CHAPTER 1

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# Psychology and the Challenges of Life

## LEARNING OUTCOMES

After studying this chapter, you will be able to . . .

1. **Explain** the differences between adjustment and personal growth, nature and nurture, and the clinical approach versus the healthy personality approach to the psychology of adjustment.
2. **Discuss** the ways in which our ethnicity, gender, sexual orientation, and other aspects of diversity relate to our adjustment and growth.
3. **Explain** the importance of critical thinking, and enumerate principles of critical thinking.
4. **Explain** various methods of research, including the case study, the survey, naturalistic observation, the correlational method, and the experiment.

## Did you know that . . .

- The incidences of anxiety and depression have been increasing among college students?
- Money does not necessarily buy happiness?
- Genetics influences many psychological traits and even preferences for different types of occupations?
- Women once were not permitted to attend college in the United States?
- By the year 2060, one in four or five Americans will be a senior citizen?
- You could survey 20 million voters and still not accurately predict the outcome of a presidential election?
- People typically use happier words in Twitter messages early in the morning than later in the day?
- People may respond positively to placebo drugs even when they know they are receiving placebos?

**Maria Elena and Marco at Odds** They have been seeing each other for a while. Now Marco is pressing for sexual activity, but Maria Elena is uncomfortable with the idea. Yet she would rather not lose Marco. How does she resolve the conflict?

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Kayla, 22, a fourth-year chemistry major, has been accepted into medical school in Boston. She wants to do cancer research, but her goal means another seven or eight years at the grindstone. Darryl, her fiancé, has landed a software engineering position in Silicon Valley, California. He wants Kayla to come with him, take a gap year or two to start a family, and then go to medical school in California. But Kayla hasn't applied to medical school in California, and there's no sure bet that she would "get in" there. If she surrenders her educational opportunity now, another one might not come along. Should she insist that Darryl accompany her to Boston, even though he hasn't been offered work there? Would he go? What if he surrenders his golden opportunity and their relationship falters because of resentment? Kayla has just been accepted into medical school—shouldn't she be happy?

Colin, 21, is a business student who is all business. Every day he reads *The Wall Street Journal* and the business pages of *The New York Times*. He is dedicated to his books and invests most of his energy in trying to construct a solid academic record so that he will get his career off on the right foot. He represents the first generation in his family to attend college, and he is determined to do college right. But sometimes he wonders why he bothers; he thinks of himself as one of those people who "just can't take tests." He begins to shake two days before a big test. His thoughts become jumbled when the papers are distributed. By the time the papers are on his desk, his hand is shaking so badly that he can hardly write his name. His grades suffer.

Maria Elena, 19, is a first-year student. She has seen all the TV talk shows and has gone to R-rated films. She knows all about the sexual openness of the dominant American culture, but her traditional Mexican American upbringing has given her a more conservative view. Despite the social and sexual pressures she observes around her and her desire to fit in, she has decided to wait for Mr. Right. At the very least, she is not going to allow social pressure to separate her from her values and her feelings. The man she has been seeing, Marco, has been patient—from his point of view. But lately he's been pressuring Maria Elena, telling her that they have more than a fly-by-night relationship and that other women are more willing to "fulfill their sexual needs" with him. Maria Elena's girlfriends say they understand her feelings but warn that Marco will eventually turn elsewhere. Maria Elena, in truth, is concerned about more than virginity; she also thinks about sexually transmitted infections such as genital herpes and HIV/AIDS. After all, Marco is 22 years old, and she doesn't know everywhere he's been. True, they could take precautions, but what is completely safe? In any event, Maria Elena does not want to be pressured. (See photo.)

Lisa, 20, a hard-working junior, is popular with faculty and dutiful with relatives. She works out regularly and is proud of her figure. But Lisa also has a secret. When she is sipping her coffee in the morning, she hopes that she won't go off the deep end again, but most of the time she does. She usually starts by eating a doughnut slowly; then she eats another, picking up speed; then she voraciously downs the remaining four in the box. Then she eats two or three bagels with cream cheese. If there is any leftover pizza from the evening before, that goes down, too. She feels disgusted with herself, but she hunts through her apartment for more food. Fifteen minutes later she feels as though she will burst and cannot take in anymore. Half nauseated, she finds her way to the bathroom and makes herself throw up the contents of her binge. Tomorrow, she tells herself, will be different. But deep inside she suspects that tomorrow might be much the same.

David, 32, is not sleeping well. He wakes before dawn and cannot get back to sleep. His appetite is off, and his energy level is low. He has started smoking again. He has a couple of drinks at lunch and muses that it's lucky that more alcohol would make him sick to his stomach—otherwise, he'd probably be drinking too much as well. Then he thinks, "So what difference would it make?" Sometimes he is sexually frustrated; at other times he wonders whether he has any sex drive left. Although he's awake, each day it's getting harder to drag himself out of bed in the morning. This week he missed one day of work and was late twice. His supervisor has suggested in a nonthreatening way that he "do something about it." David knows that her next warning will not be unthreatening. It's been going downhill since Sue walked out. Suicide has even crossed David's mind. He wonders if he's going crazy.

Kayla, Colin, Maria Elena, Lisa, David—each of them is experiencing a challenge that requires adjustment.

We face many challenges in life. Kayla is experiencing conflict. She wants to attend medical school but also wants to maintain the relationship with Darryl. Darryl is not a chauvinist, however. As it turns out, he accompanies Kayla to Boston and looks for work there.

Colin's challenge is test anxiety, plain but not so simple. Years of anxiety and fluctuating grades have led to a vicious cycle: He becomes so anxious that he often finds himself paying more attention to his bodily sensations and his troubled thoughts than to the test items themselves. His distraction then leads to poor grades and heightens his anxiety. Fortunately, there is a notice on a bulletin board that his college counseling center is offering a program for students with test anxiety.

Maria Elena's challenges also involve conflict—conflict with Marco and conflict within herself. She decides not to be pressured into a sexual relationship, and it happens that Marco does turn elsewhere. It hurts, but Maria Elena is confident that other men who are more sensitive to her values and concerns will understand and appreciate her.

Lisa faces the challenge of a distorted body image—she sees herself as being overweight when other people see her as being close to "skin and bones." That body image has led her to the eating disorder known as **bulimia nervosa**. The origins of eating disorders are complex and not fully understood, but they seem to be related to social pressures young women in our society face in adhering to unrealistic standards of thinness. Lisa does seek treatment, but only after her dentist informs her that the enamel on her teeth has begun to decay as a result of repetitive vomiting. Treatment is helpful in reducing episodes of binge eating and vomiting, but she continues to experience occasional lapses. "I'm on the right track," she says, "but I've still got a way to go."

**bulimia nervosa** An eating disorder characterized by cycles of binge eating and purging—in Lisa's case, purging by throwing up.

David faces the challenge of depression. Feelings of depression are normal following a loss, such as the end of a relationship, but David's feelings have lingered. His friends tell him that he should get out and do things, but David is so down that he hasn't got the motivation. After much prompting, David consults a psychologist who, ironically, also pushes him to get out and do things—things such as the free (or almost free) turn-ons discussed in Chapter 2. The psychologist also shows David that part of his problem is that he thinks of himself as a loser who is destined to fail in everything he undertakes.

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**Adjusting to College Life** College life can be liberating and energizing, and then, especially for residential students, there's the laundry. For returning students, of course, laundry may have been a standard part of life for decades and simply continues to demand its time and place.

The challenges of life touch all of us at one time or another. That is what this book is about: adjusting to challenges as we get on with the business of living—growing, learning, building relationships, making sense of our value systems, establishing careers, making ends meet, and striving to feel good about ourselves. This book portrays our quest for self-development and brings psychological knowledge to bear on problems that may block personal growth. Some of these problems, such as anxiety, depression, and obesity, are personal in nature. Some are interpersonal, involving intimate relationships and sexuality. Others involve the larger social context—the workplace, prejudice and discrimination, environmental disasters, pollution, and urban life. (See photo.)

In this chapter we see that psychology is well suited to help us in our quests to cope with problems such as anxiety and depression and to help us manage stress, our personal relationships, and other issues of daily life. We explore the richness of human diversity—facets of ourselves that contribute to our uniqueness. We discuss critical thinking, a scientific approach to life that enables us to analyze the claims and arguments of others to determine what is true and what is false. Then we examine the scientific procedures that psychologists use to gather knowledge.

## A Closer Look

### The Mental Health of College Students

Whether you are at a residential college or a commuter college, whether you are beginning college fresh out of high school or are a returning student, whether you are attending full time or part time, college life involves many changes that require adjustment. Many of the challenges of college life are academic and social, but some, such as athletics, fighting commuter traffic, or climbing flights of steps, can have a strong physical component. The Center for Collegiate Mental Health (CCMH) has been tracking the mental health of college students for more than 30 years. (See photo.)

According to the CCMH, the two main reasons that college students seek counseling are anxiety and depression (see **Figure 1.1**). The incidences of anxiety and depression have been increasing from year to year. Other reasons for seeking help include problems in relationships, stress, family issues, and substance use and abuse. **Table 1.1** shows that about one student in three has considered suicide, and one student in ten has attempted suicide. More than one in three has experienced harassment, including sexual harassment, or bullying or abusive behavior.

This text explores the sources of anxiety and depression and the stresses that many of us face in college and throughout life.

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**"If College Is So Wonderful, Why Am I Anxious and Depressed?"** Many college students seek counseling for anxiety, feeling hopeless and overwhelmed, suicidal thoughts, and substance abuse. Others seek help for problems in relationships, including issues with family members.

We also learn how we can apply psychology in our daily lives to combat stress and enhance our health and well-being. We also learn about people in the helping professions and when and how to seek their intervention.

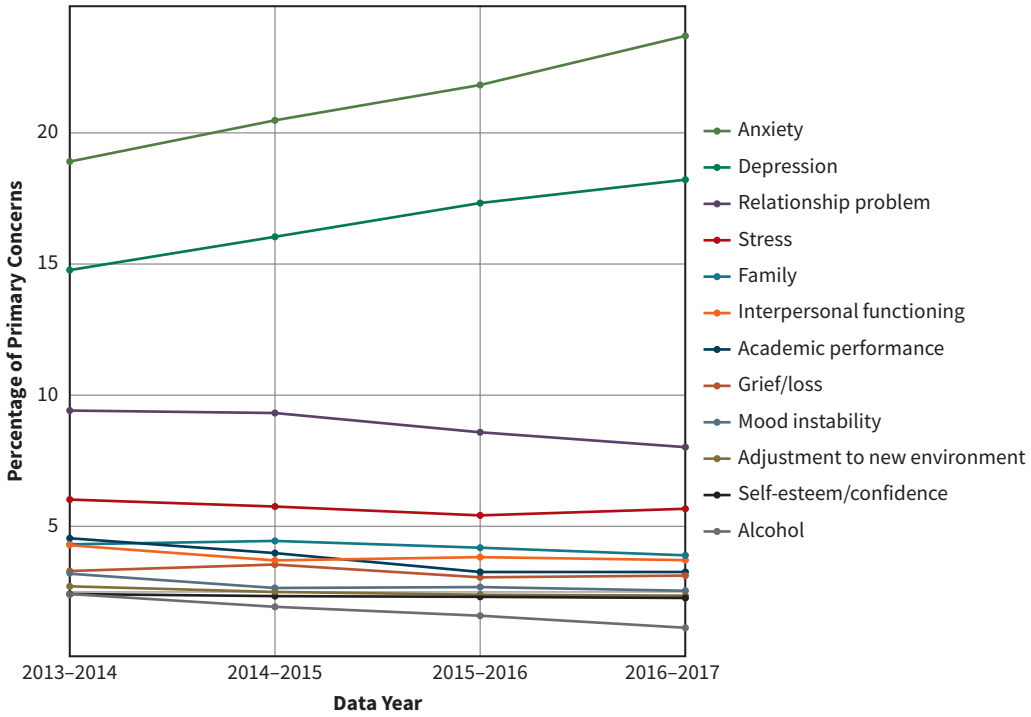


**FIGURE 1.1** **Top Ten Reasons That Students Seek Counseling** The incidence of concerns over anxiety and depression has been rising, while other concerns—as concerns about relationships, stress, and family—have remained flat or are slightly decreasing. Data from 2013–2017, based on responses from 150,621 students.

