Motivation and Work

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"What's my motivation?" the actor asks the director. In our everyday conversation, "What motivated you to do that?" is a way of asking "What caused your behavior?" To psychologists, a motivation is a need or desire that energizes behavior and directs it toward a goal. Experienced mountaineer Aron Ralston understands the extent to which motivation can energize and direct behavior. Having bagged nearly all of Colorado's tallest peaks, many of them solo and in winter, Ralston, on a Saturday spring morning in 2003, ventured to do some solo canyon hiking that seemed so risk-free he did not bother to tell anyone where he was going. In Utah's narrow Bluejohn Canyon, just 150 yards above his final rappel, he was climbing over an 800-pound rock when it shifted and pinned his right wrist and arm. He was, as the title of his recent book says, caught *Between a Rock and a Hard Place*.

Realizing no one would be rescuing him, Ralston tried with all his might to dislodge the rock. Then with his dull pocket knife he tried chipping away at the rock. When that, too, failed, he rigged up ropes to lift the rock. Alas, nothing worked. Hour after hour, then cold night after cold night, he was stuck. By Tuesday, he had run out of food and water. On Wednesday, as thirst and hunger gnawed, he began saving and sipping his own urine. Using his video recorder, he said his good-byes to family and friends, for whom he now felt intense love: "So again love to everyone. Bring love and peace and happiness and beautiful lives into the world in my honor. Thank you. Love you."

On Thursday, surprised to find himself still alive, Ralston had a seemingly divine insight into his reproductive future, a vision of a preschool boy being scooped up by a one-armed man. With this inspiration, he summoned his remaining strength and his enormous will to live and, over the next hour, willfully broke his bones and then proceeded to use that dull knife to cut off his arm. The moment after putting on a tourniquet, chopping the last piece of skin, and breaking free—and before rappelling with his bleeding half-arm down a 65-foot cliff and hiking 5 miles till finding someone—he was, in his own words, "just reeling with this euphoria . . . having been dead and standing in my grave, leaving my last will and testament, etching 'Rest in peace' on the wall, all of that, gone and then replaced with having my life again. It was undoubtedly the sweetest moment that I will ever experience" (Ralston, 2004).

Aron Ralston's thirst and hunger, his sense of belonging to others, and his underlying will to live and become a father highlight motivation's energizing and directing power. In this chapter we explore how such motives arise from the interplay between nature (the physiological “push”) and nurture (the cognitive and cultural “pulls”).

Motivation personified
Aron Ralston's motivation to live and belong energized and directed his sacrificing half of his arm.
Perspectives on Motivation

**Objective 1** | Define *motivation* as psychologists use the term today, and name four perspectives useful for studying motivated behaviors.

We have seen that psychologists today define *motivation* as a need or desire that energizes and directs behavior. Let’s step back now and consider four perspectives psychologists have used in their attempt to understand motivated behaviors. These include instinct theory (now replaced by the evolutionary perspective), drive-reduction theory (emphasizing the interaction between inner pushes and external pulls), and arousal theory (emphasizing the urge for an optimum level of stimulation). The fourth perspective, Abraham Maslow’s hierarchy of needs, describes how some motives are, if unsatisfied, more basic and compelling than others.

Instincts and Evolutionary Psychology

**Objective 2** | Discuss the similarities and differences between instinct theory and the evolutionary perspective.

Early in the twentieth century, as the influence of Charles Darwin’s evolutionary theory grew, it became fashionable to classify all sorts of behaviors as instincts. If people criticized themselves, it was because of their “self-abasement instinct.” If they boasted, it reflected their “self-assertion instinct.” After scanning 500 books, one sociologist compiled a list of 5759 supposed human instincts! Before long, this fad for naming instincts collapsed under its own weight. Rather than explaining human behaviors, the early instinct theorists were simply naming them. It was like “explaining” a bright child’s low grades by labeling the child an “underachiever.” To name a behavior is not to explain it.

To qualify as an *instinct*, a complex behavior must have a fixed pattern throughout a species and be unlearned (Tinbergen, 1951). Such behaviors are common in other species (recall imprinting in birds in Chapter 4 and the return of salmon to their birthplace in Chapter 8). Human behavior, too, exhibits certain innate tendencies, including simple fixed patterns such as an infant’s rooting and sucking. Most psychologists, though, view human behavior as directed by physiological needs and by psychological wants.

Although instinct theory failed to explain human motives, the underlying assumption that genes predispose species-typical behavior remains as strong as ever. We saw...
this in Chapter 3’s explanation of our human similarities. We saw this again in Chapter 8’s discussion of animals’ biological predispositions to learn certain behaviors. And we will see this in later discussions of how evolution might influence our phobias, our helping behaviors, and our romantic attractions.

**Drives and Incentives**

**Objective 3** | Explain how drive-reduction theory views human motivation.

When the original instinct theory of motivation collapsed, it was replaced by drive-reduction theory—the idea that a physiological need creates an aroused state that drives the organism to reduce the need by, say, eating or drinking. With few exceptions, when a physiological need increases, so does a psychological drive—an aroused, motivated state.

The physiological aim of drive reduction is homeostasis—the maintenance of a steady internal state. An example of homeostasis (literally “staying the same”) is the body’s temperature-regulation system, which works like a thermostat. Both systems operate through feedback loops: Sensors feed room temperature to a control device. If the room temperature cools, the control device switches on the furnace. Likewise, if our body temperature cools, blood vessels constrict to conserve warmth, and we feel driven to put on more clothes or seek a warmer environment. Similarly, if the water level in our cells drops, sensors detect our need for water and we feel thirsty (FIGURE 12.1).

Not only are we pushed by our “need” to reduce drives, we also are pulled by incentives—positive or negative stimuli that lure or repel us. This is one way our individual learning histories influence our motives. Depending on our learning, the aroma of good food, whether fresh roasted peanuts or toasted ants, can motivate our behavior. So can the sight of someone we find attractive or the threat of disapproval from family or friends.

When there is both a need and an incentive, we feel strongly driven. The food-deprived person who smells baking bread feels a strong hunger drive. In the presence of that drive, the baking bread becomes a compelling incentive. For each motive, we can therefore ask, “How is it pushed by our inborn physiological needs and pulled by incentives in the environment?”

**Optimum Arousal**

**Objective 4** | Discuss the contribution of arousal theory to the study of motivation.

We are much more than homeostatic systems, however. Some motivated behaviors actually increase arousal. Well-fed animals will leave their shelter to explore, seemingly in the absence of any need-based drive. From taking such risks, animals gain information and resources (Renner, 1992).

Curiosity drives monkeys to monkey around trying to figure out how to unlock a latch that opens nothing or how to open a window that allows them to see outside their room (Butler, 1954). It drives the 9-month-old infant who investigates every accessible corner of the house. It drives the scientists whose work this text discusses. And it drives explorers and adventurers such as Aron Ralston. Asked why he wanted to climb Mount Everest, George Mallory answered, “Because it is there.” Those who, like Mallory and Ralston, enjoy high arousal are most likely to enjoy intense music, novel foods, and risky behaviors (Zuckerman, 1979).
Driven by curiosity
Baby monkeys and small children are fascinated by things they’ve never handled before. Their drive to explore the relatively unfamiliar is one of several motives that do not fill any immediate physiological need.

So, human motivation aims not to eliminate arousal but to seek optimum levels of arousal. Having all our biological needs satisfied, we feel driven to experience stimulation. Lacking stimulation, we feel bored and look for a way to increase arousal to some optimum level. However, with too much stimulation comes stress, and we then look for a way to decrease arousal.

### A Hierarchy of Motives

**Objective 5** Describe Maslow’s hierarchy of needs.

Some needs take priority over others. At this moment, with your needs for air and water satisfied, other motives—such as your desire to achieve—are energizing and directing your behavior. Let your need for water go unsatisfied and your thirst will preoccupy you. Just ask Aron Ralston. But if you were deprived of air, your thirst would disappear.

Abraham Maslow (1970) described these priorities as a hierarchy of needs (FIGURE 12.2). At the base of this pyramid are our physiological needs, such as those for food and water. Only if these needs are met are we prompted to meet our need for safety, and then to satisfy the uniquely human needs to give and receive love and to enjoy self-esteem. Beyond this, said Maslow (1971), lies the highest of human needs: to actualize one’s full potential. (More on self-esteem and self-actualization in Chapter 15.)

Maslow’s hierarchy is somewhat arbitrary; the order of such needs is not universally fixed. People have starved themselves to make a political statement. Nevertheless, the
simple idea that some motives are more compelling than others provides a framework for thinking about motivation, and life-satisfaction surveys in 39 nations support this basic idea (Oishi & others, 1999). In poorer nations that lack easy access to money and the food and shelter it buys, financial satisfaction more strongly predicts subjective well-being. In wealthy nations, where most are able to meet basic needs, home-life satisfaction is a better predictor. Self-esteem matters most in individualist nations, whose citizens tend to focus more on personal achievements than on family and community identity.

Let’s now consider four representative motives, beginning at the basic, physiological level with hunger and working up through sexual motivation to the higher-level needs to belong and to achieve. At each level, we shall see how environmental factors interact with what is physiologically given.

### Learning Outcomes

#### Perspectives on Motivation

**Objective 1** | Define motivation as psychologists use the term today, and name four perspectives useful for studying motivated behavior. Psychologists define motivation as the energizing and directing of behavior. The four perspectives discussed in this chapter are the instinct/evolutionary, drive-reduction, arousal, and hierarchy of needs perspectives.

**Objective 2** | Discuss the similarities and differences between instinct theory and the evolutionary perspective. Instincts are rigidly patterned, complex behaviors found throughout a species, such as the nest-building behaviors of species of birds. Early instinct theorists, influenced by Darwin’s theory of natural selection, tried to classify human behaviors as though they were propelled by such instincts. When it became clear that they were naming, not explaining, behaviors, this approach fell into disfavor. The underlying idea—that genes predispose species-typical behavior—is, however, still influential in evolutionary psychology, which studies behaviors in search of their adaptive functions.

**Objective 3** | Explain how drive-reduction theory views human motivation. Drive-reduction theory proposes that physiological needs (hunger, thirst) create aroused psychological states that drive us (motivate us) to reduce or satisfy those needs (by eating, drinking). The physiological aim of drive reduction is internal stability, or homeostasis. We are most strongly driven when pushed by our need to reduce a drive (such as satisfying hunger), and also pulled by an external incentive (the smell of cooking food, for example). Depending on our personal and cultural histories, we will respond more to some stimuli (for example, raw oysters) than to others.

**Objective 4** | Discuss the contribution of arousal theory to the study of motivation. Not all behaviors reduce immediate physiological needs or tension states. Arousal theory helps explain the motivation for these behaviors. Curiosity-driven behaviors, for example, suggest that too little as well as too much stimulation can motivate people to seek an optimum level of arousal.

**Objective 5** | Describe Maslow’s hierarchy of needs. Maslow’s hierarchy of needs proposes a pyramid-shaped sequence in which lower-level needs, such as hunger and thirst, are more compelling than higher-level needs, such as the need to love, to belong, or to be respected. Although critics note that Maslow’s sequence of needs is not universal, his hierarchy provides a framework for thinking about motivated behaviors.

ASK YOURSELF: Consider your own experiences with Maslow’s hierarchy of needs. Have you ever experienced true hunger or thirst that displaced your concern for other, higher-level needs? Do you usually feel safe? Loved? Confident? How often do you feel you are able to address what Maslow called your “self-actualization” needs?

### Hunger

A vivid demonstration of the supremacy of physiological needs came from starvation experiences in World War II prison camps. David Mandel (1983), a Nazi concentration camp survivor, recalled how a starving “father and son would fight over a piece of bread. Like dogs.” One father, whose 20-year-old son stole his bread from under his pillow while he slept, went into a deep depression, asking over and over how his son could do such a thing. The next day the father died. “Hunger does something to you that’s hard to describe,” Mandel explained.

To learn more about the results of semistarvation, scientist Ancel Keys and his colleagues (1950) fed 36 male volunteers—all conscientious objectors to the war—just

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**hierarchy of needs** | Maslow’s pyramid of human needs, beginning at the base with physiological needs that must first be satisfied before higher-level safety needs and then psychological needs become active.

“Hunger is the most urgent form of poverty.”

Alliance to End Hunger, 2002
Nobody wants to kiss when they are hungry.”

Dorothea Dix, 1801–1887

enough to maintain their initial weight. Then, for six months, they cut this food level in half. The effects soon became visible. Without thinking about it, the men began conserving energy; they appeared listless and apathetic. Their body weights dropped rapidly, eventually stabilizing at about 25 percent below their starting weights. But the psychological effects were especially dramatic. Consistent with Maslow’s idea of a needs hierarchy, the men became obsessed with food. They talked food. They daydreamed food. They collected recipes, read cookbooks, and feasted their eyes on delectable forbidden foods. At the same time, they lost interest in sex and social activities. They became preoccupied with their unfulfilled basic need. As one participant reported, “If we see a show, the most interesting part of it is contained in scenes where people are eating. I couldn’t laugh at the funniest picture in the world, and love scenes are completely dull.”

The Physiology of Hunger

**Objective 6** | Describe the physiological determinants of hunger.

Keys’ semistarved volunteers felt their hunger in response to a homeostatic system designed to maintain normal body weight and an adequate nutrient supply. But what precisely triggers hunger? Is it the pang of an empty stomach? That is how it feels. And so it seemed after A. L. Washburn, working with Walter Cannon (Cannon & Washburn, 1912), intentionally swallowed a balloon. When inflated in his stomach, the balloon transmitted his stomach contractions to a recording device (FIGURE 12.3). While his stomach was being monitored, Washburn pressed a key each time he felt hungry. The discovery: Washburn was indeed having stomach contractions whenever he felt hungry.

**FIGURE 12.3**

Monitoring stomach contractions

Using this procedure, Washburn showed that stomach contractions (transmitted by the stomach balloon) accompany our feelings of hunger (indicated by a key press).

(From Cannon, 1929.)
Would hunger persist without stomach pangs? Researchers answered that question early in the twentieth century, when they removed some rats' stomachs and attached their esophagi to their small intestines (Tsang, 1938). Did the rats continue to eat? Indeed they did. Some hunger persists similarly in humans whose ulcerated or cancerous stomachs have been removed. You and I can feel some hunger even on a full stomach. So can animals that fill their stomachs by eating low-calorie food; they will eat more than animals that consume a less-filling, high-calorie diet (McHugh & Moran, 1978).

If the pangs of an empty stomach are not the only source of hunger, what else matters? Body chemicals and brain states offer some insights.

### Body Chemistry and the Brain

People and other animals automatically regulate their caloric intake to prevent energy deficits and maintain a stable body weight. This suggests that the body is somehow, somewhere, keeping tabs on its available resources. One such resource is the blood sugar **glucose**. Increases in the hormone insulin (secreted by the pancreas) diminish blood glucose, partly by converting it to stored fat. Your body is normally adept at maintaining its blood glucose level. But if that level drops, your hunger increases.

You do not consciously feel this change in your blood chemistry. Rather, your brain is automatically monitoring your body’s internal state. Signals from your stomach, intestines, and liver (indicating whether glucose is being deposited or withdrawn) all signal your brain to motivate eating or not. But where in the brain are these messages integrated? During the 1940s and 1950s, researchers located hunger controls within the hypothalamus, a small but complex neural traffic intersection buried deep in the brain (FIGURE 12.4).

