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Psychology 2e

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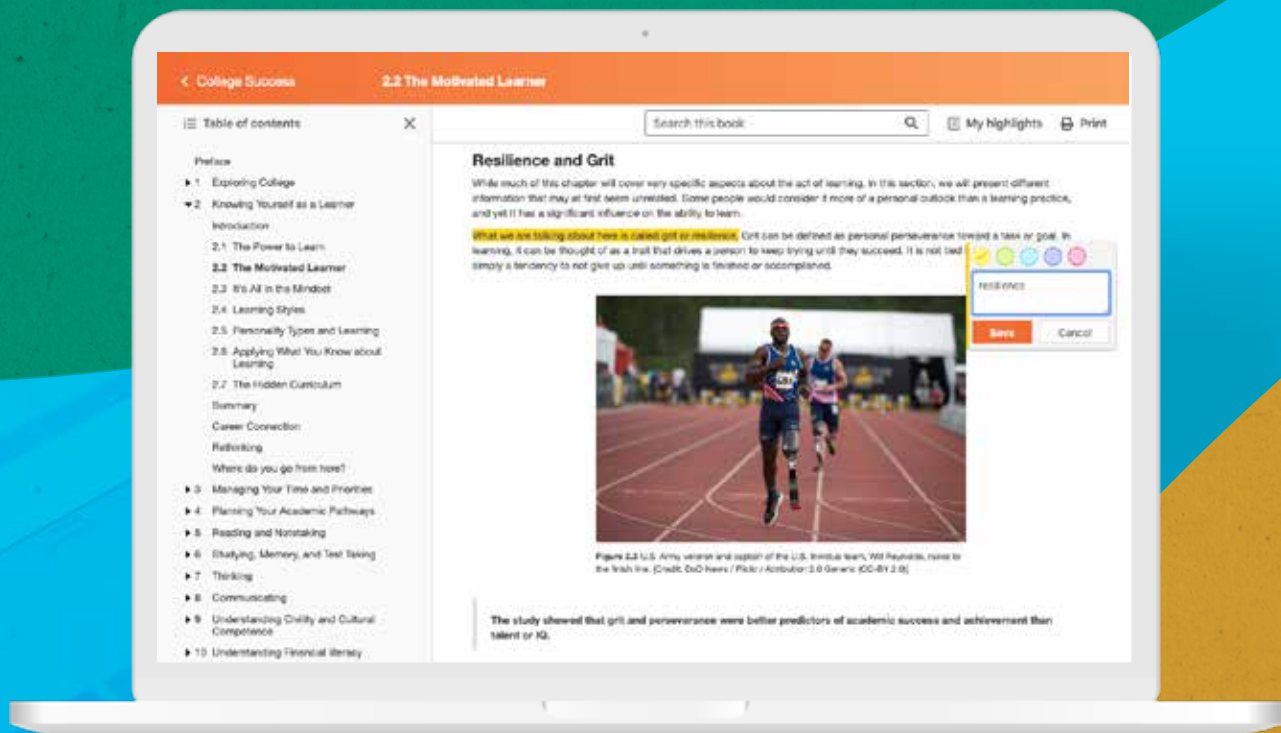


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Preface

Welcome to *Psychology 2e*, an OpenStax resource. This textbook was written to increase student access to high-quality learning materials, maintaining highest standards of academic rigor at little to no cost.

About OpenStax

OpenStax is part of Rice University, which is a 501(c)(3) nonprofit charitable corporation. As an educational initiative, it's our mission to improve educational access and learning for everyone. Through our partnerships with philanthropic organizations and our alliance with other educational resource companies, we're breaking down the most common barriers to learning. Because we believe that everyone should and can have access to knowledge.

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Format

You can access this textbook for free in web view or PDF through openstax.org, and for a low cost in print.

About *Psychology 2e*

Psychology 2e is designed to meet scope and sequence requirements for the single-semester introduction to psychology course. The book offers a comprehensive treatment of core concepts, grounded in both classic studies and current and emerging research. The text also includes coverage of the DSM-5 in examinations of

psychological disorders. *Psychology 2e* incorporates discussions that reflect the diversity within the discipline, as well as the diversity of cultures and communities across the globe.

Coverage and scope

The first edition of *Psychology* has been used by thousands of faculty and hundreds of thousands of students since its publication in 2015. OpenStax mined our adopters' extensive and helpful feedback to identify the most significant revision needs while maintaining the organization that many instructors had incorporated into their courses. Specific surveys, pre-revision reviews, and customization analysis, as well as analytical data from OpenStax partners and online learning environments, all aided in planning the revision.

The result is a book that thoroughly treats psychology's foundational concepts while adding current and meaningful coverage in specific areas. *Psychology 2e* retains its manageable scope and contains ample features to draw learners into the discipline.

Structurally, the textbook remains similar to the first edition, with no chapter reorganization and very targeted changes at the section level.

- Chapter 1: Introduction to Psychology
- Chapter 2: Psychological Research
- Chapter 3: Biopsychology
- Chapter 4: States of Consciousness
- Chapter 5: Sensation and Perception
- Chapter 6: Learning
- Chapter 7: Thinking and Intelligence
- Chapter 8: Memory
- Chapter 9: Lifespan Development
- Chapter 10: Motivation and Emotion
- Chapter 11: Personality
- Chapter 12: Social Psychology
- Chapter 13: Industrial-Organizational Psychology
- Chapter 14: Stress, Lifestyle, and Health
- Chapter 15: Psychological Disorders
- Chapter 16: Therapy and Treatment

Changes to the Second Edition

OpenStax only undertakes second editions when significant modifications to the text are necessary. In the case of *Psychology 2e*, user feedback indicated that we needed to focus on a few key areas, which we have done in the following ways.

Content revisions for clarity, accuracy, and currency

The revision plan varied by chapter based on need. Some chapters were significantly updated for conceptual coverage, research-informed data, and clearer language. In other chapters, the revisions focused mostly on currency of examples and updates to statistics.

Over 210 new research references have been added or updated in order to improve the scholarly underpinnings of the material and broaden the perspective for students. Dozens of examples and feature boxes have been changed or added to better explain concepts and/or increase relevance for students.

Research replication and validity

To engage students in stronger critical analysis and inform them about research reproducibility, substantial coverage has been added to the research chapter and strategically throughout the textbook whenever key studies are discussed. This material is presented in a balanced way and provides instructors with ample

opportunity to discuss the importance of replication in a manner that best suits their course.

Diversity, representation, and inclusion

With the help of researchers and teachers who focus on diversity- and identity-related issues, OpenStax has engaged in detailed diversity reviews to identify opportunities to improve the textbook. Reviewers were asked to follow a framework to evaluate the book's terminology, research citations, key contributors to the field, photos and illustrations, and related aspects, commenting on the representation and consideration of diverse groups. Significant additions and revisions were made in this regard, and the review framework itself is available among the OpenStax *Psychology 2e* instructor resources.

Art and illustrations

Under the guidance of the authors and expert scientific illustrators, especially those well versed in creating accessible art, the OpenStax team made changes throughout the art program in *Psychology 2e*.

Accessibility improvements

As with all OpenStax books, the first edition of *Psychology* was created with a focus on accessibility. We have emphasized and improved that approach in the second edition. Our goal is to ensure that all OpenStax websites and the web view versions of our learning materials follow accessible web design best practices, so that they will meet the W3C-WAI Web Content Accessibility Guidelines (WCAG) 2.0 at Level AA and Section 508 of the Rehabilitation Act. The WCAG 2.0 guidelines explain ways to make web content more accessible for people with disabilities and more user-friendly for everyone.

- To accommodate users of specific assistive technologies, all alternative text was reviewed and revised for comprehensiveness and clarity.
- All illustrations were revised to improve the color contrast, which is important for some visually impaired students.
- Overall, the OpenStax platform has been continually upgraded to improve accessibility.

To learn more about our commitment and progress, please view our [accessibility statement](https://openstax.org/accessibility-statement) (<https://openstax.org/accessibility-statement>).

A transition guide will be available on openstax.org to highlight the specific chapter-level changes to the second edition.

Pedagogical foundation

Psychology 2e engages students through inquiry, self-reflection, and investigation. Features in the second edition have been carefully updated to remain topical and relevant while deepening students' relationship to the material. They include the following:

Everyday Connection features tie psychological topics to everyday issues and behaviors that students encounter in their lives and the world. Topics include the validity of scores on college entrance exams, the opioid crisis, the impact of social status on stress and healthcare, and cognitive mapping.

What Do You Think? features provide research-based information and ask students their views on controversial issues. Topics include “Brain Dead and on Life Support,” “Violent Media and Aggression,” and “Capital Punishment and Criminals with Intellectual Disabilities.”

Dig Deeper features discuss one specific aspect of a topic in greater depth so students can dig more deeply into the concept. Examples include discussions on the distinction between evolutionary psychology and behavioral genetics, recent findings on neuroplasticity, the field of forensic psychology, and a presentation of research on strategies for coping with prejudice and discrimination.

Connect the Concepts features revisit a concept learned in another chapter, expanding upon it within a different context. Features include “Emotional Expression and Emotional Regulation,” “Tweens, Teens, and Social Norms,” and “Conditioning and OCD.”

Art, interactives, and assessments that engage

Our art program is designed to enhance students' understanding of psychological concepts through simple, effective graphs, diagrams, and photographs. *Psychology 2e* also incorporates links to relevant interactive exercises and animations that help bring topics to life. Selected assessment items touch directly on students' lives.

Link to Learning features direct students to online interactive exercises and animations that add a fuller context to core content and provide an opportunity for application.

Personal Application Questions engage students in topics at a personal level to encourage reflection and promote discussion.

Answers to Questions in the Book

Answers to Review Questions and Critical Thinking Questions are provided in the Instructor Solution Guide. Select answers to Review Questions and Critical Thinking Questions are provided in the Student Solution Guide. Answers to Personal Application Questions are not provided because answers will be highly variable among students.

Additional Resources

Student and Instructor Resources

We've compiled additional resources for both students and instructors, including Getting Started Guides, an instructor solution guide, a test bank, and PowerPoint slides. Instructor resources require a verified instructor account, which you can apply for when you log in or create your account on openstax.org. Take advantage of these resources to supplement your OpenStax book.

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Dr. Rose Spielman has been teaching psychology and working as a licensed clinical psychologist for 20 years. Her academic career has included positions at Quinnipiac University, Housatonic Community College, and Goodwin College. As a licensed clinical psychologist, educator, and volunteer director, Rose is able to connect with people from diverse backgrounds and facilitate treatment, advocacy, and education. In her years of work as a teacher, therapist, and administrator, she has helped thousands of students and clients and taught them to advocate for themselves and move their lives forward to become more productive citizens and family members.

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FIGURE 1.1 Psychology is the scientific study of mind and behavior. (credit "background": modification of work by Nattachai Noogure; credit "top left": modification of work by Peter Shanks; credit "top middle": modification of work by "devinf"/Flickr; credit "top right": modification of work by Alejandra Quintero Sinisterra; credit "bottom left": modification of work by Gabriel Rocha; credit "bottom middle-left": modification of work by Caleb Roenigk; credit "bottom middle-right": modification of work by Staffan Scherz; credit "bottom right": modification of work by Czech Provincial Reconstruction Team)

CHAPTER OUTLINE

- 1.1 What Is Psychology?
- 1.2 History of Psychology
- 1.3 Contemporary Psychology
- 1.4 Careers in Psychology

INTRODUCTION Clive Wearing is an accomplished musician who lost his ability to form new memories when he became sick at the age of 46. While he can remember how to play the piano perfectly, he cannot remember what he ate for breakfast just an hour ago (Sacks, 2007). James Wannerton experiences a taste sensation that is associated with the sound of words. His former girlfriend's name tastes like rhubarb (Mundasad, 2013). John Nash was a brilliant mathematician and Nobel Prize winner. However, while he was a professor at MIT, he would tell people that the *New York Times* contained coded messages from extraterrestrial beings that were intended for him. He also began to hear voices and became suspicious of the people around him. Soon thereafter, Nash was diagnosed with schizophrenia and admitted to a state-run mental institution (O'Connor & Robertson, 2002). Nash was the subject of the 2001 movie *A Beautiful Mind*. Why did these people have these experiences? How does the human brain work? And what is the connection between the brain's internal processes and people's external behaviors? This textbook will introduce you to various ways that the field of

psychology has explored these questions.

