

PSYCHOLOGY JOURNAL

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PSYCHOLOGY Online

Chapter Overview

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Reader's Guide

■ Main Idea

Psychologists explain motivation and why we experience it in different ways through instinct, drive-reduction, incentive, and cognitive theories of motivation.

■ Vocabulary

- motivation
- instincts
- need
- drive
- homeostasis
- incentive
- extrinsic motivation
- intrinsic motivation

■ Objectives

- Describe four theories of motivation.
- Discuss the difference between intrinsic and extrinsic motivation.

EXPLORING PSYCHOLOGY

Don't Look Back

Willie Davis, the great defensive end at Green Bay . . . had given [another player] a kind of mental tip that he used to motivate himself. He had used it ever since a game the Packers lost against the Eagles back in the 1960s. As he left the field at the end of the game, Davis had turned around, the stands emptying, and he realized that he was leaving something on the field—namely, regrets that he had not given the extra effort, the extra push . . . and that he was going to have to live with that regret for the rest of his life because there was no way that he could recapture that moment. He made up his mind then that he would never again look back at a football field or even a day's effort at what he was doing with any sense of regret.

—from *The X Factor: A Quest for Excellence* by George Plimpton, 1995

Why did Davis play football so intensely? Why do people try to climb Mount Everest or cross the Atlantic in a balloon? Why do some people spend every waking moment memorizing batting averages, while others do not know the difference between the New York Yankees and the Toledo Mud Hens? As the song asks, why do fools fall in love?

motivation: an internal state that activates behavior and directs it toward a goal

Although all psychology is concerned with what people do and how they do it, research on motivation and emotion focuses on the underlying whys of behavior. **Motivation** includes the various psychological and physiological factors that cause us to act a certain way at a certain time.

We see Kristin studying all weekend while the rest of us hang out, and since we know she wants to go to law school, we conclude that she is motivated by her desire to get good grades. We see Mikko working after classes at a job he does not like, and since we know he wants to buy a car, we conclude that he is motivated to earn money for the car. Movies often have motives or emotions as their central theme. On the street, you hear words like *anger, fear, pain, starving*, and hundreds of others describing motives and emotions. Conceptions of motivation in psychology are in many ways similar to those expressed in everyday language. Because motivation cannot be observed directly, psychologists, like the rest of us, infer motivation from goal-directed behavior. Human behavior is energized by many motives that may originate from outside of us or inside of us.

Psychologists explain motivation and why we experience it in different ways. We will discuss instinct, drive-reduction, incentive, and cognitive theories of motivation.

INSTINCT THEORY

In the 1900s, psychologist William McDougall (1908) proposed that humans were motivated by a variety of instincts. **Instincts** are natural or inherited tendencies of an organism to make a specific response to certain environmental stimuli without involving reason. Instincts occur in almost the same way among all members of a species. For example, salmon respond to instinctive urges to swim thousands of miles through ocean waters and up rivers to reach the exact spot in a gravel bed where they were spawned years earlier. Psychologist William James (1890) proposed that humans have instincts such as cleanliness, curiosity, parental love, sociability, and sympathy.

Eventually, though, psychologists realized a flaw in the instinct theory. Instincts do not explain behavior; they simply label behavior. Although some psychologists still study instinctual behaviors (now called fixed action patterns), they have focused on other theories to explain motivation.

DRIVE-REDUCTION THEORY

Something that motivates us moves us to action. The thing that motivates us starts with a **need** that leads to a drive. A need results from a lack of something desirable or useful. We have both physiological and psychological needs. We need oxygen and food to survive (physiological needs). We may also need self-esteem or social approval (psychological needs). We learn our psychological needs with practice; failing to fulfill some of them is not life-threatening.

need: biological or psychological requirement of an organism

A need produces a drive. A **drive** is an internal condition that can change over time and orients an individual toward a specific goal or goals. We have different drives with different goals. For example, hunger drives us to eat, curiosity drives us to find something out, and fatigue drives us to rest.

Drive-reduction theory emerged from the work of experimental psychologist Clark Hull (1943), who traced motivation back to basic physiological needs. According to Hull, when an organism is deprived of something it needs or wants (such as food or water), it becomes tense and agitated. To relieve this tension, it engages in more or less random activity. Thus biological needs *drive* an organism to act, and the organism strives to maintain homeostasis.

Homeostasis is the tendency of the body to return to or maintain a balanced state.

If a behavior reduces a drive, the organism will begin to acquire a habit. That is, when the drive is again felt, the organism will tend first to try the same response. Habits channel drives in certain directions. In short, drive-reduction theory states that physiological needs drive an organism to act in either random or habitual ways. This drive continues until the organism's needs are satisfied and it returns to a preset optimal state.

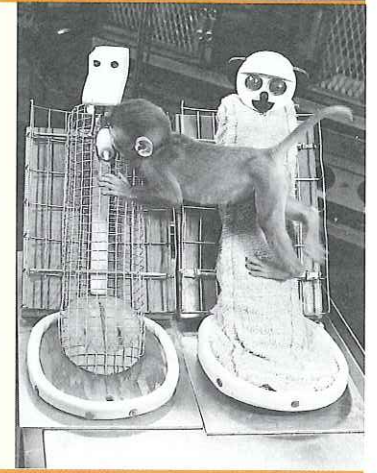
Hull suggested that all human motives—from the desire to acquire property to striving for excellence and seeking affection or amusement—are extensions of basic biological needs. For example, people develop the need for social approval because as infants they were fed and cared for by a smiling mother or father. Gradually, through conditioning and generalization, the need for approval becomes important in itself. So, according to Hull, approval becomes a learned drive.

The results of subsequent experiments suggested, however, that Hull had overlooked some of the more important factors in human—and animal—motivation. According to drive-reduction theory, infants become attached to their mothers because mothers usually relieve such drives as hunger and thirst. Harry Harlow (1905–1981) and others doubted that this was the only, or even the main, source of an infant's love for its mother. Harlow took baby monkeys away from their mothers and put them alone in cages with two surrogate, or substitute, mothers made mostly of wire (see Figure 12.1). One of the wire mothers was equipped with a bottle. If the drive-reduction theory were correct, the monkeys would become attached to this figure because it was their only source of food. The other wire mother was covered with soft cloth but could not provide food to relieve hunger. In test after test, the baby monkeys preferred to cling to the cloth mother, particularly when strange, frightening objects were put into their cages (Harlow & Zimmerman, 1959).

Some drive theorists overlooked the fact that some experiences (such as hugging something or someone soft) are inherently pleasurable.

Figure 12.1 Harlow's Monkeys

The monkeys in Harlow's study spent most of their time with the cloth mother even though they fed from the wire mother. **What does this result indicate about motivation?**



drive: a state of tension produced by a need that motivates an organism toward a goal

homeostasis: the tendency of all organisms to correct imbalances and deviations from their normal state

 **Reading Check**
What is the difference between a need and a drive?

Quick Lab

How do advertisements “motivate” people to buy products?

Advertisers use a variety of techniques to appeal to consumers. Do any of these techniques appeal to human motivations?

Procedure

1. Find examples of various advertisements in magazines.
2. Record the kinds of items being advertised.
3. Focus on the way the advertisers promote the items.

Analysis

1. Describe how the advertisers appeal to consumers to buy the product.
2. Apply the method used to advertise the product to one of the theories of motivation discussed in the chapter.
3. How do the advertisements appeal to human motives? Present your analysis in a written report.

 See the **Skills Handbook**, page 622, for an explanation of designing an experiment.

incentive: an external stimulus, reinforcer, or reward that motivates behavior

extrinsic motivation: engaging in activities that either reduce biological needs or help us obtain external incentives

intrinsic motivation: engaging in activities because they are personally rewarding or because they fulfill our beliefs and expectations

Although these experiences do not seem to reduce biological drives, they serve as incentives or goals for behavior. Also, sometimes we engage in activities that increase the tension we experience. For example, although you do not need or want extra anxieties, you may enjoy riding roller coasters or watching scary movies. These activities momentarily increase your anxiety and disrupt your homeostasis.

Many psychologists conclude that there could be no general theory of motivation of the type Hull suggested. There are many types of behavior that cannot be explained through deprivation.

INCENTIVE THEORY

The drive-reduction theory of motivation emphasizes the internal states of the organism; however, the incentive theory stresses the role of the environment in motivating behavior. Whereas a drive is something inside of us that causes us to act, our actions are directed toward a goal, or incentive. An **incentive** is the object we seek or the result we are trying to achieve through our motivated behavior. Incentives are also known as reinforcers, goals, and rewards. While drives push us to reduce needs, incentives pull us to obtain them. For example, hunger may cause us to walk to the cafeteria, but the incentive for our action is the sandwich we intend to eat.

Sometimes our drive (hunger) is so strong that we do not care if the incentive (sandwich) is weak. For example, if we are really hungry, we may eat a sandwich from the cafeteria even though we know that the cafeteria's sandwiches are not that tasty. However, if our drive (hunger) is weak, our incentive must be strong. For instance, you may be slightly hungry but really like peanut butter sandwiches, so you will eat one.

People are motivated to obtain positive incentives and to avoid negative incentives. For example, the incentive of food may draw you to the refrigerator. The cognitive expectations of humans also guide their behavior.