**Source:** Chart #4, page 9. Center for Collegiate Mental Health (CCMH) 2017 Annual Report. Penn State. Retrieved from https://sites.psu.edu/ccmh/files/2018/02/2017_CCMH_Report-1r4m88x.pdf (August 12, 2018).

**TABLE 1.1** **A Snapshot of College Students' Mental Health Issues**

| Problem | Percent Reporting Problem |
|---|---|
| Taken a medication for mental health concerns | 34.2 |
| Seriously considered suicide | 34.2 |
| Purposefully injured themselves | 27 |
| Been hospitalized for mental health concerns | 9.8 |
| Attempted suicide | 10 |
| Had unwanted sexual contacts or experiences | 22.1 |
| Experienced harassing, controlling, and/or abusive behavior | 35.5 |
| Attended counseling for mental health concerns | 52.7 |

**Note:** These results are based on more than 161,000 college students on 147 campuses.

**Source:** Adapted from Center for Collegiate Mental Health (CCMH) 2017 Annual Report. Penn State. Retrieved from https://sites.psu.edu/ccmh/files/2018/02/2017_CCMH_Report-1r4m88x.pdf (August 11, 2018).

# Psychology and Adjustment

The science of psychology is ideally suited to helping people meet the challenges of contemporary life. **Psychology** is the scientific discipline that studies behavior and mental processes. Psychologists traditionally attempt to understand or explain behavior in terms of the workings of the nervous system, the interaction of genetic and environmental influences ("nature" and

**psychology** The science that studies behavior and mental processes.

"nurture"), the ways in which we sense and mentally represent the world, the roles of learning and motivation, and the nature of personality and social interaction.

Many psychologists are concerned with applying psychological knowledge in helping people adjust better to their work and social environments, overcome emotional problems, and develop healthier behaviors. But what, then, is adjustment? **Adjustment** is coping behavior that permits us to meet the demands we face in the environment. Sometimes the demands are physical. When we are cold, we can adjust by dressing warmly, turning up the thermostat, or exercising. Holding down a job to make ends meet, drinking to quench our thirst, meeting the daily needs of our children—these, too, are forms of adjustment necessary to meet the kinds of demands we face in our lives.

**adjustment** Processes by which people respond to environmental pressures and cope with stress.

## Adjustment and Personal Growth: Two Facets of the Psychology of Adjustment

Literally speaking, to adjust is to change so as to better conform to, or meet, the demands of one's environment. Adjustment is essentially reactive. It's like a tennis game: The environment serves up the balls, and we return them as best we can. When we adjust, we respond to pressures that require us to adapt. But the psychology of adjustment goes beyond adjusting to environmental demands. It also addresses issues of personal growth. Whereas adjustment is reactive, personal growth is proactive. Our study of the psychology of adjustment is based on the premise that people are not merely reactors to their environments. People are also actors. Things not only happen to us; we also make things happen. Not only does the environment affect us, but we also affect the environment. In fact, we create novel environments to suit our needs. We must extend the psychology of adjustment to accommodate the creative and active components of the human experience—the ability to grow or develop as a person. Not only do we react to stress, but we also act on our environment in meeting our needs and pursuing our goals.

To achieve psychological fulfillment, we need to act, not merely react. We need to fill our lives with meaning and expand ourselves in directions that may not even be known today. Personal growth is more of a journey than a final destination, a process of development in which we continually examine who we are, where we are going, and what we want our lives to become.

## Nature versus Nurture: Is Biology Destiny?

Psychologists are concerned about the degree to which our traits and behavior patterns reflect our nature, or genetic factors, and our nurture, or environmental influences. Physical traits such as height, skin color, and eye color are biologically transmitted from generation to generation by **genes**. We have lungs rather than gills and arms rather than wings because of the information embedded in our genes. Genes are segments of DNA (deoxyribonucleic acid), the stuff of which our **chromosomes** are made. Genes give rise to our biological structures and physical traits, but how do they influence our psychological or behavioral traits? The answer is complex.

**genes** The basic unit of heredity, consisting of a segment of deoxyribonucleic acid (DNA).

**chromosomes** Strands of DNA that consist of genes. People normally have 23 pairs of chromosomes.

Genes actually play important roles in determining many psychological traits, including intelligence, shyness, aggressiveness, leadership potential, thrill-seeking behavior, altruistic tendencies, aptitudes in music and art, and even preferences for different types of occupations (Ellis & Bonin, 2003; Malouff et al., 2008; Petersen & Dawes, 2017; Plomin & Deary, 2015; Reuter et al., 2010). Genetic factors also come into play in determining our likelihood of getting married (Johnson et al., 2004). However, genetic factors interact with environmental influences on personality and behavior in complex ways. In other words, there is no one-to-one connection between any one gene or genes and any particular psychological trait.

Genetic influences also contribute to adjustment problems we face in coping with stressful demands, including emotional problems such as anxiety and depression, as well as severe psychological disorders such as schizophrenia and bipolar disorder, and even criminal or antisocial behavior (e.g., Duffy et al., 2014; Dunn et al., 2015; Kendler et al., 2012; Mihaljevic et al., 2017; Raine, 2018; Zimmermann et al., 2011). Genes also play roles in the development

of obesity and addiction to substances such as alcohol and nicotine (Freedman, 2011; Kendler et al., 2012; Young-Wolff et al., 2011). Researchers believe that personal happiness is also genetically influenced.

Although genetic factors play a role in psychological adjustment and effective behavior, biology is not destiny. Genes create a predisposition or likelihood, not a certainty, that certain traits, behaviors, abilities, or problem behaviors will develop. We need to understand that life experiences and the choices we make in dealing with challenging situations also play important roles. For example, you may have inherited a genetic predisposition that puts you at increased risk of developing problems with alcohol or other drugs. But whether you develop these problems depends on many environmental and psychological factors, such as your exposure to drug-abusing peers, development of skills for coping with stress without using or abusing drugs, attitudes and expectancies concerning drug use, and parental modeling of alcohol use or misuse.

In sum, genes alone do not dictate who we become or what we do with our lives. Psychologists believe that psychological traits are determined by a complex interplay or combination of nature (genetics) and nurture (environmental and learning influences), not simply by one set of factors or the other. By marshaling our personal resources, we can live up to our potential, whatever deck of genes we may have been dealt in life. This text focuses on the skills involved in marshaling these resources, such as acquiring more effective coping skills, developing more adaptive behaviors, and replacing maladaptive attitudes and beliefs with more adaptive alternatives.

## The Clinical Approach versus the Healthy-Personality Approach

Most psychology-of-adjustment textbooks are written according to one of two major approaches: a clinical approach or a healthy-personality approach. The clinical approach focuses primarily on ways in which psychology can help people overcome personal problems and cope with stress. The healthy-personality approach focuses primarily on healthful patterns of personal growth and development, including social and vocational development. This text was written with awareness of both approaches to the psychology of adjustment. We examine both effective and ineffective ways of coping with stress. But there is equal emphasis on optimizing our potential through preventive and self-actualizing behavior. We aim to be comprehensive and balanced in our approach, to provide ample theory, research, and applications for coping and for optimal development.

The healthy-personality approach is part of a growing movement in psychology called **positive psychology**. Founded by psychologist Martin Seligman of the University of Pennsylvania, positive psychology emphasizes the study of positive aspects of behavior, such as love, optimism, hope, helping behavior, and human happiness, rather than negative aspects such as psychological disorders, drug abuse, and antisocial behavior (Hojjat & Cramer, 2013; Seligman et al., 2005; Snyder & Lopez, 2007). Throughout this text we focus on these and other positive aspects of human experience, including successful aging, self-esteem, and self-actualization.

**positive psychology**
A psychological perspective that emphasizes the positive aspects of our behavior, such as our assets and virtues, rather than our weaknesses and deficits.

## Positive Psychology and Happiness

The study of human happiness has emerged front and center in positive psychology, the movement in contemporary psychology that focuses on human assets and virtues. Today, psychologists are seeking to understand factors that contribute to happiness and ways of helping people increase their level of happiness and psychological well-being.

Despite popular belief, the extent to which money buys happiness tends to be exaggerated (Boyce et al., 2017). People may think they'd be a lot happier if they were wealthier, but evidence shows that for many people wealth makes only a minor contribution to happiness (Boyce et al., 2017; Proto & Rustichini, 2013; Sussman & Shafir, 2012). It turns out that above a certain moderate income level, about $75,000 in today's dollars, increasing wealth does not add to substantial gains in happiness. As psychologist Daniel Gilbert puts it, "Once you get

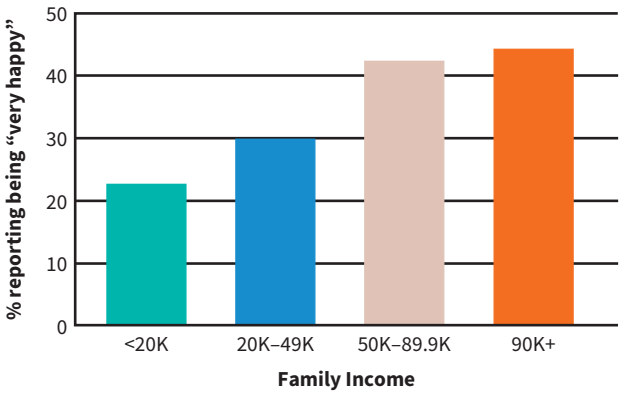


**FIGURE 1.2 Happiness and Family Income** Notice how happiness begins to level off above a moderate income level of $50,000 to $90,000.

**Source:** Kahneman, D., Krueger, A. B., Schkade, D., Schwarz, N., & Stone, A. A. (2006). Would you be happier if you were richer? A focusing illusion. *Science*, *312*(5782), 1908–1910.

basic human needs met, a lot more money doesn't make a lot more happiness" (cited in Futrelle, 2006). Notice in **Figure 1.2** that happiness levels off at higher income levels. Even the extremely wealthy, including members of the Forbes 400 list of richest people in the United States, are merely a tiny bit happier than the general public, on average (Easterbrook, 2005). Nor does winning the lottery boost happiness in the long term. Any boost in happiness tends to fade within about a year or so of winning a jackpot (Waldinger, 2017).

