18 MOTIVATION

THIS CHAPTER IS ABOUT

✓ The Nature and Characteristics of Motivation
✓ Early Theories of Motivation
✓ Physiological Approaches to Motivation
✓ Physiological Mechanisms in Specific Motivational Systems
✓ Clinical Approaches to Motivation
✓ Cognitive Approaches to Motivation

18.1. The Nature and Characteristics of Motivation

A. A motive is a want or a need that causes us to act. Motivation refers to motives collectively, as well as to their study.

B. Psychologists studying motivation deal with four basic questions.
   1. What directions do our actions move us in?
   2. What motivates us to initiate or start taking action to pursue a particular goal?
   3. How intensely do we pursue these actions?
   4. Why do some people persist for longer periods of time than do others in the things that motivate them?

18.2. Early Theories of Motivation

A. Instinct theory

1. An instinct is a stereotyped behavior (i.e., one we engage in automatically, without thought) that is inherited and species-specific.

2. William James, the father of modern psychology, was also the father of instinct theory. James suggested a list of 20 physical instincts, such as sucking and locomotion, as well as 17 mental instincts, including ones such as curiosity and fearfulness.

3. A generation later, William McDougall proposed a further list of instincts, and eventually, the list proposed by various theorists reached a total of more than 10,000 suggested instincts.

4. Instinct theory lost favor because (a) the list of proposed instincts grew too long, (b) the theory was nondisconfirmable empirically, and (c) there seemed to be a certain circularity of reasoning, whereby instincts would be used to explain certain patterns of behavior, which in turn were the basis for proposing the existence of the instincts in the first place.

B. Drive theory

1. A drive is a physiological compulsion that we feel a need to satisfy. Examples of proposed drives are for water (thirst) and for food (hunger). The theory was first proposed by Robert Woodworth, and later elaborated by Clark Hull. The idea was that drive reduction motivates much of our behavior.
2. Drive theory, like instinct theory, fell out of favor because of the difficulty of empirically confirming the existence of drives, and because of the circularity whereby drives were used to explain the behaviors from which their existence was originally inferred.

18.3. Physiological Approaches to Motivation

Physiological approaches to motivation seek to understand the relationship between motivation and the functioning of the body. These approaches were propelled forward by the research of James Olds and Peter Milner, who found that when a certain portion of the brain of a rat was subjected to repeated stimulation, the rat acted as though it were experiencing pleasure, going to great lengths to receive more of the same type of stimulation. A variety of physiological approaches have been proposed.

A. Arousal theory

1. Arousal refers to one's level of alertness, wakefulness, and activity. Arousal is caused by activity of the central nervous system, including the brain.

2. A well-known law of arousal is called the **Yerkes-Dodson law**, according to which efficiency of performance is an inverted U-shaped function of an organism’s level of arousal. Performance is most efficient at moderate levels of arousal. At low levels of arousal, people feel bored, listless, and unmotivated. At high levels of arousal, people feel tense or fearful.

3. For relatively simple tasks, the optimal level of arousal is moderately high, whereas for difficult tasks the optimal level of arousal is moderately low. The higher level of arousal keeps us from becoming bored or listless on the easy task, whereas the lower level of arousal keeps us from becoming nervous or panicky on the hard task.

4. The optimal level of arousal appears to vary somewhat from one person to another. Evidence suggests that introverts, who prefer to be by themselves rather than to seek the company of others, tend to have relatively higher baseline levels of arousal than do extroverts, people who seek out the company of others and prefer not to be alone. This view suggests that introverts may avoid the company of others in part to head off raising their already naturally higher level of arousal.

B. Opponent-process theory

1. Opponent-process theory was originally proposed to explain the cycle of emotional experiences we undergo when we acquire and then try to rid ourselves of a motivation.

2. Originally, we are at a neutral state, or baseline, in which we have not acquired the motivation to act (e.g., to drink coffee), and thus the stimulus (in this case, coffee) is irrelevant to us.

3. Then we start to engage in the given behavior (e.g., drink a first cup of coffee), and we experience a “high,” meaning that our emotional state becomes positive. We feel the high because of the positive effect of the stimulus—often a chemical—on the brain.