COGNITIVE THEORY

Cognitive psychologists seek to explain motivation by looking at forces inside and outside of us that energize us to move. They propose that we act in particular ways at particular times as a result of extrinsic and intrinsic motivations. **Extrinsic motivation** refers to engaging in activities to reduce biological needs or obtain incentives or external rewards. **Intrinsic motivation** refers to engaging in activities because those activities are personally rewarding or because engaging in them fulfills our beliefs or expectations. For example, if you spend hours and hours

playing basketball because you wish to excel at the sport, you are responding to intrinsic motivation. If you spend hours playing basketball because your parents want you to excel at the sport, you are responding to extrinsic motivation. However, if you play basketball just for the fun of it, you are playing because of intrinsic motivation.

In many instances, you engage in an activity because of both extrinsic and intrinsic motivations. For example, you may go out to dinner with your friends because you need to satisfy your hunger (an extrinsic motivation) and because you enjoy the taste of the restaurant's food and wish to socialize with your friends (intrinsic motivations). If you are motivated by both intrinsic and extrinsic motivations, do you perform more effectively or persistently at a task? Psychologists have proposed the *overjustification effect*: when people are given more extrinsic motivation than necessary to perform a task, their intrinsic motivation declines. Say, for example, you enjoy reading books. According to the overjustification effect, if someone started paying you to read books, you would enjoy reading books less. You might ask yourself, “Why am I doing this?” and answer, “It's not because I enjoy reading books; it's because I'm getting paid to do it.” If you are suddenly paid less, you may start reading less. If you are no longer being paid to read books, you might lose all interest in the task.

Figure 12.2 Incentive to Win

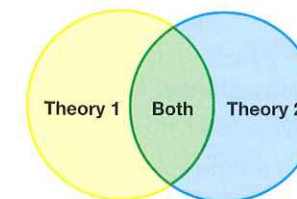
The incentive theory explains that we engage in certain behaviors because we are motivated by high-value incentives such as praise, recognition, or awards. **How are incentives different from drives?**



SECTION I

Assessment

1. **Review the Vocabulary** What is the difference between extrinsic and intrinsic motivation?
2. **Visualize the Main Idea** Compare and contrast two theories of motivation by using a diagram similar to the one below.
3. **Recall Information** Give an example of an instinct (fixed action pattern). Why are instincts unable to explain motivation adequately?
4. **Think Critically** Which theory of motivation might best explain why you work (or do not work) to get good grades? Explain.



5. **Application Activity** When you are motivated, three things are true: you are energized to engage in an activity, you focus your energies toward reaching a goal, and you have differing intensities of feelings about achieving your goal. Use the criteria above to describe two activities or behaviors you engaged in today.

Case Studies

A Balance for Living

Period of Study: 1940

Introduction: When you are driving a car for a long time, eventually the gas tank will need refueling. Many cars are built today with computer systems that can tell when many other things need our attention, such as changing the oil or simply closing a door that did not shut completely. It is important that we respond to these signals. The same can be said for human beings; we require maintenance for operating properly as well.

Like modern cars, humans also have a built-in computer. This computer is the human brain. The human body must keep in balance all of the particles and liquids that help maintain our organ systems and, together, keep us alive and well every day. This collective action is known as *homeostasis*. Homeostasis refers to a person's behavior and the corresponding actual physical need. For example, when a person is hungry, he eats. When he has completed a strenuous physical activity and becomes thirsty, he drinks.

In 1940 a one-year-old boy referred to as D.W. developed an odd craving for salt. His favorite foods included any items in which a major ingredient was salt. These foods included salted crackers, pretzels, and potato chips. Also, to the shock of his parents, D.W. would pour salt from the shaker directly into his mouth. When his parents denied him access to these salted edibles, D.W. would cry and throw tantrums until his parents gave in. As he developed a vocabulary, one of D.W.'s first words was indeed *salt*.

Hypothesis: At this time, doctors were not aware of any physiological need for a person, especially at this young age, to

consume as much salt as D.W. demanded. The only possible explanation was that the young child just liked the taste of salt. The case of D.W. would eventually result in a number of both physiological and psychological hypotheses.

Method: D.W.'s parents placed him in a hospital setting where he could be checked by doctors because they believed there was more to this unusual situation than just a child's pleasure in tasting salt. The doctors planned to begin general physiological testing to check for chemical deficiencies, disease, or even mental disabilities. During this time—about two days—D.W. became excessively aggravated and enraged. His hospital diet did not include the sufficient amount of salt that D.W. had craved his whole life. Unfortunately, D.W. died only a short time after he entered the hospital and before the scheduled tests could be completed.



Results: An autopsy on D.W. revealed that his adrenal glands did not adequately supply his body with the amount of salt it needed. Although he was very young, D.W.'s body relayed to his brain that he needed to consume more salt to balance out his body systems. It is safe to believe that a child at that age could not understand what salt is or how it operates within the human body, yet somehow young D.W. knew that he did indeed need to have salt and he knew where to get it. This example demonstrates the important role homeostasis plays within the human body and the effect it has on the mind and behavior of a person to maintain various physiological balances.

Analyzing the Case Study

1. What is homeostasis? How does it affect behavior?
2. Why did D.W. crave salt?
3. **Critical Thinking** Recall a time when you experienced your body's own homeostasis in action. Describe the episode. How did you know what you needed?

SECTION 2

Biological and Social Motives

Reader's Guide

■ Main Idea

Much of life is spent trying to satisfy biological and social needs. Biological needs are physiological requirements that we must fulfill to survive, whereas social needs are those that are learned through experience.

■ Vocabulary

- lateral hypothalamus (LH)
- ventromedial hypothalamus (VMH)
- fundamental needs
- psychological needs
- self-actualization needs

■ Objectives

- Describe the biological and social needs of humans.
- Explain Maslow's hierarchy of needs.

EXPLORING PSYCHOLOGY

Why Do We Eat?

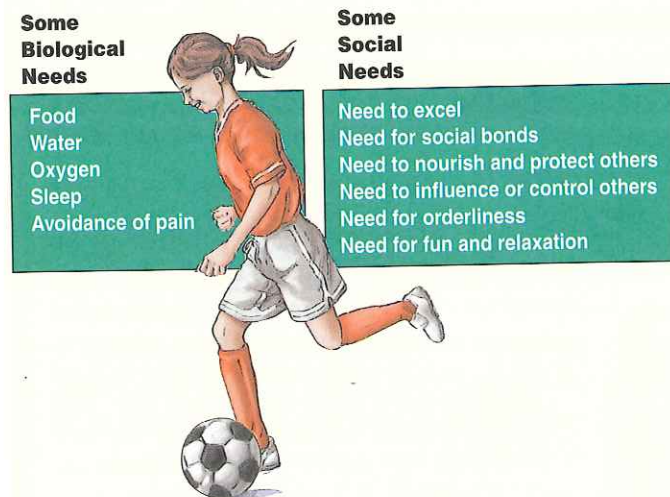
Many psychologists have noticed that rats often begin to eat and drink after being handled. For example, if you remove a number of rats from their cages, weigh them, and then return them to their cages, you will soon hear the crunching sound of food pellets being eaten. Two psychologists (Antelmen & Szechtman, 1975) reasoned that the handling, a form of mild stress, activated mechanisms involved in eating. So they devised a way of administering stress to the rats—pinching the rats' tails gently with a pair of padded pliers. The technique did indeed induce eating. Normal animals that were pinched twice a day gained more weight than non-pinched rats.

—adapted from *Psychology: The Science of Behavior* by Neil R. Carlson, 1984

Eating, as demonstrated above, serves both biological and psychological (social) needs. People spend much of their lives trying to satisfy biological and social needs. We choose what, how much, and when to eat because of both biological and social factors. Why is it, though, that some people seem more motivated than others when it comes to achieving something, such as a win in basketball or success at a job? Social needs, such as achievement, also influence our lives.

Figure 12.3 Some Biological and Social Needs

Whereas biological needs are physiological requirements critical to our survival, we acquire social needs through experience and learning. *Which needs do you think we try to satisfy first?*



Source: Adapted from *Introduction to Psychology*, Plotnik, 1999.

BIOLOGICAL MOTIVES

Some behavior is determined by the internal, or physiological, state of the organism. Like other animals, human beings have certain survival needs. Our biological needs are critical to our survival and physical well-being (see Figure 12.3). The nervous system is constructed in such a way that dramatic variations in blood sugar, water, oxygen, salt, or essential vitamins lead to changes in behavior designed to return the body to a condition of chemical balance. The first part of this section discusses the role of such physiological factors in motivating behavior.

All organisms, including humans, have built-in regulating systems that work like thermostats to maintain such internal processes as body temperature, the level of sugar in the blood, and the production of hormones. When the level of thyroxine in the bloodstream is low, the pituitary gland secretes a thyroid-stimulating hormone, causing the

thyroid gland to secrete more thyroxine. When the thyroxine level is high, the pituitary gland stops producing this hormone. Similarly, when your body temperature drops below a certain point, you start to shiver, certain blood vessels constrict, and blood is directed to the surface for heat. All these activities reduce heat loss and bring body temperature back to the correct level. If your body heat rises above a certain point, you start to sweat, certain blood vessels dilate, and evaporation cools you.