So, if wealth isn't the answer to the eternal question of what makes people happy, what is? Researchers find some factors that link to greater happiness, including heredity (some people may have a genetic tendency toward having a happier disposition), having friends (a big plus), and religious faith (Kesebir & Diener, 2008; Lewis et al., 2015). People may have a genetically determined "set point" for happiness, a kind of personal thermostat that keeps their happiness and contentment around a certain level despite the ups and downs of life (Weiss et al., 2008). Having friends is a prescription for happiness that underscores the importance of connecting to people in meaningful and rewarding ways. In that sense we might think of happiness as a kind of social contagion that can spread through networks of people who have close ties with one another (Fowler & Christakis, 2008; Roy-Byrne, 2009).

Perhaps money is no guarantee of happiness, but perhaps we can agree on one thing: Having money means that you're less likely to worry about money.

# Applying Psychology to the Challenge of . . .

## Boosting Personal Happiness

Although genetics may establish a set point around which personal happiness fluctuates, happiness does not remain static over the course of our lifetime (Fujita & Diener, 2005; Lucas, 2007). The founding figure in positive psychology, Martin Seligman, believes that personal happiness hinges on meeting three fundamental challenges: (1) engaging in pleasurable activities, (2) becoming absorbed and engaged in activities in daily life, and (3) finding meaning or personal fulfillment through our life activities. Seligman offers several suggestions, including the following, designed to help people boost personal happiness (adapted from Seligman, 2003; Seligman et al., 2005): (See photo.)

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**Can You Be Born Happy?** Perhaps. There is a genetic component to happiness, and some people swing back toward happiness even after bad things happen. Other people are not so fortunate and tend to gravitate toward sadness even when things are going well.

- **Gratitude visit.** With your eyes closed, think of someone who has had a major positive impact on your life but whom you've never really thanked. During the next week, write a letter of thanks to the person, but don't mail the letter. Instead, arrange a visit to the person and when you arrive, read the testimonial letter and discuss what he or she has meant to you.
- **Three blessings.** Each night before going to bed, think of three things that went well during the day. Write them down in a journal and take a moment to reflect on them.
- **One door closes, another opens.** Reflect on the times in your life when a door has closed because of death or loss. But go further by linking this thought to a later experience in which a door opened for you. Come to appreciate the ebbs and flows of life experiences.
- **Savorings.** Plan a perfect day, but make sure to share the experience with another person.

## Review

**Sentence Completion**

1. Psychology involves the scientific study of behavior and _____ processes.
2. _____ is coping behavior that allows us to meet the demands the environment imposes on us.
3. Personal growth involves _____ on the environment to fulfill our needs, not merely reacting to it.
4. By creating a predisposition, genes increase the _____ that we will develop certain traits, behaviors, abilities, or psychological disorders.
5. Psychologists believe that psychological traits are the product of an interaction of _____ and nurture.
6. The _____ to the study of adjustment is concerned primarily with how people can use psychology to cope better with stress and overcome personal problems.

**Think About It**

What are the problems associated with the statement, "Biology is destiny"? How can belief in this saying impair your efforts to cope with adjustment problems and grow as a person?

# Human Diversity and Adjustment

Psychologists focus mainly on the individual and are committed to the dignity of the individual. Yet psychologists also recognize that we cannot understand individuals without an awareness of the richness of human diversity. People differ from one another in many ways—ethnicity, cultural background, gender, lifestyle, and so on. When it comes to studying the psychology of adjustment, we need to consider the role of diversity in how we cope with the challenges we face and develop our unique potentials.

## Ethnic Diversity

The nation and the world at large contain more kinds of people and more ways of doing and viewing things than most of us might imagine. One kind of diversity involves people's **ethnic groups**. But just what is an "ethnic group"?

**ethnic group** A group of people who can be distinguished by characteristics such as their cultural heritage, common history, race, and language.

An ethnic group is a subgroup that has a common cultural heritage, as distinguished by factors such as customs, race, language, and common history. One reason for studying ethnic diversity in the United States is that the experiences of various ethnic groups highlight the impact of social, political, and economic factors on human behavior and development. Moreover, factors such as discrimination and prejudice affect traditionally identified minority groups more than other groups. Some health concerns also affect some groups more than others. Studying human diversity also enables students to appreciate the rich cultural heritages and historical problems of the many ethnic groups in our society and the changes in the demographics of our society.

Yet another reason concerns psychological intervention and consultation. Psychologists are called on to help people of all ethnic groups solve personal problems. Without knowledge of the history and cultural heritage of those groups, psychologists could not hope to understand the aspirations and problems of individuals from those groups. (See photo.)

John Lund/Blend Images/Getty Images

**The Array of Human Diversity** We differ from one another in our race or ethnicity, our gender, our age, our sexual orientation, our health, and our coping ability. Can you think of other ways in which we are diverse? Now, perhaps more importantly, can you think of the ways in which we are alike?

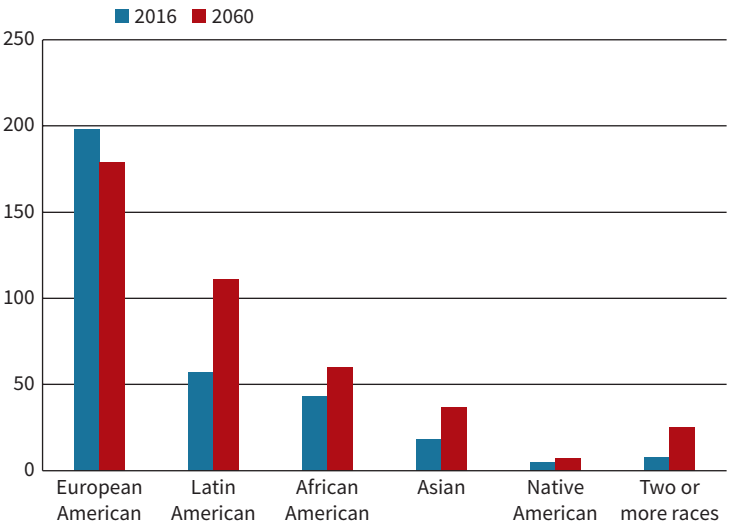
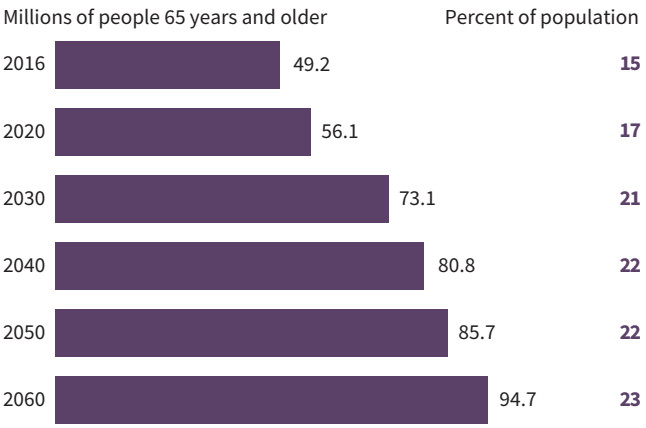



**FIGURE 1.3 Racial Makeup of the United States in Millions, 2016 and 2060 (projected)**

**Source:** Vespa, J., Armstrong, D. M., & Medina, L. (2018). Demographic turning points for the United States: Population projections for 2020 to 2060. *Current Population Reports*, pp. 25–1144, U.S. Census Bureau, Washington, DC.




Source: U.S. Census Bureau, 2017 National Population Projections.

**FIGURE 1.4 Projections of the Older Adult Population: 2020 to 2060** By 2060, nearly one in four Americans is projected to be an older adult.

**Source:** Vespa, J., Armstrong, D. M., & Medina, L. (2018). Demographic turning points for the United States: Population projections for 2020 to 2060. *Current Population Reports*, pp. 25–1144, U.S. Census Bureau, Washington, DC.

### Who We Are Today, Who We Will Be Tomorrow

We live in an ethnically diverse society that is becoming increasingly more diverse from year to year. Today, more than one-third of the U.S. population comprises people from traditionally recognized ethnic minority groups (Hispanic, African American, Asian, and Native American). In **Figure 1.3**, we see the ethnic/racial background of the U.S. population in 2016 and projected for 2060.

It is projected that the number of European Americans ("white" people) will decline due to factors including reproduction rates, immigration, and intermarriage with other racial groups. However, the number of white people will actually increase from 248 million today to 274 million in 2060 when we figure in the numbers of white people who are Latin American (Vespa et al., 2018). People of two or more races and Asian Americans are the most rapidly growing groups, followed by Latin Americans, who may be of any race. European Americans (whom the Census Bureau refers to as "Non-Hispanic white people") now make up 61% of the U.S. population, but by 2060 they will constitute 44% of the population, meaning that they, along with every other racial or ethnic group, will be in the minority. But if we include white people who are Latin American, white people will still make up the majority of the population—68% (as compared to 77% in 2016).

Many people today reject traditional distinctions in defining their racial or ethnic identities, labeling themselves biracial or multiracial, including people such as Barack Obama, Tiger Woods, Derek Jeter, and Mariah Carey. Moreover, many people reject traditional ethnic or racial categories. Many Latin Americans, for example, identify themselves as *moreno*, *trigueno*, or *indio*—terms reflecting both ancestry and variations in skin tones.

Race or ethnicity is one issue. By 2060 the United States will also be older. It is projected that the population will surpass 400 million people by 2058, and the expected number of senior citizens (people aged 65 and above) is shown in **Figure 1.4**. People aged 65 and above now comprise about 15% of the population and are projected to make up 23% of the population in 2060. Their numbers will nearly double, from 49.2 million to 94.7 million. But do not think that they will all be on social security. As medicine improves, so does the health of older people. And the retirement age keeps on being pushed back.

## Gender

**gender** The state of being female or being male. (In this book, the word *sex* refers to anatomic sex and sexual behavior, and is also used in some technical phrases, such as *sexual differentiation*—the process by which embryos develop into females or males—and sex hormones.)

**Gender** is typically defined as the state of being male or being female, but it is a psychosocial concept, not a biological one. By contrast, the term *sex* refers to the biological division between males and females, as when we describe the sex organs (not gender organs) that distinguish the reproductive anatomy of males and females. A person's gender, however, is not simply a matter of anatomy or chromosomal sex. Gender is wrapped up with a complex web of cultural expectations and social roles about how we are expected to act as women or men.

Just as there have been historical prejudices against members of ethnic minority groups, so, too, have there been prejudices against women. The careers of women have traditionally been channeled into domestic chores, regardless of their talents, wishes, or abilities. Not until relatively modern times were women in Western cultures provided opportunities to pursue higher educational opportunities. Even today, women in many parts of the world are prevented from pursuing educational and training opportunities afforded to men.