4. According to Richard Solomon, the brains of mammals always seek out emotional neutrality sooner or later. In other words, when we come under the influence of a force that makes us feel either positive or negative, an opponent process later starts to act to bring us back to a neutral baseline. Thus, for example, the positive feeling we obtain for a given number of cups of coffee will eventually start to decrease, and we may either decide to stay with the less positive feeling, or else increase the number of cups of coffee we drink in order to continue to experience the same effect. Of course, eventually we will habituate to the increase as well, and will need still more coffee (or other substance) in order to maintain the same degree of positive feeling.

5. The opponent process, which was slower to start, is also slower to stop. Thus, if we stop using the substance causing the positive feelings, we will stop experiencing the positive effect, but continue feeling the negative effect. The result will be that our emotional state will go below the original baseline—when we stop using the substance, we will feel worse than we did before we ever started using the substance. We may feel irritable, cranky, depressed, or in pain. The negative feelings caused by elimination or even reduction of the substance are referred to as **withdrawal symptoms**.
6. Opponent-process theory has been used to explain addictions and dependencies of various kinds, not only to substances, but to other people as well.

C. Homeostatic regulation theory

1. Homeostatic regulation is the tendency of the body to maintain itself in a state of equilibrium. When the body lacks something, it sends a signal indicating its need for that thing, and we then seek it. When the body is sated, it sends a signal that it does not need the thing anymore, and we stop seeking it. Homeostatic regulation thus operates through a system of negative feedback, whereby the body discontinues search for a substance when it has enough of it.

2. Negative feedback systems are not limited to the body. They operate in many areas of life, such as in home heating systems.

18.4. Physiological Mechanisms in Specific Motivational Systems

A. Hunger

1. The traditional view of hunger was that we feel hungry when our stomach contracts. We now know that this view is too simple, because people continue to experience hunger even when their stomach is removed.

2. Nevertheless, the stomach plays a role in our experiencing of hunger. The stomach empties itself out at an average rate of about 2 calories per minute. Thus, we are likely to feel hunger more quickly when we eat fewer calories, even if the volume consumed is greater. We typically start to feel hunger when the stomach is 60% empty, and feel intensely hungry when it is 90% empty.

3. The brain plays a crucial role in our experiencing of hunger. In particular, it appears that the lateral hypothalamus is an “on-switch” for hunger, and that the ventromedial hypothalamus is an “off-switch” for hunger.

4. There are two major theories of how we come to experience hunger and then satiety. According to the glucostatic hypothesis, levels of a simple sugar, glucose, signal the brain either for hunger or satiety. In particular, as cells expend glucose, their capacity to create energy decreases, and, according to the hypothesis, hunger increases. However, the theory is not universally accepted because factors other than glucose regulation seem to influence hunger. A second hypothesis, the lipostatic hypothesis, suggests that hunger is regulated by levels of lipids (fats) in the body. We feel hungry when the proportion of lipids in the body falls below a certain amount. Again, there is evidence both in favor and opposed to this hypothesis.

5. The lipostatic hypothesis led Richard Keesey, Terry Powley, and their colleagues to propose set-point theory, according to which each person has a naturally preset body weight. This weight is set either at birth or shortly thereafter by the number of fat cells in the body. Once a person acquires a fat cell, the person never loses it; rather, when the person loses weight, the size of the fat cell shrinks. From this viewpoint, then, it will be hard to lose weight, because the shrunken fat cells will lead the body to react to weight loss as though the body is experiencing starvation. The body will then try to regain the lost weight. In fact, more than 90% of people who diet to lose weight eventually gain back the weight they have lost.

6. Research by Judith Polivey and Peter Herman shows that a number of factors can contribute to dieters’ gaining back weight they have lost, including anxiety, depression, alcohol, stress, and easy availability of high-calorie foods. People also tend to eat more when they have a choice of a variety of foods and when they are in the presence of other people.

7. Stanley Schachter has further suggested that obese people, or at least those with a tendency toward obesity, may be more sensitive to external environmental cues, whereas those of normal weight may be more sensitive to internal regulatory cues. Thus, for example, the obese person may be more sensitive to the presence of appetizing food, even when this person is not hungry, and to the arrival of meal time, again whether or not the person is hungry.

8. Richard Nisbett has suggested that overweight people may experience a malfunctioning in the hypothalamus, which interferes with normal regulation of hunger.
9. There can be no doubt, however, that the ready availability of high-calorie food, and sometimes the lesser availability of lower calorie food, contribute to higher caloric intake and resulting obesity.

10. Cultural factors also need to be taken into account in evaluating obesity. Different cultures have different views as to what constitutes a person who is obese. Our culture today very much emphasizes the desirability of thinness, whereas other cultures, both past and present, emphasize the desirability of greater weight.