The tendency of all organisms to correct imbalances and deviations from their normal state is known as *homeostasis*. Several of the drives that motivate behavior are homeostatic—hunger, for example.

Hunger

What motivates you to seek food? Often you eat because the sight and smell of, say, pizza tempts you into a restaurant. Other times you eat out of habit because you always have lunch at 12:30 or to be sociable because a friend invites you out for a snack. Yet suppose you are working frantically to finish a term paper. You do not have any food, so you ignore the fact that it is dinnertime and you keep working. At some point your body will start to demand food. You may feel an aching sensation in your stomach. What produces this sensation? What makes you feel hungry?

Your body requires food to grow, to repair itself, and to store reserves. To what is it responding? If the portion of the hypothalamus called the **lateral hypothalamus (LH)** is stimulated with electrodes, a laboratory animal will begin eating, even if it has just finished a large meal. Conversely, if the LH is removed surgically, an animal will stop eating

lateral hypothalamus (LH): the part of the hypothalamus that produces hunger signals

and eventually die of starvation if it is not fed artificially. Thus the LH provides the signals that tell you when to eat.

If a different portion of the hypothalamus called the **ventromedial hypothalamus (VMH)** is stimulated, an animal will slow down or stop eating altogether, even if it has been kept from food for a long period. If the VMH is removed, however, the animal will eat everything in sight until it becomes so obese it can hardly move (see Figure 12.4). This indicates that the VMH provides the signals that tell you when to stop eating. In addition, the hypothalamus responds to temperature—the LH signal is more active in cold temperatures, while the VMH signal is more active in warm temperatures.

Other factors also influence your hunger. The *glucostatic theory* suggests that the hypothalamus monitors the amount of glucose, or ready energy, available in the blood. As the level of blood glucose entering cells drops, the LH fires to stimulate you to eat. At the same time, the pancreas releases *insulin* to convert the incoming calories into energy—whether to be consumed by active cells or converted into stored energy in the form of fat for use later. After your meal—as your blood glucose level drops—the pancreas secretes *glucagon*, which helps convert the stored energy back into useful energy. Current thinking holds that environmental factors such as habit and convenience often override hormonal and neural control of eating (Woods et al., 2003).

Another factor affecting eating is the *set-point*—the weight around which your day-to-day weight tends to fluctuate. Although your daily calorie intake and expenditure of energy vary, your body maintains a very stable weight over the long run.

Thus, the hypothalamus interprets at least three kinds of information—the amount of glucose entering the cells of your body, your set-point, and your body temperature. These determine whether or not the hypothalamus will contribute to causing you to eat.

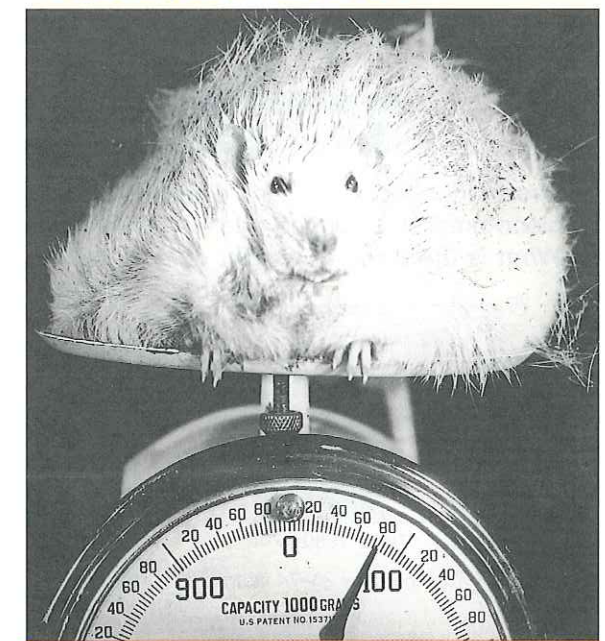
Hunger—Other Factors Besides the biological motives, other factors may be at work when you feel hungry or eat. These factors are sometimes called *psychosocial hunger factors*. These are external cues that can affect eating, such as where, when, and what we eat. Cues such as smell and the appearance of food can affect eating behavior. When other people are eating, we tend to eat more. You may also choose not to eat because of social pressures, such as trying to look like the thin models in magazines. Sometimes when we are bored or stressed, we eat more. You may eat popcorn when watching a movie because this is what you always do, or you may eat just because it is lunchtime.

Psychosocial factors have a huge impact on our eating habits and sometimes contribute to eating disorders, such as binge eating or eating when depressed.

ventromedial hypothalamus (VMH): the part of the hypothalamus that can cause one to stop eating

Figure 12.4 When to Stop Eating

This obese rat has a damaged ventromedial hypothalamus and so overate until it weighed 1,080 grams—about eight times what a normal rat at this age weighs. *How does the hypothalamus help determine whether you will eat or not?*



Obesity

There is a growing body of evidence that a person's weight is controlled by biological factors. There appears to be a genetic component that may predispose some people to obesity (Jackson et al., 1997; Montague et al., 1997). Overweight and obesity are determined by body mass index (BMI), a measure based on height and weight. Using the BMI measure, about 65 percent of American adults are overweight and about 31 percent are obese (see Figure 12.5).

Stanley Schachter (1971) and his colleagues at Columbia University conducted a number of ingenious studies that show that obese people respond to external cues—they eat not because they are hungry, but because they see something good to eat or their watches tell them it is time to eat.

To prove this, Schachter first set up a staged taste test in which people were asked to rate five kinds of crackers. The goal was to see how many crackers normal-weight and overweight people would eat. Each person, instructed to skip lunch, arrived hungry. Some were told that the taste test required a full stomach, and they were given as many roast beef sandwiches as they wanted. The rest stayed hungry. Schachter predicted that normal-weight people eat because they are hungry, while obese people eat whether they are hungry or not. This was true. People of normal weight ate more crackers than overweight people did when both groups were hungry and fewer crackers after they had eaten the roast beef.

In another study, Schachter put out a bowl of almonds that people could eat while they sat in a waiting room. Overweight people ate the nuts only when they did not have to take the shells off. Thus, again they ate simply because the food was there. People of normal weight were equally likely to try a few nuts whether they were shelled or not.

In summary, Schachter argued that overweight people respond to external cues (for example, the smell of cookies hot from the oven), while normal-weight people respond to internal cues, such as the stomach signals of hunger. His work shows that even physiological needs like hunger are influenced by complex factors.

Other factors, such as an insufficient level of exercise, also contribute to obesity. Increasing your level of exercise can lead to weight loss, just as too little exercise in proportion to the amount of food you eat leads to weight gain. Anxiety and depression, on the other hand, are not causes of

overeating. These conditions occur just as frequently among people of normal weight as among those who are overweight (Wadden & Stunkard, 1987).

SOCIAL MOTIVES

Many psychologists have concentrated their research on social motives rather than on the unlearned, biological motives we have been discussing. Social motives are learned from our interactions with other people.

Measuring the Need for Achievement

The achievement motive concerns the desire to set challenging goals and to persist in trying to reach those goals despite obstacles, frustrations, and setbacks. One reason the achievement motive has been so well researched is that David McClelland became interested in finding some quantitative way of measuring social motives (McClelland et al., 1953). His main tool for measuring achievement motivation was the Thematic Apperception Test (TAT). This test consists of a series of pictures. Participants are told to make up a story that describes what is happening in each picture. (Tests of this sort are called projective tests, and we will describe them in detail in Chapter 13.) At this point, it is only important to know that there are no right or wrong answers. Since the test questions are ambiguous, the answers must be created from the participant's own beliefs, motives, and attitudes. Each story is coded for certain kinds of themes. These themes are scored according to their relevance to various types of needs, such as achievement, that is, setting goals, competing, and overcoming obstacles.

Based on these tests, McClelland developed a scoring system for the TAT. For example, a story would be scored high in achievement imagery if the main character were concerned with standards of excellence and a high level of performance, with unique accomplishments (such as inventions and awards), or with the pursuit of a long-term career or goal. Coding has been refined to the point where trained coders agree about 90 percent of the time.

Participants register a high need for achievement if they display persistence on tasks or the ability to perform better on tasks, set challenging but realistic goals, compete with others to win, and are attracted to challenging tasks or careers.

PSYCHOLOGY and You Genetics and Weight

Besides our individual set-points—the weight that our bodies strive to maintain throughout our lives—other genetic, or inherited, factors affect our weight. With a higher set-point we can store more fat. When we add weight, we add fat cells. When we lose weight, each cell gives up a little, emitting signals for more.

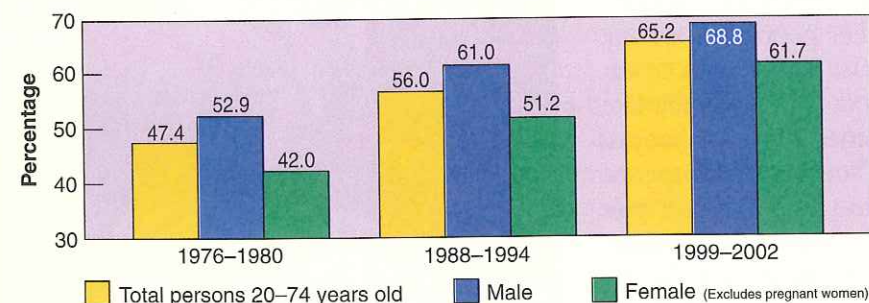
We also inherit different rates of metabolism. Your metabolism involves how efficiently your body breaks down food into energy and how quickly your body burns off calories. You may eat the same number of calories as your friend, but if you have a lower metabolic rate than your friend, you burn less fuel (calories) and are more likely to store excess food as fat. The problem is, as you lose weight, the efficiency of your digestive system increases, wringing more calories out of each bite.