Women in colonial times in the United States were not permitted to attend college. In fact, college doors were not opened to women until 1833, when Oberlin College became the first school of higher education to welcome women. Women did not have an easy go of it in the early days of psychology. The earliest female pioneer in psychology, Christine Ladd-Franklin (1847–1930), was denied her doctoral degree—not because she lacked credits or failed to complete her thesis but because she was a woman, and women were not expected to pursue advanced degrees. The proverbial tide has now turned. Today, more than two-thirds of the doctorates in psychology are granted to women (see **Figure 1.5**). Today it is the norm for women to be in the workforce. As we will see in Chapter 15, however, women in general are paid less than men in comparable positions.

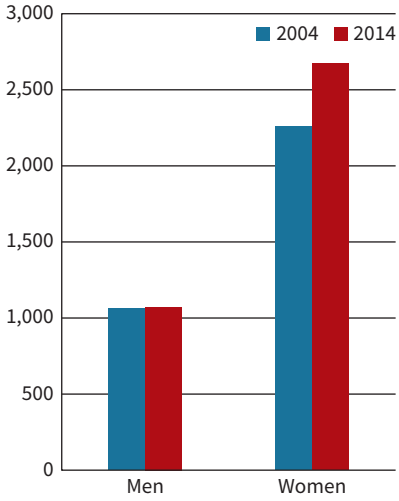



**FIGURE 1.5 Numbers of Male and Female Doctoral Recipients in Psychology, 2004 and 2014** Women now represent more than 70% of the new doctorate recipients in psychology.

**Source:** National Science Foundation, National Center for Science and Engineering Statistics. (2015). *Doctorate recipients from U.S. universities: 2014* (Special Report NSF 16-300). Arlington, VA. Survey of Earned Doctorates. Retrieved from www.nsf.gov/statistics/2016/nsf16300/data-tables.cfm (August 13, 2018).

## Other Meanings of Diversity

Human diversity touches on many differences among people, such as age, physical ability, ethnicity or racial identification, religious differences, and sexual orientation. Older people, people with disabilities, and LGBT people have all suffered from discrimination.

Our focus on human diversity throughout the text will help us to better understand and fully appreciate the true extent of human behavior and mental processes. This broader view of psychology—and the world—is enriching for its own sake and heightens the accuracy and scope of our presentation.

## Review

### Sentence Completion

**7.** Psychologists recognize that we need to consider the richness of human _____ in our efforts to develop a better understanding of individual behavior.

**8.** Subgroups within the general population who have a common cultural heritage are called _____ groups.

**9.** _____ is a psychosocial concept that distinguishes masculinity from femininity.

### Think About It

What kinds of human diversity do we find in the United States? What kinds of challenges are faced by people from diverse racial and ethnic backgrounds, by women, by older people, by gay males and lesbians, by older people, and by people with disabilities?

# Critical Thinking and Adjustment

Psychology is a science, and the psychology of adjustment provides a scientific approach to coping with the challenges of life. One of the hallmarks of the scientific approach is **critical thinking**. What exactly is critical thinking?

Critical thinking has many meanings. On one level, it means taking nothing for granted. It means not believing things just because they are on the World Wide Web, or in print, or because they were uttered by authority figures or celebrities. It means not necessarily believing that it is healthful to express all of your feelings just because a friend in "therapy" urges you to do so. On another level, critical thinking refers to thoughtfully analyzing the statements and arguments of other people. It means examining definitions of terms, examining the premises or assumptions behind arguments, and then scrutinizing the logic with which arguments are developed.

**critical thinking** An approach to thinking characterized by skepticism and thoughtful analysis of statements and arguments—for example, probing the premises of arguments and the definitions of terms.

Blend Images/Alamy Stock Photo

**Flag Power?** This politician is wearing a flag in his lapel and pledging allegiance. But can you trust anything he says? How can you use principles of critical thinking to make that decision?

Why is critical thinking essential to your adjustment? Critical thinking will help you determine whether the arguments of a political candidate are to be believed and trusted. Critical thinking will help you decide whether that clever quiz you found online actually measures what it is supposed to measure. Critical thinking can help you decide whether the arguments against eating fatty foods or in favor of "safer sex" apply to you. Critical thinking will help you decide whether a new diet craze has the potential to help you or hurt you. Critical thinking will help you examine the evidence as to whether the latest machine for giving you "abs of steel" is better than the last 10 machines that were supposed to give you abs of steel. Critical thinking will even help you figure out whether your friends' stories make sense.

## Features of Critical Thinking

Consider features of critical thinking that apply to your college years and your life beyond:

1. Do not accept something as being true (or being false) because an authority figure says so. Insist on evidence, on what you can see with your eyes, on what feel with your sense of touch, and so on. Politicians, religious figures, your elders may try to persuade you with arguments such as "That's the way it's always been." Or "Dr. _____ says it's true, so it must be true." Or how about, "Who are you to question?" Well, you're an individual with a brain and with the capacity to make judgments—judgments as to what is true or false, judgments as to what is good and what is bad, judgments as to right and wrong. But you won't be able to make judgments if you take the claims of authority figures as your key sources of evidence. (See photo.)
2. Maintain a healthy skepticism. Keep an open mind. Even research reported in the media or in textbooks may adopt a certain slant. Extend this principle to yourself. Are some of your own attitudes and beliefs superficial or unfounded? Accept nothing as true until you have examined the evidence.
3. Examine definitions of terms. Some statements are true when a term is defined in one way but not when it is defined in another way. Consider the label on a container of "low-fat" ice cream: "97% Fat Free!" One day at the supermarket we were impressed with an ice cream package's claims that the product was 97% fat free. Yet when we read the label closely, we found that a 4-ounce serving had 160 calories, 27 of which were contributed by fat. Fat, then, accounted for 27/160ths, or about 17%, of the ice cream's calorie content. But fat accounted for only 3% of the ice cream's weight—most of which was calorie-free water weight. The packagers of the ice cream knew that labeling the ice cream as "97% fat free" would make it sound more healthful than "Only 17% of calories from fat." Read carefully. Think critically.
4. Examine the assumptions or premises of arguments. Consider the statement that one cannot learn about human beings by conducting research on nonhuman animals. One premise in the statement seems to be that human beings are not animals. We are, of course. (Would you rather be a plant?)
5. Be cautious in drawing conclusions from "evidence." Self-help books tend to be filled with anecdotes about people who followed the methods in the books and improved their lives. "Psychics" point to predictions that prove to be accurate. Think critically: Do the self-help books report results with everyone who tried the method for losing weight or for achieving psychological well-being, or do they just report successes? Do so-called psychics

report their failures or only their successes? Be especially skeptical when you hear "I know someone who. . ." Ask yourself whether this one person's reported experience—even if true—is satisfactory as evidence. When examining research findings, consider who paid for the research. Research evidence on the effectiveness of particular drugs may be less persuasive if the studies were underwritten by pharmaceutical companies selling the drugs rather than undertaken by independent researchers.

6. Consider alternative interpretations of research evidence, especially of evidence that seems to show cause and effect. What about this research question: "Does alcohol cause aggression?" Later in the chapter we see that evidence shows a clear connection, or correlation, between alcohol and aggression. That is, many people who commit violent crimes have been drinking alcohol. But does the evidence show that this connection is causal? Could other factors, such as gender, age, willingness to take risks, or social expectations, account for both the drinking and the aggressive behavior?
7. Don't oversimplify. People's adjustment to the challenges of life can involve complex interactions of genetic influences, situational factors, and personal choice. Consider the question, "Does psychotherapy help people with adjustment problems?" A broad answer to this question—a simple yes or no—might be oversimplifying. It may be more worthwhile to ask, "What type of psychotherapy, practiced by whom, is most helpful for what kind of client and what kind of problem?"
8. Don't overgeneralize. Consider again the statement that one cannot learn about human beings by conducting research on animals. Is the truth of the matter an all-or-nothing issue? Can we obtain certain kinds of information about people from research with animals? What kinds of things are you likely to be able to learn only through research with people?
9. Apply critical thinking to all areas of life. A skeptical attitude and a demand for evidence are useful not only in college but in all areas of life. Be skeptical when you are bombarded by TV commercials, when political causes try to sweep you up, when you see the latest cover stories about UFO sightings in supermarket tabloids. How many times have you heard the claim, "Studies have shown that . . ."? Perhaps such claims sound convincing, but ask yourself: Who ran the studies? Were the researchers neutral scientists, or were they biased toward obtaining certain results?
10. Tell yourself you can think for yourself. You don't need someone else to tell you what you think. You don't need to follow the crowd.

These principles of critical thinking guide psychologists' thinking as they observe behavior, engage in research, or advise clients as to how to improve the quality of their lives. They will also help you adjust to the challenges in your own life.

## Thinking Critically About Astrology and Other Pseudosciences

Should you be concerned about your horoscope? Do psychics really help police find criminals and evidence? When you are troubled, should you examine the situation critically and solve your problems by yourself? If you believe you might profit from another person's advice, should you consult an astrologer, a psychic, or a mental health professional like a psychologist?

Psychologists are trained to be critical thinkers. They are skeptical. They insist on seeing the evidence before they accept people's claims and arguments as to what is true and what is false. The same procedures can be applied to **pseudosciences** (false sciences) such as astrology. Pseudoscience beckons us from the tabloids at supermarket checkout counters. Each week, there are 10 new encounters with extraterrestrials. There are 10 new "absolutely proven effective" ways to take off weight and 10 new ways to beat stress and depression. There are 10 new ways to tell whether your partner has been cheating and, of course, 10 new predictions by astrologers and psychics.

**pseudoscience** A method or system that claims to have a scientific basis but does not, such as astrology. A false or sham science.

Let's focus on one example of pseudoscience—astrology. But first read this personality report. We wrote it about you:

> You have your strengths and your weaknesses, but much of the time you do not give yourself enough credit for your strengths. You are one of those people who has the inner potential for change, but you need to pay more attention to your own feelings so that you can determine the right direction for yourself.
>
> You have many times found yourself to be in conflict as your inner impulses have run up against the limits of social rules and moral codes. Most of the time you manage to resolve conflict in a way that makes sense to you, but now and then you have doubts and wonder whether you have done the right thing. You often would like to be doing two or more things at the same time, and you occasionally resent the fact that you cannot.
>
> There is an inner you known to you alone, and you often present a face to the world that does not quite reflect your genuine thoughts and feelings. And now and then you look at the things you have done, and the path that you have taken, and you have some doubt as to whether it is all worth it.

That's you, isn't it? It probably sounds familiar enough. The tendency to believe a generalized (but phony) personality report is called the **Barnum effect**, after 19th-century circus magnate P. T. Barnum, who once declared that a good circus had a "little something for everybody." The Barnum effect—the tendency for general personality reports to have a "little something for everybody"—also allows fortune-tellers or psychics to make a living. That is, most of us have enough in common that a fortune-teller's "revelations" about us may ring true.

**Barnum effect** The tendency of people to accept overgeneralized descriptions of personality as accurate appraisals of their own personalities.

Most of us have personality traits in common. But what do tea leaves, bird droppings, palms (of your hands, not on the tropical sands), and the stars have in common? Let us see.

P. T. Barnum also proclaimed, "There's a sucker born every minute." The tendency to believe generalized personality reports has made people vulnerable to fakers and phonies throughout history. It enriches the pocketbooks of people who offer to "read their personalities" and predict their futures based on the movements of the stars and planets through astrology. Even in an age in which science has proved itself capable of making significant contributions to people's daily lives and health, many people today check their horoscopes rather than seek scientific information when they have to make a decision!