**B. Eating disorders**

1. Eating disorders can contribute to failure adequately to regulate weight. *Anorexia nervosa* is an eating disorder that affects primarily women between the ages of 15 and 30 years, in which the individual perceives herself (or, rarely, himself) as overweight, no matter what the individual weighs. The person thus is constantly trying to lose weight, even when the body is experiencing extreme starvation. Anorexia is serious, difficult to treat, and can cause permanent damage to the body or even death. The cause of anorexia is unknown. Singer Karen Carpenter died of this ailment.

2. Another eating disorder is *bulimia nervosa*, which is considerably more common than anorexia. It, too, occurs primarily in women. It is characterized by cycles of eating and purging. The bulimic may throw up what she (or much more rarely, he) has eaten, or take heavy doses of laxatives in order to purge the food from the digestive system. Bulimia is also difficult to treat. Princess Diana of Great Britain is reputed to have suffered from bulimia. The cause of bulimia is unknown, although society's great valuing of and emphasis upon thinness, particularly in women, seems likely to be a contributing factor.

**C. Sex**

1. Motivation theorists also try to understand human desires for sex, which certainly have at least in part a biological basis, as they are needed for procreation. Sexual motivation is rooted in the hypothalamus, which stimulates the pituitary gland to release hormones that influence the production of *androgen* (a male sex hormone) and *estrogen* (a female sex hormone).

2. Some theorists speak of *sexual scripts*, which are mental representations of how sequences of sexual events should be enacted. Most of us have a variety of sexual scripts, depending upon whom we are with.

3. Although sexual scripts differ from one society to another, there seem to be certain commonalities across societies. For example, *incest*—sexual contact between members of the same immediate biological family—is forbidden in practically every society. Societies also generally try to regulate other aspects of sexual scripts, such as those pertaining to premarital coitus, extramarital sexual relationships, masturbation, and the like. The regulations differ from one society to another.

4. *Homosexuality* is the tendency to desire intimate sexual contact with another member of the same sex. Although this term can be applied to both males and females, homosexuality in women is commonly referred to as *lesbianism*. People who identify themselves as directing sexual interest to members of both sexes are referred to as *bisexual*. Estimates of the proportion of people who are predominantly homosexual differ, but tend to be around 10% for both men and women.

5. Several different theories have been proposed to account for why some people are homosexual. One theory, personal choice, views homosexuality simply as a matter of individual choice. Another theory, social-learning theory, views homosexual individuals as having been rewarded for same-sex contact and punished for opposite-sex contact, or as having observed homosexual role models. A third theory, arguing that homosexuals (and especially men) tended to have weak fathers and strong mothers, finds itself with very little supporting evidence. Today, more and more people are accepting biological explanations, whereby homosexuality is understood at least in part in terms of differences in the biological makeup of homosexuals versus heterosexuals. For example, Simon LeVay has found that a certain portion of the hypothalamus appears to be less than half the size in homosexual men that it is in heterosexual men.

### 18.5. Clinical Approaches to Motivation

Clinical approaches to motivation emphasize the importance of personality to motivation, and frequently use case studies as a means of studying motives.
A. Murray’s theory of needs

1. Henry Murray proposed a theory of needs that he believed underlie human motivation. Examples of such needs are the needs for power, affiliation, and achievement. Thus, for example, people high in the need for power seek out situations in life where they will be able to dominate others. People high in the need for affiliation like to form close connections with other people, to be in groups, and to avoid arguments.

2. Murray also devised a test, the Thematic Apperception Test (TAT), which measures many of the needs suggested by the theory. When given this test, people are shown ambiguous pictures that display a situation that is emotionally arousing. People must construct a story about each picture. Tests such as the TAT are referred to as projective tests because people project themselves into the situation in the picture.

B. McClelland’s theory of the need for achievement

1. David McClelland concentrated especially on the need for achievement in his theorizing about motivation. He suggested, for example, that successful entrepreneurs tend to rank relatively high in the need for achievement. Such individuals seek out moderately challenging tasks that will be difficult but not impossible for them to complete.

2. Levels of the need for achievement that predominate in a society have also been linked to the productivity of that society.

C. Maslow’s need hierarchy

1. Abraham Maslow proposed a hierarchical theory of needs, according to which needs at lower levels in the hierarchy must be satisfied before people become motivated to satisfy needs higher in the hierarchy.