Researchers have found weight-regulating genes that play a role in metabolism. One gene increases neuropeptide Y, a brain chemical that leads to increased eating (Gura, 1997). Another gene increases a person's metabolism (Warden, 1997).

✓ Reading Check
What did Schachter conclude about the differences between overweight and normal-weight people?

Figure 12.5 Percentage of Overweight Americans

Overweight people face increased risk for heart disease, stroke, high blood pressure, clogged arteries, adult onset diabetes, and early death.
What is the trend in weight gain in the United States?



Source: Centers for Disease Control and Prevention, Health, United States, 2005.

Student Web Activity

Visit the *Understanding Psychology* Web site at glencoe.com and click on **Chapter 12—Student Web Activities** for an activity on motivation.

People who scored high and low in achievement on the TAT were compared in a variety of situations. McClelland followed up the careers of some students at Wesleyan University who had been tested with the TAT in 1947. He wanted to see which students had chosen entrepreneurial work—that is, work in which they had to initiate projects on their own. He found that 11 years after graduation, 83 percent of the entrepreneurs (business managers, insurance salespeople, real estate investors, consultants, and so on) had scored high in achievement, but only 21 percent of the nonentrepreneurs had scored that high (McClelland, 1965).

McClelland did not believe we should all train ourselves as high achievers. In fact, he said that such people are not always the most interesting and they are usually not artistically sensitive (McClelland & Harris, 1971). They would also be less likely to value intimacy in a relationship. Studies have shown that high achievers prefer to be associated with experts who will help them achieve, instead of with more friendly people.

Critics have claimed that using McClelland's TAT is not a reliable method of testing the need for achievement. They assert that TAT stories are difficult to score because different test-scorers may assign different importance to particular responses.

Fear of Failure While some people are motivated by a need for achievement, others may be motivated by a fear of failure. A person displays a fear of failure, for example, when he stops taking guitar lessons because improvement seems too difficult, or she decides not to try out for the baseball team because she probably cannot make it anyway. How does the fear of failure differ from the need for achievement? People display fear of failure when they choose easy tasks offering assured success or impossible tasks with no chance of success. For example, let us say that you have your choice of three puzzles to solve. The first puzzle is extremely easy, and you know that you can solve it. The second puzzle is more difficult, but it can be solved with effort. The third puzzle is extremely difficult, and you are certain it is impossible to solve. People with a strong need for achievement tend to choose the difficult but not impossible puzzle. People who choose the extremely easy puzzle, however, display a fear of failure. Choosing the third puzzle also shows a fear of failure because the person can blame failure on the difficulty of the task.

People who are motivated by the fear of failure often find excuses to explain their poor performances. They do this to maintain a good self-image. For example, a sprinter may explain her slow time in the race as a result of missed sleep. If you receive a poor grade on a test, you may claim that the test was biased. Although creating these types of excuses helps us maintain positive feelings about ourselves, it may also prevent us from taking responsibility for our own actions.

Fear of Success Matina Horner (1970, 1972) asked 89 men to write a story beginning with the line, "After first term finals, John finds himself at the top of his medical school class." Substituting the name Anne for John in the opening line, she also asked 90 women to write a story. Ninety

percent of the men wrote success stories. However, more than 65 percent of the women predicted doom for Anne.

On the basis of this study, Horner identified another dimension of achievement motivation—the *fear of success*. Some people (like the females in Horner's study) are (or were) raised with the idea that being successful in all but a few careers is odd and unlikely. Thus, a woman who is a success in medicine, law, and other traditionally male occupations must be a failure as a woman. It might have been acceptable for Anne to pass her exams, but the fact that she did better than all the men in her class made the female participants anxious.

Horner discovered that bright women, who had a very real chance of achieving in their chosen fields, exhibited a stronger fear of success than did women who were average or slightly above average. Expecting success made them more likely to avoid it, despite the obvious advantages of a rewarding career. This seemed to confirm Horner's belief that success involves deep conflicts for some people.

Other researchers then set out to verify Horner's findings. They quickly found that the picture was more complicated than Horner's study suggested. For one thing, it is very difficult to define success. Being a mother might be quite satisfying for one woman but a sign of failure for someone who would have preferred a career outside the home. Also, it is often difficult to tell whether a person who does not try something is more afraid of success or failure.

In the late 1960s, when Horner's study was conducted, medical school was still dominated by males. Likewise, nursing school was dominated by females. What if females write about males and vice versa? What if females or males write about males' success in a female-dominated occupation? Then we find both men and women write stories reflecting Horner's fear of success (Cherry & Deaux, 1978). Later, researchers analyzed 64 studies bearing on the issue that Horner had raised. Measured on a mean rate, 45 percent of the men expressed a fear of success, while 49 percent of the women did—a small difference (Paludi, 1984). So, fear of success is found in both men and women.

Other Theories J.W. Atkinson developed an *expectancy-value* theory to explain goal-directed behavior. *Expectancy* is your estimated likelihood of success, and *value* is simply what the goal is worth to you.

Others have argued instead for a *competency* theory. Too easy a task or too difficult a task means we do not learn anything about how competent we are. So, to prove and improve our competency, we choose moderately difficult tasks where both successes and failures may be instructive (Schneider, 1984).

For example, in one experiment in a ring-toss game, children could choose to stand 1 to 15 feet

Reading Check
What is the motive to avoid success?

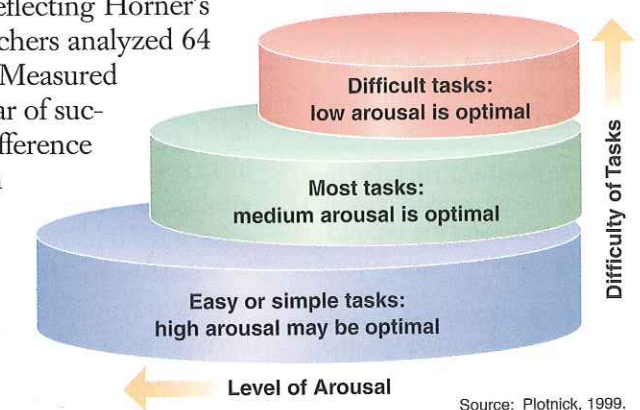


Figure 12.6 Your Performance

The Yerkes-Dodson law says that your performance on a task is an interaction between the level of physiological arousal and the difficulty of the task. So on difficult tasks, you do better if your arousal level is low. **According to the Yerkes-Dodson law, what level of arousal would help you do well on an exam?**

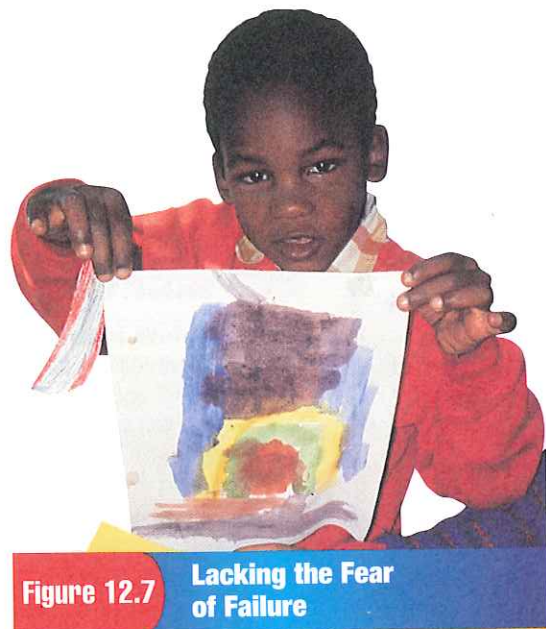


Figure 12.7 Lacking the Fear of Failure

Preschool children are very optimistic about their own abilities. They show great joy after successfully completing a task but rarely get discouraged by their failures. *Why do people who are motivated by the fear of failure not perform as well as people who are motivated by the need for achievement?*

fundamental needs: biological drives that must be satisfied to maintain life

psychological needs: the urge to belong and to give and receive love, and the urge to acquire esteem

self-actualization needs: the pursuit of knowledge and beauty or whatever else is required for the realization of one's unique potential

away from the stake onto which they tried to toss rings as a group watched. Those with a high need for achievement were up to 10 times more likely to choose an intermediate distance from the stakes than to choose ridiculously easy or impossibly difficult distances (McClelland, 1958).

Maslow's Hierarchy of Needs

Abraham Maslow, one of the pioneers of humanistic psychology, believed that *all* human beings need to feel competent, to win approval and recognition, and to sense that they have achieved something. He placed achievement motivation in the context of a hierarchy of needs all people share (see Figure 12.8). Maslow proposed that after we satisfy needs at the bottom of the triangle, we advance up to the next level and seek to satisfy the needs at that level. If we are at a higher level and our basic needs (on a lower level) are not satisfied, we may come back down the hierarchy.