Actually, two distinct hypothalamic centers help control eating. Experiments during the 1960s suggested that activity along the sides of the hypothalamus (the lateral hypothalamus) brings on hunger. When electrically stimulated there, well-fed animals would begin to eat; when the area was destroyed, even starving animals had no interest in food. Late-twentieth-century research helped explain this behavior. If a rat is deprived of food and its blood sugar levels wane, the lateral hypothalamus will churn out the hunger-triggering hormone orexin. When given orexin, rats become ravenously hungry (Sakurai & others, 1998).

Activity in the second center—the lower mid-hypothalamus (the ventromedial hypothalamus)—depresses hunger. Stimulate this area and an animal will stop eating; destroy it and the animal’s stomach and intestines will process food more rapidly, causing it to become extremely fat (Duggan & Booth, 1986; Hoebel & Teitelbaum, 1966). After these mid-hypothalamic lesions, rats eat more often, produce more fat, and use less fat for energy, rather like a miser who runs every bit of extra money to the bank and resists taking any out (Pinel, 1993). This discovery also explains why some patients with tumors near the base of the brain (in what we now realize is the hypothalamus) eat excessively and become very overweight (Miller, 1995).
To put it simply, PYY is the fullness hormone and ghrelin is the hunger hormone.”


Over the next 40 years you will eat about 20 tons of food. If during these years you increase your daily intake by just .01 ounce more than required for your energy needs, you will gain 24 pounds (Martin & others, 1991).

FIGURE 12.5
The appetite hormones

Insulin: Hormone secreted by pancreas; controls blood glucose.

Leptin: Protein secreted by fat cells; when abundant, causes brain to increase metabolism and decrease hunger.

Orexin: Hunger-triggering hormone secreted by hypothalamus.

Ghrelin: Hormone secreted by empty stomach; sends “I'm hungry” signals to the brain.

PYY: Digestive tract hormone; sends “I'm not hungry” signals to the brain.

The hypothalamus monitors levels of the body’s appetite hormones (FIGURE 12.5). One interesting line of research is focusing on ghrelin, a hunger-arousing hormone secreted by an empty stomach. When people with severe obesity undergo bypass surgery that seals off part of the stomach, the remaining stomach then produces much less ghrelin, and their appetite lessens (Lemonick, 2002).

Experimental manipulation of appetite hormones has raised hopes for an appetite-reducing medication. Such a pill might counteract the body’s hunger-producing chemicals, such as ghrelin, and hunger-dampening chemicals such as leptin, which is secreted by fat cells. Or perhaps it might increase levels of PYY, a digestive hormone that suppresses appetite. The recent ups and downs of excitement over PYY illustrate the intense search for a substance that might someday be a treatment, if not a magic bullet, for obesity. The initial report that PYY suppresses appetite in mice was followed by a skeptical statement from 12 laboratories reporting a big fat disappointment: The PYY finding did not replicate. But a few months later, this was followed by newer studies using different methods that did find at least a temporary appetite-suppressing effect (Gura, 2004).

An older hunger theory proposes that manipulating the lateral and ventromedial hypothalamus alters the body’s “weight thermostat,” predisposing us to keep our body at a particular weight level, called its set point (Keesey & Corbett, 1983). When semistarved rats fall below their normal weight, biological pressures act to restore the lost weight: Hunger increases and energy expenditure decreases. If body weight rises—as happens when rats are force-fed—hunger decreases and energy expenditure increases. This stable weight toward which semistarved and overstuffed rats return is their set point. In rats and humans, heredity influences body type and set point.

Human bodies regulate weight through the control of food intake, energy output, and basal metabolic rate—the rate of energy expenditure for maintaining basic body functions when the body is at rest. By the end of their 24 weeks of semistarvation, the men who participated in Key’s experiment had stabilized at three-quarters of their normal weight—while eating half of what they previously did. The stabilization resulted from reduced energy expenditure, achieved partly by physical lethargy and partly by a 29 percent drop in their basal metabolic rate. In a reverse experiment—in which volunteers were overfed 1000 calories a day for eight weeks—those who gained the least weight tended to spend the extra caloric energy by fidgeting more (Levine & others, 1999). Under normal circumstances, those who fidget most (and burn more calories) weigh less than more inactive obese people, report James Levine and his colleagues (2005). (The researchers outfitted people with undergarments that for 10 days monitored their movements every half second.)

Some researchers, however, doubt that the body has a precise set point that drives hunger. They believe that slow, sustained changes in body weight can, for example, alter one’s set point. This casts doubt on the idea that our bodies have a preset tendency to maintain optimum weight (Assanand & others, 1998). Psychological factors also sometimes drive our feelings of hunger.

Given unlimited access to a wide variety of tasty foods, people and other animals
tend to overeat and gain weight. For all these reasons, some researchers have abandoned the idea of a biologically fixed set point. They prefer the term settling point to indicate the level at which a person’s weight settles in response to caloric intake and expenditure (which is influenced by environment as well as biology).

The Psychology of Hunger

**Objective 7** Discuss psychological and cultural influences on hunger.

Our eagerness to eat is indeed pushed by our physiological state—our body chemistry and hypothalamic activity. Yet there is more to hunger than meets the stomach. This was strikingly apparent when Paul Rozin and his trickster colleagues (1998) tested two patients with amnesia who had no memory for events occurring more than a minute ago. If, 20 minutes after eating a normal lunch, the patients were offered another, both readily consumed it . . . and usually a third meal offered 20 minutes after the second was finished. This suggests that part of knowing when to eat is our memory of our last meal. As time accumulates since we last ate, we anticipate eating again and start feeling hungry.

**Taste Preference: Biology or Culture?**

Body chemistry and environmental factors together influence not only when we feel hungry, but what we feel hungry for—our taste preference. When feeling tense or depressed, do you crave starchy, carbohydrate-laden foods? Carbohydrates help boost levels of the neurotransmitter serotonin, which has calming effects.

Our preferences for sweet and salty tastes are genetic and universal. Other taste preferences are conditioned, as when people given highly salted foods develop a liking for excess salt (Beauchamp, 1987), or when people develop an aversion to a food eaten before becoming violently ill. (The frequency of children’s illnesses provides many chances for them to learn food aversions.)

Culture affects taste, too. Bedouins enjoy eating the eye of a camel, which most North Americans would find repulsive. Similarly, most North Americans and Europeans shun dog, rat, and horse meat, all of which are prized elsewhere.

Our natural wariness of things unfamiliar extends to novel foods (especially novel animal-based rather than vegetarian foods). In experiments, people have tried novel fruit drinks or ethnic foods. With repeated exposure, their appreciation for the new taste typically increases; moreover, exposure to one set of novel foods increases our willingness to try another (Pliner, 1982; Pliner & others, 1993). Rats, too, tend to avoid unfamiliar foods (Sclafani, 1995). This neophobia surely was adaptive for our ancestors, protecting them from potentially toxic substances.

An acquired taste

For Alaskan natives (left), but not for most other North Americans, whale blubber is a tasty treat. For these Campa Indians in Peru (right), roasted ants are similarly delicious. People everywhere learn to enjoy the fatty, bitter, or irritating foods prescribed by their culture.
Other taste preferences are also adaptive. For example, the spices most commonly used in the recipes of hot climates, where food—especially meat—spoil more quickly, inhibit the growth of bacteria (FIGURE 12.6). Pregnancy-related nausea is another example of adaptive taste preferences. Food aversions stemming from this nausea peak about the tenth week, when the developing embryo is most vulnerable to toxins.

**Eating Disorders**

**OBJECTIVE 8** | Explain how the eating disorders anorexia nervosa and bulimia nervosa demonstrate the influence of psychological forces on physiologically motivated behaviors.

Psychological influences on eating behavior are strikingly evident when a motive for abnormal thinness overwhelms normal homeostatic pressures. Two such eating disorders are anorexia nervosa and bulimia.

**Anorexia nervosa** always begins as a weight-loss diet. People with this disorder drop significantly below normal weight (typically, by 15 percent or more) yet feel fat and remain obsessed with losing weight. Even when emaciated, the person—usually an adolescent and 9 times out of 10 a female—continues to limit food intake.

**Bulimia nervosa** nearly always begins after a dieter has broken diet restrictions and gorged. Those with bulimia have repeated episodes of overeating followed by compensatory vomiting, laxative use, fasting, or excessive exercise. Most binge-purge eaters are women in their late teens or early twenties. They eat the way some people with alcoholism drink—in spurts, sometimes influenced by friends who are bingeing (Crandall, 1988). Preoccupied with food (craving sweet and high-fat foods), and fearful of becoming overweight, people with bulimia experience bouts of depression and anxiety, most severe during and following binges (Hinz & Williamson, 1987; Johnson & others, 2002). About half of those with anorexia also display the binge-purge-depression symptoms of bulimia. Unlike anorexia, bulimia is marked by weight fluctuations within or above normal ranges, making the condition easy to hide.

**Dying to be thin**

Anorexia was identified and named in the 1870s, when it appeared among affluent adolescent girls (Brumberg, 2000). This 1930s photo illustrates the physical condition (left). Many modern-day celebrities have struggled publicly with eating disorders, including millionaire teen actress Mary-Kate Olsen (right).
Eating disorders do not provide (as some have speculated) a telltale sign of childhood sexual abuse (Smolak & Murnen, 2002; Stice, 2002). Families may provide a fertile ground for the growth of eating disorders in another way, however. Mothers of girls with eating disorders are themselves often focused on their own weight and on their daughters’ weight and appearance (Pike & Rodin, 1991). The families of bulimia patients have a higher-than-usual incidence of childhood obesity and negative self-evaluation (Jacobi & others, 2004). Anorexia patients also tend to have low self-evaluations and often come from families that are competitive, high-achieving, and protective (Pate & others, 1992; Yates, 1989, 1990). Sufferers set perfectionist standards, fret about falling short of expectations, and are intensely concerned with how others perceive them (Polivy & Herman, 2002; Striegel-Moore & others, 1993). Some of these factors also predict teen boys’ pursuit of unrealistic muscularity (Ricciardelli & McCabe, 2004).

Genetics, too, may influence susceptibility to eating disorders. If twins are identical rather than fraternal, the chances of the other twin’s sharing the disorder are somewhat greater (Fairburn & others, 1999; Kaplan, 2004). Evolution may have predisposed such genes, suggests Shan Guisinger (2004). Faced with famine, our ancestors who denied their starvation and became hyperactive rather than hunkering down may have been more likely to search for food.

There is, however, a cultural explanation for the fact that anorexia and bulimia occur mostly in women and mostly in weight-conscious cultures. Body ideals vary across culture and time. In India, women students rate their ideals as close to their actual shape. In much of Africa—where thinness can signal poverty, AIDS, and hunger, and the prosperous are plump—bigger is better (Knickmeyer, 2001). In Western cultures, however, the rise in eating disorders over the last 50 years has coincided with a dramatic increase in women having a poor body image, according to a recent analysis of 222 studies of 141,000 people (Feingold & Mazzella, 1998).

Other research confirms that those vulnerable to eating disorders are those who most idealize thinness and have the greatest body dissatisfaction (Stice, 2002; Thompson & Stice, 2001; Vohs & others, 2001). Not surprisingly, those people are most often women. In one national survey, nearly one-half of U.S. women reported feeling negative about their appearance and preoccupied with being or becoming overweight (Cash & Henry, 1995). And in a turn-of-the-century British survey of 3500 bank and university staff, men were more likely to be overweight and women were more likely to perceive themselves as overweight (Emslie & others, 2001).

Similar gender differences appeared in an experiment led by Barbara Fredrickson (1998), who had University of Michigan men and women put on a sweater or a swim suit and complete a math test while alone in a changing room. For the women but not the men, wearing the swimsuit triggered self-consciousness and shame that disrupted their math performance. In one informal survey with 60,000 respondents, 9 in 10 women said they would rather have a perfect body than have a mate with a perfect body; 6 of 10 men preferred the reverse (Lever, 2003).

Part of the cultural pressure is surely transmitted by the “thin-ideal” exemplified in fashion magazines, advertisements, and even in some toys. What do you suppose happens when young women repeatedly encounter doctored magazine images of fashion models, who appear to be unnaturally thin (Tovee & others, 1997)? Eric Stice and Heather Shaw (1994) and Heidi Posavac and colleagues (1998) report that women often feel ashamed, depressed, and dissatisfied with their own bodies—the very attitudes that predispose eating disorders. When Stice and his colleagues (2001) gave some adolescent girls (but not others) a 15-month subscription to a teen fashion magazine (Seventeen), vulnerable girls (who were already dissatisfied, idealizing thinness, and lacking social support) exhibited increased body dissatisfaction and eating disorder.

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**anorexia nervosa** an eating disorder in which a normal-weight person (usually an adolescent female) diets and becomes significantly (15 percent or more) underweight, yet, still feeling fat, continues to starve.

**bulimia nervosa** an eating disorder characterized by episodes of overeating, usually of high-calorie foods, followed by vomiting, laxative use, fasting, or excessive exercise.

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Diana remained throughout a very insecure person at heart, almost childlike in her desire to do good for others, so she could release herself from deep feelings of unworthiness, of which her eating disorders were merely a symptom.”

Charles, Ninth Earl of Spencer, eulogizing his sister Princess Diana, 1997

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"Thanks, but we don't eat."

"Gee, I had no idea you were married to a supermodel."
Clearly, we are biologically driven to eat, yet psychological and social-cultural factors strongly influence what, when, and how much we eat.

**Biological influences:**
- mid-hypothalamic centers in the brain monitoring appetite
- appetite hormones
- stomach pangs
- set/settling point weight
- universal attraction to sweet and salty
- adaptive wariness toward novel foods

**Psychological influences:**
- sight and smell of food
- variety of foods available
- memory of time elapsed since last meal
- mood

**Social-cultural influences:**
- culturally learned taste preferences
- learned restraint in cultures idealizing thinness

Why do women have such low self-esteem? There are many complex psychological and societal reasons, by which I mean Barbie.”

Dave Barry, 1999

It seems clear that the sickness of today’s eating disorders lies not just within the victims but also within our weight-obsessed culture—a culture that says, in countless ways, “Fat is bad,” that motivates millions of women to be “always dieting,” and that encourages eating binges by pressuring women to live in a constant state of semistarvation. As compelling as our biological motives are, eating behavior is clearly also affected by psychological and social-cultural factors (FIGURE 12.7).

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### Learning Outcomes

**Hunger**

**Objective 6** | Describe the physiological determinants of hunger. Washburn and Cannon showed that hunger’s inner push corresponds to the stomach’s contractions, but hunger has other causes. Variations in body chemistry that influence our feelings of hunger include those of insulin (secreted by the pancreas; controls blood glucose), leptin (secreted by fat cells; signals brain to increase metabolism and decrease hunger), orexin (secreted by the hypothalamus; triggers hunger), ghrelin (secreted by empty stomach; sends hunger signals to brain), and PYY (secreted by digestive tract; sends not-hungry signals to brain). All this information is integrated in two areas of the hypothalamus, which regulates the body’s weight by affecting our feelings of hunger and satiety. Researchers differ on whether the body has a precise set point (a biologically fixed tendency to maintain an optimum weight) or a settling point (an environmentally and biologically influenced level at which weight settles in response to caloric intake and output).