1.1 What Is Psychology?

LEARNING OBJECTIVES

By the end of this section, you will be able to:

- Define psychology
- Understand the merits of an education in psychology

What is creativity? What are prejudice and discrimination? What is consciousness? The field of psychology explores questions like these. **Psychology** refers to the scientific study of the mind and behavior. Psychologists use the scientific method to acquire knowledge. To apply the scientific method, a researcher with a question about how or why something happens will propose a tentative explanation, called a hypothesis, to explain the phenomenon. A hypothesis should fit into the context of a scientific theory, which is a broad explanation or group of explanations for some aspect of the natural world that is consistently supported by evidence over time. A theory is the best understanding we have of that part of the natural world. The researcher then makes observations or carries out an experiment to test the validity of the hypothesis. Those results are then published or presented at research conferences so that others can replicate or build on the results.

Scientists test that which is perceivable and measurable. For example, the hypothesis that a bird sings because it is happy is not a hypothesis that can be tested since we have no way to measure the happiness of a bird. We must ask a different question, perhaps about the brain state of the bird, since this can be measured. However, we can ask individuals about whether they sing because they are happy since they are able to tell us. Thus, psychological science is empirical, based on measurable data.

In general, science deals only with matter and energy, that is, those things that can be measured, and it cannot arrive at knowledge about values and morality. This is one reason why our scientific understanding of the mind is so limited, since thoughts, at least as we experience them, are neither matter nor energy. The scientific method is also a form of empiricism. An **empirical method** for acquiring knowledge is one based on observation, including experimentation, rather than a method based only on forms of logical argument or previous authorities.

It was not until the late 1800s that psychology became accepted as its own academic discipline. Before this time, the workings of the mind were considered under the auspices of philosophy. Given that any behavior is, at its roots, biological, some areas of psychology take on aspects of a natural science like biology. No biological organism exists in isolation, and our behavior is influenced by our interactions with others. Therefore, psychology is also a social science.

WHY STUDY PSYCHOLOGY?

Often, students take their first psychology course because they are interested in helping others and want to learn more about themselves and why they act the way they do. Sometimes, students take a psychology course because it either satisfies a general education requirement or is required for a program of study such as nursing or pre-med. Many of these students develop such an interest in the area that they go on to declare psychology as their major. As a result, psychology is one of the most popular majors on college campuses across the United States (Johnson & Lubin, 2011). A number of well-known individuals were psychology majors. Just a few famous names on this list are Facebook's creator Mark Zuckerberg, television personality and political satirist Jon Stewart, actress Natalie Portman, and filmmaker Wes Craven (Halonen, 2011). About 6 percent of all bachelor degrees granted in the United States are in the discipline of psychology (U.S. Department of Education, 2016).

An education in psychology is valuable for a number of reasons. Psychology students hone critical thinking skills and are trained in the use of the scientific method. Critical thinking is the active application of a set of skills to information for the understanding and evaluation of that information. The evaluation of

information—assessing its reliability and usefulness— is an important skill in a world full of competing “facts,” many of which are designed to be misleading. For example, critical thinking involves maintaining an attitude of skepticism, recognizing internal biases, making use of logical thinking, asking appropriate questions, and making observations. Psychology students also can develop better communication skills during the course of their undergraduate coursework (American Psychological Association, 2011). Together, these factors increase students’ scientific literacy and prepare students to critically evaluate the various sources of information they encounter.

In addition to these broad-based skills, psychology students come to understand the complex factors that shape one’s behavior. They appreciate the interaction of our biology, our environment, and our experiences in determining who we are and how we will behave. They learn about basic principles that guide how we think and behave, and they come to recognize the tremendous diversity that exists across individuals and across cultural boundaries (American Psychological Association, 2011).

LINK TO LEARNING

Watch a brief [video about some questions to consider before deciding to major in psychology](https://openstax.org/l/psycmajor) (<https://openstax.org/l/psycmajor>) to learn more.

1.2 History of Psychology

LEARNING OBJECTIVES

By the end of this section, you will be able to:

- Understand the importance of Wundt and James in the development of psychology
- Appreciate Freud’s influence on psychology
- Understand the basic tenets of Gestalt psychology
- Appreciate the important role that behaviorism played in psychology’s history
- Understand basic tenets of humanism
- Understand how the cognitive revolution shifted psychology’s focus back to the mind

Psychology is a relatively young science with its experimental roots in the 19th century, compared, for example, to human physiology, which dates much earlier. As mentioned, anyone interested in exploring issues related to the mind generally did so in a philosophical context prior to the 19th century. Two 19th century scholars, Wilhelm Wundt and William James, are generally credited as being the founders of psychology as a science and academic discipline that was distinct from philosophy. This section will provide an overview of the shifts in paradigms that have influenced psychology from Wundt and James through today.

Wundt and Structuralism

Wilhelm Wundt (1832–1920) was a German scientist who was the first person to be referred to as a psychologist. His famous book entitled *Principles of Physiological Psychology* was published in 1873. Wundt viewed psychology as a scientific study of conscious experience, and he believed that the goal of psychology was to identify components of consciousness and how those components combined to result in our conscious experience. Wundt used **introspection** (he called it “internal perception”), a process by which someone examines their own conscious experience as objectively as possible, making the human mind like any other aspect of nature that a scientist observed. He believed in the notion of voluntarism—that people have free will and should know the intentions of a psychological experiment if they were participating (Danziger, 1980). Wundt considered his version experimental introspection; he used instruments such as those that measured reaction time. He also wrote *Volkerpsychologie* in 1904 in which he suggested that psychology should include the study of culture, as it involves the study of people. Edward Titchener, one of his students, went on to develop **structuralism**. Its focus was on the contents of mental processes rather than their function (Pickren & Rutherford, 2010). Wundt established his psychology laboratory at the University at Leipzig in 1879 ([Figure 1.2](#)). In this laboratory, Wundt and his students conducted experiments on, for example, reaction times. A

subject, sometimes in a room isolated from the scientist, would receive a stimulus such as a light, image, or sound. The subject's reaction to the stimulus would be to push a button, and an apparatus would record the time to reaction. Wundt could measure reaction time to one-thousandth of a second (Nicolas & Ferrand, 1999).

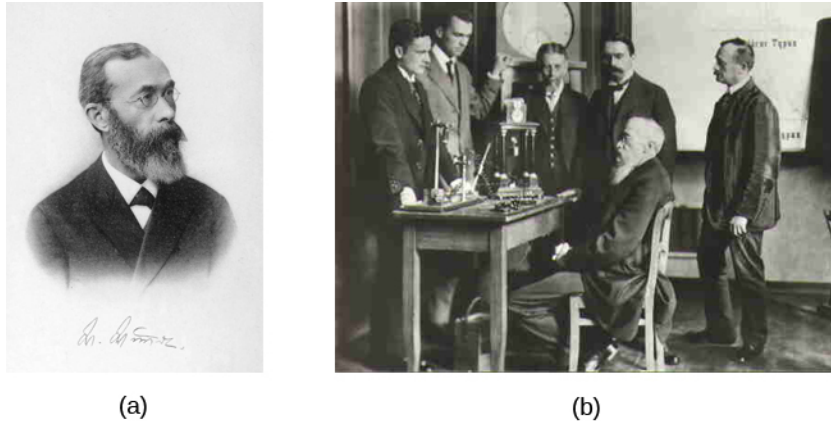


FIGURE 1.2 (a) Wilhelm Wundt is credited as one of the founders of psychology. He created the first laboratory for psychological research. (b) This photo shows him seated and surrounded by fellow researchers and equipment in his laboratory in Germany.

However, despite his efforts to train individuals in the process of introspection, this process remained highly subjective, and there was very little agreement between individuals.

Functionalism

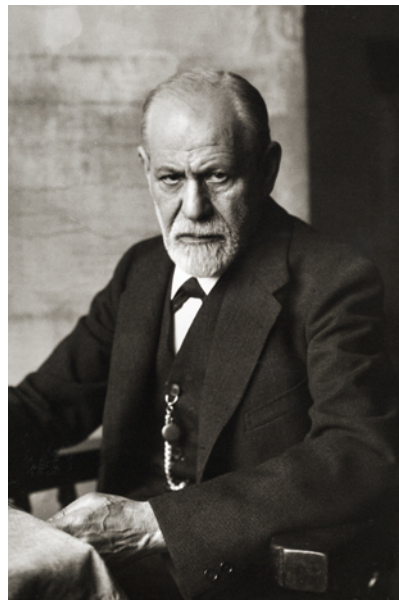
William James, John Dewey, and Charles Sanders Peirce helped establish functional psychology ([Figure 1.3](#)). They accepted Darwin's theory of evolution by natural selection and viewed this theory as an explanation of an organism's characteristics. Key to that theory is the idea that natural selection leads to organisms that are adapted to their environment, including their behavior. Adaptation means that a trait of an organism has a function for the survival and reproduction of the individual, because it has been naturally selected. As James saw it, psychology's purpose was to study the function of behavior in the world, and as such, his perspective was known as **functionalism**. Functionalism focused on how mental activities helped an organism fit into its environment. Functionalism has a second, more subtle meaning in that functionalists were more interested in the operation of the whole mind rather than of its individual parts, which were the focus of structuralism. Like Wundt, James believed that introspection could serve as one means by which someone might study mental activities, but James also relied on more objective measures, including the use of various recording devices, and examinations of concrete products of mental activities and of anatomy and physiology (Gordon, 1995).



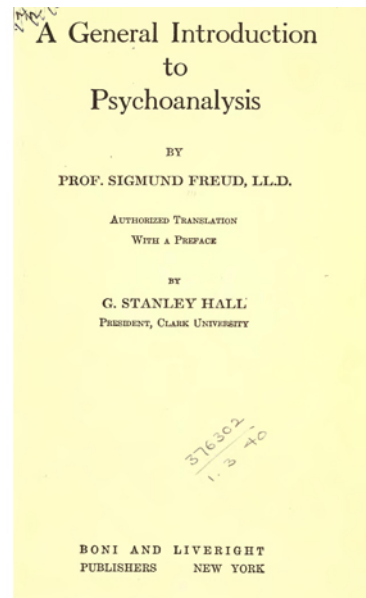
FIGURE 1.3 William James, shown here in a self-portrait, was the first American psychologist.

Freud and Psychoanalytic Theory

Perhaps one of the most influential and well-known figures in psychology's history was Sigmund Freud (Figure 1.4). Freud (1856–1939) was an Austrian neurologist who was fascinated by patients suffering from “hysteria” and neurosis. Hysteria was an ancient diagnosis for disorders, primarily of women with a wide variety of symptoms, including physical symptoms and emotional disturbances, none of which had an apparent physical cause. Freud theorized that many of his patients' problems arose from the unconscious mind. In Freud's view, the unconscious mind was a repository of feelings and urges of which we have no awareness. Gaining access to the unconscious, then, was crucial to the successful resolution of the patient's problems. According to Freud, the unconscious mind could be accessed through dream analysis, by examinations of the first words that came to people's minds, and through seemingly innocent slips of the tongue. **Psychoanalytic theory** focuses on the role of a person's unconscious, as well as early childhood experiences, and this particular perspective dominated clinical psychology for several decades (Thorne & Henley, 2005).