Maslow's scheme incorporates all the factors we have discussed so far in this chapter and goes a step further. He begins with biological drives, including the need for physical safety and security. He asserted that people have to satisfy these **fundamental needs** to live. If people are hungry, most of their activities will be motivated by the drive to acquire food, and their functioning on a higher level will be hindered.

The second level in Maslow's hierarchy consists of **psychological needs**: the need to belong and to give and receive love, and the need to acquire esteem through competence and achievement. Maslow suggested that these needs function in much the same way that biological needs do and that they can be filled only by an outside source. A lack of love or esteem makes people anxious and tense. There is a driven quality to their behavior. They may engage in random, desperate, and sometimes maladaptive activities to ease their tensions.

Self-actualization needs are at the top of Maslow's hierarchy. These may include the pursuit of knowledge and beauty or whatever else is required for the realization of one's unique potential. Maslow believed that although relatively few people reach this level, we all have these needs. To be creative in the way we conduct our lives and use our talents, we must first satisfy our fundamental and psychological needs. The satisfaction of these needs motivates us to seek self-actualization. Maslow thus added to motivation theory the idea that some needs take precedence over others and the suggestion that achieving one level of satisfaction releases new needs and motivations.

Other research does not support Maslow's conclusion that one need must be satisfied before another can be (Liebert & Spiegler, 1994). Christopher Columbus, for example, may have achieved self-actualization, but he certainly put his (and many others') need for safety at risk in

opting to seek a new route to China. Would we not conclude that his need for esteem was dominant in his search? Also, some people do not seem interested in fulfilling higher needs, such as achievement, although their lower, biological needs or safety needs have been met.

These researchers are suggesting that perhaps Maslow identified types of needs that may operate in all of us, but there is no guarantee that the needs must be satisfied in order. Any one need may dominate at a particular time, even as the organism is seeking to respond to others among his or her dominant needs. A need may be dominant in any of us at a particular moment, without necessarily meaning the other needs are not present and influencing our behavior at some level.

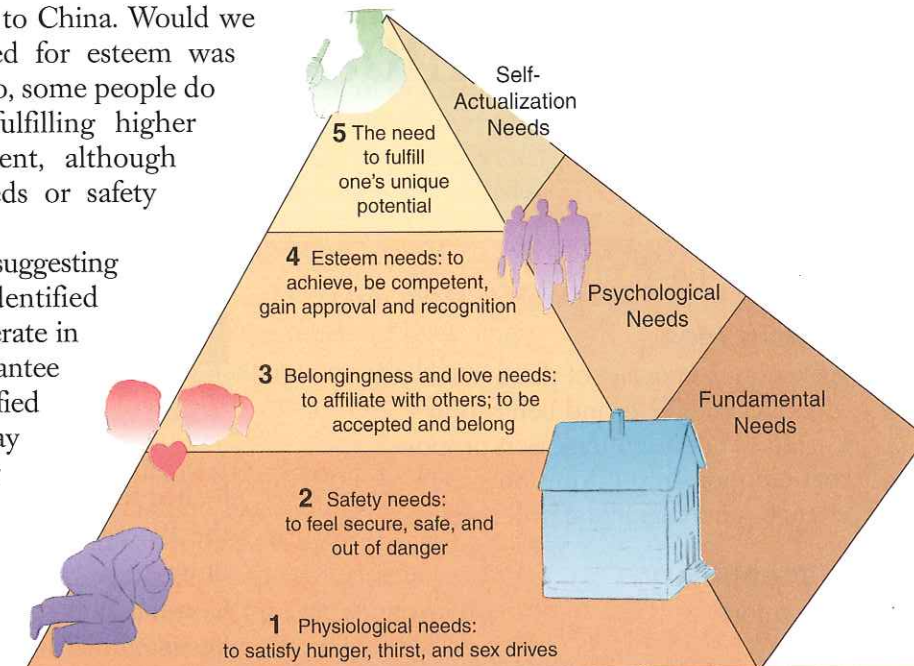


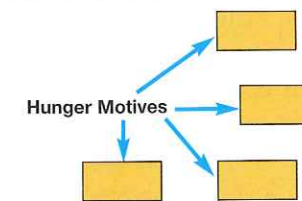
Figure 12.8 Maslow's Hierarchy of Needs

According to Maslow, only after satisfying the lower level of needs is a person free to progress to the ultimate need of self-actualization. *Into what category in the hierarchy do biological needs fall?*

SECTION 2

Assessment

- Review the Vocabulary** Describe how fundamental, psychological, and self-actualization needs differ.
- Visualize the Main Idea** Use an organizer similar to the one below to list four motives associated with hunger.
- Recall Information** What is the difference between the expectancy-value theory and the competency theory?
- Think Critically** What strategies would you offer to a friend who wanted to increase his or her need for achievement level? Explain why.



5. Application Activity Review Maslow's hierarchy of needs and analyze your life according to Maslow's scheme. Which groups of needs are frequently met? How do your needs—both fulfilled and unfulfilled—affect your thoughts and behaviors?

Reader's Guide

■ Main Idea

All emotions consist of three parts—the physical, cognitive, and behavioral aspects. Theories of emotion propose that emotions result from physical changes and/or mental processes.

■ Vocabulary

- emotion

■ Objectives

- Give examples of the physiological theories of emotion.
- Explain the cognitive theorists' approach to the study of emotion.

EXPLORING PSYCHOLOGY

Victory!

The United States and China were locked in a scoreless tie. . . . The game—the Women's World Cup final—had come down to a single penalty kick. [Brandi] Chastain approached the ball and barely hesitated before drilling her shot perfectly into the upper right corner of the net. As frenzied fans in Pasadena, Calif.'s Rose Bowl roared, she whipped off her shirt and waved it at the crowd before being buried in celebration by a pile of her teammates. "I didn't hear any noise. I didn't look at the [Chinese goalkeeper]," she said of her shot. "As soon as the whistle blew, I just stepped up and hit it. I just kind of lost my mind."

—from *Newsweek*, July 19, 1999

What drove Brandi Chastain to perfect her soccer game? Why did she try so hard? How did she feel when she scored the winning goal? Was she tired, thirsty, excited, nervous, or happy? It is difficult to draw a clear line between motives and emotions. When a person needs food, the stomach contracts, the level of sugar in the blood drops, neural and endocrine systems are thrown slightly off balance, and taste buds become more sensitive. When a person is frightened, heart and breathing rates quicken, energy level rises, senses mobilize, and blood rushes away from the stomach to the brain and to the heart and other muscles. Of course, a poet might diagnose a pounding heart, loss of appetite, and heightened awareness of the moonlight and scented breezes

as love. Why, if all three involve identifiable physiological changes, do we call hunger a biological drive, and fear and love emotions?

It depends on whether we are describing the source of our behavior or the feelings associated with our behavior. When we want to emphasize the needs, desires, and mental calculations that lead to goal-directed behavior, we use the word *drive* or *motivation*. When we want to stress the feelings associated with these decisions and activities, we use the word *emotion* or *affect*.

Clearly, the two are intertwined. We frequently explain our motives in terms of emotions. Why did you walk out of the meeting? I was angry. Why do you go to so many parties? I enjoy meeting new people and love to dance. Why did you lend your notes to someone you do not particularly like? I felt guilty about talking behind his back.

As these examples demonstrate, emotions push and pull us in different directions. Sometimes emotions function like biological drives—our feelings energize us and make us pursue a goal. Which goal we pursue may be determined by our social learning experiences. Other times we do things because we think they will make us feel good; anticipated emotions are the incentive for our actions. Finally, emotions help us make decisions and communicate what is going on inside of us. As a result, others respond to our emotions and treat us accordingly.

Many psychologists talk about our *emotional intelligence*. This is the ability to perceive, imagine, and understand emotions and to use that information in decision making. We often need to make complicated decisions at work, in school, and with family and friends. The wrong decision can get us in trouble. Our emotional intelligence helps us gauge the situation and determine an appropriate action. For example, suppose you were talking with friends and wanted to tell a joke. Will your friends enjoy the joke, or will they think it is offensive? Judging the emotions involved in this social situation is a sign of your emotional intelligence.

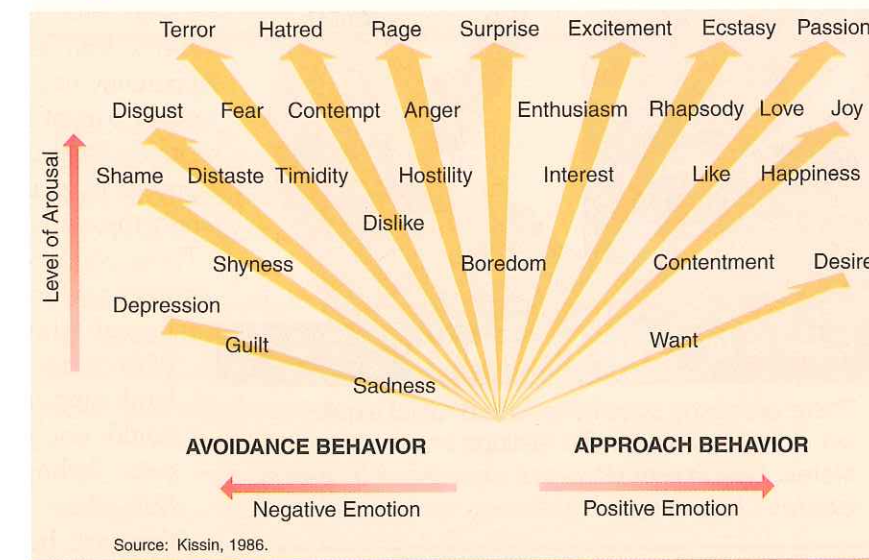
EXPRESSING EMOTIONS

An **emotion** is a subjective feeling provoked by real or imagined objects or events that have high significance to the individual. Emotions result from four occurrences: (1) you must interpret some stimulus;

emotion: a set of complex reactions to stimuli involving subjective feelings, physiological arousal, and observable behavior

Figure 12.9 The Range of Emotions

Emotions are subjective feelings, so psychologists cannot agree on how many emotions exist or the exact impact of a specific emotion. **How can you explain "avoidance behavior" and "approach behavior" indicated in this chart?**



Did You Know?