**Objective 7** | Discuss psychological and cultural influences on hunger.

Our hunger is influenced not only by our physical state but also by our memory of when we last ate and our expectation of when we should eat again. And although we humans as a species prefer certain tastes (such as sweet and salty), we learn to satisfy those preferences with specific foods eaten in the context of our families and our culture. Some of our taste preferences, such as the avoidance of new foods or of foods that have made us ill, have survival value.

**Objective 8** | Explain how the eating disorders anorexia nervosa and bulimia nervosa demonstrate the influence of psychological forces on physiologically motivated behaviors. In the past half-century, a dramatic increase in poor body image has coincided with a rise in eating disorders among women in Western cultures. In both anorexia and bulimia, psychological factors, such as challenging family settings and weight-obsessed societal pressures, apparently overwhelm the homeostatic drive to maintain a balanced internal state. People with anorexia nervosa (usually adolescent females) starve themselves but continue to diet because they view themselves as fat; those with bulimia nervosa (primarily females in their teens and twenties) binge and purge in secret. In addition to cultural pressures, low self-esteem and negative emotions seem to interact with stressful life experiences to produce these disorders. Twin research also indicates, however, that these eating disorders may have a genetic component.

**ASK YOURSELF:** Do you feel in touch with your body’s hunger signals? Do you eat when your body needs food? Or do you tend to be more externally influenced by enticing foods even when you’re full?
Sexual Motivation

Sex is part of life. Had this not been so for all your ancestors, you would not be reading this book. Sexual motivation is nature’s clever way of making people procreate, thus enabling our species’ survival. When two people feel attracted, they hardly stop to think of themselves as guided by their genes. As the pleasure we take in eating is nature’s inventive method of getting our body nourishment, so the pleasure of sex is our genes’ way of preserving and spreading themselves.

Our first descriptions of sexual behavior in the United States came from Indiana University biologist Alfred Kinsey and his colleagues (1948, 1953). Unable to answer his students’ questions about people’s sexual practices, Kinsey set out to find some answers. His controversial research was shocking to a 1940s audience. Social scientists were quick to point out what Kinsey readily acknowledged—that his nonrandom sample contained an overrepresentation of well-educated white urbanites. Nevertheless, his statistics-laden volumes became bestsellers. Here readers learned the surprising news that most of the men and nearly half the women reported having had premarital sexual intercourse; that most women and virtually all men reported having masturbated; and that women who reported masturbating to orgasm before marriage seldom had difficulties experiencing orgasm after marriage. Kinsey’s books also revealed enormously varied sexual behavior, some men and women saying they had never had an orgasm and others reporting they had four or more a day. For those who evaluate themselves by comparisons with others, Kinsey’s nonrandom sample—and other more reliable findings showing wide variations in “normal” sexual behavior around the world—are reassuring. Given the range of sex drives and the variety of sexual behaviors, our own sexual interests probably fall well within the definition of “normal.”

The Physiology of Sex

Like hunger, sexual arousal depends on the interplay of internal and external stimuli. To understand sexual motivation, we must consider both.

The Sexual Response Cycle

**Objective** Describe the human sexual response cycle, and discuss some causes of sexual disorders.

The headlines created by Kinsey’s 1940s surveys reappeared in the 1960s after other scientists recorded the physiological responses of volunteers who masturbated or had intercourse. With the help of 382 female and 312 male volunteers—a somewhat atypical sample, consisting only of people able and willing to display arousal and orgasm while being observed in a laboratory—gynecologist-obstetrician William Masters and his collaborator Virginia Johnson (1966) monitored or filmed more than 10,000 sexual “cycles.”

Their description of the sexual response cycle identified four stages, similar in men and women. During the initial excitement phase, the genital areas become engorged with blood, a woman’s vagina expands and secretes lubricant, and her breasts and nipples may enlarge.

In the plateau phase, excitement peaks as breathing, pulse, and blood pressure rates continue to increase. The penis becomes fully engorged and some fluid—frequently containing enough live sperm to enable conception—may appear at its tip. Vaginal secretion continues to increase, the clitoris retracts, and orgasm feels imminent.

Masters and Johnson observed muscle contractions all over the body during orgasm; these were accompanied by further increases in breathing, pulse, and blood pressure rates. A woman’s arousal and orgasm facilitate conception by helping propel semen from the penis, positioning the uterus to receive sperm, and drawing the sperm further inward. A woman’s orgasm therefore not only reinforces intercourse, which is essential...
A nonsmoking 50-year-old male has about a 1-in-a-million chance of a heart attack during any hour. This increases to merely 2-in-a-million during the hour following sex (with no increase for those who exercise regularly). Compared with risks associated with heavy exertion or anger (see Chapter 14), this risk seems not worth losing sleep (or sex) over (Muller & others, 1996).

The feeling apparently is much the same for both sexes. In one study, a panel of experts could not reliably distinguish between descriptions of orgasm written by men and those written by women (Vance & Wagner, 1976). University of Groningen neuroscientist Gerg Holstege and his colleagues (2003a,b) understand why. They discovered that when men and women undergo PET scans while having orgasms, the same subcortical brain regions glow. And when people who are passionately in love undergo fMRI scans while viewing photos of their beloved or of a stranger, men’s and women’s brain responses to their partner are pretty similar (Fisher & others, 2002).

After orgasm, the body gradually returns to its unaroused state as the engorged genital blood vessels release their accumulated blood—relatively quickly if orgasm has occurred, relatively slowly otherwise. (It’s like the nasal tickle that goes away rapidly if you have sneezed, slowly otherwise.) During this resolution phase, the male enters a refractory period, lasting from a few minutes to a day or more, during which he is incapable of another orgasm. The female’s much shorter refractory period may enable her to have another orgasm if restimulated during or soon after resolution.

Masters and Johnson sought not only to describe the human sexual response cycle but also to understand and treat the inability to complete it. Sexual disorders are problems that consistently impair sexual functioning. Some involve sexual motivation, especially lack of sexual energy and arousability. Others include, for men, premature ejaculation and erectile disorder (inability to have or maintain an erection), and, for women, orgasmic disorder (infrequently or never experiencing orgasm).

What causes such problems? The idea that personality disorders are to blame has been largely discounted. Most women who experience sexual distress relate it to their emotional relationship with the partner during sex, not to physical aspects of the activity (Bancroft & others, 2003). Men or women with sexual disorders can often be helped by receiving behaviorally oriented therapy where, for example, men may learn ways to control their urge to ejaculate, and women are trained to bring themselves to orgasm. Starting with the introduction of Viagra in 1998, erectile disorder has been routinely treated by taking a pill.

Hormones and Sexual Behavior

Objective 10 | Discuss the impact of hormones on sexual motivation and behavior.

Sex hormones have two effects: They direct the physical development of male and female sex characteristics, and (especially in nonhuman animals) they activate sexual behavior. In most mammals, nature neatly synchronizes sex with fertility. The female becomes sexually receptive (“in heat”) when production of the female hormone estrogen peaks at ovulation. In experiments, researchers can stimulate receptivity by injecting female animals with estrogen. Male hormone levels are more constant, and researchers cannot so easily manipulate the sexual behavior of male animals with hormones (Feder, 1984). Nevertheless, castrated male rats—having lost their testes, which manufacture the male sex hormone testosterone—gradually lose much of their interest in receptive females. They gradually regain it if injected with testosterone.

In humans, hormones more loosely influence sexual behavior, although sexual desire rises slightly at ovulation among women with mates (Pillsworth & others, 2004). One study invited partnered women who were not at risk for pregnancy to keep a diary of their sexual activity. (These women were either
using intrauterine devices or had undergone surgery to prevent pregnancy.) On the
days around ovulation, intercourse was 24 percent more frequent (Wilcox & others,
2004). But women’s sexuality also differs from that of other mammalian females in
being more responsive to testosterone level than to estrogen level (Meston &
Frohlich, 2000; Reichman, 1998). If a woman’s natural testosterone level drops, as
happens with removal of the ovaries or adrenal glands, her sexual interest may
wane. But testosterone-replacement therapy can often restore diminished sexual
appetite, as it did for 549 naturally menopausal women who found that a
testosterone-replacement patch restored sexual activity, arousal, and pleasure more
than did a placebo (Davis & others, 2003; Kroll & others, 2004).

In men, normal fluctuations in testosterone levels, from man to man and hour to
hour, have little effect on sexual drive (Byrne, 1982). Indeed, fluctuations in male
hormones are partly a response to sexual stimulation. When James Dabbs and his col-
leagues (1987, 2000) had heterosexual male collegians converse separately with an-
other male student and with a female student, the men’s testosterone levels rose with
the social arousal, but especially after talking with the female. Thus, sexual arousal
can be a cause as well as a consequence of increased testosterone levels.

Although normal short-term hormonal changes have little effect on men’s and
women’s desire, large hormonal shifts over the life span have a greater effect. A per-
son’s interest in dating and sexual stimulation usually increases with the pubertal
surge in sex hormones, as happens with male testosterone levels during puberty.

If the hormonal surge is precluded—as it was during the 1600s and 1700s for pre-
pubertal boys who were castrated to preserve their soprano voices for Italian opera—
the normal development of sex characteristics and sexual desire does not occur
(Peschel & Peschel, 1987). Among adult men who suffer castration, sex drive typi-
cally falls as testosterone levels decline (Hucker & Bain, 1990). Male sex offenders
similarly lose much of their sexual urge when voluntarily taking Depo-Provera, a drug
that reduces testosterone level to that of a prepubertal boy (Money & others, 1983).
In later life, as sex hormone levels decline, the frequency of sexual fantasies and in-
tercourse declines as well (Leitenberg & Henning, 1995). For men with abnormally
low testosterone levels, testosterone-replacement therapy often increases sexual de-
sire and also energy and vitality (Yates, 2000).

To summarize: We might compare human sex hormones, especially testosterone, to
the fuel in a car. Without fuel, a car will not run. But if the fuel level is minimally ad-
equate, adding more fuel to the gas tank won’t change how the car runs. The analogy
is imperfect, because the interaction between hormones and sexual motivation is two-
way. However, the analogy correctly suggests that biology is a necessary but not suf-
cient explanation of human sexual behavior. The hormonal fuel is essential, but so are the psychological stimuli that turn
on the engine, keep it running, and shift it into high gear.

The Psychology of Sex

**Objective 11** | Describe the role of external stimuli and fantasies on
sexual motivation and behavior.

Hunger and sex are different sorts of motivations. Hunger re-
sponds to a need. If we do not eat, we die. Sex is not in this
sense a need. If we do not have sex, we may feel like dying, but
we do not. Nevertheless, there are similarities between hunger
and sexual motivation. Both depend on internal physiological
factors. And both are influenced by external and imagined
stimuli, as well as cultural expectations (**Figure 12.8**).
External Stimuli

Many studies confirm that men become aroused when they see, hear, or read erotic material. Surprising to many (because sexually explicit materials are sold mostly to men) is that most women—at least the less-inhibited women who volunteer to participate in such studies—report or exhibit nearly as much arousal to the same stimuli (Heiman, 1975; Stockton & Murnen, 1992). (Their brains do, however, respond differently, with fMRI scans revealing a more active amygdala in men viewing erotica [Hamann & others, 2004].)

People may find such arousal either pleasing or disturbing. (Those who find it disturbing often limit their exposure to such materials, just as those wishing to control hunger limit their exposure to tempting cues.) With repeated exposure, the emotional response to any erotic stimulus often habituates (lessens). During the 1920s, when Western women’s hemlines first reached the knee, an exposed leg was a mildly erotic stimulus, as were modest (by today’s standards) two-piece swimsuits and movie scenes of a mere kiss.

Can sexually explicit material have adverse effects? Research indicates that it can. Depictions of women being sexually coerced—and enjoying it—tend to increase viewers’ acceptance of the false idea that women enjoy rape and tend to increase male viewers’ willingness to hurt women (Malamuth & Check, 1981; Zillmann, 1989). Images of sexually attractive women and men may also lead people to devalue their own partners and relationships. After male collegians watch TV or magazine depictions of sexually attractive women, they often find an average woman, or their own girlfriends or wives, less attractive (Kenrick & Gutierres, 1980; Kenrick & others, 1989; Weaver & others, 1984). Viewing X-rated sex films similarly tends to diminish people’s satisfaction with their own sexual partners (Zillmann, 1989). Some sex researchers suspect that reading or watching erotica may create expectations that few men and women can fulfill.

Imagined Stimuli

The brain, it has been said, is our most significant sex organ. The stimuli inside our heads—our imagination—can influence sexual arousal and desire. People who, because of a spinal cord injury, have no genital sensation, can still feel sexual desire (Willmuth, 1987). Consider, too, the erotic potential of dreams. Sleep researchers have discovered that genital arousal accompanies all types of dreams, even though most dreams have no sexual content. But in nearly all men and some 40 percent of women (Wells, 1986), dreams sometimes do contain sexual imagery that leads to orgasm. In men, nighttime orgasm and nocturnal emissions (“wet dreams”) are more likely when orgasm has not occurred recently.

Wide-awake people become sexually aroused not only by memories of prior sexual activities but also by fantasies. In one survey of masturbation-related fantasies (Hunt, 1974), 19 percent of women and 10 percent of men reported imagining being taken by someone overwhelmed with desire for them. Fantasy is not reality, however. To paraphrase Susan Brownmiller (1975), there’s a big difference between fantasizing that Brad Pitt just won’t take no for an answer and having a hostile stranger actually force himself on you. (See pages 735–754 for a discussion of the rape myth.)
Adolescent Sexuality

OBJECTIVE 12 | Discuss some of the forces that influence teen pregnancy and teen attitudes toward contraception.

Adolescents' physical maturation fosters a sexual dimension to their emerging identity. Yet sexual expression varies dramatically with time and culture. Among American women born before 1900, a mere 3 percent had experienced premarital sex by age 18 (Smith, 1998). In the United States today, about half of ninth- to twelfth-graders report having had sexual intercourse, as do 42 percent of Canadian 16-year-olds (Boroditsky & others, 1995; CDC, 2004). Teen intercourse rates are higher in Western Europe but much lower in Arab and Asian countries and among North Americans of Asian descent (McLaughlin & others, 1997). In one survey, only 2.5 percent of 4688 unmarried Chinese students entering Hong Kong's six universities reported having had sexual intercourse (Meston & others, 1996).

An increase in teen sexual activity in Western countries led to a twentieth-century increase in the adolescent pregnancy rate. The often-impoverished futures of teen mothers and of children in father-absent homes have in turn prompted new research on teen sexuality, adolescents' use of contraceptives, and teens' risk of contracting sexually transmitted infections (STIs).

Teen Pregnancy

Compared with European teens, American teens have lower rates of intercourse, but they also have lower rates of contraceptive use and thus higher rates of teen pregnancy and abortion (Call & others, 2002). (Only one-third of sexually active male teens use condoms consistently [Sonenstein, 1992]). Why?

Ignorance  Half of sexually active Canadian teen girls have mistaken ideas about which birth control methods will protect them from pregnancy and STIs (Immen, 1995). Most teens also overestimate their peers' sexual activity, and that misperception may influence their own behavior (Child Trends, 2001).