(a)



(b)

FIGURE 1.4 (a) Sigmund Freud was a highly influential figure in the history of psychology. (b) One of his many books, *A General Introduction to Psychoanalysis*, shared his ideas about psychoanalytical therapy; it was published in 1922.

Freud's ideas were influential, and you will learn more about them when you study lifespan development, personality, and therapy. For instance, many therapists believe strongly in the unconscious and the impact of early childhood experiences on the rest of a person's life. The method of psychoanalysis, which involves the patient talking about their experiences and selves, while not invented by Freud, was certainly popularized by him and is still used today. Many of Freud's other ideas, however, are controversial. Drew Westen (1998) argues that many of the criticisms of Freud's ideas are misplaced, in that they attack his older ideas without taking into account later writings. Westen also argues that critics fail to consider the success of the broad ideas that Freud introduced or developed, such as the importance of childhood experiences in adult motivations, the role of unconscious versus conscious motivations in driving our behavior, the fact that motivations can cause conflicts that affect behavior, the effects of mental representations of ourselves and others in guiding our interactions, and the development of personality over time. Westen identifies subsequent research support for all of these ideas.

More modern iterations of Freud's clinical approach have been empirically demonstrated to be effective (Knekt et al., 2008; Shedler, 2010). Some current practices in psychotherapy involve examining unconscious aspects of the self and relationships, often through the relationship between the therapist and the client. Freud's

historical significance and contributions to clinical practice merit his inclusion in a discussion of the historical movements within psychology.

Wertheimer, Koffka, Köhler, and Gestalt Psychology

Max Wertheimer (1880–1943), Kurt Koffka (1886–1941), and Wolfgang Köhler (1887–1967) were three German psychologists who immigrated to the United States in the early 20th century to escape Nazi Germany. These scholars are credited with introducing psychologists in the United States to various Gestalt principles. The word Gestalt roughly translates to “the form in its whole;” a major emphasis of Gestalt psychology deals with the fact that although a sensory experience can be broken down into individual parts, how those parts relate to each other as a whole is often what the individual responds to in perception. For example, a song may be made up of individual notes played by different instruments, but the real nature of the song is perceived in the combinations of these notes as they form the melody, rhythm, and harmony. In many ways, this particular perspective would have directly contradicted Wundt’s ideas of structuralism (Thorne & Henley, 2005).

Unfortunately, in moving to the United States, these scientists were forced to abandon much of their work and were unable to continue to conduct research on a large scale. These factors along with the rise of behaviorism (described next) in the United States prevented principles of Gestalt psychology from being as influential in the United States as they had been in their native Germany (Thorne & Henley, 2005). Despite these issues, several Gestalt principles are still very influential today. Considering the human individual as a whole rather than as a sum of individually measured parts became an important foundation in humanistic theory late in the century. The ideas of Gestalt have continued to influence research on sensation and perception.

Structuralism, Freud, and the Gestalt psychologists were all concerned in one way or another with describing and understanding inner experience. But other researchers had concerns that inner experience could be a legitimate subject of scientific inquiry and chose instead to exclusively study behavior, the objectively observable outcome of mental processes.

Pavlov, Watson, Skinner, and Behaviorism

Early work in the field of behavior was conducted by the Russian physiologist Ivan Pavlov (1849–1936). Pavlov studied a form of learning behavior called a conditioned reflex, in which an animal or human produced a reflex (unconscious) response to a stimulus and, over time, was conditioned to produce the response to a different stimulus that the experimenter associated with the original stimulus. The reflex Pavlov worked with was salivation in response to the presence of food. The salivation reflex could be elicited using a second stimulus, such as a specific sound, that was presented in association with the initial food stimulus several times. Once the response to the second stimulus was “learned,” the food stimulus could be omitted. Pavlov’s “classical conditioning” is only one form of learning behavior studied by behaviorists.

John B. Watson (1878–1958) was an influential American psychologist whose most famous work occurred during the early 20th century at Johns Hopkins University ([Figure 1.5](#)). While Wundt and James were concerned with understanding conscious experience, Watson thought that the study of consciousness was flawed. Because he believed that objective analysis of the mind was impossible, Watson preferred to focus directly on observable behavior and try to bring that behavior under control. Watson was a major proponent of shifting the focus of psychology from the mind to behavior, and this approach of observing and controlling behavior came to be known as **behaviorism**. A major object of study by behaviorists was learned behavior and its interaction with inborn qualities of the organism. Behaviorism commonly used animals in experiments under the assumption that what was learned using animal models could, to some degree, be applied to human behavior. Indeed, Tolman (1938) stated, “I believe that everything important in psychology (except ... such matters as involve society and words) can be investigated in essence through the continued experimental and theoretical analysis of the determiners of rat behavior at a choice-point in a maze.”



FIGURE 1.5 John B. Watson is known as the father of behaviorism within psychology.

Behaviorism dominated experimental psychology for several decades, and its influence can still be felt today (Thorne & Henley, 2005). Behaviorism is largely responsible for establishing psychology as a scientific discipline through its objective methods and especially experimentation. In addition, it is used in behavioral and cognitive-behavioral therapy. Behavior modification is commonly used in classroom settings. Behaviorism has also led to research on environmental influences on human behavior.

B. F. Skinner (1904–1990) was an American psychologist (Figure 1.6). Like Watson, Skinner was a behaviorist, and he concentrated on how behavior was affected by its consequences. Therefore, Skinner spoke of reinforcement and punishment as major factors in driving behavior. As a part of his research, Skinner developed a chamber that allowed the careful study of the principles of modifying behavior through reinforcement and punishment. This device, known as an operant conditioning chamber (or more familiarly, a Skinner box), has remained a crucial resource for researchers studying behavior (Thorne & Henley, 2005).

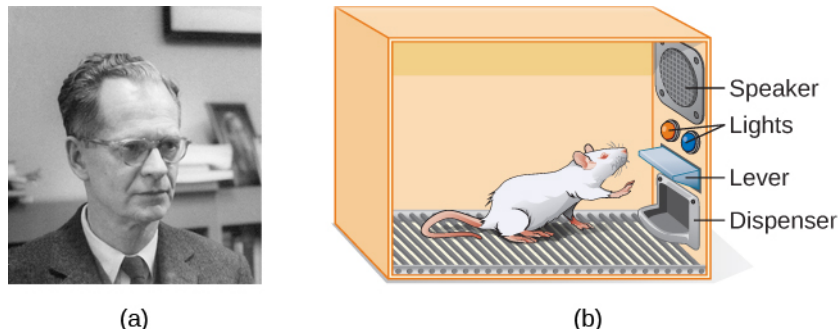


FIGURE 1.6 (a) B. F. Skinner is famous for his research on operant conditioning. (b) Modified versions of the operant conditioning chamber, or Skinner box, are still widely used in research settings today. (credit a: modification of work by "Silly rabbit"/Wikimedia Commons)

The Skinner box is a chamber that isolates the subject from the external environment and has a behavior indicator such as a lever or a button. When the animal pushes the button or lever, the box is able to deliver a positive reinforcement of the behavior (such as food) or a punishment (such as a noise).

Skinner's focus on positive and negative reinforcement of learned behaviors had a lasting influence in psychology that has waned somewhat since the growth of research in cognitive psychology. Despite this, conditioned learning is still used in human behavioral modification (Greengrass, 2004).

Maslow, Rogers, and Humanism

During the early 20th century, American psychology was dominated by behaviorism and psychoanalysis. However, some psychologists were uncomfortable with what they viewed as limited perspectives being so influential to the field. They objected to the pessimism and determinism (all actions driven by the

unconscious) of Freud. They also disliked the reductionism, or simplifying nature, of behaviorism. Behaviorism is also deterministic at its core, because it sees human behavior as entirely determined by a combination of genetics and environment. Some psychologists began to form their own ideas that emphasized personal control, intentionality, and a true predisposition for “good” as important for our self-concept and our behavior. Thus, humanism emerged. **Humanism** is a perspective within psychology that emphasizes the potential for good that is innate to all humans. Two of the most well-known proponents of humanistic psychology are Abraham Maslow and Carl Rogers (O’Hara, n.d.).

Abraham Maslow (1908–1970) was an American psychologist who is best known for proposing a hierarchy of human needs in motivating behavior (Figure 1.7). Although this concept will be discussed in more detail in a later chapter, a brief overview will be provided here. Maslow asserted that so long as basic needs necessary for survival were met (e.g., food, water, shelter), higher-level needs (e.g., social needs) would begin to motivate behavior. According to Maslow, the highest-level needs relate to self-actualization, a process by which we achieve our full potential. Obviously, the focus on the positive aspects of human nature that are characteristic of the humanistic perspective is evident (Thorne & Henley, 2005). Humanistic psychologists rejected, on principle, the research approach based on reductionist experimentation in the tradition of the physical and biological sciences, because it missed the “whole” human being. Beginning with Maslow and Rogers, there was an insistence on a humanistic research program. This program has been largely qualitative (not measurement-based), but there exist a number of quantitative research strains within humanistic psychology, including research on happiness, self-concept, meditation, and the outcomes of humanistic psychotherapy (Friedman, 2008).

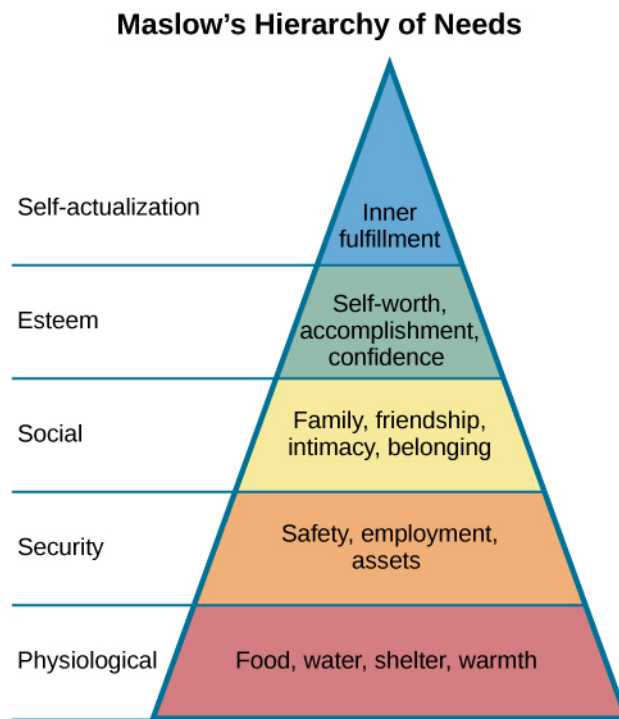


FIGURE 1.7 Maslow's hierarchy of needs is shown.

Carl Rogers (1902–1987) was also an American psychologist who, like Maslow, emphasized the potential for good that exists within all people (Figure 1.8). Rogers used a therapeutic technique known as client-centered therapy in helping his clients deal with problematic issues that resulted in their seeking psychotherapy. Unlike a psychoanalytic approach in which the therapist plays an important role in interpreting what conscious behavior reveals about the unconscious mind, client-centered therapy involves the patient taking a lead role in the therapy session. Rogers believed that a therapist needed to display three features to maximize the effectiveness of this particular approach: unconditional positive regard, genuineness, and empathy.

Unconditional positive regard refers to the fact that the therapist accepts their client for who they are, no matter what they might say. Provided these factors, Rogers believed that people were more than capable of dealing with and working through their own issues (Thorne & Henley, 2005).