Emotions and Decisions During surgery to remove a brain tumor, “Elliot” suffered damage to his prefrontal cortex (Damasio, 1994). After the surgery, Elliot reported feeling almost no emotions. He described his brain surgery and the following deterioration of his life with calm detachment. Along with the loss of emotions, though, Elliot lost his ability to make decisions. When given information, he could discuss probable outcomes of each decision he might make, but he could not actually make the decision. If he forced himself to make a decision, he soon abandoned his decision. As a result, Elliot could not maintain normal relationships with friends. This points to the fact that our emotions play a large role in our decision making.



Figure 12.10 Facial Feedback

There are many specific inherited facial expressions that signal specific feelings or emotional states. *Which emotions are expressed in these photos? Explain your answers.*

(2) you have a subjective feeling, such as fear or happiness; (3) you experience physiological responses, such as an increased heart rate; and (4) you display an observable behavior, such as smiling or crying (Plotnik, 2005).

All emotions have three parts: the physical, the behavioral, and the cognitive parts. The physical aspect has to do with how the emotion affects the physical arousal of an individual. This level of arousal directs the body how to respond to the experienced emotion. The behavioral part is the outward expression of the emotion, such as body language, hand gestures, and the tone of a person's voice. The cognitive aspect concerns how we think about or interpret a situation, which affects our emotions. For example, if someone says hello, we interpret that person as being friendly, hostile, or mocking, which in turn affects our emotional response.

In *The Expression of the Emotions in Man and Animals* (1872), Charles Darwin argued that all people express certain basic feelings in the same ways. Without knowing a person's language, you can tell

whether he or she is amused or infuriated just by looking at that person's face (see Figure 12.10). One group of researchers (Ekman, Friesen, & Ellsworth, 1972) selected a group of photographs they thought depicted surprise, anger, sadness, and happiness. They then showed the photographs to people from five different cultures and asked them to say

what they believed the person in each photograph was feeling. The overwhelming majority of the participants identified the emotions as the researchers expected they would. Was this simply because they had met Americans—or at least seen American television shows and movies—and so learned how to read our facial expressions? Apparently not. A second study was conducted in a remote part of New Guinea with people who had relatively little contact with outsiders and virtually no exposure to mass media. They, too, were able to identify the emotions being expressed.

These studies imply that certain basic facial expressions are *innate*—that is, part of our biological inheritance. Observations of children who were born without sight and hearing lend support to this view. These youngsters could not have learned how to communicate feelings by observing other people. Still, they laugh like other children when they are happy, pout and frown to express

resentment, and clench their fists and teeth in anger (Goodenough, 1932).

Psychologist Carroll Izard and his colleagues (Trotter, 1983) developed a coding system for assessing emotional states in people. By noticing changes in different parts of the face, such as the eyebrows, eyes, and mouth, they have been able to identify 10 different emotional states. For example, anger is indicated when a person's eyebrows are sharply lowered and drawn together, and the eyes narrowed or squinted (see Figure 12.11). Another psychologist (Russell, 1994) studied the impact of emotions on facial structures in 11 cross-cultural studies. He concluded that there are universally recognized facial expressions of emotions.

Learning is an important factor in emotional expression. James Averill (1983) believes that many of our everyday emotional reactions are the result of social expectations and consequences. He believes

that emotions are responses of the whole person and that we cannot separate an individual's physical or biological experience of emotions from that person's thoughts or actions associated with those emotions. We learn to express and experience emotions in the company of other people, and we learn that emotions can serve different social functions. Parents, for example, modify their children's emotions by responding angrily to some outbursts, by being sympathetic to others, and on occasion by ignoring their youngsters. In this way, children are taught which emotions are considered appropriate in different situations.

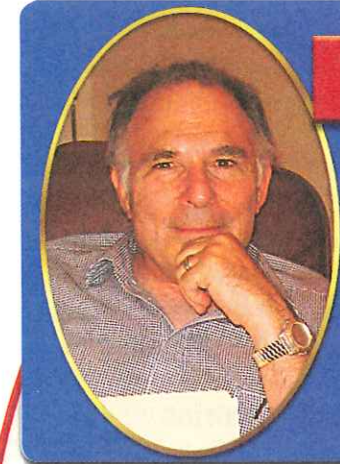
Learning explains the differences we find among cultures once we go beyond such basic expressions as laughing or crying. Children will imitate the expressions used by their parents or caregivers. Thus, emotions are universal, but the expression of them is limited by learning how to

Profiles In Psychology

Paul Ekman

1934–

“The face is the primary site for the display of emotions. Together with the voice, it may tell the listener how the speaker feels about what is being said . . .”



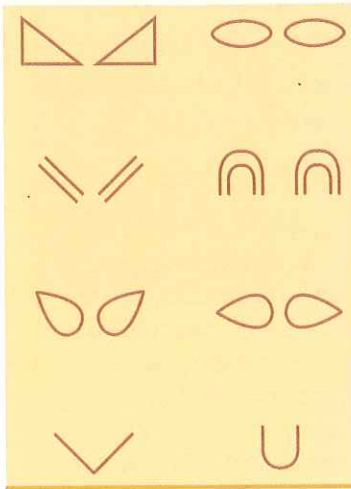
Paul Ekman claims that human faces express emotion in a universal way.

That is, we all smile when we are happy and scowl when we are angry. Ekman did not always believe this, though. He once thought that facial expressions were learned and differed depending on our culture. Then Ekman traveled to Papua New Guinea and studied the Fores—an isolated group. He found that they grinned when they were happy and scowled when angry, just like we do.

Since then Ekman has developed the Facial Action Coding System (FACS), which organizes facial expressions into 46 separate movements, such as blinking, raising our brows, and pursing our lips. Ekman and other researchers used FACS to identify the facial characteristics of seven emotions: anger, fear, contempt, disgust, sadness, surprise, and happiness. Ekman claims that few of us (10 to 20 percent) can actually hide our true emotions. Despite our efforts, for example, to hide our disgust, some facial movements give us away.

Figure 12.11 **Threatening Elements**

When people from various cultures were asked to identify the threatening shapes in each pair, they consistently selected the triangular and diagonal elements. *Which elements would you use to make a scary mask? Why?*



express them. Children are taught—either directly or indirectly—which emotions are appropriate in certain circumstances. Children learn how to express these emotions at the appropriate times. In effect, children are learning an emotional culture. What these findings suggest is that all of us are born with the capacity for emotion and with certain basic forms of expression, but when, where, and how we express different feelings depend in large part on learning.

Analyzing facial expressions helps us to describe emotions, but it does not tell us where emotions come from. Some psychologists believe emotions derive from physical changes, while others believe that emotions result from mental processes.

Physiological Theories

Trying to figure out the cognitive, behavioral, and physical parts of emotions has led to several theories of emotions. In *Principles of Psychology*, a classic work published in 1890, William James attempted to summarize the best available literature on human behavior, motivations, and feelings. When it came to drawing up a catalog of human emotions, James gave up; he felt there were too many subtle variations. Yet he was struck by the fact that nearly every description of emotions he read emphasized bodily changes. We associate feelings with sudden increases or decreases in energy, muscle tension and relaxation, and sensations in the pits of our stomachs.

The James-Lange Theory After much thought, James concluded that we use the word *emotion* to describe our visceral, or gut, reactions to the things that take place around us. In other words, James (1890) believed that emotions are the perception of certain internal bodily changes.

My theory . . . is that *the bodily changes follow directly the perception of the exciting fact, and that our feeling of the same changes as they occur IS the emotion*. Commonsense says, we lose our fortune, are sorry and weep; we meet a bear, are frightened and run; we are insulted by a rival, are angry and strike. . . . [T]he more rational statement is that we feel sorry because we cry, angry because we strike, afraid because we tremble. . . . Without the bodily states following on the perception, the latter would be . . . pale, colorless, destitute of emotional warmth.

Whereas other psychologists had assumed that emotions trigger bodily changes, James argued that bodily reactions form the basis of labeling and experiencing emotions. Because Carl Lange came to the same conclusion at about the same time, this position is known as the *James-Lange theory* (Lange & James, 1922). Carroll Izard's (1972) theory of emotions bears a striking resemblance to the James-Lange theory. He believed that our conscious experience of emotion results from the sensory feedback we receive from the muscles in our faces (see More About Facial Feedback Theory). You can check this out by noticing the difference in your emotional experience when you smile for two minutes as opposed to when you frown for two minutes. According to Izard's view, if you

continue to frown, you will experience an unpleasant emotion. Thus, we react to our physiological state and label it as sadness.