Guilt related to sexual activity  In one survey, 72 percent of 12- to 17-year-old American girls who have had sex said they regretted it (Reuters, 2000). Sexual inhibitions can reduce sexual activity, but they may also reduce attempts at birth control if passion overwhelms intentions (Gerrard & Luus, 1995). Not wanting to appear deliberately sexual or promiscuous, teens may hesitate to carry and produce a condom. The result may be conception.

Minimal communication about birth control  Many teenagers are uncomfortable discussing contraception with their parents, partners, and peers (Kotva & Schneider, 1990; Milan & Kilmann, 1987). Teens who talk freely with friends or parents and are in an exclusive relationship with a partner with whom they communicate openly are more likely to use contraceptives.

Alcohol use  Sexually active teens are typically alcohol-using teens (Albert & others, 2003; National Research Council, 1987), and those who use alcohol prior to sex are less likely to use condoms (Kotchick & others, 2001). By depressing the brain centers that control judgment, inhibition, and self-awareness, alcohol tends to break down normal restraints, a phenomenon well known to sexually coercive males (page 299).
Mass media norms of unprotected promiscuity  An average hour of prime-time television on the three major U.S. networks contains approximately 15 sexual acts, words, and innuendos. Nearly all of these instances involve unmarried partners, about half have no prior romantic relationship or have just met, and few communicate any concern for birth control or STIs (Brown & others, 2002; Kunkel, 2001; Sapolsky & Tabarlet, 1991). TV and movie portrayals of unsafe sex without consequence, contends Planned Parenthood, amounts to a campaign of sex disinformation.

Sexually Transmitted Infections

**Objective 13** Describe trends in the spread of sexually transmitted infections.

Unprotected sex has led to increased rates of STIs (also called STD for sexually transmitted disease). Two-thirds of new infections occur in persons under 25 (ASHA, 2003). Teenage girls, because of their less mature biological development and lower levels of protective antibodies, seem especially vulnerable to STIs (Guttmacher, 1994; Morell, 1995). To comprehend the mathematics of sexually transmitted infection, imagine this scenario: Over the course of a year, Pat has sex with 9 people, each of whom over the same period has sex with 9 other people, who in turn have sex with 9 others. How many "phantom" sex partners (past partners of partners) will Pat have? Laura Brannon and Timothy Brock (1994) report that the actual number—511—is more than five times the estimate given by the average student.

Given these odds, the rapid spread of STIs is not surprising. Condoms offer no protection against certain skin-to-skin STIs—notably the human papilloma virus, which is responsible for most genital cancers (Medical Institute, 1994; NIH, 2001). Condoms do, however, reduce tenfold the risk of contracting HIV (human immunodeficiency virus—the virus that causes AIDS) from an infected partner (Pinkerton & Abramson, 1997).

One response to these facts of life has been a greater emphasis on teen abstinence within some comprehensive sex education programs. A National Longitudinal Study of Adolescent Health among 12,000 teens found several predictors of sexual restraint:

- **High intelligence** Teens with high rather than average intelligence test scores more often delay sex, evidently because they appreciate possible negative consequences and are more focused on future achievement than on here-and-now pleasures (Halpern & others, 2000).

- **Religiosity** Actively religious teens and adults more often reserve sex for marital commitment (Rostosky & others, 2004; Smith, 1998).

- **Father presence** In studies that followed hundreds of New Zealand and U.S. girls from age 5 to 18, a father’s absence was linked to sexual activity before age 16 and teen pregnancy (Ellis & others, 2003). These associations held even after adjusting for other adverse influences such as poverty.

- **Participation in service learning programs** In several experiments, teens who volunteer as tutors or teachers’ aides or take part in community projects have lower pregnancy rates than other comparable teens randomly assigned to control conditions (Kirby, 2002; O‘Donnell & others, 2002). Researchers are unsure why. Does service learning promote a sense of personal competence, control, and responsibility? Does it encourage more future-oriented thinking? Or does it simply reduce opportunities for unprotected sex?

In recent history, the pendulum of sexual values has swung from the European eroticism of the early 1800s to the conservative Victorian era of the late 1800s, from the libertine flapper era of the 1920s to the family values period of the 1950s. The
pendulum may have begun a new swing toward commitment in the twenty-first century, with declining teen birth rates since 1991, and virgins (54 percent in 2002) now outnumbering nonvirgins (46 percent) among U.S. 15- to 19-year-olds (CDC, 2004; Mohn & others, 2003).

**Sexual Orientation**

**Objective 14** | Summarize current views on the number of people whose sexual orientation is homosexual, and discuss the research on environmental and biological influences on sexual orientation.

To motivate is to energize and direct behavior. So far, we have considered the energizing of sexual motivation but not its direction. We express the direction of our sexual interest in our **sexual orientation**—our enduring sexual attraction toward members of our own sex (homosexual orientation) or the other sex (heterosexual orientation). Cultures vary in their attitudes toward homosexuality. But as far as we know, all cultures in all times have been predominantly heterosexual (Bullough, 1990). Whether a culture condemns or accepts homosexuality, heterosexuality prevails and homosexuality survives.

Gay men and lesbians often recall childhood play preferences like those of the other sex (Bailey & Zucker, 1995). But most homosexual people report not becoming aware of same-sex attraction until during or shortly after puberty, and not thinking of themselves as gay or lesbian until around age 20 (Garnets & Kimmel, 1990).

**Sexual Orientation Statistics**

How many people are exclusively homosexual? Until recently, the popular press assumed a homosexuality rate of 10 percent. In a 2002 Gallup survey, the average American estimated that 21 percent of men are gay and 22 percent of women are lesbian (Robinson, 2002). But in both Europe and the United States, more than a dozen national surveys in the early 1990s explored sexual orientation, using methods that protected the respondent’s anonymity. Their results agree in suggesting that a more accurate figure is about 3 or 4 percent of men and 1 or 2 percent of women (Lamm & others, 1994; National Center for Health Statistics, 1991; Smith, 1998). Estimates derived from the sex of unmarried partners reported in the 2000 U.S. Census suggest that 2.5 percent of the population is gay or lesbian (Tarmann, 2002). Fewer than 1 percent of survey respondents—for example, 12 people out of 7076 Dutch adults in one recent survey (Sandfort & others, 2001)—reported being actively bisexual. (Studies indicate that men who describe themselves as bisexual tend to respond like homosexual men; they typically have genital arousal to same-sex erotic stimuli [Rieger & others, 2005].) In the Dutch study, a larger number of adults reported having an isolated homosexual experience. And most people reporting having had an occasional homosexual fantasy. Health experts find it helpful to know sexual statistics, but numbers do not decide issues of human rights.

What does it feel like to be homosexual in a heterosexual culture? If you are heterosexual, one way to understand is to imagine how you would feel if you were ostracized or fired for openly admitting or displaying your feelings toward someone of the other sex; if you overheard people making crude jokes about heterosexual people; if most movies, TV shows, and advertisements portrayed (or implied) homosexuality; and if your family members were pleading with you to change your heterosexual lifestyle and to enter into a homosexual marriage.

Facing such reactions, homosexual people often struggle with their sexual orientation. They may at first try to ignore or deny their desires, hoping they will go away.

It has been maintained for years that we each use only about 10 percent of our brain capacity; that the condom failure rate is 10 percent; and until just last year, that 10 percent of Americans are homosexual. Such statistics are partly artifacts, I suspect, of our decimal system; in a base 12 system, we'd no doubt show a similar affinity for statistics that were multiples of 8.333 percent.”

John Allen Paulos, “Counting on Dyscalculia,” 1993
Personal values affect sexual orientation less than they affect other forms of sexual behavior. Compared with people who rarely attend religious services, for example, those who attend regularly are one-third as likely to have cohabited before marriage, and they report having had many fewer sex partners. But (if male) they are just as likely to be homosexual (Smith, 1998).

But they don’t. Then they may try to change, through psychotherapy, willpower, or prayer. But the feelings typically persist, as do those of heterosexual people—who are similarly incapable of becoming homosexual (Haldeman, 1994, 2002; Myers & Scanzoni, 2005). Most of today’s psychologists therefore view sexual orientation as neither willfully chosen nor willfully changed. Sexual orientation in some ways is like handedness: Most people are one way, some the other. A very few are truly ambidextrous. Regardless, the way one is endures.

Women’s sexual orientation tends to be less strongly felt and potentially more fluid and changeable than men’s (Diamond, 2000, 2003; Peplau & Garnets, 2000). Men’s lesser sexual variability is apparent in many ways, notes Roy Baumeister (2000). Across time, across cultures, across situations, and across differing levels of education, religiosity, and peer influence, adult women’s sexual drive and interests are more flexible and varying than are adult men’s. Women, more than men, for example, prefer to alternate periods of high sexual activity with periods of almost none, and are somewhat more likely than men to feel bisexual attractions. Baumeister calls this phenomenon the gender difference in erotic plasticity.

Gays and lesbians suffer elevated rates of depression and risk of suicide attempts, which researchers suspect result from their experiences with bullying, harassment, and discrimination (Sandfort & others, 2001; Warner & others, 2004). Most people, whether straight or gay, accept their orientation—by electing celibacy, by engaging in promiscuous sex (a choice more commonly made by gay men than by lesbian women), or by entering into a committed, long-term love relationship (a choice more often made by lesbians than by gays) (Kulkin & others, 2000; Peplau, 1982; Remafedi, 1999; Weinberg & Williams, 1974). Mental health professionals are now more accepting of clients’ sexual orientation. The American Psychiatric Association dropped homosexuality from its list of “mental illnesses” in 1973, as did the World Health Organization in 1993, and Japan’s and China’s psychiatric associations in 1995 and 2001.

Origins of Sexual Orientation

If our sexual orientation is indeed something we do not choose and seemingly cannot change, then where do these preferences come from? How do we move toward either a heterosexual or a homosexual orientation? See if you can anticipate the consensus that has emerged from hundreds of research studies by responding yes or no to the following questions:

1. Is homosexuality linked with problems in a child’s relationships with parents, such as with a domineering mother and an ineffectual father, or a possessive mother and a hostile father?
2. Does homosexuality involve a fear or hatred of people of the other gender, leading individuals to direct their sexual desires toward members of their own sex?
3. Is sexual orientation linked with levels of sex hormones currently in the blood?
4. As children, were many homosexuals molested, seduced, or otherwise sexually victimized by an adult homosexual?

The answer to all these questions appears to be no (Storms, 1983). Consider the findings of lengthy Kinsey Institute interviews with nearly 1000 homosexuals and 500 heterosexuals (Bell & others, 1981; Hammersmith, 1982). The investigators assessed nearly every imaginable psychological cause of homosexuality—parental relationships, childhood sexual experiences, peer relationships, dating experiences. Their findings: Homosexuals were no more likely than heterosexuals to have been smothered by maternal love, neglected by their father, or sexually abused. And consider this: If “distant fathers” were more likely to produce homosexual sons, then shouldn’t boys growing up in father-absent homes more often be gay? (They are not.) And shouldn’t the rising number of such homes have led to a noticeable increase in the gay population? (It has not.)
Homosexual people do, however, appear more often in certain populations. One study (Ludwig, 1995) of the biographies of 1004 eminent people found homosexual and bisexual people overrepresented (11 percent of the sample), especially among poets (24 percent), fiction writers (21 percent), and artists and musicians (15 percent). Men who have older brothers are also somewhat more likely to be gay, report Ray Blanchard (1997, 2001) and Anthony Bogaert (2003). Assuming the odds of homosexuality are roughly 3 percent among first sons, they rise to about 4 percent among second sons, 5 percent or a little more for third sons, and so on for each additional older brother. The reason for this curious phenomenon—the fraternal birth-order effect—is unclear. Blanchard suspects a defensive maternal immune response to foreign substances produced by male fetuses. The maternal antibodies may become stronger after each pregnancy with a male fetus and may prevent the fetus' brain from developing in a male-typical pattern. Women with older sisters, and women who were womb-mates of twin brothers, exhibit no such sibling effect (Rose & others, 2002).

So, what else might influence sexual orientation? One theory proposes that people develop same-sex erotic attachments if segregated by gender at the time their sex drives mature (Storms, 1981). Indeed, gay men tend to recall going through puberty somewhat earlier, when peers are more likely to be all males (Bogaert & others, 2002). But even in a tribal culture in which homosexual behavior is expected of all boys before marriage, heterosexuality prevails (Money, 1987). (As this illustrates, homosexual behavior does not always indicate a homosexual orientation.)

The bottom line from a half-century's theory and research: If there are environmental factors that influence sexual orientation, we do not yet know what they are. This reality has motivated researchers to consider more carefully the possible biological influences on orientation, including evidence of homosexuality in the animal world, and the influences of differing brain centers, genetics, and prenatal hormone exposure.

**Same-Sex Attraction in Animals** At Coney Island's New York Aquarium, Wendell and Cass spent several years as devoted same-sex partners. So, also, are the Central Park Zoo penguins Silo and Roy. Biologist Bruce Bagermihl (1999) identifies several hundred species in which at least occasional same-sex relations have been observed. Grizzlies, gorillas, monkeys, flamingos, and owls are all on the long list. Among rams, for example, some 6 to 10 percent—to sheep-breeding ranchers, the “duds”—display same-sex attraction by shunning ewes and seeking to mount other males (Perkins & Fitzgerald, 1997). So, some degree of homosexuality seems to be a natural part of the animal world as well.

**The Brain and Sexual Orientation** Researcher Simon LeVay (1991) studied sections of the hypothalamus taken from deceased heterosexual and homosexual people. As a gay scientist, LeVay wanted to do “something connected with my gay identity.” He knew he had to avoid biasing the results, so he did the study blind, without knowing which donors were gay. For nine months he peered through his microscope at a cell cluster he thought might be important. Then one morning, LeVay sat down and broke the codes. His discovery: The cell cluster was reliably larger in heterosexual men than in women and homosexual men. As the brain difference became apparent, LeVay said (1994), “I was almost in a state of shock. . . . I took a walk by myself on the cliffs over the ocean. I sat for half an hour just thinking what this might mean.”
Gay men simply don’t have the brain cells to be attracted to women.”

Simon LeVay, The Sexual Brain, 1993

Studies indicate that male homosexuality is more likely to be transmitted from the mother’s side of the family.”

Robert Plomin, John DeFries, Gerald McClean, and Michael Rutter, Behavioral Genetics, 1997

It should not surprise us that brains differ with sexual orientation. Remember our maxim: Everything psychological is simultaneously biological. The critical question is, when did the brain difference begin? At conception? In the womb? During childhood or adolescence? Did experience produce the difference? Or did genes or prenatal hormones (or genes via prenatal hormones)?

LeVay does not view this neural center as a sexual orientation center; rather, he sees it as an important part of the neural pathway engaged in sexual behavior. He acknowledges that sexual behavior patterns may influence the brain's anatomy. In fish, birds, rats, and humans, brain structures vary with experience—including sexual experience, reports sex researcher Marc Breedlove (1997). But LeVay believes it more likely that brain anatomy influences sexual orientation. His hunch seems confirmed by the discovery of a similar hypothalamic difference between the 6 to 10 percent of male sheep that display same-sex attraction and the 90+ percent attracted to females (Larkin & others, 2002; Roselli & others, 2002). Moreover, report University of London psychologists Qazi Rahman and Glenn Wilson (2003), “The neuroanatomical correlates of male homosexuality differentiate very early postnatally, if not prenatally.”