Astrology is based on the notion that the positions of the sun, the moon, and the stars affect human temperament and human affairs. For example, people born under the sign of Jupiter are believed to be full of playful good humor (jovial). People born under the sign of Saturn are thought to be gloomy and morose (saturnine). And people born under the sign of Mars are believed to be warlike (martial). One supposedly can also foretell the future by studying the positions of these bodies. (See photo.)

MARKA/Alamy Stock Photo

**What's Your Sign?** Can you really learn about a person's personality or future prospects based on his or her astrological sign? How can we distinguish between true sciences and pseudosciences such as astrology?

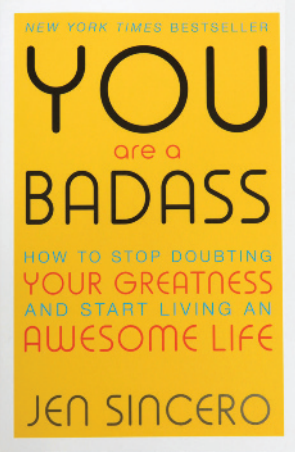
Astrologers maintain that the positions of the heavenly bodies at the time of our birth determine our personality and destiny. They prepare forecasts called horoscopes that are based on our birthdates and indicate what it is safe for us to do. If you get involved with someone who asks for your "sign" (for example, Aquarius or Taurus), he or she is inquiring about your birthdate in astrological terms. Astrologers claim that your sign, which reflects the month during which you were born, indicates whom you will be compatible with. You may have been wondering whether you should date someone of another religion. If you start to follow astrology, you may also be wondering whether it is safe for a Sagittarius to date a Pisces or a Gemini.

Apply principles of critical thinking to the claims of astrologers. For example, does the fact that there may be a long-standing tradition in astrology affect its scientific credibility? Are the tides of the seas comparable to human personality and destiny?

Psychology is a science. Science demands that beliefs about the behavior of cosmic rays, chemical compounds, cells, people—or the meaning of bird droppings or the movements of the stars—must be supported by evidence. Persuasive arguments and reference to authority figures are not scientific evidence. Astrologers and other pseudoscientists have made specific forecasts of events, and their accuracy—or lack of it—provides a means of evaluating astrology. Despite the fact that about three Americans in 10 believe that astrology is true, astrological predictions are no more likely to come true than predictions based on chance (Groome, 2016). And despite the fact that the majority of employers in India consult astrologers about hiring decisions, there is no scientific basis for believing that a person's personality relates to one's birth sign (Groome, 2016). But does the lack of scientific support for astrology matter? Will followers of astrology be persuaded by facts? Maybe not. Many people seem to need some magic in their lives, even if the "magic" provided by psychics amounts to a heap of garbage. Sad to say, even in our age of scientific enlightenment, many people are more comfortable with stories and leaps of faith than they are with objective evidence and statistical probabilities.

Let us now look more deeply into a scientific approach to adjustment. We discuss the scientific method in general and then consider ways in which psychologists gather evidence to support—or, sometimes, to disprove—their views.

## Applying Psychology to the Challenge of . . .




Ben Molyneux/Alamy Stock Photo

**Should You Run Out (or Sign on) and Get a Copy?** With all those self-help books out there, how can you use critical thinking to separate the helpful wheat from the potentially harmful chaff?

### All Those Self-Help Books—Are There Any Quick Fixes?

*The Subtle Art of Not Giving a F*ck* (pardon our French); *The Secrets You Keep; Girl, Wash Your Face; Becoming Whole: A Healing Companion, to Ease Emotional Pain and Find Self-Love; Rebellious Aging: A Self-Help Guide for the Old Hippie at Heart; You Are a Badass: How to Stop Doubting Your Greatness and Start Living an Awesome Life; Not Nice: Stop People Pleasing, Staying Silent, & Feeling Guilty, . . .* (See photo.)

These are just a few of the self-help books that have flooded the marketplace in recent years. Every day, shy people, anxious people, heavy people, stressed people, and confused people scan bookstores and supermarket checkout racks in hope of finding the one book that will provide the answer. How can they evaluate the merits of these books? Some offer useful insights and advice. But others are just plain wrong. How can we separate the helpful wheat from the useless and sometimes harmful chaff?

Unfortunately, there are no easy answers. Many of us believe the things we see in print, and anecdotes about how chubby Brett lost 60 pounds in 60 days and shy Joni blossomed into a social butterfly in a month have a powerful allure—especially when we are needy.

Be on guard. A price we pay for freedom of speech is that nearly anything can wind up in print. Authors can make extravagant claims with little fear of punishment. They can lie about the effectiveness of a new fad diet as easily as they can lie about being kidnapped by a UFO.

To help separate the meaningful wheat from the nonsensical chaff, try some critical thinking:

1. **First, don't judge the book by its cover or its title.** Good books as well as bad books can have catchy titles and interesting covers. Dozens, perhaps hundreds, of books are competing for your attention. It is little wonder, then, that publishers try to do something sensational with the covers.
2. **Avoid books that make extravagant claims.** If it sounds too good to be true, it probably is. No method helps everyone who tries it. Very few methods work overnight. People want the instant cure. The book that promises to make you fit in 10 days will outsell the book that says it will take 10 weeks. Responsible psychologists and health professionals do not make lavish claims.
3. **Check authors' educational credentials.** Be suspicious if the author's title is just "Dr." and is placed before

the name. The degree could be a phony doctorate bought through the mail. It could be issued by a religious cult rather than a university or professional school. It is better if the "doctor" has an MD, PhD, PsyD, or EdD after her or his name rather than "Dr." in front of it.

4. **Check authors' affiliations.** There are no guarantees, but authors who are affiliated with colleges and universities may be more credible than those who are not.
5. **Consider authors' complaints about the conservatism of professional groups to be a warning.** Do the authors boast that they are ahead of their time? Do they berate professional health organizations as pigheaded or narrow-minded? If so, be suspicious. Most psychologists and other scientists are open-minded. They just ask to see evidence before they jump on the bandwagon. Enthusiasm is no substitute for research and evidence.
6. **Check the evidence reported in the book.** Poor-quality self-help books tend to make extensive use of anecdotes—unsupported stories about the fantastic results achieved by a few individuals. When possible, they cite the reports of celebrities and authority figures. Responsible psychologists and other health professionals check the effectiveness of techniques with carefully constructed samples of people. They carefully measure the outcomes and qualify their statements about their results, such as by saying "it seems that" and "subjects tended to improve."
7. **Check the reference citations for the evidence.** Legitimate psychological research is reported in the journals you will find in the reference section of this book. These journals report only research methods and outcomes that meet scientific standards. If there are no reference citations, or if the list of references seems suspicious, you should be suspicious, too.
8. **Read textbooks and professional books, like this one, rather than self-help books.** Search the college bookstore for texts in fields that interest you. Try the suggested readings in textbooks.
9. **Stop by and chat with your psychology professor.** Talk to someone in your college or university health center.

In sum, there are few, if any, quick fixes to psychological and health problems. Do your homework. Become a critical consumer of self-help books.

## Review

**Sentence Completion**

**10.** The adoption of a skeptical, questioning attitude toward the claims or arguments of others is called _____ _____.

**11.** One aspect of critical thinking is the careful examination of the _____ of terms.

**12.** The term *pseudoscience* refers to a (true or false?) science.

**Think About It**

People in the United States are divided in their political beliefs and in whom they support in public office more than they have been in generations. How do you determine whom you believe in public office? How do you determine whether a politician is telling the truth or lying? How can you use critical thinking to weigh the truthfulness of what politicians say?

# How Psychologists Study Adjustment

Are women better than men at spelling? Are city dwellers less friendly toward strangers than small-town residents? Do laws against discrimination reduce prejudice? Does alcohol cause aggression? Is exercise good for your blood pressure? What are the effects of day care and divorce on children? Many of us have expressed opinions on questions such as these at one time or another, but psychology is a science, and scientific statements about behavior must be supported by evidence. Strong arguments, reference to authority figures, celebrity endorsements, and even tightly knit theories don't qualify as scientific evidence. Scientific evidence is obtained by means of the **scientific method**.

**scientific method** A method for obtaining scientific evidence in which a hypothesis is formed and tested.

## The Scientific Method: Putting Ideas to the Test

The scientific method is an organized way that scientists use to test ideas and expand and refine their knowledge based on careful observation and experimentation. It is not a recipe that psychologists and other scientists follow, but rather a set of general principles that guides their research.

Psychologists usually begin by formulating a research question. Research questions can have many sources. Our daily experiences, psychological theory, even folklore and intuition all help generate questions for research. But whatever the source of the question, psychologists do not substitute speculation or theorizing for gathering evidence.

A research question may be studied as a question or reworded as a **hypothesis** (see **Figure 1.6**). A hypothesis is a specific prediction about behavior or mental processes that is tested through research. One hypothesis about day care might be that preschoolers who are placed in day care acquire greater social skills in relating to peers than preschoolers who are cared for in the home. A hypothesis about exposure to TV violence might be that elementary school children who watch more violent TV shows tend to behave more aggressively toward their peers.

Psychologists next examine the research question or test the hypothesis through carefully conducted methods of research. For example, they might introduce children who are in day care, and children who are not, to a new child and observe how children in each group interact with the new acquaintance. Psychologists draw conclusions about their research questions or the accuracy of their hypotheses on the basis of their observations or findings. When evidence fails to bear out hypotheses, psychologists may rethink their hypotheses or modify the theories from which they are drawn.

As psychologists draw conclusions from research evidence, they are guided by principles of critical thinking. For example, they do not confuse correlation with causation. **Correlation** is a statistical association or relationship between variables. Causation means that one variable directly causes or influences another. For example, psychologists may find a significant correlation in children between the amounts of time spent watching violent TV shows and the level of aggressiveness shown in the schoolyard or the classroom. It may be tempting to conclude from this kind of evidence that TV violence causes aggressive behavior. But a **selection factor** may be at work—because the children studied choose (select) for themselves what they watch. Perhaps more aggressive children are more likely than less aggressive children to tune in to violent TV shows. Do you think, for example, that there would be problems studying the effects of different diet plans by having study participants choose which diet plan they want to follow? Why or why not? As we shall see, psychologists use experimental methods and random assignment to experimental conditions to tease out cause-and-effect relationships and control for selection factors.

To better understand the effects of a selection factor, consider a study of the relationship between exercise and health. Imagine that we were to compare a group of people who exercised regularly with a group of people who did not. We might find that the exercisers were physically healthier than the couch potatoes. But could we conclude that exercise is a causal factor in good health? Perhaps not. The selection factor—the fact that one group chose to exercise and the other did not—could also explain the results. Perhaps healthy people are more likely to choose to exercise.

Some psychologists include the publication of research studies in professional journals as a crucial part of the scientific method. Publication of research also permits the scientific community at large to evaluate the methods and conclusions of other scientists.