Critics of the James-Lange theory claim that different emotions such as anger, sadness, or fear are not necessarily associated with different physiological reactions. For example, anger and fear may cause the same bodily reactions. Therefore, James had it backwards—you do not run from trouble and then feel fear; you feel fear first and then run. Critics also allege that some complex emotions such as jealousy or love require much interpretation and thought on our part. The James-Lange theory leaves out the influence of cognition on emotions. Although physiological changes do not cause emotions, they may increase the intensity of the emotions that we feel. For instance, when we feel anger and our hearts race, that anger may be heightened by the way our body reacts to it.

The Cannon-Bard Theory In 1929 Walter B. Cannon published a summary of the evidence against the James-Lange theory. Cannon argued that the thalamus (part of the lower brain) is the seat of emotion—an idea Philip Bard (1934) expanded and refined. According to the *Cannon-Bard theory*, certain experiences activate the thalamus, and the thalamus sends messages to the cortex and to the other body organs. This theory states that the brain sends two reactions—arousal and experience of emotion. But one does not cause the other. Thus, when we use the word *emotion*, we are referring to the simultaneous burst of activity in the brain and gut reactions. In Cannon's words, "The peculiar quality of emotion is added to simple sensation when the thalamic processes are aroused" (1929). Later, more sophisticated experiments showed that the thalamus is not involved in emotional experience, but the hypothalamus is.

Cannon also emphasized the importance of physiological arousal in many different emotions. He was the first to describe the fight-or-flight reaction of the sympathetic nervous system that prepares us for an emergency. Some of the signs of physiological arousal are measured in one of the most famous applications of psychological knowledge—lie detection.

Cognitive Theories

Cognitive theorists believe that bodily changes and thinking work together to produce emotions. Physiological arousal is only half of the story. What you feel depends on how you interpret your symptoms. This, in turn, depends on labeling the physical arousal with an emotion to interpret our internal state.

The Schachter-Singer Experiment Stanley Schachter and Jerome Singer designed an experiment to explore this theory (1962). They told all their

More About...

Facial Feedback Theory

The facial feedback theory says that your brain interprets feedback from the movement of your facial muscles as different emotions (Ekman, 1984). For example, you see a dark shadow in the corner of your bedroom at night. You react by raising your eyebrows and widening your eyes. Your brain interprets these facial expressions as those associated with fear, and you feel fear.

Critics of this theory claim that although your facial expressions may influence your emotions, they do not cause your emotions. People whose facial muscles are paralyzed can experience emotions even though their facial muscles do not move (McIntosh, 1996). You can influence your mood, though, with your expressions. For instance, have you ever noticed that if you just smile, you feel a little happier?


Reading Check
How does the Cannon-Bard theory differ from the James-Lange theory?

More About...

Lie Detection

Throughout time, people have tried to find a way to detect when others are lying. The polygraph is an instrument that records the arousal of the sympathetic nervous system, including blood pressure, heart rate, and breathing rate. The polygraph works under the assumption that people feel nervous when they lie, so their physiological reactions will give them away. How effective are polygraphs? Many innocent people become nervous when questioned and so appear to be lying.

The Guilty-Knowledge test, though, is a modified version of the polygraph test. The questioner asks more accurate questions—questions that could be threatening only to someone who knows the unpublicized facts of the crime. For example, instead of asking, “Did you rob the gas station?” the person is asked, “Was the gas station robbed at 6:00 P.M.? At midnight? With a gun? With a knife?” People who display heightened arousal in response to the correct answers are presumed guilty. This test identifies guilty people more accurately.

 **Reading Check**
According to Schachter, what role does the environment play in the emotions you experience?

participants they were testing the effects of a vitamin on eyesight. In reality, most received an adrenaline injection. The *informed* group was told that the injection would make their hearts race and their bodies tremble (which was true). The *misinformed* group was told that the injection would make them numb. An *uninformed* group was not told anything about how their bodies would react to the shot. A *control* group received a neutral injection that did not produce any symptoms. Like the third group, these participants were not given any information about possible side effects.

After the injection, each participant was taken to a room to wait for the vision test. There they found another person who was actually part of the experiment. The participants thought the accomplice had had the same injection as theirs. Everyone completed the same questionnaire. As this happened, the accomplice applied the second independent variable. For half the participants he got happier and happier, eventually shooting the questionnaire into the wastebasket. For the other group of participants he got equally active but ever angrier, eventually throwing away the wadded-up questionnaire.

Participants from the first group, who had been told how the injection would affect them, watched the accomplice with mild amusement. So did participants who had received the neutral injection. However, those from the second and third groups, who either had an incorrect idea or no idea about the side effects, joined in with the accomplice. If he was euphoric, so were they; if he was angry, they became angry.

What does this experiment demonstrate? Internal components of emotion (such as those adrenaline produces) affect a person differently, depending on his or her interpretation or perception of the social situation. When people cannot explain their physical reactions, they take cues from their environment. The accomplice provided cues. Yet when people knew that their hearts were beating faster because of the shot, they did not feel particularly happy or angry. The experiment also shows that internal changes are important—otherwise the participants from the neutral group would have acted in the same way as those from the misinformed groups. Perception and arousal *interact* to create emotions.

Critics of this theory point out that you do not need to first experience physiological arousal to feel an emotion. Sometimes you feel an emotion first, and then your body reacts. For example, you may let your brother use your computer. When you go to use your computer and see that all of your files have been destroyed, you get angry, and then your body reacts with anger. Critics also say that you use processes other than environmental cues to interpret your emotions. Your thoughts play a large role in appraising your emotions.

Opponent-Process Theory Physiological processes clearly are controlled by homeostatic mechanisms that usually keep the body within certain narrow limits. Emotions can be as disabling as a salt imbalance to normal activity. Why would the body not develop a homeostatic mechanism to control the effects of extreme emotions? The body has sympathetic and parasympathetic systems. The sympathetic system energizes the body for activity, while the parasympathetic system calms and relaxes the body. The opponent-process theory states that these two systems act in concert to regulate and manipulate our emotions.

Psychologists Richard Solomon and John Corbit (1974) proposed the opponent-process theory—a homeostatic theory of emotional reactions based on classical conditioning. They proposed that the removal of a stimulus that excites one emotion causes a swing to an opposite emotion. If the external, emotion-arousing event is State A, the internal force is labeled State B (see Figure 12.13).

Suppose you meet someone on the first day of school, and from the start, you like each other. The two of you stun your English teacher with sharp questions and quick answers when challenged. Later, you share a wonderful lunch—both of you love the same four-topping pizza. An afternoon in the park was glorious, and doing homework assignments together is fun and easy. Then, later that day, your friend tells you that his or her family is moving to the coast—gone forever. You are annoyed . . . but let us face it, the next day you are back out looking for another special person (because little classical conditioning has occurred). The opponent-process theory would indicate that with this person you were subjected to State A, which aroused your emotions, but no State B had developed.

Now let us put a different slant on the ending. Your friend did not move away. You marry and enjoy a loving relationship and a long, healthy life together. One morning, however, your spouse dies. Your years together had produced a strong countering State B, which occurred anytime you were in the presence of your beloved. It kept your emotions near neutral and allowed you to get on with your daily activities. Yet now

Figure 12.12 Theories of Emotion

These theories of emotion differ depending on the relationship of physiological change and cognitive interpretation of emotion. **What causes the emotion in each theory?**

James-Lange Theory

- ↓ You experience physiological changes.
- ↓ Your brain interprets the physiological changes.
- ↓ You feel a specific emotion.
- ↓ You demonstrate observable behavior.

Facial Feedback Theory

- ↓ The muscles in your face move to form an expression.
- ↓ Your brain interprets the muscle movement.
- ↓ You feel an emotion.
- ↓ You demonstrate observable behavior.

Cannon-Bard Theory

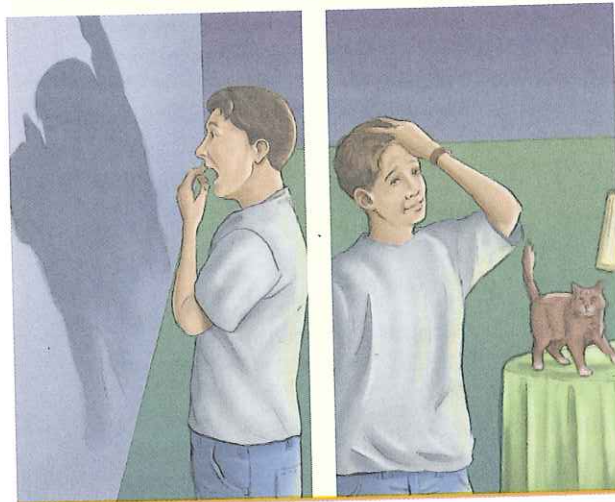
- ↓ Your experience activates the hypothalamus.
- ↓ This produces messages to the cerebral cortex and your body organs. The reacting organs activate sensory signals.
- ↓ Sensory signals combine with cortical message, yielding emotion.