A functional hypothalamus difference surfaced in recent reports of brain responses to hormone-derived sexual scents. Swedish researchers (Savic & others, 2005) reported that when straight women are given a whiff of a scent derived from men’s sweat, their hypothalamus lights up in an area governing sexual arousal. Gay men’s brains responded similarly to the men’s scent, but straight men’s brains showed the arousal response only to a female hormone derivative. It’s not surprising, then, that another research team has since reported that gays and lesbians differ from their straight counterparts in their preferences for sex-related sweat odors (Martins & others, 2005). Odors taken from gay men, for example, are liked by other gay men but not by heterosexual men.

Laura Allen and Roger Gorski (1992) also concluded that brain anatomy influences sexual orientation after discovering that a section of the anterior commissure (the fibers that, like the corpus callosum, connect right and left hemispheres) is one-third larger in homosexual men than in heterosexual men. “The emerging neuroanatomical picture,” noted Brian Gladue (1994), “is that, in some brain areas, homosexual men are more likely to have female-typical neuroanatomy than are heterosexual men.”

Genes and Sexual Orientation  There is evidence to suggest a genetic influence on sexual orientation. “First, homosexuality does appear to run in families,” note Brian Mustanski and Michael Bailey (2003). “Second, twin studies have established that genes play a substantial role in explaining individual differences in sexual orientation.” Although results vary, an identical twin is somewhat more likely than a fraternal twin to share a co-twin’s homosexual orientation. However, in many identical twin pairs (especially female twins), the twin and co-twin’s orientations differ, indicating that other factors besides genes are at work. And third, experimenters have, by genetic manipulations, managed to create female fruit flies that during courtship act like males (pursuing other females) and males that act like females (Demir & Dickson, 2005). “We have shown that a single gene in the fruit fly is sufficient to determine all aspects of the flies’ sexual orientation and behavior,” explained Barry Dickson (2005).

But why, many people wonder, would “gay genes” exist? Given that same-sex couples cannot reproduce, how could genes that predispose homosexuality have survived in the human gene pool? Researchers have speculated about possible reasons. Perhaps, for example, kin selection is at work. Recall from Chapter 3 the evolutionary psychology reminder that many of our genes also reside in our biological relatives. Perhaps, then, gay people’s genes live on through their supporting the survival and reproductive success of their nieces, nephews, and other relatives (who also carry many of the same genes). Or perhaps maternal genetics are at work. A recent Italian study (Camperio-Ciani & others, 2004) confirms what others have found—that homosexual men have more homosexual relatives on their mother’s side than on their father’s. It also finds
that, compared with the maternal relatives of heterosexual men, the maternal relatives of homosexual men produce more offspring. Perhaps, surmised the researchers, genes that convey a reproductive advantage in mothers and aunts somehow influence the sexual orientation of their sons and nephews.

Prenatal Hormones and Sexual Orientation There are elevated rates of homosexual orientation in identical and fraternal twins, which suggests that not just shared genetics but also a shared prenatal environment may be a factor. In animals and some exceptional human cases, abnormal prenatal hormone conditions have altered a fetus' sexual orientation. German researcher Gunter Dorner (1976, 1988) pioneered this research by manipulating a fetal rat's exposure to male hormones, thereby "inverting" its sexual orientation. Similarly, when pregnant sheep are injected with testosterone during a critical period of fetal development, their female offspring will later show homosexual behavior (Money, 1987).

In humans, a critical period for the brain's neural-hormonal control system may exist between the middle of the second and fifth months after conception (Ellis & Ames, 1987; Gladue, 1990; Meyer-Bahlburg, 1995). Exposure to the hormone levels typically experienced by female fetuses during this time appears to predispose the person (whether female or male) to be attracted to males in later life.

Some research reveals that homosexual individuals of both sexes have many traits that are intermediate between heterosexual females and males (Table 12.1). For example, in some (but not all) studies, gay men have had fingerprint patterns rather like those of heterosexual women (Mustanski & others, 2002; Sanders & others, 2002). Most people have more fingerprint ridges on their right hand than on their left. Jeff Hall and Doreen Kimura (1994) first observed that this difference was greater for heterosexual males than for females and gay males. Given that fingerprint ridges are complete by the sixteenth fetal week, the researchers suspected the difference was due to prenatal hormones. Prenatal hormones also are a possible explanation for why data from 20 studies revealed that "homosexual participants had 39 percent greater odds of being non–right-handed" (Lalumière & others, 2000).

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<th>BRAIN DIFFERENCES</th>
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<th>PREGNATAL HORMONAL INFLUENCES</th>
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<td>One hypothalamic cell cluster is larger in straight men than in women and gay men; same difference is found in male sheep displaying other-sex versus same-sex attraction.</td>
<td>Shared sexual orientation is higher among identical twins than among fraternal twins.</td>
<td>Altered prenatal hormone exposure may lead to homosexuality in humans and other animals.</td>
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<td>Anterior commissure is larger in gay men than in women or straight men.</td>
<td>Sexual attraction in fruit flies can be genetically manipulated.</td>
<td>Men with several older brothers are more likely to be gay.</td>
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<td>Gay men's hypothalamus reacts as does a woman's to the smell of sex-related hormones.</td>
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<td>These brain differences and genetic and prenatal influences may contribute to observed gay-straight differences in:</td>
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Table 12.1

BIOLOGICAL CORRELATES OF SEXUAL ORIENTATION

On average (the evidence is strongest for males), various biological and behavioral traits of gays and lesbians fall between those of straight men and straight women. Tentative findings—some in need of replication—include these:

Were it not for delicately balanced combinations of genetic, neurological, hormonal, and environmental factors, largely occurring prior to birth, each and every one of us would be homosexual."

Lee Ellis and M. Ashley Ames (1987)
Lesbians likewise have some male-typical traits. For example, their cochlea and hearing system develop in a way that is intermediate between those of heterosexual females and heterosexual males, and which seems attributable to prenatal hormonal influence (McFadden, 2002).

Another striking illustration of gay-straight differences appears in studies showing that homosexual men’s spatial abilities resemble those typical of heterosexual women (Cohen, 2002; Gladue, 1994; McCormick & Witelson, 1991. Sanders & Wright, 1997). On mental rotation tasks such as the one illustrated in Figure 12.9, for example, heterosexual men tend to outscore women. A study by Qazi Rahman and colleagues (2003) found that, as on a number of other measures, the scores of both homosexual males and females fall between those of heterosexual males and heterosexual females.

Because the physiological evidence is preliminary and controversial, some scientists remain skeptical. Rather than specifying sexual orientation, they suggest, biological factors may predispose a temperament that influences sexuality “in the context of individual learning and experience” (Byne & Parsons, 1993). Daryl Bern (1996, 1998, 2000) has theorized that genes code for prenatal hormones and brain anatomy, which predispose temperaments that lead children to prefer gender-typical or gender-atypical activities and friends. These preferences may later lead children to feel attracted to whichever sex feels different from their own. The dissimilar-seeming sex (whether or not it conforms to one’s own anatomy) becomes associated with anxiety and other forms of arousal, which are eventually transformed into romantic arousal. The exotic becomes erotic.

Regardless of the process, the consistency of the genetic, prenatal, and brain findings has swung the pendulum toward a biological explanation of sexual orientation (Rahman & Wilson, 2003). Nature more than nurture, most psychiatrists now believe, predisposes orientation (Vreeland & others, 1995). This helps explain why sexual orientation is so difficult to change.

Still, some people wonder: Should the cause of sexual orientation matter? Perhaps it shouldn’t, but people’s assumptions matter. Those who believe, as do 40 percent of Americans (up from 13 percent in 1977 [Gallup, 2002]) and most gays and lesbians, that sexual orientation is biologically disposed, express more accepting attitudes toward homosexual people (Allen & others, 1996; Furnham & Taylor, 1990; Kaiser, 2001; Whitley, 1990). Consider:

- Between 1977 and 2002, American Gallup surveys found that support for equal job rights for gays and lesbians rose from 56 to 85 percent, and agreement that “homosexuality should be an acceptable alternative life-style” rose from 34 to 52 percent.
- In Canadian Gallup surveys between 1992 and 2001, support for same-sex marriages nearly doubled—from 24 to 46 percent (Mazzuca, 2002), and will likely rise further, now that Canada has begun allowing same-sex marriage.
- Acceptance is most common among women, among those with a gay or lesbian friend or relative, and among younger adults (Altmeyer, 2001; Herek & Capitanio, 1996; Kaiser, 2001; Kite & Whitley, 1996; Whitley, 2002). In 2001 surveys by the Gallup Organization and by the Kaiser Family Foundation, 60 to 65 percent of 18- to 29-year-olds supported gay/lesbian marriage or legal relationships—double the support expressed by those 65 and older (Carlson, 2002; Kaiser, 2001). Moreover, among entering collegians, support for laws prohibiting homosexual relationships has plummeted since 1987 (Figure 12.10).

These dramatic attitude shifts do not represent a liberalization of all sex-related attitudes. For example, in periodic U.S. national surveys, agreement that extramarital sex is “always wrong” increased from 69.6 percent in 1973 to 79.4 percent in 2000 (NORC, 2002).
To gay and lesbian activists, the new biological research is a double-edged sword (Diamond, 1993). If sexual orientation, like skin color and sex, is genetically influenced, that offers a further rationale for civil rights protection. Moreover, it may alleviate parents’ concerns about their children being unduly influenced by gay teachers and role models. It does, however, raise the troubling possibility that genetic markers of sexual orientation could someday be identified through fetal testing, and a fetus could be aborted simply for being predisposed to an unwanted orientation.

**Sex and Human Values**

**Objective 15** | Discuss the place of values in sex research.

Recognizing that values are both personal and cultural, most sex researchers and educators strive to keep their writings on sexuality value-free.

But can the study of sexual behavior and what motivates it ever be free of values? The very words we use to describe behavior often reflect our personal values, as when sex researchers label sexually restrained individuals as “erotophobic” and as having “high sex guilt.” Whether we label sexual acts we do not practice as “perversions,” “deviations,” or part of an “alternative sexual life-style” depends on our attitude toward the behaviors. Labels describe, but they also evaluate.

Sex education separated from the context of human values may also give some students the idea that sexual intercourse is simply a recreational activity. Diana Baumrind (1982), a University of California child-rearing expert, has observed that an implication that adults are neutral about adolescent sexual activity is unfortunate, because “promiscuous recreational sex poses certain psychological, social, health, and moral problems that must be faced realistically.”

Perhaps we can agree that the knowledge provided by sex research is preferable to ignorance, and yet also agree that researchers’ values should be stated openly, enabling us to debate them and to reflect on our own values. We should remember that scientific research on sexual motivation does not aim to define the personal meaning of sex in our own lives. You could know every available fact about sex—that the initial spasms of male and female orgasm come at 0.8-second intervals, that the female nipples expand 10 millimeters at the peak of sexual arousal, that systolic blood pressure rises some 60 points and the respiration rate to 40 breaths per minute—but fail to understand the human significance of sexual intimacy.

Surely one significance of sexual intimacy is its expression of our profoundly social nature. Sex is a socially significant act. Men and women can achieve orgasm alone, yet most people find greater satisfaction while embracing their loved one. There is a yearning for closeness in sexual motivation. Sex at its human best is life-uniting and love-renewing.

**FIGURE 12.10**

**Changing attitudes**

(Source: Annual UCLA/American Council on Education surveys of some 7 million entering collegians.)

A sharing of love

For most adults, a sexual relationship fulfills not only a biological motive, but a social need for intimacy.
CHAPTER 12: MOTIVATION AND WORK

Learning Outcomes

Sexual Motivation

Objective 9 | Describe the human sexual response cycle, and discuss some causes of sexual disorders.

Masters and Johnson described four stages in the human sexual response cycle: excitement, plateau, orgasm (which seems to involve similar feelings and brain activity in males and females), and resolution. During the resolution phase, males experience a refractory period, when renewed arousal and orgasm are impossible. Sexual disorders (problems that consistently impair sexual arousal or functioning, such as premature ejaculation, female orgasmic disorder, and erectile disorder) are being successfully treated by behaviorally oriented therapy, which assumes that people learn and can modify their sexual responses, or with drug therapy.

Objective 10 | Discuss the impact of hormones on sexual motivation and behavior.

The sex hormones testosterone and estrogen are present in both males and females, but males have a higher level of testosterone and females a higher level of estrogen. These hormones help our bodies develop and function as either male or female. In nonhuman animals, they also help stimulate sexual activity. Assuming a normal level is present, hormones have a looser influence on human sexual behavior, though desire does rise slightly at ovulation among women with mates. Unlike other mammalian females, women's sexuality is more responsive to testosterone level than to estrogen level. Short-term shifts in testosterone level are normal in men.

Objective 11 | Describe the role of external stimuli and fantasies on sexual motivation and behavior.

Erotic material and other external stimuli can trigger sexual arousal in both men and women, although the activated brain areas differ somewhat. Sexually explicit material may lead people to perceive their partners as comparatively less appealing and to devalue their relationships. Sexually coercive material tends to increase viewers' acceptance of rape and violence toward women. In combination with the internal hormonal push and the external pull of sexual stimuli, fantasies (imagined stimuli) influence sexual arousal.

Objective 12 | Discuss some of the forces that influence teen pregnancy and teen attitudes toward contraception.

Adolescents' physical maturation fosters a sexual dimension to their emerging identity, but rates of teen intercourse vary from culture to culture. In the twentieth century, increased teen sexual activity in North America was reflected in increased rates of adolescent pregnancies. Factors contributing to teen pregnancy include ignorance of the potential consequences of sexual activity; guilt related to sexual activity; minimal communication about contraception with parents, partners, and peers; alcohol use; and mass media norms of unprotected promiscuity.

Objective 13 | Describe trends in the spread of sexually transmitted infections.

STIs—sexually transmitted infections, such as the human papilloma virus, AIDS, and others—have spread rapidly. People under the age of 25 account for two-thirds of such infections, and teen girls seem especially vulnerable because of their less mature bodies and lower levels of protective antibodies. Attempts to protect teens through comprehensive sex-education programs include a greater emphasis on teen abstinence. High intelligence, religiosity, father presence, and participation in service learning programs tend to be predictors of teen sexual restraint.

Objective 14 | Summarize current views on the number of people whose sexual orientation is homosexual, and discuss the research on environmental and biological influences on sexual orientation.

Studies indicate that about 3 or 4 percent of men and 1 or 2 percent of women are homosexual, and that sexual orientation is enduring. Research does not support cause-effect links between homosexuality and any of the following: a child's relationships with parents, father-absent homes, fear or hatred of people of the other gender, childhood sexual experiences, peer relationships, or dating experiences. Evidence supporting the likelihood of a biological component of homosexuality is found in studies of same-sex behavior in several hundred species, straight-gay differences in body and brain characteristics, genetic studies of family members and twins, and the effect of exposure to certain hormones during critical periods of prenatal development. The increasing public perception that sexual orientation is biologically influenced is reflected in increasing acceptance of gays and lesbians and their relationships.

Objective 15 | Discuss the place of values in sex research.

Scientific research on sexual motivation does not attempt to define the personal meaning of sex in our lives, but sex research and education are not value-free. Some say that researchers and educators should therefore openly acknowledge their sex-related values, recognizing the emotional significance of sexual expression.