Researchers are also obligated to provide enough details of their work that others will be able to replicate (repeat or reproduce) their research methods to see whether the findings hold up over time or with different groups or populations (Stanley & Spence, 2014). For example, researchers may replicate research of others to determine whether findings with women can be generalized to men, whether findings with European Americans can be generalized to ethnic minority groups, or whether findings with people who have sought psychotherapy can be generalized to people at large.

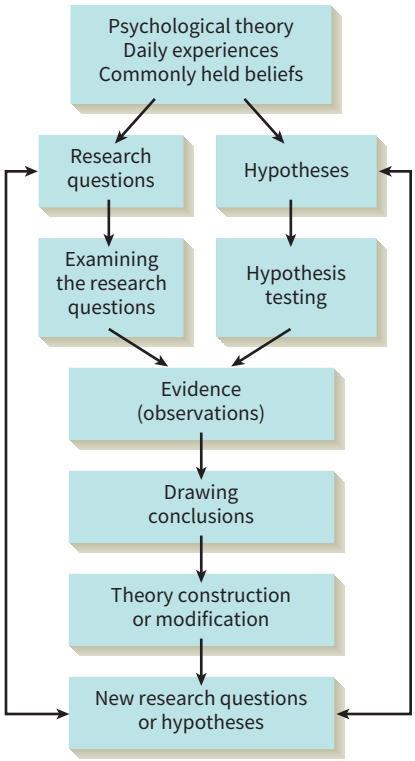



**FIGURE 1.6 The Scientific Method** The scientific method is a systematic way of organizing and expanding scientific knowledge. Daily experiences, common beliefs, and scientific observations all contribute to the development of theories. Psychological theories explain observations and lead to hypotheses about behavior and mental processes. Observations can confirm a theory or lead to its refinement or abandonment.

**hypothesis** A prediction about behavior that is tested through research.

**correlation** A statistical association or relationship between two variables, expressed in the form of a correlation coefficient.

**selection factor** A source of bias that may occur in research studies when subjects determine for themselves whether they receive a treatment condition.

## Methods of Research

Let us now consider the research methods used by psychologists: the case study method, the survey method, the naturalistic observation method, the correlational method, and the experimental method.

Maskot/Getty Images

**Psychologist and Client** Therapy sessions such as this are intended to help clients cope with adjustment problems and more serious psychological issues. They can also provide helping professionals with case studies, which—with the permission of clients—may be used to expand knowledge of psychological problems and methods of treatment.

## The Case Study Method

We begin our discussion of research methods with the **case study method** because our own ideas about human nature tend to be based on our informal studies or observations of individuals and small groups. Most of us gather our information haphazardly. Often, we see what we want to see. Unscientific accounts of people's behavior are referred to as anecdotes. Through the use of the case study method, psychologists draw carefully constructed portraits of the lives of individuals to better understand their behavior. Sigmund Freud, whose work is discussed in Chapter 3, developed his theory of personality largely on the basis of intensive case studies of patients he had treated. (See photo.)

Freud studied his patients in great depth, seeking factors that seemed to contribute to notable patterns of behavior. He followed some patients for many years, meeting with them several times a week.

Of course, there are bound to be gaps in memory when people are questioned. People may also distort their pasts because of a **social desirability bias**—a tendency to present oneself in a socially desirable light. Interviewers may also have certain expectations and may subtly encourage subjects to fill in gaps in ways that are consistent with their theoretical perspectives. All in all, case studies may provide useful or revealing information, but they lack the rigorous controls found in experimental methods. There is also the question as to whether the finding in case studies can be generalized to the population at large. Freud's case studies, for example, were largely conducted with affluent women in late-19th-century Vienna, Austria. Can we generalize them to people—or even women—of diverse backgrounds in the United States and Canada today?

**case study method** A method of research based on a carefully drawn biography obtained through interviews, questionnaires, or psychological tests.

**social desirability bias** The tendency for people to respond in socially desirable ways.

Freud even conducted one study of a young boy ("Little Hans"), who feared that horses were biting people in the streets, by mail. Freud interpreted Little Hans's fear as evidence of unconscious terror that he would be castrated by his father. Freud believed that boys see their fathers as rivals for their mothers' affections and thus fear their fathers, even if only below the level of conscious awareness. Do you think that this case study, conducted by mail in Europe more than a century ago, paints an accurate picture of the unconscious emotional lives of boys?

## The Survey Method

Psychologists conduct **surveys** to learn about attitudes and behaviors that cannot be directly observed in the natural setting or studied experimentally. When conducting surveys, psychologists typically administer questionnaires or interviews to large numbers of individuals. Surveys have been conducted on many topics relating to adjustment, including dietary habits, exercise patterns, marital satisfaction, and even intimate sexual behavior. (See photo.)

**surveys** Methods of gathering information in which large numbers of individuals are interviewed or asked to complete questionnaires in order to learn about their attitudes or behaviors. Many surveys today are conducted online.

### Samples and Populations: Hitting the Target Population

Consider a piece of American "history" that never actually happened: In 1936 the Republican candidate Alf Landon defeated the incumbent president, Franklin D. Roosevelt. Or at least Landon did so in a poll conducted by a popular magazine of the day, the *Literary Digest*. In the actual election, Roosevelt routed Landon in a landslide of 11 million votes. How, then, could the *Digest* predict a Landon victory? How was so great a discrepancy possible?

## Self-Assessment

### Dare You Say What You Think? The Social Desirability Scale

Do you say what you think, or do you tend to misrepresent your beliefs to earn the approval of others? Do you answer questions honestly, or do you say what you think other people want to hear? Telling others what we think they want to hear is making the socially desirable response. Falling prey to social desirability may cause us to distort our beliefs and experiences in interviews or on psychological tests. The bias toward responding in socially desirable directions is also a source of error in the case study and survey methods. You can complete the following Social Desirability Scale devised by Crowne and Marlowe to gain insight into whether you have a tendency to produce socially desirable responses.

Directions: Read each item and decide whether it is true (T) or false (F) for you. Try to work rapidly and answer each question by circling the T or the F. Then turn to the scoring key at the end of the chapter to interpret your answers.

T F **1.** Before voting I thoroughly investigate the qualifications of all the candidates.

T F **2.** I never hesitate to go out of my way to help someone in trouble.

T F **3.** It is sometimes hard for me to go on with my work if I am not encouraged.

T F **4.** I have never intensely disliked anyone.

T F **5.** On occasions I have had doubts about my ability to succeed in life.

T F **6.** I sometimes feel resentful when I don't get my way.

T F **7.** I am always careful about my manner of dress.

T F **8.** My table manners at home are as good as when I eat out in a restaurant.

T F **9.** If I could get into a movie without paying and be sure I was not seen, I would probably do it.

T F **10.** On a few occasions, I have given up something because I thought too little of my ability.

T F **11.** I like to gossip at times.

T F **12.** There have been times when I felt like rebelling against people in authority even though I knew they were right.

T F **13.** No matter who I'm talking to, I'm always a good listener.

T F **14.** I can remember "playing sick" to get out of something.

T F **15.** There have been occasions when I have taken advantage of someone.

T F **16.** I'm always willing to admit it when I make a mistake.

T F **17.** I always try to practice what I preach.

T F **18.** I don't find it particularly difficult to get along with loudmouthed, obnoxious people.

T F **19.** I sometimes try to get even rather than forgive and forget.

T F **20.** When I don't know something I don't mind at all admitting it.

T F **21.** I am always courteous, even to people who are disagreeable.

T F **22.** At times I have really insisted on having things my own way.

T F **23.** There have been occasions when I felt like smashing things.

T F **24.** I would never think of letting someone else be punished for my wrongdoings.

T F **25.** I never resent being asked to return a favor.

T F **26.** I have never been irked when people expressed ideas very different from my own.

T F **27.** I never make a long trip without checking the safety of my car.

T F **28.** There have been times when I was quite jealous of the good fortune of others.

T F **29.** I have almost never felt the urge to tell someone off.

T F **30.** I am sometimes irritated by people who ask favors of me.

T F **31.** I have never felt that I was punished without cause.

T F **32.** I sometimes think when people have a misfortune they only got what they deserved.

T F **33.** I have never deliberately said something that hurt someone's feelings.



**WileyPLUS** **For an interactive version of this self-assessment exercise, log on to your WileyPLUS course.**

*The Digest*, you see, had phoned the voters it surveyed. Today, telephone sampling is a widely practiced and reasonably legitimate technique. But the *Digest* poll was taken during the Great Depression, when Americans who had telephones were much wealthier than those who did not. Americans with higher incomes are also more likely to vote Republican. No surprise, then, that the overwhelming majority of those sampled said that they would vote for Landon.


enis izgi/E+/Getty Images

**The Survey Method** Researchers can obtain self-reports of behavior or expressions of attitudes from hundreds or thousands of people at a time by using the survey method. As with the case study, researchers need to be concerned about whether respondents are telling the truth or trying to make themselves look good—or bad!

Psychologists use samples to represent populations. If samples accurately represent the population they are intended to reflect, we can **generalize** the results obtained from research samples back to the populations from which they were drawn.

In surveys such as that conducted by the *Literary Digest* and in other research methods, the individuals, or subjects, who are studied are referred to as a **sample**. A sample is a part of a population. Psychologists and other scientists need to ensure that the subjects they observe represent their target population, such as residents of the United States, not subgroups such as European Americans living in Oklahoma.

**generalize** To extend from the particular to the general; to apply observations based on a sample to a population.

**sample** Part of a population selected for research.

**population** A complete group of organisms or events.

**random sample** A sample drawn such that every member of a population has an equal chance of being selected.

### Random Sampling

One way to achieve a representative sample is by means of random sampling. In a random sample, each member of a **population** has an equal chance of being selected to participate. Researchers may stratify their sample by first identifying subgroups in the population and then randomly sampling members of these subgroups in relation to the proportion of the subgroups in the population. For instance, 13% of the American population is African American (U. S. Census Bureau, 2017); a stratified sample would thus be 13% African American. As a practical matter, a large, randomly selected sample that uses methods of contact available to all groups shows reasonably accurate stratification. A **random sample** of 1,500 people represents the general American population reasonably well. A haphazardly drawn sample of a million people, however, might not. In fact, you could survey 20 million Americans using methods that are more likely to contact Democrats than Republicans and still wind up with inaccurate election predictions.

**volunteer bias** A source of bias or error in research that reflects the prospect that people who offer to participate in research studies differ systematically from people who do not.

### Volunteer Bias

Popular magazines often conduct reader surveys to ascertain attitudes about relationships, sexuality, family issues, and so on. Although many thousands of readers complete these questionnaires and send them in, do they represent the general American population? Probably not. These studies and similar ones may be influenced by **volunteer bias**. The concept behind volunteer bias is that people who offer to participate in research studies, or who participate in surveys, differ in important ways from people who do not. In the case of research into sexual behavior, volunteers may represent subgroups of the population—or of readers of the magazines in question—who are willing to disclose intimate information. Volunteers may also be more interested in research than nonvolunteers and may also have more spare time. How might such volunteers differ from the population at large? How might such differences slant or bias the research outcomes?