Schachter-Singer Experiment

- ↓ You experience physiological arousal.
- ↓ You interpret (cognitively) environmental cues.
- ↓ You feel an emotion.
- ↓ You demonstrate observable behavior.

Figure 12.13 Fear and Relief

According to the opponent-process theory, when the stimulus for one emotion is removed, you feel the opposite emotion. **According to this theory, what happens when the experience is repeated many times?**



that your spouse is gone, you are left with only the incredibly depressing effects of the remaining classically conditioned State B. Have you ever had the misfortune of watching one of your grandparents lose the partner to whom he or she was deeply devoted?

The significance of this theory is that if the State A event is a terrifying one, such as your first parachute jump, it still predicts what will happen. Novice parachutists are terrified coming out of a plane but are wildly delighted when they return to the ground—they are subject to a brief, happy rebound. Experienced jumpers know that how they pack their chutes is crucial, how they coordinate during the fall is important, and it is important that they know how to land. The jump is eventually only a bit stressful—thanks to the positive, classically conditioned State B. They usually jump for the long-term satisfaction that is generated—again, thanks to the long-lasting, positive counter reaction to the now-absent State A—once the jump itself is completed.

In fact, other emotion researchers believe that emotion may play an important role in our survival as human beings and in our ability to achieve goals, precisely because it spurs us to action. Emotions and physical changes are intertwined. It will probably be many years before we understand all the complex ways in which the two interact in human behavior.

SECTION 3

Assessment

1. **Review the Vocabulary** What are the three parts of an emotion?

2. **Visualize the Main Idea** Use a flow-chart similar to the one below to describe how the opponent-process theory works.

The Opponent-Process Theory



3. **Recall Information** What does it mean when psychologists say that certain facial expressions are *innate*?

4. **Think Critically** You are awakened by a loud noise in the middle of the night. You feel frightened and you start to tremble. According to the James-Lange theory, which came first—the fright or the trembling? According to Schachter and Singer's theory, which came first?

5. **Application Activity** Create a self-test to evaluate the presence and intensity of an emotion. For example, if you are testing for anger, you may create a checklist that includes the following: People tell you that you need to calm down. You feel tense much of the time. Give the self-test to several people and rate their responses.

The study of motivation and emotion focuses on the underlying why of behavior. Motivation refers to the physical and mental factors that cause us to act in a specific way when aroused. Emotion involves our subjective feelings, physical arousal, and external expressions in response to situations and events.

Section 1 Theories of Motivation

Main Idea:

Psychologists explain motivation and why we experience it in different ways through instinct, drive-reduction, incentive, and cognitive theories of motivation.

- The instinct theory of motivation stresses that humans are motivated by a variety of instincts.
- The drive-reduction theory is based on the idea that all human motives are extensions of basic biological needs.
- The incentive theory stresses the role of the environment in motivating behavior.
- The cognitive theory proposes that motivation is influenced by forces both inside and outside individuals that energize them to move.

Section 2 Biological and Social Motives

Main Idea: Much of life is spent trying to satisfy biological and social needs. Biological needs are physiological requirements that we must fulfill to survive, whereas social needs are those that are learned through experience.

- Biological motives often involve organisms' need to correct imbalances and deviations from their normal state.
- The hypothalamus interprets three kinds of information—the amount of glucose entering a body's cells, an individual's set-point, and body temperature—to determine whether an individual will eat or not.
- Social motives are learned from people's interactions with other people.
- The achievement motive concerns the desire to set challenging goals and to persist in trying to reach those goals despite obstacles, frustrations, and setbacks.

Section 3 Emotions

Main Idea: All emotions consist of three parts—the physical, cognitive, and behavioral aspects. Theories of emotion propose that emotions result from physical changes and/or mental processes.

- An emotion is a subjective feeling provoked by real or imagined objects or events that have high significance to the individual.
- All emotions have three parts: the physical, the behavioral, and the cognitive parts.
- Some psychologists believe emotions derive from physical changes, while others believe that emotions result from mental processes.

Chapter Vocabulary

- motivation (p. 314)
- instincts (p. 314)
- need (p. 314)
- drive (p. 315)
- homeostasis (p. 315)
- incentive (p. 316)
- extrinsic motivation (p. 316)
- intrinsic motivation (p. 316)
- lateral hypothalamus (LH) (p. 320)
- ventromedial hypothalamus (VMH) (p. 321)
- fundamental needs (p. 326)
- psychological needs (p. 326)
- self-actualization needs (p. 326)
- emotion (p. 329)



Self-Check Quiz

Visit the *Understanding Psychology* Web site at glencoe.com and click on **Chapter 12—Self-Check Quizzes** to prepare for the Chapter Test.

Reviewing Vocabulary

Choose the letter of the correct term or concept below to complete the sentence.

- a. motivation
- b. need
- c. drive
- d. incentive
- e. lateral hypothalamus (LH)
- f. ventromedial hypothalamus (VMH)
- g. fundamental needs
- h. psychological needs
- i. self-actualization needs
- j. emotion

1. An internal condition that orients an individual toward a specific goal is a(n) _____.
2. A(n) _____ is a subjective feeling provoked by real or imagined objects or events that have high significance to the individual.
3. The need to belong and to give and receive love are part of an individual's _____.
4. The _____ is the part of the brain that sends signals to tell you to eat.
5. The result an individual is trying to achieve through his or her motivated behavior is a(n) _____.
6. According to Maslow, needs such as the pursuit of knowledge and beauty are part of an individual's _____.
7. The _____ is the part of the brain that sends signals to tell you when you have had enough food.
8. _____ includes the various psychological and physiological factors that cause people to act a certain way at a certain time.
9. According to Maslow, _____ are the first level of needs that people have to satisfy.
10. A lack of something desirable or useful is a(n) _____.

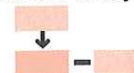
Recalling Facts

1. Which theory of motivation suggests that all human motives are extensions of basic biological needs?
2. Explain the difference between extrinsic motivation and intrinsic motivation.
3. How does McClelland measure a person's need for achievement?
4. Describe the five levels of needs in Maslow's hierarchy.
5. Using diagrams similar to the ones below, identify the basic principles in the James-Lange theory and the Cannon-Bard theory of emotions.

James-Lange Theory



Cannon-Bard Theory



Critical Thinking

1. **Evaluating Information** Try going without bread in your meals for several days a week. Do you find that you are beginning to think about bread more often? Are you becoming more aware of advertisements for bread? Compare your experience with the description of drive-reduction behavior in this chapter.
2. **Making Inferences** Which theory of motivation would best explain why some people engage in high-risk activities, such as sky-diving or mountain climbing?
3. **Demonstrating Reasoned Judgment** Cognitive psychologists believe that people behave in particular ways because of extrinsic motivation or intrinsic motivation. Which of the two do you think is the stronger motivator? Why do you think so?
4. **Synthesizing Information** What factors might account for overeating at holiday dinners, such as Thanksgiving?
5. **Applying Concepts** Using what you have learned about emotions in the chapter, respond to the following statement: Men feel fewer emotions than women.

Psychology Projects

1. **Theories of Motivation** Choose one of the following theories of motivation: the drive-reduction theory, the incentive theory, or the cognitive theory. Review each theory's explanation of motivation. Then work with a partner to create a skit that illustrates the basic premises of the theory you chose.
2. **Emotions** With a partner or as a group, select 10 emotions to express. Then play a variation of charades, with one person attempting to convey each of these emotions by facial expression alone. What emotions are harder to convey than others? Are there consistent differences in interpretation between individuals? How important do you think context (the social situation in which the facial expression occurs) is in perceiving other people's emotions? Summarize your group interaction.



Technology Activity

Use the Internet to find the latest research about motivation. Summarize your findings in a short paper, comparing the latest research results with the theories discussed in the chapter.



Psychology Journal

Analyze the list of concerns and aspirations you wrote in your journal. Evaluate these items in terms of Maslow's hierarchy of needs. In other words, classify the items in terms of fundamental needs, psychological needs, and self-actualization needs. In your journal, write a rationale for classifying the individual items as you did.

Building Skills

Interpreting a Chart In an experiment run by Paul Ekman, actors were hired to assume specific facial expressions that mirrored emotions. One group was told which facial muscles to contract, but they were not told to feel or express any particular emotion. Another group was asked to think of emotional experiences in their lives that produced the six emotions listed. The researchers then measured several physiological responses of both groups. Review the information in the chart, then answer the questions that follow.

Changes in Heart Rate and Skin Temperature for Six Emotions

Specific Emotion	Change in Heart Rate (beats/min.)	Changes in Skin Temperature (degrees C)
Anger	+8.0	+0.16
Fear	+8.0	-0.01
Distress	+6.5	+0.01
Joy	+2.0	+0.03
Surprise	+1.8	-0.01
Disgust	-0.3	-0.03

Source: Ekman, Levenson, & Friesen, 1983.

1. What emotions did the study address? What physiological changes were measured?
2. Which emotion seemed to have the greatest effect on physiology? The least effect?
3. Why do you think that certain emotions cause greater physiological changes than other emotions?



See the **Skills Handbook**, page 628, for an explanation of interpreting charts.



Practice and assess key social studies skills with **Glencoe Skillbuilder Interactive Workbook CD-ROM, Level 2**.