Ask Yourself: What do you think would be an effective strategy for reducing teen pregnancy?
The Need to Belong

OBJECTIVE 16 | Describe the adaptive value of social attachments, and identify both healthy and unhealthy consequences of our need to belong.

Separated from friends or family—isolated in prison, alone at a new school, living in a foreign land—most people feel keenly their lost connections with important others. We are what Aristotle called the social animal. “Without friends,” wrote Aristotle in his Nichomachean Ethics, “no one would choose to live, though he had all other goods.” We have a need to affiliate with others, even to become strongly attached to certain others in enduring, close relationships. Human beings, contended the personality theorist Alfred Adler, have an “urge to community” (Ferguson, 1989). Roy Baumeister and Mark Leary (1995) have assembled evidence for this deep need to belong.

Aiding Survival Social bonds boosted our ancestors’ survival rate. By keeping children close to their caregivers, attachments served as a powerful survival impulse. As adults, those who formed attachments were more likely to come together to reproduce and to stay together to nurture their offspring to maturity. To be “wretched” literally means, in its Middle English origin (wrecche), to be without kin nearby.

Cooperation in groups also enhanced survival. In solo combat, our ancestors were not the toughest predators. But as hunters they learned that six hands were better than two. And as foragers, they gained protection from predators and enemies by traveling in groups. Those who felt a need to belong survived and reproduced most successfully, and their genes now predominate. We are innately social creatures. People in every society on Earth belong to groups (and, as Chapter 18 explains, prefer and favor “us” over “them”).

Wanting to Belong The need to belong colors our thoughts and emotions. We spend a great deal of time thinking about actual and hoped-for relationships. When relationships form, we often feel joy. Falling in mutual love, people have been known to feel their cheeks ache from their irrepressible grins. Asked, “What is necessary for your happiness?” or “What is it that makes your life meaningful?” most people mention—before anything else—close, satisfying relationships with family, friends, or romantic partners (Berscheid, 1985). Happiness hits close to home.

Pause a moment to consider: What was your most satisfying moment in the past week? Kennon Sheldon and his colleagues (2001) asked that question of American and South Korean collegians, then asked them to rate how much this peak experience had satisfied various needs. In both countries, the satisfaction of self-esteem and relatedness—belonging needs were the top two contributors to the peak moment. Another study found that very happy university students are not distinguished by their money but by their “rich and satisfying close relationships” (Diener & Seligman, 2002). The need to belong runs deeper, it seems, than any need to be rich.

South Africans have a word for these human bonds that define us all. Ubuntu (oo-BOON-too), explains Desmond

Separation amplifies the felt need to belong

In the film Cast Away Chuck Noland (played by Tom Hanks) combats social starvation by talking with his girlfriend’s snapshot and a volleyball he named Wilson.
Tutu (1999), expresses the fact that “my humanity is caught up, is inextricably bound up, in yours.” A Zulu maxim captures the idea: *Umuntu ngumuntu ngabantu*—“a person is a person through other persons.”

**Acting to Increase Social Acceptance** When we feel included, accepted, and loved by those important to us, our self-esteem rides high. Indeed, say Mark Leary and his colleagues (1998), self-esteem is a gauge of how valued and accepted we feel. Much of our social behavior therefore aims to increase our belonging—our social acceptance and inclusion. To avoid rejection, we generally conform to group standards and seek to make favorable impressions (more on this in Chapter 18). To win friendship and esteem, we monitor our behavior, hoping to create the right impressions. Seeking love and belonging, we spend billions on clothes, cosmetics, and diet and fitness aids—all motivated by our quest for acceptance.

Like sexual motivation, which feeds both love and exploitation, the need to belong feeds both deep attachments and menacing threats. Out of our need to define a “we” come loving families, faithful friendships, and team spirit, but also teen gangs, ethnic rivalries, and fanatic nationalism.

**Maintaining Relationships** For most of us, familiarity breeds liking, not contempt. We resist breaking social bonds. Thrown together at school, at summer camp, on a vacation cruise, people resist the group’s dissolution. Hoping to maintain our relationships, we promise to call, to write, to come back for reunions. Parting, we feel distress. Attachments can even keep people in abusive relationships if the fear of being alone seems worse than the pain of emotional or physical abuse. Even when bad relationships break, people suffer. In one 16-nation survey, separated and divorced people were only half as likely as married people to say they were “very happy” (Inglehart, 1990). After such separations, feelings of loneliness and anger—and sometimes even a strange desire to be near the former partner—are commonplace.

The fear of being alone has some basis in reality. Children who move through a series of foster homes, with repeated disruption of budding attachments, may come to have difficulty forming deep attachments. And children reared in institutions without a sense of belonging to anyone, or locked away at home under extreme neglect, become pathetic creatures—withdrawn, frightened, speechless.

When something threatens or dissolves our social ties, negative emotions—anxiety, loneliness, jealousy, guilt—overwhelm us. The bereaved often feel life is empty, pointless. Even the first weeks living on a college campus away from home can be disheartening. For immigrants and refugees who move alone to new places, the stress and loneliness can be depressing. But if feelings of acceptance and connection build, so do self-esteem, positive feelings, and desires to help rather than hurt others (Buckley & Leary, 2001). After years of placing individual refugee and immigrant families in isolated communities, U.S. policies today encourage *chain migration* (Pipher, 2002). The second refugee Sudanese family settling in a town generally has an easier adjustment than the first.

**The Pain of Ostracism** Sometimes, though, the need to belong is denied. Perhaps you can recall such a time, when you felt excluded or ignored or shunned. Perhaps you received the silent treatment. Perhaps others avoided you, or averted their eyes in your presence, or even mocked you behind your back.
Social psychologist Kipling Williams (2002) and his colleagues have studied such experiences of ostracism—of social exclusion—in both natural and laboratory settings. Worldwide, humans use ostracism to control social behavior, with punishing effects. For children, even a brief time-out in isolation can be punishing. For adults, ostracism can be even more painful. Exile, imprisonment, and solitary confinement are progressively more severe forms of punishment. Even to be shunned—given the cold shoulder or the silent treatment, with others’ eyes avoiding yours—is to have one’s need to belong threatened, observe Kipling Williams and Lisa Zadro (2001). “It’s the meanest thing you can do to someone, especially if you know they can’t fight back. I never should have been born,” said Lea, a lifelong victim of the silent treatment by her mother and grandmother. Like Lea, people often respond to social ostracism with depressed moods, initial efforts to restore their acceptance, and then withdrawal. “I came home every night and cried. I lost 25 pounds, had no self-esteem and felt that I wasn’t worthy,” reported Richard, after two years of silent treatment by his employer.

Williams and his colleagues were surprised to discover a toll even from “cyber-ostracism” by strangers. (Perhaps you can recall the feeling from being ignored in a chat room or having an e-mail go unanswered.) Such ostracism, they discovered, elicits increased activity in a brain area, the anterior cingulate cortex, that also activates in response to physical pain (Eisenberger & others, 2003). Psychologically, too, we experience social pain with the same emotional unpleasantness that marks physical pain (MacDonald & Leary, 2005). To experience ostracism is to experience real pain. And pain, whatever its source, focuses our attention and motivates corrective action.

If rejected and unable to remedy the situation, people sometimes turn nasty. In a series of studies, Jean Twenge and her collaborators (2001, 2002; Baumeister & others, 2002) either told people (based on a personality test) that they were “the type likely to end up alone later in life” or that others whom they had met didn’t want them in a group that was forming. The researchers told other participants that they would have “rewarding relationships throughout life” or that “everyone chose you as someone they’d like to work with.” Those excluded became much more likely to engage in self-defeating behaviors and underperform on aptitude tests. They also exhibited more antisocial behavior, such as disparaging or aggressing against (with a blast of noise) those who had insulted them. “If intelligent, well-adjusted, successful university students can turn aggressive in response to a small laboratory experience of social exclusion,” noted the research team, “it is disturbing to imagine the aggressive tendencies that might arise from a series of important rejections or chronic exclusion from desired groups in actual social life.”

**Fortifying Health** Do you have close friends—people with whom you freely disclose your ups and downs? As we shall see in Chapter 13, people who have close friends tend to be happier. As we shall see in Chapter 14, people who feel supported by close relationships also live with better health and at lower risk for psychological disorder and premature death than do those who lack social support. Married people, for example, are less at risk for depression, suicide, and early death than are unmarried people. All this evidence affirms Baumeister and Leary’s (1995) contention that “human beings are fundamentally and pervasively motivated by a need to belong.”
Learning Outcomes

The Need to Belong

OBJECTIVE 16 | Describe the adaptive value of social attachments, and identify both healthy and unhealthy consequences of our need to belong.

Our need to affiliate—to feel connected and identified with others—boosted our ancestors’ chances for survival, which may explain why humans in every society live in groups. The need to belong appears when people seek social acceptance, work to maintain relationships (or mourn their loss), and feel the joy of love (or the gloom of loneliness). Ostracized—excluded or shunned by others—people suffer from stress and depression—a real pain that increases activity in the same brain areas that respond to physical pain. When socially secure in their friendships, families, or marriages, people tend to be healthier and to have lower levels of depression, suicide, and early death. When socially excluded, they may engage in self-defeating behaviors (performing below their ability) or in antisocial behaviors.

ASK YOURSELF: Have there been times when you felt “out of the loop” with family and friends, or even ostracized by them? How did you respond?

Motivation at Work

OBJECTIVE 17 | Discuss the importance of flow, and identify the three subfields of industrial-organizational psychology.

The healthy life, said Sigmund Freud, is filled by love and by work. For most of us, work is life’s biggest single waking activity. To live is to work. Work helps satisfy several levels of need identified in Maslow’s pyramid of needs. Work supports us. Work connects us. Work defines us. Meeting someone for the first time, and wondering “Who are you?” we may ask, “So, what do you do?”

If we feel dissatisfied with our work-related pay, relationships, or identity, we may change where or for whom we work, as 16 percent of Australians did in just the year 2000 (Trewin, 2001). Most people therefore have neither a single vocation nor a predictable career path. Two decades from now, most of you reading this book will be doing work you cannot now imagine. To prepare you and others for this unknown future, many colleges and universities focus less on training your job skills and more on enlarging your capacities for understanding, thinking, and communicating in any work environment.

Amy Wrzensniewski and her colleagues (1997, 2001) have identified person-to-person variations in people’s attitudes toward their work. Across various occupations, some people view their work as a job, a necessary way to make money but not a positive and fulfilling activity. Others view their work as a career, an opportunity to advance from one position to a better position. The rest—those who view their work as a calling, a fulfilling and socially useful activity—report the highest satisfaction with their work and their lives.

This finding would not surprise Mihaly Csikszentmihalyi (1990, 1999), who has observed that people’s quality of life increases when they are purposefully engaged. Between the anxiety of being overwhelmed and stressed, and the apathy of being underwhelmed and bored, lies a zone in which people experience flow. Csikszentmihalyi (chick-SENT-me-hi) formulated the flow concept after studying artists who spent hour after hour painting or sculpting with enormous concentration. Immersed in a project, they worked as if nothing else mattered, and then promptly forgot about it once they finished. The artists seemed driven less by the external re-

Sometimes, notes Gene Weingarten (2002), a humor writer knows “when to just get out of the way.” Here are some sample job titles from the U.S. Department of Labor Dictionary of Occupational Titles: Animal impersonator, human projectile, banana ripening-room supervisor, impregnator, impregnator helper, dope sprayer, finger waver, rug scratcher, egg smeller, bottom buffer, coo¢de breaker, brain picker, hand pouncer, bosom presser, mother repairer, and breaker repairer.
wards of producing art—money, praise, promotion—than by the intrinsic rewards of creating the work. Recognizing that e-mail and other Internet-related distractions can disrupt such flow, Microsoft is developing an attentional user interface that aims to “detect when users are available for communication, or when the user is in a state of flow” (Ullman, 2005).

Csikszentmihalyi’s later observations—of dancers, chess players, surgeons, writers, parents, mountain climbers, sailors, and farmers; of Australians, North Americans, Koreans, Japanese, and Italians; of people from their teens to their golden years—confirmed an overriding principle: It’s exhilarating to flow with an activity that fully engages our skills. Flow experiences boost our sense of self-esteem, competence, and well-being. When the researchers beeped people at random intervals and asked them to report what they were doing and how much they were enjoying themselves, those who were vegetating usually reported little sense of flow and little satisfaction. People reported more positive feelings when interrupted while doing something active, something that engaged their skills, be it play or work. And other research (Inglehart, 1990) indicates that in almost every industrialized nation, people have reported markedly lower well-being if unemployed (FIGURE 12.11). Idleness may sound like bliss, but purposeful work enriches our lives.

In industrialized nations, work has been changing, from farming to manufacturing to “knowledge work.” More and more work is outsourced to temporary employees and consultants who communicate electronically from virtual workplaces in remote locations. (This book and its teaching package are developed and produced by a team of people in a dozen cities, from Alaska to Florida.) As work changes, will our attitudes toward our work also change? Will our satisfaction with work increase or decrease? Will the psychological contract—the subjective sense of mutual obligations between workers and employers—become more or less trusting and secure? These are among the questions that fascinate psychologists who study work-related behavior.

**Industrial-organizational (I/O) psychology** is a fast-growing profession that applies psychology’s principles to the workplace (see Close-Up: I/O Psychology at Work, page 500). In Chapter 6, we encountered one of its subfields: human factors psychology, which explores how machines and environments can be optimally designed to fit human abilities. Here we consider two other subfields: personnel psychology, which applies psychology’s methods and principles to selecting and evaluating workers, and organizational psychology, which considers how work environments and management styles influence worker motivation, satisfaction, and productivity. Personnel psychologists match people with jobs, by identifying and placing well-suited candidates. Organizational psychologists modify jobs and supervision in ways that boost morale and productivity.

![FIGURE 12.11](image)

**The bane of unemployment**

To want work but not have it is to feel less satisfied with life. Data from 169,776 adults in 16 nations (Inglehart, 1990).
CLOSE-UP:

I/O Psychology at Work

As scientists, consultants, and management professionals, industrial-organizational psychologists are found working in varied areas:

**Personnel Psychology**
- Selecting and placing employees
  - Developing and validating assessment tools for selecting, placing and promoting workers
  - Analyzing job content
  - Optimizing worker placement
- Training and developing employees
  - Identifying needs
- Designing training programs
- Evaluating training programs

**Appraising performance**
- Developing criteria
- Measuring individual performance
- Measuring organizational performance

**Organizational Psychology**
- Developing organizations
  - Analyzing organizational structures
  - Maximizing worker satisfaction and productivity
  - Facilitating organizational change
- Enhancing quality of worklife
  - Expanding individual productivity
  - Identifying elements of satisfaction
  - Redesigning jobs

**Human Factors (Engineering) Psychology**
- Designing optimum work environments
- Optimizing person-machine interactions
- Developing systems technologies

Objectives

**18** | Describe how personnel psychologists help organizations with employee selection, work placement, and performance appraisal.

Artistic strengths

At age 21, Henri Matisse was a sickly and often depressed lawyer's clerk. When his mother gave him a box of paints to cheer him up one day, he felt the darkness lift and his energy surge. He began to fill his days with painting and drawing and went on to art school and a life as one of the world's great painters. For Matisse, doing art felt like "a comfortable armchair." That is how exercising our strengths often feels.