**naturalistic observation** A scientific method in which organisms are observed in their natural environments.

## The Naturalistic Observation Method

You use **naturalistic observation** every day of your life. That is, you observe people in their natural habitats. So do scientists. But scientists use more systematic or formal methods when observing people than occurs in casual observation. For example, they may observe peer relationships of children in a schoolyard to better understand how children relate to one another. They may note how children form play groups and how they include or exclude other children. Psychologists may also observe differences in the eating behaviors of normal-weight and overweight patrons at fast-food restaurants. They may observe what people order, how long it takes them to consume their meals, and how many bites they take. Do the overweight eat more rapidly? Chew less frequently? Leave less food on their plates? This kind of information may help determine whether the eating habits of people of different weight classes differ.

## Adjustment in the Digital Age

### Smartphones and Social Media as Research Tools

Researchers are extending the reach of data collection beyond the laboratory and the classroom by recruiting electronic technologies that can provide real-time data from online services as people go about their daily lives. The Internet, texting, and use of smartphones are all making their contributions. For example, 23andMe, the genetic testing company, uses online questionnaires to assess people's demographic characteristics—such as race, ethnicity, age, and so on—and to correlate it with their genetic codes. As a result, they are publishing study after study about the presence of health issues as related to heredity in respected journals.

Researchers use participants' smartphones to collect data via texting and the like to enable respondents to report their behavior, moods, activities, and, sometimes, psychological problems throughout the day. They also mine data from social media. In one example, Cornell University researchers studied hundreds of millions of Twitter "tweets" to determine whether the emotional content of the tweets—for instance, the use of happy versus sad words—changed throughout the course of the day (Mejova et al., 2015). They found that tweeters used happier words early in the day and that tweeters' words, and apparently their moods, became more negative as the day progressed. Researcher Michael Macy reported, "We found people are happiest around breakfast time in the morning and then it's all downhill from there" (cited in Weaver, 2012). Perhaps people, especially well-rested people, awaken with optimism that the day will be a good one and then, as the day progresses and their own realities intrude, their outlooks become gloomy.

Sometimes people opt in to participate in online research. But as in the case of the investigation of many millions of tweets, sometimes they do not. The ability of researchers to go online and access people's data without their knowledge or consent raises new issues of privacy and confidentiality. According to Jasmine Linabary and Danielle Corple (2018), women are especially vulnerable to online harassment and abuse. Researchers must therefore understand the extent to which they can hold power over their research "participants" and take extreme care to do no harm.

In naturalistic observation, psychologists and other scientists observe behavior in the field, or "where it happens." They try to avoid interfering with the behaviors they are observing by using **unobtrusive measures**. The naturalistic observation method provides descriptive information about behavior, but it cannot determine the underlying causes of behavior.

**unobtrusive measures**
Research measures that do not interfere with the subject's behavior, such as discreetly observing a person's behavior from a distance.

## The Correlational Method: Seeing What Goes Up and What Comes Down

Are people with higher intelligence more likely to do well in school? Are people with a stronger need for achievement likely to climb higher up the corporate ladder? What is the relationship between stress and health? These kinds of questions are often addressed through correlational research.

In using the **correlational method**, psychologists investigate whether one observed behavior or measured trait is related to, or correlated with, another. Consider the variables of intelligence and academic performance. The variables of intelligence and academic performance are assigned numbers such as intelligence test scores and academic averages. Then the numbers or scores are mathematically related and expressed as a correlational coefficient. A **correlation coefficient** is a number that expresses the direction and strength of the relationship between the variables, and it can vary between −1.00 and +1.00. Zero means that there is no correlation. Then the closer the coefficient is to the number 1.00, whether positive or negative, the stronger the relationship between the two variables.

**correlational method**
A scientific method that studies the relationships between variables.

**correlation coefficient**
A number between −1.00 and +1.00 that expresses the strength and direction (positive or negative) of a relationship between two variables.

When one variable increases as the other increases, the relationship between the two variables is expressed as a **positive correlation** (the sign of the correlation coefficient is positive). For example, investigators find a positive relationship between scores on intelligence tests and measures of academic achievement, such as grades in school.

**positive correlation**
A relationship between variables in which one variable increases as the other also increases.

Generally speaking, the higher people score on intelligence tests, the better their academic performance is likely to be. The scores attained on the tests are positively correlated with overall academic achievement (see **Figure 1.7**.) There is a negative correlation between stress and various measures of health. As the amount of stress affecting us increases, the functioning of our immune system decreases. Under high levels of stress, many people show poorer health. A **negative correlation** is expressed by a correlation coefficient with a negative sign (for example, −0.60).

**negative correlation**
A relationship between two variables in which one variable increases as the other decreases.

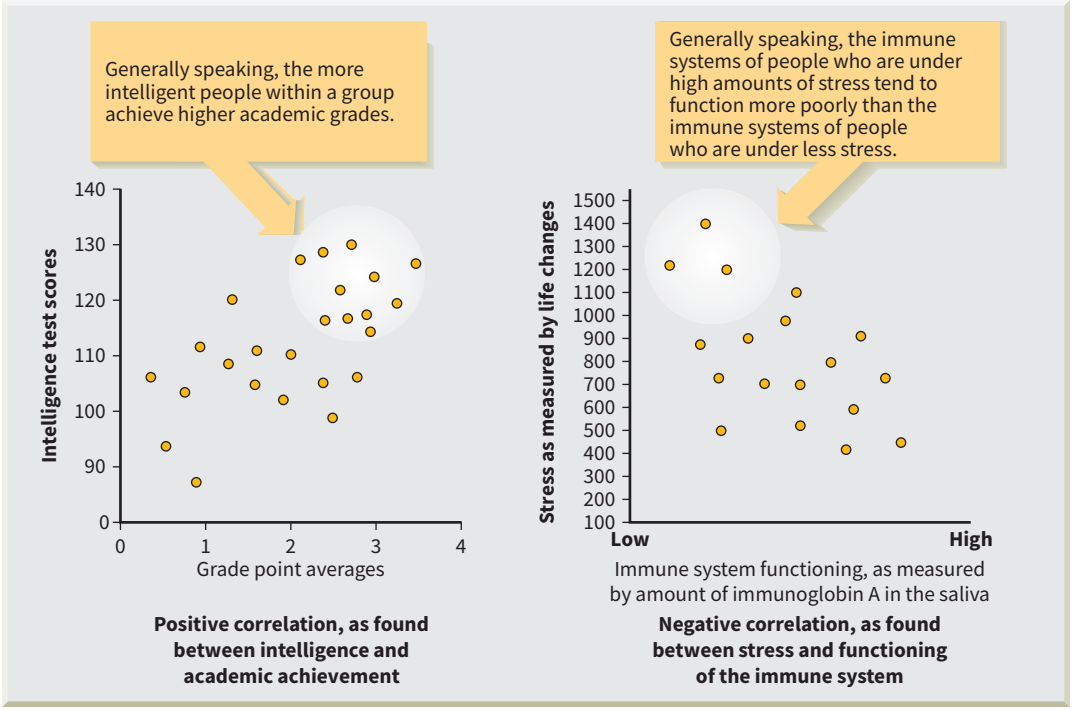



**FIGURE 1.7 Positive and Negative Correlations** With a positive correlation between variables, as between intelligence and achievement, as one variable increases, the other tends to increase. By and large, the higher people score on intelligence tests, the better their academic performance is likely to be, as shown in the diagram to the left. (Each dot represents an individual's intelligence test score and grade point average.) Similarly, there is a positive correlation between engaging in exercise and physical health as discussed in Chapter 6. On the other hand, there is a negative correlation between stress and health. As the amount of stress increases, the functioning of our immune system tends to decrease. Although correlational research may point to a possible causal effect, it does not demonstrate cause-and-effect relationships.

Correlational research may suggest causal patterns but does not demonstrate cause-and-effect relationships. For instance, it may seem logical to assume that high intelligence causally contributes to high grades, and perhaps it does. But it is also possible that intelligence and academic achievement have no causal relationship but that both are explained by an underlying third variable, such as genetic factors or exposure to an intellectually stimulating home environment. The relationship between intelligence and academic performance may not be as simple as you might have thought. What of links between stress and health? Does stress impair health, or is it possible that people in poorer health encounter higher levels of stress? Although correlational research may not pinpoint cause and effect, it may suggest possible causal factors to be explored through experimental methods.

**experimental method**
A scientific method that seeks to confirm or discover cause-and-effect relationships by introducing independent variables and observing their effects on dependent variables.

## The Experimental Method: Trying Things Out

Scientists use the **experimental method** to determine cause-and-effect relationships and to answer questions such as whether physical activity lowers blood pressure, alcohol incites aggressive behavior, or psychotherapy relieves feelings of anxiety. In the experimental method, a group of participants, or subjects, receives a treatment, for example, an exercise regimen, a dosage of alcohol, or a trial of therapy. Then the subjects are observed under carefully controlled conditions to determine whether the treatment has an effect on their health or behavior.

**independent variable**
A condition in a scientific study that is manipulated so that its effects can be measured.

### Independent and Dependent Variables

In an experiment to determine whether alcohol causes aggression, participants might be given an amount of alcohol to drink to see what effects it has on their behavior. In this case, alcohol would be the independent variable. An **independent variable** is directly manipulated by the experimenters so that its effects can be measured. The independent variable (alcohol in this case) may be administered at different levels, or doses.

The measured results, or outcomes, in an experiment are called **dependent variables**. The magnitude or level of a dependent variable is measured to determine the effects of the independent variable or variables. In an experiment to determine whether alcohol influences aggression, aggressive behavior is a dependent variable. Other dependent variables of interest might include sexual arousal, visual–motor coordination, and performance on intellectual tasks such as defining words or performing numerical computations.

**dependent variables** Measures of an assumed effect or effects of an independent variable.

**Experimental and Control Groups** Scientists seek to determine the effects of an independent variable by comparing the behavior of **experimental groups** and **control groups**. Individuals in an experimental group receive the experimental manipulation, which is also called a **treatment**. Members of a control group do not. Every effort is made to ensure that all other conditions are held constant for both groups. This method enhances the researchers' ability to draw conclusions about cause and effect. In well-designed studies, subjects are assigned randomly to treatment or control groups. By using **random assignment**, experimenters have confidence that differences between treatment and control groups are due to the effects of the experimental manipulation, or independent variable, rather than differences in the types of research participants or subjects composing these groups.

In a study of the effects of alcohol on aggression, members of the experimental group would ingest alcohol and members of the control group would not. In a complex experiment, different experimental groups might ingest different dosages of alcohol and be exposed to different types of social provocations.

**experimental group** A group of subjects who receive a treatment in an experiment.

**control group** In an experiment, a group of subjects who do not obtain the treatment, while other conditions are held constant. Therefore, one may conclude that group differences following treatment result from the treatment.

**treatment** In experiments, a condition received by participants so that its effects may be observed.

**random assignment** A procedure for randomly assigning subjects to experimental or control groups.

**Blinds and Double Blinds** One early study of the effects of alcohol on aggression reported that men at parties where beer and liquor were served acted more aggressively than men at parties where only soft drinks were served (Boyatzis, 1974). But subjects in the experimental group knew they had drunk alcohol, and those in the control group knew they had not. Aggression that seemed to result from alcohol might not have reflected drinking per se. Instead, it might have reflected the subjects' expectations about the effects of alcohol. People tend to act in stereotypical ways when they believe they have been drinking alcohol. For instance, men tend to become less anxious in social situations, more aggressive, and more sexually aroused.