2. In one version of this theory, needs are organized at five levels. At the lowest level are physiological needs, such as hunger and thirst. At the next level are safety and security needs, such as the need for shelter and for protection from sources of danger. One level further up are belongingness and love needs, such as the need to be loved by other people. Next come esteem needs, including the need to be valued by others as well as by oneself. Finally come self-actualization needs, or the need to fulfill one’s own potential.

18.6. Cognitive Approaches to Motivation

Cognitive approaches to motivation emphasize the roles of higher level learning and thinking in motivational processes.

A. Intrinsic and extrinsic motivation

1. Intrinsic motivators come from within ourselves. We are intrinsically motivated to do something when we do the thing because we enjoy doing it.

2. Extrinsic motivators come from outside ourselves. We are extrinsically motivated to do something when we do the thing because of the rewards we hope to receive from others for doing what we do.

3. There is some evidence that people do their most creative work when they are highly intrinsically motivated to do what they are doing. There is also evidence from a variety of sources that heavy use of extrinsic motivators can undermine intrinsic motivation. In other words, setting up reward systems emphasizing extrinsic motivators such as grades or money may lead people (who might otherwise be intrinsically motivated) to do things for the extrinsic rewards rather than for enjoyment of what they are doing.

4. Not all extrinsic motivators have negative effects. Research by Edward Deci and others has suggested several factors that seem to determine just what the effects of extrinsic motivators will be. One factor is expectancy. The extrinsic motivator will undermine intrinsic motivation only if the individual expects to receive the extrinsic reward for performance of the task. A second factor is relevance of the reward to the individual. If the reward is of no importance to the individual (such as a penny for receiving a grade of “A”), the reward is unlikely to have any effect on intrinsic motivation. A third factor is tangibility. Tangible
rewards, such as money or a letter grade, tend to undermine intrinsic motivation, whereas intangible rewards, such as verbal praise or a smile, tend not to.

5. Martin Seligman has observed that one of the best ways to remain motivated is to adopt an optimistic explanatory style. People with an **optimistic explanatory style** tend to attribute their successes to themselves and their failures to the environment. They view obstacles in the environment as ones they can potentially overcome. People with a **pessimistic explanatory style**, on the other hand, tend to attribute their successes to the environment and their failures to themselves. They believe that the main obstacle to their own success is their own inadequacy, and that this obstacle is one they cannot overcome.

B. Curiosity, challenge, and control

1. Some investigators have suggested that we tend to be curious about things that are moderately novel with regard to our experience, and that we find moderately complex for us to handle.

2. We tend actively to seek self-determination in our lives. According to Edward Deci, we seek not only self-determination in our lives, but also to feel competent, related to other people, and to have a certain degree of autonomy. When we feel our freedom to pursue a desired course of action as being impeded, we may experience reactivity, which is a lashing out at whatever we see as trying to control us. From this viewpoint, intrinsically motivated activities satisfy both our needs for competence and for self-determination.

C. Self-efficacy theory

1. Albert Bandura has proposed a theory called **self-efficacy theory**, according to which our ability to attain many of our goals is determined in large part by our belief that we are in fact able to attain these goals.

2. From this viewpoint, a major obstacle to success is the belief that we are unable to perform a task that may rob us of the motivation to perform that task adequately.

D. Goals and plans

1. Research suggests that goals and plans to achieve these goals can greatly help in motivating us.

2. Goals can help us in several ways. They (a) help focus our attention, (b) help us mobilize our resources, (c) facilitate persistence, and (d) encourage us to seek ways of reaching those goals.

**Summary**

1. The study of **motivation** considers questions of direction, initiation, intensity, and persistence of behavior.

2. One early theory of motivation emphasized the importance of **instincts**, or biological imperatives to act in certain ways. Such theories lost popularity because of the large number of instincts proposed, because of difficulties in testing the theories, and because of the seeming circularity of the theories.

3. Another early theory emphasized the importance of **drive**, which is a physiological compulsion that humans are motivated to satisfy. Drive theory also lost the interest of psychologists for many of the same reasons that psychologists lost interest in instinct theory.

4. Physiological approaches to motivation emphasize the relation of motivation to the functioning of the brain and body.

5. According to the **Yerkes–Dodson law**, we perform optimally when we perform at moderate levels of arousal. Relatively higher levels of arousal seem to work better for simpler tasks, whereas relatively lower levels of arousal seem to work better for more complex tasks.