Personnel Psychology

Psychologists can assist organizations at various stages of selecting and assessing employees. They may help identify needed job skills, decide upon selection methods, recruit and evaluate applicants, introduce and train new employees, and appraise their performance.

Harnessing Strengths

As a new AT&T human resource executive, psychologist Mary Tenopyr (1997) was assigned to solve a problem: Customer service representatives were failing at a high rate. After concluding that many of the hires were ill-matched to the demands of their new job, Tenopyr developed a new selection instrument:

1. She asked new applicants to respond to various questions (without as yet making any use of their responses).
2. She followed up later to assess which of the applicants excelled on the job.
3. She identified the individual items on the earlier test that best predicted who would succeed.

The happy result of her data-driven work was a new test that enabled AT&T to identify likely-to-succeed customer representatives.

As this illustrates, personnel selection aims to match people's strengths with work that enables them and their organizations to flourish. Marry the strengths of people with the tasks of organizations and the result is often prosperity and profit.

CLOSE-UP:

**Discovering Your Strengths**

You can use some of the techniques personnel psychologists have developed to identify your own strengths and pinpoint types of work that will likely prove satisfying and successful. Buckingham and Clifton (2001) have suggested asking yourself:

- **What activities give me pleasure?** (Bringing order out of chaos? Playing host? Helping others? Challenging sloppy thinking?)
- **What activities leave me wondering, “When can I do this again?”** (Rather than “When will this be over?”)
- **What sort of challenges do I relish?** (And which do I dread?)
- **What sorts of tasks do I learn easily?** (And which do I struggle with?)

Some people find themselves in flow—their skills engaged and time flying—when teaching or selling or writing or cleaning or consoling or creating or repairing. If an activity feels good, if it comes easily, if you look forward to it, then look deeper and see your strengths at work.

Satisfied and successful people devote far less time to correcting their deficiencies than to accentuating their strengths. Top performers are “rarely well rounded,” Buckingham and Clifton found (p. 26). Instead, they have sharpened their existing skills.

Given the persistence of our traits and temperaments, we should focus not on our deficiencies, but rather on identifying and employing our talents. Better to recognize the activities we quickly learn and become absorbed in—and to further develop those strengths—than to sign up for assertiveness training if shy, for public speaking courses if nervous and soft-spoken, or for drawing classes if we express our artistic side in stick figures.

As Robert Louise Stevenson said in *Of Men and Books* (1882), “To be what we are, and to become what we are capable of becoming, is the only end of life.”

Marcus Buckingham and Donald Clifton (2001) argued that the first step to a stronger organization is instituting a strengths-based selection system. Thus, as a manager, you would first identify a group of the most effective people in any role—the ones you would want to hire more of—and compare their strengths with those of a group of the least effective people in that role. In defining these groups, you would try to measure performance as objectively as possible. In one Gallup study of more than 5000 telecommunications customer-service representatives, those evaluated most favorably by their managers were strong in “harmony” and “responsibility,” while those actually rated most effective by customers were strong in energy, assertiveness, and eagerness to learn. So, for example, if you needed to hire new people in software development, and you had discovered that your best software developers are analytical, disciplined, and eager to learn, you would focus employment ads less on experience than on the identified strengths: “Do you take a logical and systematic approach to problem solving [analytical]? Are you a perfectionist who strives for timely completion of your projects [disciplined]? Do you want to learn to use Java, C++, and PHP [eager to learn]? If you can say yes to these questions, then please call. . . .”

Identifying people’s strengths and matching strengths to work is a first step toward workplace effectiveness. Personnel managers use various tools to assess applicants’ strengths and decide who is best-suited to the job. In Chapter 11, we saw how psychologists assess candidates using ability tests. And in Chapter 15, we will explore personality tests and “assessment centers” that enable observations of behaviors on simulated job tasks. For now, let’s consider the job interview.

**Do Interviews Predict Performance?** Interviewers tend to feel confident in their ability to predict long-term job performance from an unstructured, get-acquainted interview. What’s therefore shocking is how error-prone those predictions are. Whether predicting job or graduate school success, interviewers’ judgments are weak predictors. From their review of 85 years of personnel-selection research, I/O psychologists Frank Schmidt and John Hunter (1998; Schmidt, 2002) determined that for all but less-skilled jobs, general mental ability best predicts on-the-job performance. Subjective
Between the idea and reality . . . falls the shadow.

T. S. Eliot, *The Hollow Men*, 1925

overall evaluations from informal interviews are more useful than handwriting analysis (which is worthless). But informal interviews are less informative than aptitude tests, work samples, job knowledge tests, and past job performance. If there’s a contest between what our gut tells us about someone and what test scores, work samples, and past performance tell us, we should distrust our gut.

**The Interviewer Illusion**  Interviewers often overrate their discernment, a phenomenon psychologist Richard Nisbett (1987) has labeled the interviewer illusion. “I have excellent interviewing skills, and so don’t need reference checking as much as someone who doesn’t have my ability to read people,” is a comment sometimes heard by I/O consultants. Four factors explain this gap between interviewers’ intuition and the resulting reality:

- **Interviews disclose the interviewee’s good intentions, which are less revealing than habitual behaviors** (Ouellette & Wood, 1998). Intentions matter. People can change. But the best predictor of the person we will be is the person we have been. Wherever we go, we take ourselves along.

- **Interviewers more often follow the successful careers of those they have hired than the successful careers of those they have rejected and lost track of.** This missing feedback prevents interviewers from getting a reality check on their hiring ability.

- **Interviewers presume that people are what they seem to be in the interview situation.** As Chapter 18 explains, we discount the enormous influence of varying situations and mistakenly presume, when meeting others, that what we see is what we will get. But mountains of research on everything from chattiness to conscientiousness reveals that how we behave reflects not only our enduring traits, but the details of the particular situation (wanting to impress in a job interview).

- **Interviewers’ preconceptions and moods color how they perceive interviewees’ responses** (Cable & Gilovich, 1998; Macan & Dipboye, 1994). If interviewers instantly like a person who perhaps is similar to themselves, they may interpret the person’s assertiveness as indicating “confidence” rather than “arrogance.” If told certain applicants have been prescreened, interviewers are disposed to judge them more favorably.

An unstructured interview does provide a sense of someone’s personality—their expressiveness, warmth, and verbal ability, for example. But this information reveals less about the person’s behavior toward others in different situations than most people suppose. Hoping to improve prediction and selection, personnel psychologists have put people in simulated work situations (see pages 629–630), scoured sources for information on past performance, aggregated evaluations from multiple interviews, administered tests, and developed job-specific interviews.

**Structured Interviews**  Unlike casual conversation aimed at getting a feel for someone, *structured interviews* offer a disciplined method of collecting information. A personnel psychologist may analyze a job, script questions, and train interviewers. The interviewers then put the same questions, in the same order, to all applicants, and rate each applicant on established scales.

In an unstructured interview, someone might ask, “How organized are you?” “How well do you get along with people?” or “How do you handle stress?” Street-smart applicants know how to score high: “Although I sometimes drive myself too hard, I handle stress by prioritizing and delegating, and by making sure I leave time for sleep and exercise.”

By contrast, structured interviews pinpoint strengths (attitudes, behaviors, knowledge, and skills) that distinguish high performers in a particular line of work. The process includes specifying job-specific situations and asking candidates to explain how they would handle them, and how they handled similar situations in their prior employment. “Tell me about a time when you were caught between conflicting demands, without time to accomplish both. How did you handle that?”
To reduce memory distortions and bias, the interviewer takes notes and makes ratings as the interview proceeds and avoids irrelevant and follow-up questions. The structured interview therefore feels less warm, but that can be explained to the applicant: "This conversation won't typify how we relate to each other in this organization."

A review of 150 findings revealed that structured interviews had double the predictive accuracy of unstructured seat-of-the-pants interviews (Schmidt & Hunter, 1998; Wiesner & Cronshaw, 1988). Thanks partly to its greater reliability and partly to its job-analysis focus, the predictive power of one structured interview is roughly equal to that of the average judgment from three or four unstructured interviews (Huffcutt & others, 2001; Schmidt & Zimmerman, 2004).

If, instead, we let our intuitions bias the hiring process, notes Malcolm Gladwell (2000), then “all we will have done is replace the old-boy network, where you hired your nephew, with the new-boy network, where you hire whoever impressed you most when you shook his hand. Social progress, unless we’re careful, can merely be the means by which we replace the obviously arbitrary with the not so obviously arbitrary.”

To recap, personnel psychologists assist organizations in analyzing jobs, recruiting well-suited applicants, selecting and placing employees, and appraising their performance (FIGURE 12.12)—the topic we turn to next.

**Appraising Performance**

Performance appraisal serves organizational purposes: It helps decide who to retain, how to appropriately reward and pay people, and how to better harness employee strengths, sometimes with job shifts or promotions. Performance appraisal also serves individual purposes: Feedback affirms workers’ strengths and helps motivate needed improvements.

Performance appraisal methods include:
- **checklists** on which supervisors simply check behaviors that describe the worker (“always attends to customers’ needs,” “takes long breaks”).
- **graphic rating scales** on which a supervisor checks the extent to which a worker is dependable, productive, and so forth.
- **behavior rating scales** on which a supervisor checks behaviors that best describe a worker’s performance. If rating the extent to which a worker “follows procedures,” the supervisor might mark the employee somewhere between “often takes shortcuts” and “always follows established procedures” (Levy, 2003).

In some organizations, performance feedback comes not only from supervisors but also from all organizational levels. If you join an organization that practices 360-degree feedback (FIGURE 12.13) you will rate yourself, your manager, and your other colleagues, and you will be rated by your manager, other colleagues, and customers (Green, 2002). The net result is often more open communication and more complete appraisal.
achievement motivation: a desire for significant accomplishment: for mastery of things, people, or ideas; for attaining a high standard.

Performance appraisal, like other social judgments, is vulnerable to bias (Murphy & Cleveland, 1995). Halo errors occur when one's overall evaluation of an employee, or of a trait such as their friendliness, biases ratings of their specific work-related behaviors, such as their reliability. Leniency and severity errors reflect evaluators' tendencies to be either too easy or too harsh on everyone. Recency errors occur when raters focus only on easily remembered recent behavior. By encouraging multiple raters and developing objective, job-relevant performance measures, personnel psychologists seek to support their organizations while also helping employees perceive the appraisal process as fair.

Organizational Psychology: Motivating Achievement

Objective 19 | Define achievement motivation, and explain why organizations would employ an I/O psychologist to help motivate employees and foster employee satisfaction.

The appraisal of work and the matching of talents to work matter, but so does overall motivation. Before considering how organizational psychologists assist with efforts to motivate employees and keep them engaged, let's take a closer look at why any employee might want to pursue high standards or difficult goals.

Think of someone you know who strives to succeed by excelling at any task where evaluation is possible. Now think of someone who is less driven. Psychologist Henry Murray (1938) defined the first person's achievement motivation as a desire for significant accomplishment, for mastering skills or ideas, for control, and for rapidly attaining a high standard.

As you might expect from their persistence and eagerness for realistic challenges, people with high achievement motivation do achieve more. One study followed the lives of 1528 California children whose intelligence test scores were in the top 1 percent. Forty years later, when researchers compared those who were most and least successful professionally, they found a motivational difference. Those most successful were more ambitious, energetic, and persistent. As children, they had more active hobbies. As adults, they participated in more groups and favored being a sports participant to being a spectator (Goleman, 1980). In other studies of both secondary school and university students, self-discipline has been a better predictor of school performance, attendance, and graduation honors than intelligence scores have been. "Discipline outdoes talent," concluded researchers Angela Duckworth and Martin Seligman (2005). By their early twenties, for example, top violinists have accumulated some 10,000 lifetime practice hours—double the practice time of other violin students aiming to be teachers (Ericsson & others, 1993, 2001). From his studies, Herbert Simon (1998), a psychologist who won the Nobel prize for economics, estimates that world-class experts in a field typically have invested "at least 10 years of hard work—say, 40 hours a week for 50 weeks a year."

Similarly, a study of outstanding scholars, athletes, and artists found that all were highly motivated and self-disciplined, willing to dedicate hours every day to the pursuit of their goals (Bloom, 1985). These superstar achievers were distinguished not so much by their extraordinary natural talent as by their extraordinary daily discipline. Great achievement, it seems, mixes a teaspoon of inspiration with a gallon of perspiration.

What distinguishes extremely successful individuals from their equally talented peers, note Duckworth and Seligman, is grit—passionate dedication to an ambitious, long-term goal. Although intelligence is distributed like a bell curve, achievements are not. That tells us that achievement involves much more than raw ability. And that is why organizational psychologists seek ways to engage and motivate ordinary people doing ordinary jobs.

Disciplined motivation feeds achievement

Aware that he was far behind other students when beginning his graduate education in psychology, B. F. Skinner devised a daily discipline of rising at 6:00 A.M., studying until breakfast, then going to classes, labs, and the library. After dinner he studied some more, leaving no more than 15 unscheduled minutes each day, and later continued a disciplined daily routine as he became one of the twentieth century's most influential psychologists.
Satisfaction and Engagement

Because work is such a big part of life, employee satisfaction is a priority concern for I/O psychologists. Satisfaction with work feeds satisfaction with life (see Close-Up: Doing Well While Doing Good, page 506). Moreover, decreased job stress feeds improved health (Chapter 14).

Does employee satisfaction also contribute to successful organizations? Positive moods at work do contribute to creativity, persistence, and helpfulness (Brief & Weiss, 2002). But are engaged, happy workers also less often absent? Less likely to quit? Less prone to theft? More punctual? More productive? Conclusive evidence of satisfaction's benefits is, some have said, the holy grail of I/O psychology. Statistical digests of prior research have found a modest positive correlation between individual job satisfaction and performance (Judge & others, 2001; Parker & others, 2003). In one recent analysis of 4500 employees at 42 British manufacturing companies, the most productive workers tended to be those in satisfying work environments (Patterson & others, 2004).

In the United States, the Fortune "100 Best Companies to Work For" have also produced markedly higher than average returns for their investors (Fulmer & others, 2003). Other positive data come from the biggest-ever study, a recent analysis of Gallup data from more than 198,000 employees (Table 12.2) in nearly 8000 business units of 36 large companies (including some 1100 bank branches, 1200 stores, and 4200 teams or departments). James Harter, Frank Schmidt, and Theodore Hayes (2002) explored correlations between various measures of organizational success and employee engagement—the extent of workers' involvement, satisfaction, and enthusiasm. They found that engaged workers know what's expected

TABLE 12.2

THE GALLUP WORKPLACE AUDIT

Overall satisfaction—On a 5-point scale, where 5 is extremely satisfied and 1 is extremely dissatisfied, how satisfied are you with (name of company) as a place to work? 

On a scale of 1 to 5, where 1 is strongly disagree and 5 is strongly agree, please indicate your agreement with the following items.

1. I know what is expected from me at work.
2. I have the materials and equipment I need to do my work right.
3. At work, I have the opportunity to do what I do best every day.
4. In the last seven days, I have received recognition or praise for doing good work.
5. My supervisor, or someone at work, seems to care about me as a person.
6. There is someone at work who encourages my development.
7. At work, my opinions seem to count.
8. The mission/purpose of my company makes me feel my job is important.
9. My associates (fellow employees) are committed to doing quality work.
10. I have a best friend at work.
11. In the last six months, someone at work has talked to me about my progress.
12. This last year, I have had opportunities at work to learn and grow.