A **placebo** or "sugar pill" may produce similar effects to those of an active ("real") drug (Espay et al., 2015). The placebo effect illustrates the power of the human mind (Rutherford & Roose, 2013). Patients with pain, for example, may report feeling less pain when they are given placebos in place of real pain medications. Placebos may even work when participants are told that they are receiving a placebo and not an active drug (Boutron et al., 2010; Kam-Hansen et al., 2014).

**placebo** A bogus treatment that has the appearance of being genuine.

**double-blind studies** Experiments in which neither the participants nor the researchers know who has been given the active treatment or drug and who has not.

Experimenters may control for expectations by keeping participants unaware of, or "blind to," the experimental conditions (drug treatment, for example) they receive. Yet researchers may also have expectations that bias their judgments. They may in effect be "rooting for" a certain experimental condition, even if they are not aware of it. Hence it is often useful to keep experimenters in the dark ("blind") about which subjects received which experimental conditions or treatments. Studies that keep both research participants (subjects) and experimenters blind with respect to whether an active drug or a placebo is given are called **double-blind studies**.

In an illustrative double-blind study on the effects of alcohol on aggression, Alan Lang and his colleagues (1975) pretested a highball of vodka and tonic water to determine that it could not be discriminated by taste from tonic water alone. They then recruited college men who described themselves as "social drinkers" to participate in the study. Some of the men drank vodka and tonic water. Others drank tonic water only. Of the men who drank vodka, half were misled into believing they had drunk tonic water only (see **Figure 1.8**). Of those who drank the tonic water only, half were misled into believing their drink contained vodka. Thus, half the participants were blind to their treatment. For purposes of the study, the experimenters defined aggression as pressing a lever that participants believed would deliver an electric shock to another person. The researchers who measured the men's aggressive responses were also blind concerning which participants had drunk vodka. (See photo.)

sidsnapper/E+/Getty Images

**Tonic Water—With or Without Vodka?** In the Lang study, researchers were able to keep study participants "blind" as to whether or not they were drinking vodka by mixing the vodka with tonic water.

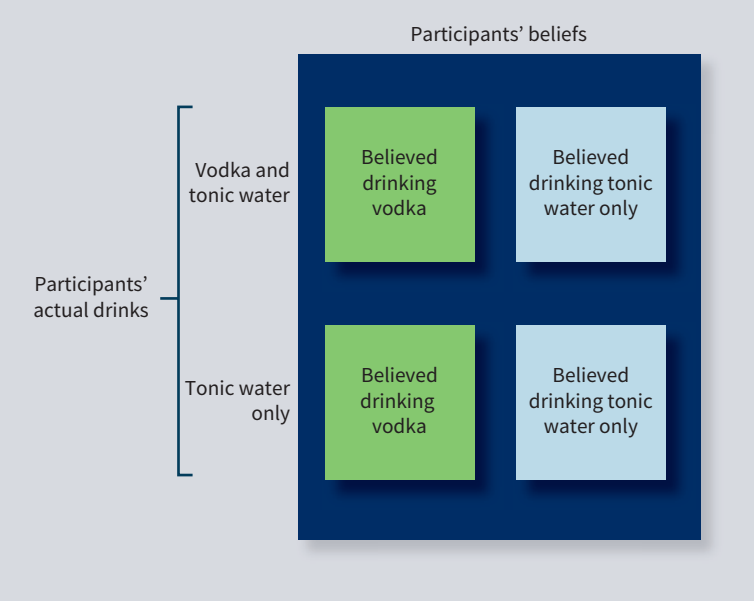



**FIGURE 1.8 Illustration of a Double-Blind Study of the Effects of Alcohol on Aggression**

In the Lang study on alcohol and aggression, the participants were kept "blind" as to whether or not they had actually drunk alcohol by using tonic water to mask the presence or absence of vodka. The blind study allowed the researchers to control for their participants' expectations about the effects of alcohol.

The research team found that men who believed that they had drunk vodka responded more aggressively (selected a higher level of shock) in response to a provocation than men who believed that they had drunk tonic water only. The actual content of the drink was immaterial. That is, the men's belief about what they drank affected their behavior more than what they actually consumed. The results of the Lang study differ dramatically from those reported by Boyatzis, perhaps because the Boyatzis study did not control for the effects of expectations or beliefs about alcohol.

A U.S. watchdog agency, the Food and Drug Administration (FDA), requires double-blind drug studies before it allows the marketing of new drugs. The drug and the placebo look and taste alike. Experimenters assign the drug or placebo to subjects at random. Neither the subjects nor the observers know who is taking the drug and who is taking the placebo. After the final measurements have been made, a neutral panel (a group of people who have no personal stake in the outcome of the study) judges whether the effects of the drug differed from those of the placebo.

Double-blind controlled studies are not perfect, however. Prescribing physicians as well as many of their patients can often tell whether a drug is a placebo or the real thing on the basis of telltale side effects. Thus, double-blind designs may sometimes resemble Venetian blinds with the slats slightly open. Despite their limitations, they remain the most important means of determining the effectiveness of new medications (Perlis et al., 2010).

## Review

### Sentence Completion

**13.** The _____ _____ is a framework for testing ideas and acquiring knowledge through careful observation and experimentation.

**14.** The _____ method involves the development of a carefully drawn portrait of an individual.

**15.** The method of research that involves the administration of questionnaires or interviews to large numbers of individuals is called the _____ method.

**16.** A subset or segment of a population used in research is referred to as a(n) _____.

**17.** Investigators use the technique of random _____ to draw representative samples from the population of interest.

**18.** In the naturalistic observation method, researchers attempt to use _____ measures to help ensure that their observational methods do not interfere with the behavior of the people they observe.

**19.** Psychologists use the correlational method to examine _____ between variables, although they recognize that the variables may not be causally connected.

**20.** The experimental method studies cause-and-effect relationships by means of manipulation of one or more (independent or dependent?) variables to observe their effects on one or more (independent or dependent?) variables.

### Think About It

People who exercise are generally healthier than people who do not. Does this relationship between exercise and health show that exercise is a causal factor in good health? Why or why not? Can you think of other reasons for the relationship? How could you determine whether exercise improves people's health?

# Recite—An Active Summary

### 1. What is psychology? How does psychology help individuals cope with stress and other problems of daily life?

Psychology is the scientific study of behavior and mental processes. Psychology helps us understand our behavior and mental processes, and devise ways of helping us enhance or improve our behavior and mental processes.

### 2. What are the differences between adjustment and personal growth? Between nature and nurture? Between the clinical approach versus the healthy-personality approach to the psychology of adjustment?

Adjustment helps us meet the demands of the environment, and personal growth involves developing the creative and active components of our personalities. Our nature is the biological "hand" we have been given, and our nurture involves the ways in which our environments enable us or hinder us in making the most of who we are. The clinical approach to adjustment involves studying the ways in which we can overcome problems and manage stress, whereas the healthy-personality approach involves positive psychology, studying our psychological strengths and virtues and the ways in which we can help them flourish.

### 3. What are the contributors to personal happiness?

Although wealth is no guarantee of happiness, poverty is a detractor of well-being and happiness. Other contributors to happiness include pleasurable activities, becoming absorbed in our daily lives, finding meaning and personal fulfillment, family and friends, and, apparently, our genetic makeup.

### 4. What is meant by human diversity?

Human diversity focuses on the ways in which we differ from one another, including our race or ethnicity, gender, age, physical skills and abilities, sexual orientation, health, and in many cases, disabilities.

### 5. How do our ethnicity, gender, sexual orientation, and other aspects of diversity relate to our adjustment and growth?

Our ethnicity can provide supportive cultural groups and traditions that involve our common histories with others, our languages, and our religions. However, many minority groups in the United States have been subjected to prejudice and discrimination. Men have generally received preference over women, channeling women into domestic roles, although recent generations of women have been essential to the workforce. Gay males, lesbians, and transgender individuals have all been subjected to social ostracism and discrimination, although Supreme Court rulings have reinforced their rights to equal access to jobs and housing and due process before the law.

### 6. Why is critical thinking important?

Critical thinking encourages us to think for ourselves—to be skeptical of the claims of others, to analyze their arguments, and to resist authority figures.

### 7. What are the principles of critical thinking?

Principles of critical thinking include insisting on evidence before a statement will be accepted as true, to examine definitions of terms used in arguments, to examine the premises of arguments, to be cautious in drawing conclusions from evidence, to avoid oversimplification and overgeneralization, and to think for oneself—not to allow others to do our thinking for us.

### 8. What is meant by the scientific method?

The scientific method is a method of obtaining scientific evidence in which a hypothesis is formed and tested.

### 9. What are the various methods of research? What are the case study, the survey, naturalistic observation, the correlational method, and the experiment?

Research methods include the case study, which is an in-depth study of an individual or a small group; the survey method, in which questionnaires may be distributed to thousands of people to obtain self-reports of attitudes and behavior; the naturalistic observation method, which observes behavior "in the field," where it happens; the correlational method, which mathematically determines the ways in which variables such as intelligence test scores and academic achievement are related; and the experiment, in which a group of participants receives a treatment and its effects are observed.

### 10. Which research method allows investigators to determine cause and effect? How does it do so?

Only the experiment allows researchers to draw conclusions about cause and effect, because participants are ideally assigned at random to experimental (treatment) and control groups, and the effects of the treatment (the independent variable) on the study participants are studied.

## Answers to Review Sections

**1.1**

1. mental
2. Adjustment
3. acting
4. likelihood
5. nature
6. clinical approach

**1.2**

7. diversity
8. ethnic
9. Gender

**1.3**

10. critical thinking
11. definitions
12. false

**1.4**

13. scientific method
14. case study
15. survey
16. sample
17. sampling
18. unobtrusive
19. relationships
20. independent; dependent

## Scoring Key for the Social Desirability Scale

Place a checkmark on the appropriate line of the scoring key each time your answer agrees with the one listed in the scoring key. Add the checkmarks to compute your total score.

1. T_____
2. T_____
3. F_____
4. T_____
5. F_____
6. F_____
7. T_____
8. T_____
9. F_____
10. F_____
11. F_____
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24. T_____
25. T_____
26. T_____
27. T_____
28. F_____
29. T_____
30. F_____
31. T_____
32. F_____
33. T_____

### Interpreting Your Score

**Low Scorers (0–8).** About one respondent in six earns a score between 0 and 8. Such respondents answered in a socially undesirable direction much of the time. It may be that they are more willing than most people to respond to tests truthfully, even when their answers might meet with social disapproval.

**Average Scorers (9–19).** About two respondents in three earn a score between 9 and 19. They tend to show an average degree of concern for the social desirability of their responses, and it may be that their general behavior represents an average degree of conformity to social rules and conventions.

**High Scorers (20–33).** About one respondent in six earns a score between 20 and 33. These respondents may be highly concerned about social approval and respond to test items in such a way as to avoid the disapproval of people who may read their responses. Their general behavior may show high conformity to social rules and conventions.