

Page 303: Former drug users often feel a *craving* when they are again in the drug-using context—with people or in places they associate with previous *highs*. For those who are attempting abstinence, the strong desire (*craving*) for a drug may be a classically conditioned response (CR) to the sight or presence of people or places (CSs). These people or places (CSs) were associated with taking the drug (US), which produced the UR (euphoric feelings or *highs*). Drug addicts are therefore advised to avoid (*steer clear of*) settings related to their previous drug-taking activity that may elicit (*trigger*) these intense needs (*cravings*).

Page 303: . . . legendary significance . . . Watson and Rayner's work with Little Albert was the first investigation of how phobias or irrational fears might develop through the process of classical conditioning. Thus, the story was passed on to future generations of psychologists (it became a *legend*) and influenced (had *significance* in) their research.

Operant Conditioning

Page 305: . . . to pull habits out of a rat. Myers is having fun playing with the English language here. 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, following operant conditioning, the sight of the lever may elicit the habit of lever pressing.

Page 306: They [pigeons] have even been trained to discriminate between *Bach's music and Stravinsky's. Bach* and *Stravinsky* were composers whose styles of musical composition were quite different. Through **shaping** (rewarding behaviors that are closer and closer to the target or desired response), psychologists have been able to train pigeons to *discriminate* (choose) between the two musical sounds. For example, pigeons may be rewarded for pecking a disk when *Bach* is playing and for refraining from pecking when *Stravinsky* is playing. By giving or withholding rewards, they can be trained to discriminate, or tell the difference, between the two.

Page 306: 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*), which they typically display on a classroom bulletin board (*paste 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 get 100 percent), they won't receive any reinforcers (*gold stars*). Myers recommends a shaping procedure that rewards even small improvements and recognizes the child for making the effort to do better and better.

Page 307: . . . and pushing the *snooze button* will silence your annoying alarm. When your radio alarm goes off in the morning, you may press the switch (*snooze button*), which turns off the irritating tone for a brief period of time. The ensuing quiet period, which may allow you to go back to sleep for a while (*snooze*), and the absence of the buzzer are **negative reinforcers** 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 (*withdrawal pangs*).

Page 307: . . . goofing off and getting a bad exam grade . . . Students may score poorly on an exam because they were doing something unproductive, such as watching TV, instead of studying (they were *goofing off*). As a consequence, they may decide to change their behavior and work hard to avoid further exam anxiety and the unpleasant possibility of getting a low grade. The new behavior may be strengthened if it avoids the aversive consequences of anxiety (*negative reinforcement*). In addition, getting a good score on the exam can **positively reinforce** good study habits. Remember, reinforcers of either kind (positive or negative) always strengthen behavior.

Page 308: Salespeople do not make a sale with every *pitch,* nor do *anglers* get a *bite* with every *cast*. The *pitch* referred to here is the sales talk (*pitch*) that the salesperson uses to promote the product or service. The *bite* the *angler* (fisherman) does not get refers to the fact that throwing out the line (*casting*) does not always result in a fish biting the bait. The idea is that much of our behavior is not continuously reinforced but persists, nevertheless, by being partially reinforced (you make a sale or catch a fish only once in a while despite many responses). Thus, **intermittent reinforcement** encourages the expectation of future reinforcement (*hope springs eternal*) and creates greater resistance to extinction of the behavior compared to a **continuous reinforcement** schedule.

Page 309: . . . fly fishing . . . 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 responding, the more reinforcement.

Page 309: . . . 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.

Page 309: . . . "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.

Page 310: . . . the child who *loses a treat* after running into the street . . . Here, the phrase *"loses a treat"* refers to the withholding of some pleasant consequence, such as a candy bar or piece of cake, following some unwanted behavior. This is one type of **punishment**—it decreases the probability of the behavior being repeated. Another example of punishment is a *time out*, in which the child is put in a situation (such as in the corner) where no reinforcement is available.

Page 310: . . . drawbacks . . . These are 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 teaches what not to do, whereas reinforcement teaches what to do.

Page 310: No wonder *spanking is a hit* with so many U.S. parents of 3- and 4-year-olds . . . The word *hit* has a number of meanings. It can mean to physically strike someone or something (e.g., *hit* a 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 children's bad behavior is suppressed or eliminated. It is not surprising then that spanking (*hitting* or *swatting*) is popular (*is a hit*) with so many parents.

Page 311: 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-and-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.

Page 312: 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*). However, properly applied rewards can motivate high performance levels (they *fuel your efforts*), increase and promote (*spark*) creativity, and enhance enjoyment of tasks. They can also raise (*boost*) feelings of competence, especially if they suggest (*signal*) that a job was well done.

Page 313: . . . piggy bank . . . This is a small container for saving money (usually coins) that is often in the shape of a pig. Children can learn to save their money by putting it in their *piggy bank*. However, as Myers points out, pigs that were trained to put big wooden coins in a large *piggy bank* soon reverted to their natural behavior of pushing the coins with their noses (*snouts*) despite the fact that they received no reward for doing this. This example of *instinctive drift* illustrates the biological constraints on learning.

Page 313: . . . 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 (a *nest*). If

the nest is disturbed or agitated (*stirred*), the hornets 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 factors*) were of little relevance as determinants of behavior compared to environmental factors such as *rewards* and *punishments* (*external influences*).

Page 314: 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.

Learning by Observation

Page 318: . . . flabbergasted . . . Researchers were amazed and astonished (*flabbergasted*) when they accidentally discovered (*stumbled onto*) a previously unknown type of neuron, now called a **mirror neuron**. 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 (an ability known as *theory of mind*).

Page 320: Compared with children not exposed to the adult model, 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 copy (*imitate*) the words and gestures used by the adult.