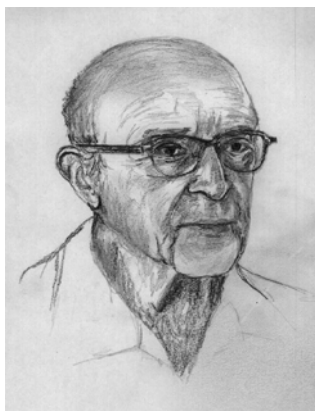


FIGURE 1.8 Carl Rogers, shown in this portrait, developed a client-centered therapy method that has been influential in clinical settings. (credit: "Didius"/Wikimedia Commons)

Humanism has been influential to psychology as a whole. Both Maslow and Rogers are well-known names among students of psychology (you will read more about both later in this text), and their ideas have influenced many scholars. Furthermore, Rogers' client-centered approach to therapy is still commonly used in psychotherapeutic settings today (O'hara, n.d.)

LINK TO LEARNING

View a brief [video of Carl Rogers describing his therapeutic approach \(https://openstax.org/l/crogers1\)](https://openstax.org/l/crogers1) to learn more.

The Cognitive Revolution

Behaviorism's emphasis on objectivity and focus on external behavior had pulled psychologists' attention away from the mind for a prolonged period of time. The early work of the humanistic psychologists redirected attention to the individual human as a whole, and as a conscious and self-aware being. By the 1950s, new disciplinary perspectives in linguistics, neuroscience, and computer science were emerging, and these areas revived interest in the mind as a focus of scientific inquiry. This particular perspective has come to be known as the cognitive revolution (Miller, 2003). By 1967, Ulric Neisser published the first textbook entitled *Cognitive Psychology*, which served as a core text in cognitive psychology courses around the country (Thorne & Henley, 2005).

Although no one person is entirely responsible for starting the cognitive revolution, Noam Chomsky was very influential in the early days of this movement ([Figure 1.9](#)). Chomsky (1928–), an American linguist, was dissatisfied with the influence that behaviorism had had on psychology. He believed that psychology's focus on behavior was short-sighted and that the field had to re-incorporate mental functioning into its purview if it were to offer any meaningful contributions to understanding behavior (Miller, 2003).



FIGURE 1.9 Noam Chomsky was very influential in beginning the cognitive revolution. In 2010, this mural honoring

him was put up in Philadelphia, Pennsylvania. (credit: Robert Moran)

European psychology had never really been as influenced by behaviorism as had American psychology; and thus, the cognitive revolution helped reestablish lines of communication between European psychologists and their American counterparts. Furthermore, psychologists began to cooperate with scientists in other fields, like anthropology, linguistics, computer science, and neuroscience, among others. This interdisciplinary approach often was referred to as the cognitive sciences, and the influence and prominence of this particular perspective resonates in modern-day psychology (Miller, 2003).

DIG DEEPER

Feminist Psychology

The science of psychology has had an impact on human wellbeing, both positive and negative. The dominant influence of Western, White, and male academics in the early history of psychology meant that psychology developed with the biases inherent in those individuals, which often had negative consequences for members of society who were not White or male. Women, members of ethnic minorities in both the United States and other countries, and individuals with sexual orientations other than straight had difficulties entering the field of psychology and therefore influencing its development. They also suffered from the attitudes of White male psychologists who were not immune to the nonscientific attitudes prevalent in the society in which they developed and worked. Until the 1960s, the science of psychology was largely a “womanless” psychology (Crawford & Marecek, 1989), meaning that few women were able to practice psychology, so they had little influence on what was studied. In addition, the experimental subjects of psychology were mostly men, which resulted from underlying assumptions that gender had no influence on psychology and that women were not of sufficient interest to study.

An article by Naomi Weisstein, first published in 1968 (Weisstein, 1993), stimulated a feminist revolution in psychology by presenting a critique of psychology as a science. She also specifically criticized male psychologists for constructing the psychology of women entirely out of their own cultural biases and without careful experimental tests to verify any of their characterizations of women. Weisstein used, as examples, statements by prominent psychologists in the 1960s, such as this quote by Bruno Bettelheim: “We must start with the realization that, as much as women want to be good scientists or engineers, they want first and foremost to be womanly companions of men and to be mothers.” Weisstein’s critique formed the foundation for the subsequent development of a feminist psychology that attempted to be free of the influence of male cultural biases on our knowledge of the psychology of women.

Crawford & Marecek (1989) identify several feminist approaches to psychology that can be described as feminist psychology. These include re-evaluating and discovering the contributions of women to the history of psychology, studying psychological gender differences, and questioning the male bias present across the practice of the scientific approach to knowledge.

Multicultural And Cross-Cultural Psychology

Culture impacts individuals, groups, and society. An ongoing issue researchers are trying to correct is that certain populations have been over-studied and the results of these studies have been applied to other populations. For example, Henrich, Heine, and Norenzayan discuss how WEIRD societies have been overstudied and the results have been wrongly applied to non-WEIRD societies (2010). WEIRD stands for western, educated, industrialized, rich, and democratic. Henrich, Heine, and Norenzayan found that there are many differences between people in the WEIRD group and people in less industrialized, less urban, and non-Western societies. These differences occur in a variety of areas, including perception, cooperation, and moral reasoning. That is, people vary depending on their culture and environment. Multicultural psychologists develop theories and conduct research with diverse populations, typically within one country. Cross-cultural

psychologists compare populations across countries, such as participants from the United States compared to participants from China.

In 1920, Francis Cecil Sumner was the first African American to receive a PhD in psychology in the United States. Sumner established a psychology degree program at Howard University, leading to the education of a new generation of African American psychologists (Black, Spence, and Omari, 2004). Much of the work of early psychologists from diverse backgrounds was dedicated to challenging intelligence testing and promoting innovative educational methods for children. George I. Sanchez contested such testing with Mexican American children. As a psychologist of Mexican heritage, he pointed out that the language and cultural barriers in testing were keeping children from equal opportunities (Guthrie, 1998). By 1940, he was teaching with his doctoral degree at the University of Texas at Austin and challenging segregated educational practices (Romo, 1986).

Two famous African American researchers and psychologists are Mamie Phipps Clark and her husband, Kenneth Clark. They are best known for their studies conducted on African American children and doll preference, research that was instrumental in the *Brown v. Board of Education* Supreme Court desegregation case. The Clarks applied their research to social services and opened the first child guidance center in Harlem (American Psychological Association, 2019).

Listen to the podcast below describing the Clarks' research and impact on the Supreme Court decision.

LINK TO LEARNING

Listen to a [podcast about the influence of an African American's psychology research on the historic *Brown v. Board of Education* civil rights case \(https://openstax.org/l/crogers2\)](https://openstax.org/l/crogers2) to learn more.

The American Psychological Association has several ethnically based organizations for professional psychologists that facilitate interactions among members. Some psychologists belonging to specific ethnic groups or cultures are interested in studying their own communities, and these organizations provide an opportunity for the growth of research on the interplay between culture and psychology.

WOMEN IN PSYCHOLOGY

Although rarely given credit, women have been contributing to psychology since its inception as a field of study. In 1894, Margaret Floy Washburn was the first woman awarded the doctoral degree in psychology. She wrote *The Animal Mind: A Textbook of Comparative Psychology*, and it was the standard in the field for over 20 years. In the mid 1890s, Mary Whiton Calkins completed all requirements toward the PhD in psychology, but Harvard University refused to award her that degree because she was a woman. She had been taught and mentored by William James, who tried and failed to convince Harvard to award her the doctoral degree. Her memory research studied primacy and recency (Madigan & O'Hara, 1992), and she also wrote about how structuralism and functionalism both explained self-psychology (Calkins, 1906).

Another influential woman, Mary Cover Jones, conducted a study she considered to be a sequel to John B. Watson's study of Little Albert (you'll learn about this study in the chapter on Learning). Jones unconditioned fear in Little Peter, who had been afraid of rabbits (Jones, 1924).

Ethnic minority women contributing to the field of psychology include Martha Bernal and Inez Beverly Prosser; their studies were related to education. Bernal, the first Latina to earn her doctoral degree in psychology (1962) conducted much of her research with Mexican American children. Prosser was the first African American woman awarded the PhD in 1933 at the University of Cincinnati (Benjamin, Henry, & McMahon, 2005).

1.3 Contemporary Psychology

LEARNING OBJECTIVES

By the end of this section, you will be able to:

- Appreciate the diversity of interests and foci within psychology
- Understand basic interests and applications in each of the described areas of psychology
- Demonstrate familiarity with some of the major concepts or important figures in each of the described areas of psychology

Contemporary psychology is a diverse field that is influenced by all of the historical perspectives described in the preceding section. Reflective of the discipline's diversity is the diversity seen within the **American Psychological Association (APA)**. The APA is a professional organization representing psychologists in the United States. The APA is the largest organization of psychologists in the world, and its mission is to advance and disseminate psychological knowledge for the betterment of people. There are 54 divisions within the APA, representing a wide variety of specialties that range from Societies for the Psychology of Religion and Spirituality to Exercise and Sport Psychology to Behavioral Neuroscience and Comparative Psychology. Reflecting the diversity of the field of psychology itself, members, affiliate members, and associate members span the spectrum from students to doctoral-level psychologists, and come from a variety of places including educational settings, criminal justice, hospitals, the armed forces, and industry (American Psychological Association, 2014). G. Stanley Hall was the first president of the APA. Before he earned his doctoral degree, he was an adjunct instructor at Wilberforce University, a historically Black college/university (HBCU), while serving as faculty at Antioch College. Hall went on to work under William James, earning his PhD. Eventually, he became the first president of Clark University in Massachusetts when it was founded (Pickren & Rutherford, 2010).

The Association for Psychological Science (APS) was founded in 1988 and seeks to advance the scientific orientation of psychology. Its founding resulted from disagreements between members of the scientific and clinical branches of psychology within the APA. The APS publishes five research journals and engages in education and advocacy with funding agencies. A significant proportion of its members are international, although the majority is located in the United States. Other organizations provide networking and collaboration opportunities for professionals of several ethnic or racial groups working in psychology, such as the National Latina/o Psychological Association (NLPA), the Asian American Psychological Association (AAPA), the Association of Black Psychologists (ABPsi), and the Society of Indian Psychologists (SIP). Most of these groups are also dedicated to studying psychological and social issues within their specific communities.

This section will provide an overview of the major subdivisions within psychology today in the order in which they are introduced throughout the remainder of this textbook. This is not meant to be an exhaustive listing, but it will provide insight into the major areas of research and practice of modern-day psychologists.

LINK TO LEARNING

Please visit this [website about the divisions within the APA \(https://openstax.org/l/biopsychology\)](https://openstax.org/l/biopsychology) to learn more.

View these [student resources \(https://openstax.org/l/studentresource\)](https://openstax.org/l/studentresource) also provided by the APA.

Biopsychology and Evolutionary Psychology

As the name suggests, **biopsychology** explores how our biology influences our behavior. While biological psychology is a broad field, many biological psychologists want to understand how the structure and function of the nervous system is related to behavior ([Figure 1.10](#)). As such, they often combine the research strategies of both psychologists and physiologists to accomplish this goal (as discussed in Carlson, 2013).