6. **Opponent-process theory**, proposed by Richard Solomon, suggests how we can acquire various kinds of motivations, including addictions and other dependencies. According to this theory, opponent processes work in opposition to each other, such that one process draws us to something while an opponent process tends to draw us back toward a neutral baseline.
7. **Homeostatic regulation theory** suggests that our bodies tend to regulate our needs, such as hunger and thirst, through a system of **negative feedback**. Thus, we operate in much the same way as a thermostat, seeking food when we sense a lack of it, or feeling thirst when we sense a lack of water.

8. The **glucostatic hypothesis** suggests that hunger is a result of our regulation of glucose levels in the blood, whereas the **lipostatic hypothesis** suggests that hunger is a result of our regulation of lipid (fat) levels.

9. According to **set-point theory**, weight is biologically determined at or near birth by the number of fat cells. We never lose fat cells; they shrink when we lose weight. The fat cells then seek to replenish themselves, causing us to feel starved for food when we lose weight.

10. There is evidence to suggest that obese people may be more sensitive to external cues than are people of normal weight, whereas people of normal weight may be more sensitive to internal cues than are obese people.

11. Sexual motivation appears to be rooted at least in part in the hypothalamus, which stimulates the pituitary to release hormones leading to the production of the sex hormones **androgen** and **estrogen**.

12. **Sexual scripts** are mental representations specifying sequences of events in sexually oriented situations that lead us to engage in certain actions but not in others. Various societies seem to share some sexual scripts, such as a prohibition against incest (sexual relations within the same immediate biological family).

13. Various theories of **homosexual behavior** have been proposed. Biological theories are currently receiving the most attention.

14. Clinical theories of motivation emphasize links between personality and motivation. For example, Murray’s theory of needs specifies a list of needs—including needs for power and affiliation—that people seem to have. McClelland’s theory of achievement motivation stresses the importance of the need for achievement in entrepreneurial and other forms of success. Maslow’s **hierarchical theory of needs** suggests that we seek to fulfill lower level needs before seeking to fulfill higher level needs. The levels of needs in this theory include physiological, safety and security, belongingness and love, esteem, and self-actualization.

15. Cognitive theories of motivation emphasize the importance of higher order learning and thinking in motivation. Cognitive theorists often distinguish between **intrinsic motivation**—which refers to our doing something because we really want to—and **extrinsic motivation**—which refers to our doing something because we are externally rewarded for doing it. Under some circumstances, extrinsic motivators can undermine intrinsic ones.

16. Bandura’s **self-efficacy theory** shows the importance of our belief in our own ability to accomplish something on whether or not we actually accomplish it.

17. Having **goals** can help us motivate ourselves to achieve what we desire.

**Key Terms**

- androgen
- anorexia nervosa
- arousal
- baseline
- bisexual
- bulimia nervosa
- drive
- estrogen
- extrinsic motivator
- glucostatic hypothesis
- hierarchical theory of needs
- homeostatic regulation
- homosexuality
- instinct
- intrinsic motivator
- lateral hypothalamus
- lesbianism
- lipostatic hypothesis
- motivation
- motive
- negative feedback
- opponent process
- optimistic explanatory style
- pessimistic explanatory style
- projective tests
- self-efficacy theory
- set-point theory
- sexual script
- Thematic Apperception Test (TAT)
- ventromedial hypothalamus
- withdrawal symptom
- Yerkes–Dodson law
Solved Problems

A. Select the best response option from among the four that are given.

1. Both instinct theory and drive theory have fallen out of favor in the scientific community primarily because both theories
   A. accounted only for physiological processes.
   B. neglected the role of mental processes in behavior.
   C. are not disconfirmable; drives and instincts were used to explain the same behaviors from which they were inferred.
   D. failed to cite any environmental influences on motivation.

2. One assumption of the opponent-process theory is that
   A. the opponent processes are quick to start and quick to stop.
   B. positive motivations are always counterbalanced by negative ones.
   C. a motivational state will always return to the zero-point.
   D. habituation is inevitable with increased arousal.

3. The two major theories of hunger differ primarily with respect to
   A. whether they suggest fats or sugars as being of primary importance in hunger regulation.
   B. the roles that depression and anxiety are alleged to have in obesity.
   C. how environmental factors are viewed as eliciting hunger.
   D. whether negative feedback loops are viewed as operative in hunger regulation.