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Engaged employees facilitate organizational success

Best Buy's 400 electronic goods stores have nearly identical product layout and operations manuals. Yet some stores have much more engaged employees—and more profitable performance. The store with the highest worker-engagement scores is in the top tenth of stores in having profits beyond budget. And the store with the least-engaged employees is in the bottom tenth (Buckingham, 2001).
CLOSE-UP:

**Doing Well While Doing Good:**  
**"The Great Experiment"**

At the end of the 1700s, the more than 1000 workers in the cotton mill at New Lanark, Scotland—many of them children drawn from Glasgow's poorhouses—worked 13-hour days and lived in grim conditions, with education and sanitation neglected, theft and drunkenness commonplace, and most families occupying just one room.

On a visit to Glasgow, Welsh-born Robert Owen—an idealistic young cotton-mill manager—chanced to meet and fall in love with the mill owner's daughter. After their marriage, Owen, with several partners, purchased the mill and on the first day of the 1800s took control as its manager. Before long, he began what he said was "the most important experiment for the happiness of the human race that had yet been instituted at any time in any part of the world" (Owen, 1814). The exploitation of child and adult labor was, he observed, producing unhappy and inefficient workers. Believing that better working and living conditions could pay economic dividends, he undertook (with some resistance from his partners, whom he ultimately bought out) numerous innovations: a nursery for preschool children, education (with encouragement rather than corporal punishment), Sundays off, health care, paid sick days, unemployment pay for days when the mill could not operate, and a company store selling goods at reduced prices.

Owen also innovated a goals and worker-assessment program that included detailed records of daily productivity and costs. By each employee's workstation, one of four colored boards indicated that person's performance for the previous day. Owen could walk through the mill and at a glance see how individuals were performing. There was, he said, "no beating, no abusive language... I merely looked at the person and then at the color... I could at once see by the expression [which color] was shown."

The commercial success that followed was essential to sustaining what became a movement toward humanitarian reforms. By 1816, with decades of profitability still ahead, Owen believed he had demonstrated "that society may be formed so as to exist without crime, without poverty, with health greatly improved, with little if any misery, and with intelligence and happiness increased a hundredfold." Although his Utopian vision has not been fulfilled, Owen's great experiment did lay the groundwork for employment practices that have today become accepted in much of the world.

Three types of employees (Crabtree, 2005):

**Engaged**: working with passion and feeling a profound connection to their company or organization.

**Not-engaged**: putting in the time, but investing little passion or energy into their work.

**Actively disengaged**: unhappy workers undermining what their colleagues accomplish.

of them, have what they need to do their work, feel fulfilled in their work, have regular opportunities to do what they do best, perceive that they are part of something significant, and have opportunities to learn and develop. They also found that business units with engaged employees have more loyal customers, less turnover, higher productivity, and greater profits: "Business units above the median on employee engagement had a 70 percent higher success rate than those below the median." Business units in the top quarter on employee engagement averaged about $100,000 more in monthly revenue. A separate analysis for a company with 275 retail stores found that annual turnover was 55 percent among stores whose employee engagement was in the top quarter, and 75 percent among stores with employees in the bottom quarter (Harter, 2000).
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Managing Well

OBJECTIVE 20 | Describe some effective management techniques.

Every leader dreams of managing in ways that enhance people’s satisfaction, engagement, and productivity and their organization’s success. Effective leaders harness job-relevant strengths, set goals, and choose an appropriate leadership style.

Harnessing Job-Relevant Strengths  “The major challenge for CEOs over the next 20 years will be the effective deployment of human assets,” observes Marcus Buckingham (2001). That challenge is “about psychology. It’s about getting [individuals] to be more productive, more focused, more fulfilled than [they were] yesterday.” To do so, he and others maintain, effective leaders want first to select the right people. Then, they aim to discern their employees’ natural talents, adjust their work roles to suit their talents, and develop those talents into great strengths (FIGURE 12.14). For example, should every college professor at a given school be expected to teach the same load, advise the same number of students, serve on the same number of committees, and engage in the same amount of research? Or should each job description be tailored to harness a specific person’s unique strengths?

Managers who excel spend less time trying to instill talents that are not there and more time developing and drawing out what is there. Kenneth Tucker (2002) notes that great managers
• start by helping people identify and measure their talents.
• match tasks to talents and then give people freedom to do what they do best.
• care how their people feel about their work.
• reinforce positive behaviors through recognition and reward.

Thus, rather than focusing on weaknesses and packing people off to training seminars to fix those problems, good managers focus training time on educating people about their strengths and building upon them (which means not promoting people into roles ill-suited to their strengths).

Celebrating engaged and productive employees in every organizational role builds upon a basic principle of operant conditioning (Chapter 8): To teach a behavior, catch a person doing something right and reinforce it. These principles also apply to reinforcing employees. It sounds simple, but many managers are like parents who,
when a child returns home with perfect scores, except for that one troublesome biology class, focus on the biology score and ignore the rest. “Sixty-five percent of Americans received no praise or recognition in the workplace last year,” reported the Gallup Organization (2004).

**Setting Specific, Challenging Goals** In study after study, people merely asked to do their best do not do so. But more specific, challenging goals do motivate higher achievement, especially when combined with progress reports (Locke & Latham, 2002). Specific, measurable objectives, such as “finish gathering information for the history paper by Friday,” serve to direct attention, promote effort, motivate persistence, and stimulate creative strategies. When people share in setting a goal and find the goal challenging yet attainable, reaching it boosts their self-evaluation (White & others, 1995). Moreover, when people state not only goals but also implementation intentions—action plans that specify when, where, and how they will march toward achieving those goals—they become more focused in their work and on-time completion becomes more likely (Burgess & others, 2004; Koestner & others, 2002; Koole & Spijker, 2000). (Before beginning each new edition of this book, my editor, my associates, and I manage by objectives—we agree on target dates for the completion of each chapter draft.) So, to motivate high productivity, effective leaders work with people to define explicit goals, elicit commitments to implementation plans, and provide feedback on progress.

**Choosing an Appropriate Leadership Style** Leadership varies from a boss-focused directive style to a democratic style that empowers workers in setting goals and strategies. Which works best may depend on the situation and the leader. The best leadership style for leading a discussion may not be the best style for leading troops on a charge (Fiedler, 1981). Moreover, different leaders are suited to different styles. Some excel at **task leadership**—setting standards, organizing work, and focusing attention on goals. Being goal-oriented, task leaders are good at keeping a group centered on its mission. Typically, they have a directive style, which can work well if the leader is bright enough to give good orders (Fiedler, 1987).

Other managers excel at **social leadership**—mediating conflicts and building high-achieving teams (Evans & Dion, 1991). Social leaders often have a democratic style: They delegate authority and welcome the participation of team members. Many experiments show that social leadership is good for morale. Subordinates usually feel more satisfied and motivated when they can participate in decision making (Burger, 1987; Spector, 1986).
Because effective leadership styles vary with the situation and the person, the once-popular great person theory of leadership—that all great leaders share certain traits—now seems overstated. But a leader’s personality does matter. Effective leaders of laboratory groups, work teams, and large corporations tend to exude a self-confident charisma (House & Singh, 1987; Shamir & others, 1993). Their charisma is a mix of a vision of some goal, an ability to communicate it clearly and simply, and enough optimism and faith in their group to inspire others to follow. In one study of 50 Dutch companies, the highest morale was at those firms with chief executives who most inspired their colleagues “to transcend their own self-interests for the sake of the collective” (de Hoogh & others, 2004). Leadership of this kind—transformational leadership—motivates others to identify with and commit themselves to the group’s mission. Transformational leaders, many of whom are natural extraverts, articulate high standards, inspire people to share their vision, and offer personal attention (Bono & Judge, 2004). The frequent result is more engaged, trusting, and effective workers (Turner & others, 2002).

Peter Smith and Monir Tayeb (1989) compiled data from studies in India, Taiwan, and Iran indicating that effective managers—whether in coal mines, banks, or government offices—often exhibit a high degree of both task and social leadership. As achievement-minded people, effective managers certainly care about how well work is done, yet at the same time they are sensitive to their subordinates’ needs. In one national survey of American workers, those in family-friendly organizations offering flexible-time hours reported feeling greater loyalty to their employers (Roehling & others, 2001).

Many successful businesses have also increased employee participation in making decisions, a management style common in Sweden and Japan and increasingly elsewhere (Naylor, 1990; Sundstrom & others, 1990). Although managers often think better of work they have directly supervised, studies reveal a voice effect: If given a chance to voice their opinion during a decision-making process, people will respond more positively to the decision (van den Bos & Spruijt, 2002). And as we noted earlier, positive engaged employees are a mark of thriving organizations.

The rags-to-riches Harley-Davidson story illustrates the potential of inviting workers to participate in decision making (Teerlink & Ozley, 2000). In 1987, the struggling company began transforming its command-and-control management process to a joint-vision process. The aim: “To push decision-making, planning, and strategizing from a handful of people at the top, down throughout the organization. We wanted...
all the employees to think every day about how to improve the company," reported CEO Jeffrey Bleustein (2002). In the mid-1990s, Harley signed a cooperative agreement with its unions that included them “in decision-making in virtually every aspect of the business.” Consensus decision-making can take longer, but “when the decision is made, it gets implemented quickly and the commitment is by the group,” says Bleustein. The result has been more engaged workers and also more satisfied stockholders. Every $1 of Harley-Davidson stock purchased at the beginning of 1988 was worth $125 by mid-2005.

In this chapter we have seen that identifiable physiological mechanisms drive some motives, such as hunger (though learned tastes and cultural expectations matter, too). Other motives, such as achievement at work, are more obviously driven by psychological factors, such as an intrinsic quest for mastery and the external rewards of recognition. What unifies all motives is their common effect: the energizing and directing of behavior.

Learning Outcomes

Motivation at Work

**Objective 17** | Discuss the importance of flow, and identify the three subfields of industrial-organizational psychology.
People may view their work as a job, a career, or a calling. Those in the last group report the highest satisfaction—a feeling consistent with flow, the involved focused state of consciousness in which we have a diminished awareness of ourselves and of passing time. Industrial-organizational (I/O) psychology studies behavior in the workplace through the three subfields of personnel psychology, organizational psychology, and human factors psychology (discussed in Chapter 6).

**Objective 18** | Describe how personnel psychologists help organizations with employee selection, work placement, and performance appraisal.
Personnel psychologists work with organizations to devise selection methods for new employees, recruit and evaluate applicants, design and evaluate training programs, identify people’s strengths, analyze job content, and appraise individual and organizational performance. Subjective interviews lead to quickly formed impressions, but they tend to foster the interviewer illusion—a feeling of overconfidence in one’s intuitive ability to predict employee success. Structured interviews (which pinpoint job-relevant strengths) are better predictors because they reduce interviewers’ memory distortions and biases. Checklists, graphic rating scales, and behavior rating scales are useful performance appraisal methods. Forms of bias that can affect performance appraisal are halo errors (judgments based on personal qualities rather than on-the-job behavior), leniency or severity errors (blanket judgments treating everyone too kindly or harshly), and recency errors (judgments based on easily remembered recent behavior).

**Objective 19** | Define achievement motivation, and explain why organizations would employ an I/O psychologist to help motivate employees and foster employee satisfaction.
Achievement motivation is the desire for significant accomplishment; for mastery of things, people, or ideas; and for attaining a high standard. Organizations turn to I/O psychologists because research shows that the most productive and engaged workers are those working in satisfying environments. Employee satisfaction also tends to translate into higher profits, higher productivity, lower turnover, and more loyal customers.

**Objective 20** | Describe some effective management techniques.
Effective managers focus their training on people’s strengths, rather than on weak areas that may never advance to the point where they can contribute to the organization’s success. They attempt to “catch the employee doing something right” and reward that behavior. Effective managers also work with employees to set specific, challenging, and measurable objectives and to outline detailed paths to achieving those goals. Leadership style should be appropriate for the people and goals involved. Task leadership sets standards, organizes work, and focuses attention on goals. Social leadership builds teamwork, mediates conflict, and offers support. Managers’ personalities do matter, and some may be better suited to one leadership style than to the other, or to a combination of the two.

**ASK YOURSELF:** Are you highly motivated, or not highly motivated, to achieve in school? How has this affected your academic success? How might you improve upon your own achievement levels?
Test Yourself

1. While on a long road trip, you suddenly feel very lonely and want to pull over and call a loved one. But the dark, deserted stretch of road is intimidating, so you keep on driving. What motivational perspective would most easily explain this behavior and why?

2. You are traveling and have not eaten anything in eight hours. As your long-awaited favorite dish is placed in front of you, your mouth waters. Even imagining this may set your mouth to watering. What triggers this anticipatory drooling?

3. How might drive-reduction theory, arousal theory, and the evolutionary perspective explain our sexual motivation?

4. How might drive-reduction theory, arousal theory, and the evolutionary perspective explain our affiliation needs?

5. A human resources director explains to you that “I don't bother with tests or references. I can pick employees by my gut.” Based on I/O research, what concerns does this raise?

Terms and Concepts to Remember

- motivation, p. 470
- instinct, p. 470
- drive-reduction theory, p. 471
- homeostasis, p. 471
- incentive, p. 471
- hierarchy of needs, p. 472
- glucose, p. 475
- set point, p. 476
- basal metabolic rate, p. 476
- anorexia nervosa, p. 478
- bulimia nervosa, p. 478
- sexual response cycle, p. 481
- refractory period, p. 482
- sexual disorder, p. 482
- estrogen, p. 482
- testosterone, p. 482
- sexual orientation, p. 487
- flow, p. 498
- industrial-organizational psychology, p. 499
- personnel psychology, p. 499
- organizational psychology, p. 499
- structured interviews, p. 502
- achievement motivation, p. 504
- task leadership, p. 508
- social leadership, p. 508

WEB

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On a recent trip to one of your beautiful islands . . . , I had the opportunity to take a break and go fishing, and I overheard a conversation between a Harvard businessman on vacation, and one of the local fishermen. The fisherman had a small boat with several large yellowfin tuna. . . . The businessman complimented the man on the quality of his fish, and asked how long it took to catch them. The fisherman replied only a little while. The businessman asked . . . why didn’t he stay out longer and catch more fish? The fisherman said he had enough to support his family’s immediate needs.

The businessman then asked, "But what do you do with the rest of your time?"

The fisherman said, "I sleep late, fish a little, play with my children, take a nap with my wife, stroll into the village each evening where I drink a beer and play the ukelele with my friends. I have a full and wonderful life."

The businessman scoffed, "I’m a Harvard MBA, and I could help you. You should spend more time fishing, and with the proceeds, you could buy a bigger boat. With the money from the bigger boat, you could buy several boats. Eventually, you’d own a fleet of fishing boats . . . . You’d make millions of dollars!"

"But what then?" asked the fisherman.

The businessman said, "Then you could retire—move to a small fishing village where you could sleep late . . . fish a little . . . play with your kids . . . take a nap with your wife . . . stroll down to the village in the evenings . . . where you could drink a beer . . . and play the ukelele with your friends!"