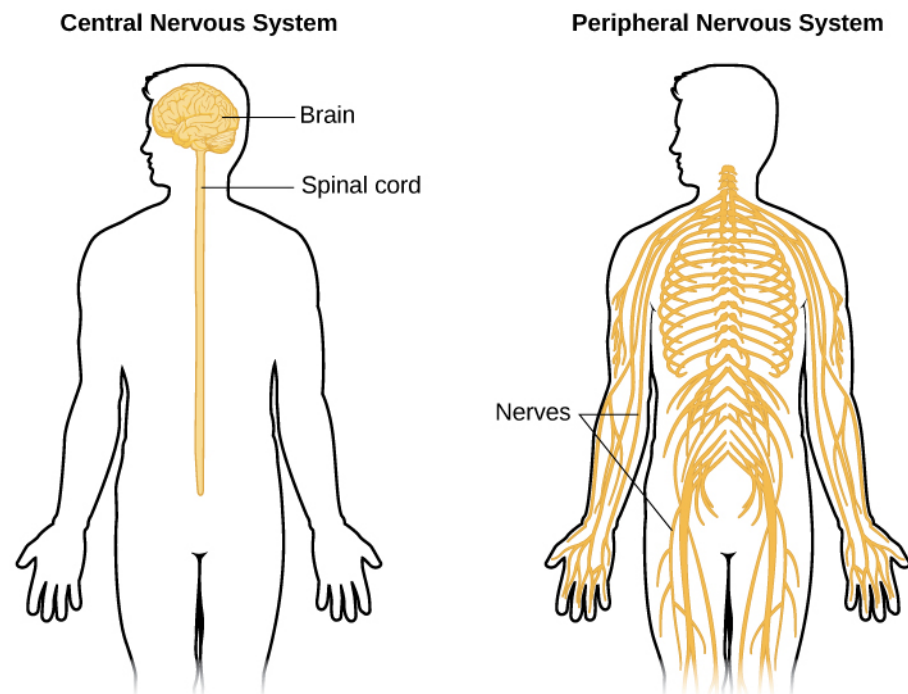


FIGURE 1.10 Biological psychologists study how the structure and function of the nervous system generate behavior.

The research interests of biological psychologists span a number of domains, including but not limited to, sensory and motor systems, sleep, drug use and abuse, ingestive behavior, reproductive behavior, neurodevelopment, plasticity of the nervous system, and biological correlates of psychological disorders. Given the broad areas of interest falling under the purview of biological psychology, it will probably come as no surprise that individuals from all sorts of backgrounds are involved in this research, including biologists, medical professionals, physiologists, and chemists. This interdisciplinary approach is often referred to as neuroscience, of which biological psychology is a component (Carlson, 2013).

While biopsychology typically focuses on the immediate causes of behavior based in the physiology of a human or other animal, evolutionary psychology seeks to study the ultimate biological causes of behavior. To the extent that a behavior is impacted by genetics, a behavior, like any anatomical characteristic of a human or animal, will demonstrate adaption to its surroundings. These surroundings include the physical environment and, since interactions between organisms can be important to survival and reproduction, the social environment. The study of behavior in the context of evolution has its origins with Charles Darwin, the co-discoverer of the theory of evolution by natural selection. Darwin was well aware that behaviors should be adaptive and wrote books titled, *The Descent of Man* (1871) and *The Expression of the Emotions in Man and Animals* (1872), to explore this field.

Evolutionary psychology, and specifically, the evolutionary psychology of humans, has enjoyed a resurgence in recent decades. To be subject to evolution by natural selection, a behavior must have a significant genetic cause. In general, we expect all human cultures to express a behavior if it is caused genetically, since the genetic differences among human groups are small. The approach taken by most evolutionary psychologists is to predict the outcome of a behavior in a particular situation based on evolutionary theory and then to make observations, or conduct experiments, to determine whether the results match the theory. It is important to recognize that these types of studies are not strong evidence that a behavior is adaptive, since they lack information that the behavior is in some part genetic and not entirely cultural (Endler, 1986). Demonstrating that a trait, especially in humans, is naturally selected is extraordinarily difficult; perhaps for this reason, some evolutionary psychologists are content to assume the behaviors they study have genetic determinants (Confer et al., 2010).

One other drawback of evolutionary psychology is that the traits that we possess now evolved under environmental and social conditions far back in human history, and we have a poor understanding of what these conditions were. This makes predictions about what is adaptive for a behavior difficult. Behavioral traits need not be adaptive under current conditions, only under the conditions of the past when they evolved, about which we can only hypothesize.

There are many areas of human behavior for which evolution can make predictions. Examples include memory, mate choice, relationships between kin, friendship and cooperation, parenting, social organization, and status (Confer et al., 2010).

Evolutionary psychologists have had success in finding experimental correspondence between observations and expectations. In one example, in a study of mate preference differences between men and women that spanned 37 cultures, Buss (1989) found that women valued earning potential factors greater than men, and men valued potential reproductive factors (youth and attractiveness) greater than women in their prospective mates. In general, the predictions were in line with the predictions of evolution, although there were deviations in some cultures.

Sensation and Perception

Scientists interested in both physiological aspects of sensory systems as well as in the psychological experience of sensory information work within the area of sensation and perception ([Figure 1.11](#)). As such, sensation and perception research is also quite interdisciplinary. Imagine walking between buildings as you move from one class to another. You are inundated with sights, sounds, touch sensations, and smells. You also experience the temperature of the air around you and maintain your balance as you make your way. These are all factors of interest to someone working in the domain of sensation and perception.

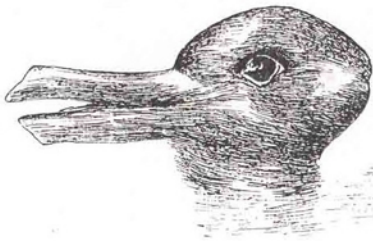


FIGURE 1.11 When you look at this image, you may see a duck or a rabbit. The sensory information remains the same, but your perception can vary dramatically.

As described in a later chapter that focuses on the results of studies in sensation and perception, our experience of our world is not as simple as the sum total of all of the sensory information (or sensations) together. Rather, our experience (or perception) is complex and is influenced by where we focus our attention, our previous experiences, and even our cultural backgrounds.

Cognitive Psychology

As mentioned in the previous section, the cognitive revolution created an impetus for psychologists to focus their attention on better understanding the mind and mental processes that underlie behavior. Thus, **cognitive psychology** is the area of psychology that focuses on studying cognitions, or thoughts, and their relationship to our experiences and our actions. Like biological psychology, cognitive psychology is broad in its scope and often involves collaborations among people from a diverse range of disciplinary backgrounds. This has led some to coin the term cognitive science to describe the interdisciplinary nature of this area of research (Miller, 2003).

Cognitive psychologists have research interests that span a spectrum of topics, ranging from attention to problem solving to language to memory. The approaches used in studying these topics are equally diverse.

Given such diversity, cognitive psychology is not captured in one chapter of this text per se; rather, various concepts related to cognitive psychology will be covered in relevant portions of the chapters in this text on sensation and perception, thinking and intelligence, memory, lifespan development, social psychology, and therapy.

Developmental Psychology

Developmental psychology is the scientific study of development across a lifespan. Developmental psychologists are interested in processes related to physical maturation. However, their focus is not limited to the physical changes associated with aging, as they also focus on changes in cognitive skills, moral reasoning, social behavior, and other psychological attributes.

Early developmental psychologists focused primarily on changes that occurred through reaching adulthood, providing enormous insight into the differences in physical, cognitive, and social capacities that exist between very young children and adults. For instance, research by Jean Piaget ([Figure 1.12](#)) demonstrated that very young children do not demonstrate object permanence. Object permanence refers to the understanding that physical things continue to exist, even if they are hidden from us. If you were to show an adult a toy, and then hide it behind a curtain, the adult knows that the toy still exists. However, very young infants act as if a hidden object no longer exists. The age at which object permanence is achieved is somewhat controversial (Munakata, McClelland, Johnson, and Siegler, 1997).



FIGURE 1.12 Jean Piaget is famous for his theories regarding changes in cognitive ability that occur as we move from infancy to adulthood.

While Piaget was focused on cognitive changes during infancy and childhood as we move to adulthood, there is an increasing interest in extending research into the changes that occur much later in life. This may be reflective of changing population demographics of developed nations as a whole. As more and more people live longer lives, the number of people of advanced age will continue to increase. Indeed, it is estimated that there were just over 40 million people aged 65 or older living in the United States in 2010. However, by 2020, this number is expected to increase to about 55 million. By the year 2050, it is estimated that nearly 90 million people in this country will be 65 or older (Department of Health and Human Services, n.d.).

Personality Psychology

Personality psychology focuses on patterns of thoughts and behaviors that make each individual unique. Several individuals (e.g., Freud and Maslow) that we have already discussed in our historical overview of psychology, and the American psychologist Gordon Allport, contributed to early theories of personality. These early theorists attempted to explain how an individual's personality develops from their given perspective. For example, Freud proposed that personality arose as conflicts between the conscious and unconscious parts of

the mind were carried out over the lifespan. Specifically, Freud theorized that an individual went through various psychosexual stages of development. According to Freud, adult personality would result from the resolution of various conflicts that centered on the migration of erogenous (or sexual pleasure-producing) zones from the oral (mouth) to the anus to the phallus to the genitals. Like many of Freud's theories, this particular idea was controversial and did not lend itself to experimental tests (Person, 1980).

More recently, the study of personality has taken on a more quantitative approach. Rather than explaining how personality arises, research is focused on identifying **personality traits**, measuring these traits, and determining how these traits interact in a particular context to determine how a person will behave in any given situation. Personality traits are relatively consistent patterns of thought and behavior, and many have proposed that five trait dimensions are sufficient to capture the variations in personality seen across individuals. These five dimensions are known as the “Big Five” or the Five Factor model, and include dimensions of conscientiousness, agreeableness, neuroticism, openness, and extraversion (Figure 1.13). Each of these traits has been demonstrated to be relatively stable over the lifespan (e.g., Rantanen, Metsäpelto, Feldt, Pulkkinen, and Kokko, 2007; Soldz & Vaillant, 1999; McCrae & Costa, 2008) and is influenced by genetics (e.g., Jang, Livesly, and Vernon, 1996).

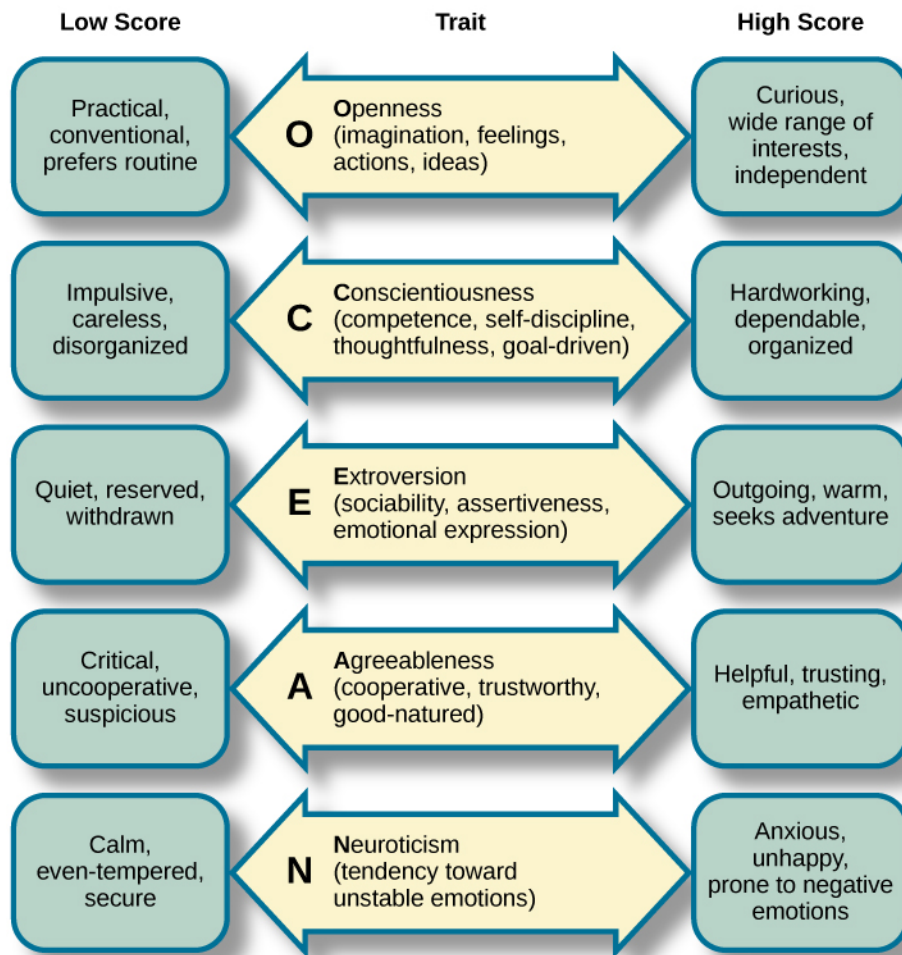


FIGURE 1.13 Each of the dimensions of the Five Factor model is shown in this figure. The provided description would describe someone who scored highly on that given dimension. Someone with a lower score on a given dimension could be described in opposite terms.