4. Sexual scripts are
   A. identical across cultures.
   B. the same with each potential sexual partner.
   C. mental representations of characteristic sequences of steps in sexual encounters.
   D. dependent on the amount of androgen and estrogen in our bodies.

5. According to Maslow’s hierarchy of needs, individuals
   A. may bypass a level in their quest for self-actualization.
   B. must satisfy self-esteem needs before achieving belongingness and love needs.
   C. always end their lives self-actualized.
   D. must satisfy esteem needs before the process of self-actualization can begin.

6. Research by Edward Deci has suggested that extrinsic motivators are most effective when they are
   A. stated up front so that the individual knows what he or she will be receiving.
   B. tangible and easily identifiable.
   C. received immediately before the task is accomplished.
   D. intangible, such as verbal praise or a smile.

7. A central tenet of Bandura’s self-efficacy theory is that an individual’s performance on a task will be influenced by
   A. the beliefs that he or she has about his or her ability to perform the task.
   B. the level of intrinsic motivation involved in performing the task.
   C. his or her level of self-esteem.
   D. the complexity of the task.

8. Goals can help us stay motivated by all the following except
   A. focusing our attention.
   B. encouraging alternative ways of achieving goals.
   C. allowing us the freedom to be spontaneous in our activities.
   D. mobilizing our resources.
B. Answer each of the following questions with the appropriate word or phrase.

9. Individuals who identify themselves as having sexual interests in both sexes are referred to as ______.

10. A want or need that causes us to act is called a ______.

11. The ______ holds that the efficiency of performance of a task is an inverted U-shaped function of an individual’s arousal level.

12. Negative feelings experienced as a result of the elimination or reduction of a substance are called ______.

13. ______ is the tendency of the body to maintain itself in a state of equilibrium.

14. The ______ has been implicated as the “on-switch” for hunger.

15. In his theory of motivation, David McClelland has cited the importance of an individual’s need for ______.

16. The ______ holds that each individual has a natural body weight that depends on the number of fat cells.

17. The eating disorder ______ is characterized by cycles of eating and purging.

18. ______ tests assume that individuals reveal their needs and motivations when they are asked to interpret pictures of ambiguous situations.

19. If Ralph continued working even if he were no longer paid, one would assume that his work provided him with a high level of ______ motivation.

20. A widely used projective assessment tool, the ______, has subjects tell a story about an ambiguous picture.

C. Answer T (true) or F (false) to each of the following statements.

21. Research has consistently shown that the best way to motivate humans is to provide a financial incentive for their efforts.

22. An instinct is a physiological compulsion that we feel a need to satisfy.

23. Research has shown that for relatively simple tasks, the optimal level of arousal is moderately high, whereas for difficult tasks, the optimal level is moderately low.

24. Homeostatic regulation operates through negative feedback.

25. Our sense of hunger is directed by our brains, and depends only on the amount of food in our stomachs.

26. One assumption of set-point theory is that once we have fat cells, we never lose them.

27. Research on obesity has suggested that obese individuals are particularly responsive to internal cues in hunger elicitation.

28. There is no universally recognized theory as to why some people are homosexual.

29. According to Seligman, individuals with pessimistic explanatory styles tend to attribute failures to external factors and successes to internal ones.
30. According to Edward Deci, when we feel our desired course of action to be thwarted, we withdraw from the situation in order to protect our sense of self-competence.

**Answer Key**

1. C; 2. B; 3. A; 4. C; 5. D; 6. D; 7. A; 8. C; 9. bisexual; 10. motive; 11. Yerkes–Dodson law; 12. withdrawal symptoms; 13. Homeostatic regulation; 14. lateral hypothalamus; 15. achievement; 16. set-point theory; 17. bulimia nervosa; 18. Projective; 19. intrinsic; 20. Thematic Apperception Test; 21. F (research has suggested that individuals do their best work when they are highly *intrinsically* motivated. There is also evidence that certain extrinsic motivators may undermine performance); 22. F (this statement describes a drive); 23. T; 24. T; 25. F (the experience of hunger is only partly dependent on the amount of food in our stomachs); 26. T; 27. F (Stanley Schachter has suggested the opposite; obese individuals are more responsive to external cues than are nonobese individuals, who are in turn more responsive to internal regulatory cues); 28. T; 29. F (this statement describes an optimistic explanatory style, whereas a pessimistic explanatory style is characterized by attributing failures to internal factors and successes to external factors); 30. F (Deci holds that we experience *reactance*, or a lashing out at others when we feel thwarted in our course of action).