Social Psychology

Social psychology focuses on how we interact with and relate to others. Social psychologists conduct research

on a wide variety of topics that include differences in how we explain our own behavior versus how we explain the behaviors of others, prejudice, and attraction, and how we resolve interpersonal conflicts. Social psychologists have also sought to determine how being among other people changes our own behavior and patterns of thinking.

There are many interesting examples of social psychological research, and you will read about many of these in a later chapter of this textbook. Until then, you will be introduced to one of the most controversial psychological studies ever conducted. Stanley Milgram was an American social psychologist who is most famous for research that he conducted on obedience. After the holocaust, in 1961, a Nazi war criminal, Adolf Eichmann, who was accused of committing mass atrocities, was put on trial. Many people wondered how German soldiers were capable of torturing prisoners in concentration camps, and they were unsatisfied with the excuses given by soldiers that they were simply following orders. At the time, most psychologists agreed that few people would be willing to inflict such extraordinary pain and suffering, simply because they were obeying orders. Milgram decided to conduct research to determine whether or not this was true ([Figure 1.14](#)). As you will read later in the text, Milgram found that nearly two-thirds of his participants were willing to deliver what they believed to be lethal shocks to another person, simply because they were instructed to do so by an authority figure (in this case, a man dressed in a lab coat). This was in spite of the fact that participants received payment for simply showing up for the research study and could have chosen not to inflict pain or more serious consequences on another person by withdrawing from the study. No one was actually hurt or harmed in any way, Milgram's experiment was a clever ruse that took advantage of research confederates, those who pretend to be participants in a research study who are actually working for the researcher and have clear, specific directions on how to behave during the research study (Hock, 2009). Milgram's and others' studies that involved deception and potential emotional harm to study participants catalyzed the development of ethical guidelines for conducting psychological research that discourage the use of deception of research subjects, unless it can be argued not to cause harm and, in general, requiring informed consent of participants.

Public Announcement

WE WILL PAY YOU \$4.00 FOR ONE HOUR OF YOUR TIME

Persons Needed for a Study of Memory

*We will pay five hundred New Haven men to help us complete a scientific study of memory and learning. The study is being done at Yale University.

*Each person who participates will be paid \$4.00 (plus 50c carfare) for approximately 1 hour's time. We need you for only one hour: there are no further obligations. You may choose the time you would like to come (evenings, weekdays, or weekends).

*No special training, education, or experience is needed. We want:

Factory workers	Businessmen	Construction workers
City employees	Clerks	Salespeople
Laborers	Professional people	White-collar workers
Barbers	Telephone workers	Others

All persons must be between the ages of 20 and 50. High school and college students cannot be used.

*If you meet these qualifications, fill out the coupon below and mail it now to Professor Stanley Milgram, Department of Psychology, Yale University, New Haven. You will be notified later of the specific time and place of the study. We reserve the right to decline any application.

*You will be paid \$4.00 (plus 50c carfare) as soon as you arrive at the laboratory.

TO:
 PROF. STANLEY MILGRAM, DEPARTMENT OF PSYCHOLOGY,
 YALE UNIVERSITY, NEW HAVEN, CONN. I want to take part in
 this study of memory and learning. I am between the ages of 20 and
 50. I will be paid \$4.00 (plus 50c carfare) if I participate.

NAME (Please Print).

ADDRESS

TELEPHONE NO. Best time to call you

AGE OCCUPATION SEX

CAN YOU COME:

WEEKDAYS EVENINGS WEEKENDS

FIGURE 1.14 Stanley Milgram's research demonstrated just how far people will go in obeying orders from an authority figure. This advertisement was used to recruit subjects for his research.

Industrial-Organizational Psychology

Industrial-Organizational psychology (I-O psychology) is a subfield of psychology that applies psychological theories, principles, and research findings in industrial and organizational settings. I-O psychologists are often involved in issues related to personnel management, organizational structure, and workplace environment. Businesses often seek the aid of I-O psychologists to make the best hiring decisions as well as to create an environment that results in high levels of employee productivity and efficiency. In addition to its applied nature, I-O psychology also involves conducting scientific research on behavior within I-O settings (Riggio, 2013).

Health Psychology

Health psychology focuses on how health is affected by the interaction of biological, psychological, and sociocultural factors. This particular approach is known as the **biopsychosocial model** (Figure 1.15). Health psychologists are interested in helping individuals achieve better health through public policy, education, intervention, and research. Health psychologists might conduct research that explores the relationship between one's genetic makeup, patterns of behavior, relationships, psychological stress, and health. They may research effective ways to motivate people to address patterns of behavior that contribute to poorer health (MacDonald, 2013).

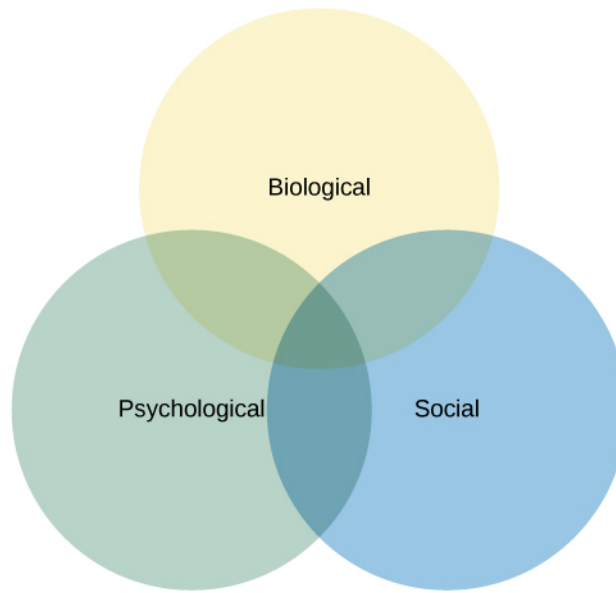


FIGURE 1.15 The biopsychosocial model suggests that health/illness is determined by an interaction of these three factors.

Sport and Exercise Psychology

Researchers in **sport and exercise psychology** study the psychological aspects of sport performance, including motivation and performance anxiety, and the effects of sport on mental and emotional wellbeing. Research is also conducted on similar topics as they relate to physical exercise in general. The discipline also includes topics that are broader than sport and exercise but that are related to interactions between mental and physical performance under demanding conditions, such as fire fighting, military operations, artistic performance, and surgery.

Clinical Psychology

Clinical psychology is the area of psychology that focuses on the diagnosis and treatment of psychological disorders and other problematic patterns of behavior. As such, it is generally considered to be a more applied area within psychology; however, some clinicians are also actively engaged in scientific research. **Counseling psychology** is a similar discipline that focuses on emotional, social, vocational, and health-related outcomes in individuals who are considered psychologically healthy.

As mentioned earlier, both Freud and Rogers provided perspectives that have been influential in shaping how clinicians interact with people seeking psychotherapy. While aspects of the psychoanalytic theory are still found among some of today's therapists who are trained from a psychodynamic perspective, Rogers's ideas about client-centered therapy have been especially influential in shaping how many clinicians operate. Furthermore, both behaviorism and the cognitive revolution have shaped clinical practice in the forms of behavioral therapy, cognitive therapy, and cognitive-behavioral therapy ([Figure 1.16](#)). Issues related to the diagnosis and treatment of psychological disorders and problematic patterns of behavior will be discussed in detail in later chapters of this textbook.

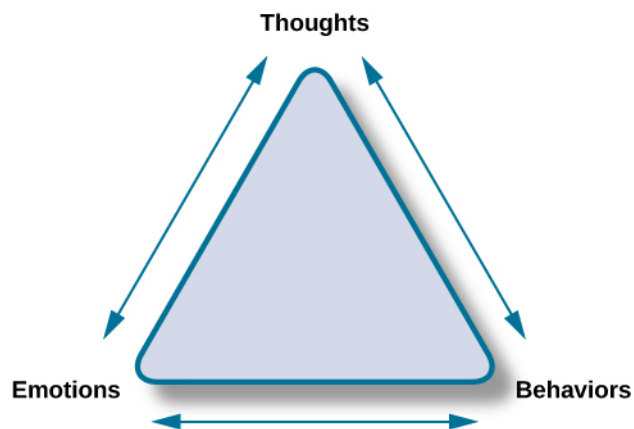


FIGURE 1.16 Cognitive-behavioral therapists take cognitive processes and behaviors into account when providing psychotherapy. This is one of several strategies that may be used by practicing clinical psychologists.

By far, this is the area of psychology that receives the most attention in popular media, and many people mistakenly assume that all psychology is clinical psychology.

Forensic Psychology

Forensic psychology is a branch of psychology that deals with questions of psychology as they arise in the context of the justice system. For example, forensic psychologists (and forensic psychiatrists) will assess a person's competency to stand trial, assess the state of mind of a defendant, act as consultants on child custody cases, consult on sentencing and treatment recommendations, and advise on issues such as eyewitness testimony and children's testimony (American Board of Forensic Psychology, 2014). In these capacities, they will typically act as expert witnesses, called by either side in a court case to provide their research- or experience-based opinions. As expert witnesses, forensic psychologists must have a good understanding of the law and provide information in the context of the legal system rather than just within the realm of psychology. Forensic psychologists are also used in the jury selection process and witness preparation. They may also be involved in providing psychological treatment within the criminal justice system. Criminal profilers are a relatively small proportion of psychologists that act as consultants to law enforcement.

1.4 Careers in Psychology

LEARNING OBJECTIVES

By the end of this section, you will be able to:

- Understand educational requirements for careers in academic settings
- Understand the demands of a career in an academic setting
- Understand career options outside of academic settings

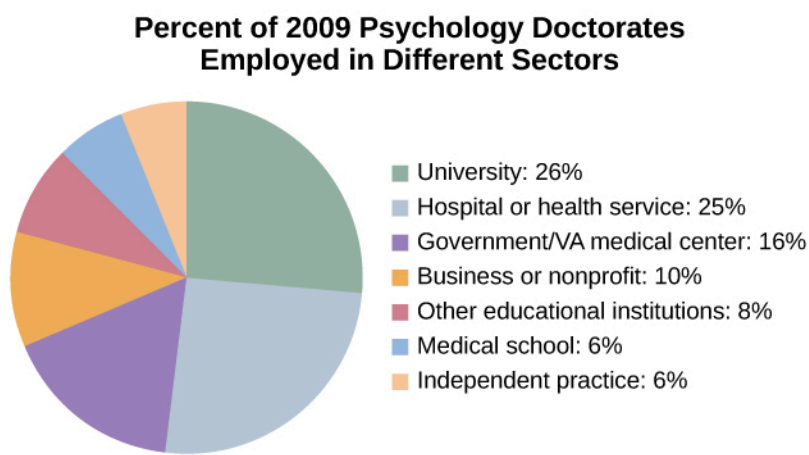
Psychologists can work in many different places doing many different things. In general, anyone wishing to continue a career in psychology at a 4-year institution of higher education will have to earn a doctoral degree in psychology for some specialties and at least a master's degree for others. In most areas of psychology, this means earning a PhD in a relevant area of psychology. Literally, **PhD** refers to a doctor of philosophy degree, but here, philosophy does not refer to the field of philosophy per se. Rather, philosophy in this context refers to many different disciplinary perspectives that would be housed in a traditional college of liberal arts and sciences.

The requirements to earn a PhD vary from country to country and even from school to school, but usually, individuals earning this degree must complete a dissertation. A **dissertation** is essentially a long research paper or bundled published articles describing research that was conducted as a part of the candidate's doctoral training. In the United States, a dissertation generally has to be defended before a committee of expert reviewers before the degree is conferred ([Figure 1.17](#)).



FIGURE 1.17 Doctoral degrees are generally conferred in formal ceremonies involving special attire and rites. (credit: Public Affairs Office Fort Wainwright)

Once someone earns a PhD, they may seek a faculty appointment at a college or university. Being on the faculty of a college or university often involves dividing time between teaching, research, and service to the institution and profession. The amount of time spent on each of these primary responsibilities varies dramatically from school to school, and it is not uncommon for faculty to move from place to place in search of the best personal fit among various academic environments. The previous section detailed some of the major areas that are commonly represented in psychology departments around the country; thus, depending on the training received, an individual could be anything from a biological psychologist to a clinical psychologist in an academic setting (Figure 1.18).



Source: Michalski, Kohout, Wicherski, & Hart, 2011

FIGURE 1.18 Individuals earning a PhD in psychology have a range of employment options.

LINK TO LEARNING

Use this [interactive tool and explore different careers in psychology based on degree levels](https://openstax.org/l/degreecareer) (<https://openstax.org/l/degreecareer>) to learn more.

Other Careers in Academic Settings

Often times, schools offer more courses in psychology than their full-time faculty can teach. In these cases, it is not uncommon to bring in an adjunct faculty member or instructor. Adjunct faculty members and instructors usually have an advanced degree in psychology, but they often have primary careers outside of academia and serve in this role as a secondary job. Alternatively, they may not hold the doctoral degree required by most 4-year institutions and use these opportunities to gain experience in teaching. Furthermore, many 2-year

colleges and schools need faculty to teach their courses in psychology. In general, many of the people who pursue careers at these institutions have master's degrees in psychology, although some PhDs make careers at these institutions as well.

Some people earning PhDs may enjoy research in an academic setting. However, they may not be interested in teaching. These individuals might take on faculty positions that are exclusively devoted to conducting research. This type of position would be more likely an option at large, research-focused universities.

In some areas in psychology, it is common for individuals who have recently earned their PhD to seek out positions in **postdoctoral training programs** that are available before going on to serve as faculty. In most cases, young scientists will complete one or two postdoctoral programs before applying for a full-time faculty position. Postdoctoral training programs allow young scientists to further develop their research programs and broaden their research skills under the supervision of other professionals in the field.

Career Options Outside of Academic Settings

Individuals who wish to become practicing clinical psychologists have another option for earning a doctoral degree, which is known as a PsyD. A **PsyD** is a doctor of psychology degree that is increasingly popular among individuals interested in pursuing careers in clinical psychology. PsyD programs generally place less emphasis on research-oriented skills and focus more on application of psychological principles in the clinical context (Norcross & Castle, 2002).

Regardless of whether earning a PhD or PsyD, in most states, an individual wishing to practice as a licensed clinical or counseling psychologist may complete postdoctoral work under the supervision of a licensed psychologist. Within the last few years, however, several states have begun to remove this requirement, which would allow people to get an earlier start in their careers (Munsey, 2009). After an individual has met the state requirements, their credentials are evaluated to determine whether they can sit for the licensure exam. Only individuals that pass this exam can call themselves licensed clinical or counseling psychologists (Norcross, n.d.). Licensed clinical or counseling psychologists can then work in a number of settings, ranging from private clinical practice to hospital settings. It should be noted that clinical psychologists and psychiatrists do different things and receive different types of education. While both can conduct therapy and counseling, clinical psychologists have a PhD or a PsyD, whereas psychiatrists have a doctor of medicine degree (MD). As such, licensed clinical psychologists can administer and interpret psychological tests, while psychiatrists can prescribe medications.

Individuals earning a PhD can work in a variety of settings, depending on their areas of specialization. For example, someone trained as a biopsychologist might work in a pharmaceutical company to help test the efficacy of a new drug. Someone with a clinical background might become a forensic psychologist and work within the legal system to make recommendations during criminal trials and parole hearings, or serve as an expert in a court case.

While earning a doctoral degree in psychology is a lengthy process, usually taking between 5–6 years of graduate study (DeAngelis, 2010), there are a number of careers that can be attained with a master's degree in psychology. People who wish to provide psychotherapy can become licensed to serve as various types of professional counselors (Hoffman, 2012). Relevant master's degrees are also sufficient for individuals seeking careers as school psychologists (National Association of School Psychologists, n.d.), in some capacities related to sport psychology (American Psychological Association, 2014), or as consultants in various industrial settings (Landers, 2011, June 14). Undergraduate coursework in psychology may be applicable to other careers such as psychiatric social work or psychiatric nursing, where assessments and therapy may be a part of the job.

As mentioned in the opening section of this chapter, an undergraduate education in psychology is associated with a knowledge base and skill set that many employers find quite attractive. It should come as no surprise, then, that individuals earning bachelor's degrees in psychology find themselves in a number of different

careers, as shown in [Table 1.1](#). Examples of a few such careers can involve serving as case managers, working in sales, working in human resource departments, and teaching in high schools. The rapidly growing realm of healthcare professions is another field in which an education in psychology is helpful and sometimes required. For example, the Medical College Admission Test (MCAT) exam that people must take to be admitted to medical school now includes a section on the psychological foundations of behavior.

Top Occupations Employing Graduates with a BA in Psychology (Fogg, Harrington, Harrington, & Shatkin, 2012)

Ranking	Occupation
1	Mid- and top-level management (executive, administrator)
2	Sales
3	Social work
4	Other management positions
5	Human resources (personnel, training)
6	Other administrative positions
7	Insurance, real estate, business
8	Marketing and sales
9	Healthcare (nurse, pharmacist, therapist)
10	Finance (accountant, auditor)

TABLE 1.1

LINK TO LEARNING

The APA provides [career information \(https://openstax.org/l/careers\)](https://openstax.org/l/careers) about various areas of psychology.

Key Terms

American Psychological Association (APA) professional organization representing psychologists in the United States

behaviorism focus on observing and controlling behavior

biopsychology study of how biology influences behavior

biopsychosocial model perspective that asserts that biology, psychology, and social factors interact to determine an individual's health

clinical psychology area of psychology that focuses on the diagnosis and treatment of psychological disorders and other problematic patterns of behavior

cognitive psychology study of cognitions, or thoughts, and their relationship to experiences and actions

counseling psychology area of psychology that focuses on improving emotional, social, vocational, and other aspects of the lives of psychologically healthy individuals

developmental psychology scientific study of development across a lifespan

dissertation long research paper about research that was conducted as a part of the candidate's doctoral training

empirical method method for acquiring knowledge based on observation, including experimentation, rather than a method based only on forms of logical argument or previous authorities

forensic psychology area of psychology that applies the science and practice of psychology to issues within and related to the justice system

functionalism focused on how mental activities helped an organism adapt to its environment

humanism perspective within psychology that emphasizes the potential for good that is innate to all humans

introspection process by which someone examines their own conscious experience in an attempt to break it into its component parts

ology suffix that denotes "scientific study of"

personality psychology study of patterns of thoughts and behaviors that make each individual unique

personality trait consistent pattern of thought and behavior

PhD (doctor of philosophy) doctoral degree conferred in many disciplinary perspectives housed in a traditional college of liberal arts and sciences

postdoctoral training program allows young scientists to further develop their research programs and broaden their research skills under the supervision of other professionals in the field

psychoanalytic theory focus on the role of the unconscious in affecting conscious behavior

psychology scientific study of the mind and behavior

PsyD (doctor of psychology) doctoral degree that places less emphasis on research-oriented skills and focuses more on application of psychological principles in the clinical context

sport and exercise psychology area of psychology that focuses on the interactions between mental and emotional factors and physical performance in sports, exercise, and other activities

structuralism understanding the conscious experience through introspection

Summary

1.1 What Is Psychology?

Psychology is defined as the scientific study of mind and behavior. Students of psychology develop critical thinking skills, become familiar with the scientific method, and recognize the complexity of behavior.

1.2 History of Psychology

Before the time of Wundt and James, questions about the mind were considered by philosophers. However, both Wundt and James helped create psychology as a distinct scientific discipline. Wundt was a structuralist, which meant he believed that our cognitive experience was best understood by breaking that experience into its component parts. He thought this was best accomplished by introspection.

William James was the first American psychologist, and he was a proponent of functionalism. This particular perspective focused on how mental activities served as adaptive responses to an organism's environment. Like Wundt, James also relied on introspection; however, his research approach also incorporated more objective measures as well.

Sigmund Freud believed that understanding the unconscious mind was absolutely critical to understand conscious behavior. This was especially true for individuals that he saw who suffered from various hysterias and neuroses. Freud relied on dream analysis, slips of the tongue, and free association as means to access the unconscious. Psychoanalytic theory remained a dominant force in clinical psychology for several decades.

Gestalt psychology was very influential in Europe. Gestalt psychology takes a holistic view of an individual and his experiences. As the Nazis came to power in Germany, Wertheimer, Koffka, and Köhler immigrated to the United States. Although they left their laboratories and their research behind, they did introduce America to Gestalt ideas. Some of the principles of Gestalt psychology are still very influential in the study of sensation and perception.

One of the most influential schools of thought within psychology's history was behaviorism. Behaviorism focused on making psychology an objective science by studying overt behavior and deemphasizing the importance of unobservable mental processes. John Watson is often considered the father of behaviorism, and B. F. Skinner's contributions to our understanding of principles of operant conditioning cannot be underestimated.

As behaviorism and psychoanalytic theory took hold of so many aspects of psychology, some began to become dissatisfied with psychology's picture of human nature. Thus, a humanistic movement within psychology began to take hold. Humanism focuses on the potential of all people for good. Both Maslow and Rogers were influential in shaping humanistic psychology.

During the 1950s, the landscape of psychology began to change. A science of behavior began to shift back to its roots of focus on mental processes. The emergence of neuroscience and computer science aided this transition. Ultimately, the cognitive revolution took hold, and people came to realize that cognition was crucial to a true appreciation and understanding of behavior.

1.3 Contemporary Psychology

Psychology is a diverse discipline that is made up of several major subdivisions with unique perspectives. Biological psychology involves the study of the biological bases of behavior. Sensation and perception refer to the area of psychology that is focused on how information from our sensory modalities is received, and how this information is transformed into our perceptual experiences of the world around us. Cognitive psychology is concerned with the relationship that exists between thought and behavior, and developmental psychologists study the physical and cognitive changes that occur throughout one's lifespan. Personality psychology focuses on individuals' unique patterns of behavior, thought, and emotion. Industrial and organizational psychology, health psychology, sport and exercise psychology, forensic psychology, and clinical psychology are all considered applied areas of psychology. Industrial and organizational psychologists apply psychological concepts to I-O settings. Health psychologists look for ways to help people live healthier lives, and clinical psychology involves the diagnosis and treatment of psychological disorders and other problematic behavioral patterns. Sport and exercise psychologists study the interactions between thoughts, emotions, and physical performance in sports, exercise, and other activities. Forensic psychologists carry out activities related to psychology in association with the justice system.

1.4 Careers in Psychology

Generally, academic careers in psychology require doctoral degrees. However, there are a number of nonacademic career options for people who have master's degrees in psychology. While people with bachelor's degrees in psychology have more limited psychology-related career options, the skills acquired as a function of

an undergraduate education in psychology are useful in a variety of work contexts.

Review Questions

1. Which of the following was mentioned as a skill to which psychology students would be exposed?
 - a. critical thinking
 - b. use of the scientific method
 - c. critical evaluation of sources of information
 - d. all of the above
2. Before psychology became a recognized academic discipline, matters of the mind were undertaken by those in _____.
 - a. biology
 - b. chemistry
 - c. philosophy
 - d. physics
3. In the scientific method, a hypothesis is a(n) _____.
 - a. observation
 - b. measurement
 - c. test
 - d. proposed explanation
4. Based on your reading, which theorist would have been most likely to agree with this statement: Perceptual phenomena are best understood as a combination of their components.
 - a. William James
 - b. Max Wertheimer
 - c. Carl Rogers
 - d. Noam Chomsky
5. _____ is most well-known for proposing his hierarchy of needs.
 - a. Noam Chomsky
 - b. Carl Rogers
 - c. Abraham Maslow
 - d. Sigmund Freud
6. Rogers believed that providing genuineness, empathy, and _____ in the therapeutic environment for his clients was critical to their being able to deal with their problems.
 - a. structuralism
 - b. functionalism
 - c. Gestalt
 - d. unconditional positive regard
7. The operant conditioning chamber (aka _____ box) is a device used to study the principles of operant conditioning.
 - a. Skinner
 - b. Watson
 - c. James
 - d. Koffka
8. A researcher interested in how changes in the cells of the hippocampus (a structure in the brain related to

- learning and memory) are related to memory formation would be most likely to identify as a(n) _____ psychologist.
- biological
 - health
 - clinical
 - social
9. An individual's consistent pattern of thought and behavior is known as a(n) _____.
- psychosexual stage
 - object permanence
 - personality
 - perception
10. In Milgram's controversial study on obedience, nearly _____ of the participants were willing to administer what appeared to be lethal electrical shocks to another person because they were told to do so by an authority figure.
- 1/3
 - 2/3
 - 3/4
 - 4/5
11. A researcher interested in what factors make an employee best suited for a given job would most likely identify as a(n) _____ psychologist.
- personality
 - clinical
 - social
 - I-O
12. If someone wanted to become a psychology professor at a 4-year college, they would probably need a _____ degree in psychology.
- bachelor of science
 - bachelor of art
 - master's
 - PhD
13. The _____ places less emphasis on research and more emphasis on application of therapeutic skills.
- PhD
 - PsyD
 - postdoctoral training program
 - dissertation
14. Which of the following degrees would be the minimum required to teach psychology courses in high school?
- PhD
 - PsyD
 - master's degree
 - bachelor's degree
15. One would need at least a(n) _____ degree to serve as a school psychologist.
- associate's

- b. bachelor's
- c. master's
- d. doctoral

Critical Thinking Questions

16. Why do you think psychology courses like this one are often requirements of so many different programs of study?
17. Why do you think many people might be skeptical about psychology being a science?
18. How did the object of study in psychology change over the history of the field since the 19th century?
19. In part, what aspect of psychology was the behaviorist approach to psychology a reaction to?
20. Given the incredible diversity among the various areas of psychology that were described in this section, how do they all fit together?
21. What are the potential ethical concerns associated with Milgram's research on obedience?
22. Why is an undergraduate education in psychology so helpful in a number of different lines of work?
23. Other than a potentially greater salary, what would be the reasons an individual would continue on to get a graduate degree in psychology?

Personal Application Questions

24. Why are you taking this course? What do you hope to learn about during this course?
25. Freud is probably one of the most well-known historical figures in psychology. Where have you encountered references to Freud or his ideas about the role that the unconscious mind plays in determining conscious behavior?
26. Now that you've been briefly introduced to some of the major areas within psychology, which are you most interested in learning more about? Why?
27. Which of the career options in the field of psychology is most appealing to you?



FIGURE 2.1 How does television content impact children's behavior? (credit: modification of work by "antisocialtory"/Flickr)

CHAPTER OUTLINE

- 2.1 Why Is Research Important?
- 2.2 Approaches to Research
- 2.3 Analyzing Findings
- 2.4 Ethics

INTRODUCTION Have you ever wondered whether the violence you see on television affects your behavior? Are you more likely to behave aggressively in real life after watching people behave violently in dramatic situations on the screen? Or, could seeing fictional violence actually get aggression out of your system, causing you to be more peaceful? How are children influenced by the media they are exposed to? A psychologist interested in the relationship between behavior and exposure to violent images might ask these very questions.

Since ancient times, humans have been concerned about the effects of new technologies on our behaviors and thinking processes. The Greek philosopher Socrates, for example, worried that writing—a new technology at that time—would diminish people's ability to remember because they could rely on written records rather than committing information to memory. In our world of rapidly changing technologies, questions about their effects on our daily lives and their resulting long-term impacts continue to emerge. In addition to the impact of screen time (on smartphones, tablets, computers, and gaming), technology is emerging in our vehicles (such as GPS and smart cars) and residences (with devices like Alexa or Google Home and doorbell cameras). As these technologies become integrated into our lives, we are faced with questions about their positive and negative impacts. Many of us find ourselves with a strong opinion on these issues, only to find the person next to us bristling with the opposite view.

How can we go about finding answers that are supported not by mere opinion, but by evidence that we can all agree on? The findings of psychological research can help us navigate issues like this.

2.1 Why Is Research Important?

LEARNING OBJECTIVES

By the end of this section, you will be able to:

- Explain how scientific research addresses questions about behavior
- Discuss how scientific research guides public policy
- Appreciate how scientific research can be important in making personal decisions

Scientific research is a critical tool for successfully navigating our complex world. Without it, we would be forced to rely solely on intuition, other people's authority, and blind luck. While many of us feel confident in our abilities to decipher and interact with the world around us, history is filled with examples of how very wrong we can be when we fail to recognize the need for evidence in supporting claims. At various times in history, we would have been certain that the sun revolved around a flat earth, that the earth's continents did not move, and that mental illness was caused by possession ([Figure 2.2](#)). It is through systematic scientific research that we divest ourselves of our preconceived notions and superstitions and gain an objective understanding of ourselves and our world.



FIGURE 2.2 Some of our ancestors, across the world and over the centuries, believed that trephination—the practice of making a hole in the skull, as shown here—allowed evil spirits to leave the body, thus curing mental illness and other disorders. (credit: “taiproject”/Flickr)

The goal of all scientists is to better understand the world around them. Psychologists focus their attention on understanding behavior, as well as the cognitive (mental) and physiological (body) processes that underlie behavior. In contrast to other methods that people use to understand the behavior of others, such as intuition and personal experience, the hallmark of scientific research is that there is evidence to support a claim. Scientific knowledge is **empirical**: It is grounded in objective, tangible evidence that can be observed time and time again, regardless of who is observing.

While behavior is observable, the mind is not. If someone is crying, we can see behavior. However, the reason for the behavior is more difficult to determine. Is the person crying due to being sad, in pain, or happy? Sometimes we can learn the reason for someone's behavior by simply asking a question, like “Why are you crying?” However, there are situations in which an individual is either uncomfortable or unwilling to answer the question honestly, or is incapable of answering. For example, infants would not be able to explain why they are crying. In such circumstances, the psychologist must be creative in finding ways to better understand behavior. This chapter explores how scientific knowledge is generated, and how important that knowledge is in forming decisions in our personal lives and in the public domain.

Use of Research Information

Trying to determine which theories are and are not accepted by the scientific community can be difficult, especially in an area of research as broad as psychology. More than ever before, we have an incredible amount of information at our fingertips, and a simple internet search on any given research topic might result in a

number of contradictory studies. In these cases, we are witnessing the scientific community going through the process of reaching a consensus, and it could be quite some time before a consensus emerges. For example, the explosion in our use of technology has led researchers to question whether this ultimately helps or hinders us. The use and implementation of technology in educational settings has become widespread over the last few decades. Researchers are coming to different conclusions regarding the use of technology. To illustrate this point, a study investigating a smartphone app targeting surgery residents (graduate students in surgery training) found that the use of this app can increase student engagement and raise test scores (Shaw & Tan, 2015). Conversely, another study found that the use of technology in undergraduate student populations had negative impacts on sleep, communication, and time management skills (Massimini & Peterson, 2009). Until sufficient amounts of research have been conducted, there will be no clear consensus on the effects that technology has on a student's acquisition of knowledge, study skills, and mental health.

In the meantime, we should strive to think critically about the information we encounter by exercising a degree of healthy skepticism. When someone makes a claim, we should examine the claim from a number of different perspectives: what is the expertise of the person making the claim, what might they gain if the claim is valid, does the claim seem justified given the evidence, and what do other researchers think of the claim? This is especially important when we consider how much information in advertising campaigns and on the internet claims to be based on “scientific evidence” when in actuality it is a belief or perspective of just a few individuals trying to sell a product or draw attention to their perspectives.

We should be informed consumers of the information made available to us because decisions based on this information have significant consequences. One such consequence can be seen in politics and public policy. Imagine that you have been elected as the governor of your state. One of your responsibilities is to manage the state budget and determine how to best spend your constituents' tax dollars. As the new governor, you need to decide whether to continue funding early intervention programs. These programs are designed to help children who come from low-income backgrounds, have special needs, or face other disadvantages. These programs may involve providing a wide variety of services to maximize the children's development and position them for optimal levels of success in school and later in life (Blann, 2005). While such programs sound appealing, you would want to be sure that they also proved effective before investing additional money in these programs. Fortunately, psychologists and other scientists have conducted vast amounts of research on such programs and, in general, the programs are found to be effective (Neil & Christensen, 2009; Peters-Scheffer, Didden, Korzilius, & Sturmey, 2011). While not all programs are equally effective, and the short-term effects of many such programs are more pronounced, there is reason to believe that many of these programs produce long-term benefits for participants (Barnett, 2011). If you are committed to being a good steward of taxpayer money, you would want to look at research. Which programs are most effective? What characteristics of these programs make them effective? Which programs promote the best outcomes? After examining the research, you would be best equipped to make decisions about which programs to fund.

LINK TO LEARNING

Watch this [video about early childhood program effectiveness \(https://openstax.org/l/programeffect\)](https://openstax.org/l/programeffect) to learn how scientists evaluate effectiveness and how best to invest money into programs that are most effective.

Ultimately, it is not just politicians who can benefit from using research in guiding their decisions. We all might look to research from time to time when making decisions in our lives. Imagine that your sister, Maria, expresses concern about her two-year-old child, Umberto. Umberto does not speak as much or as clearly as the other children in his daycare or others in the family. Umberto's pediatrician undertakes some screening and recommends an evaluation by a speech pathologist, but does not refer Maria to any other specialists. Maria is concerned that Umberto's speech delays are signs of a developmental disorder, but Umberto's pediatrician does not; she sees indications of differences in Umberto's jaw and facial muscles. Hearing this, you do some internet searches, but you are overwhelmed by the breadth of information and the wide array of

sources. You see blog posts, top-ten lists, advertisements from healthcare providers, and recommendations from several advocacy organizations. Why are there so many sites? Which are based in research, and which are not?

In the end, research is what makes the difference between facts and opinions. **Facts** are observable realities, and **opinions** are personal judgments, conclusions, or attitudes that may or may not be accurate. In the scientific community, facts can be established only using evidence collected through empirical research.

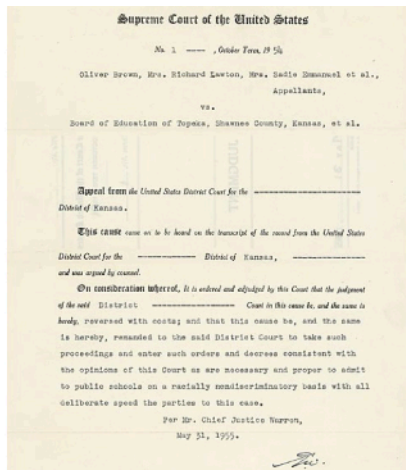
NOTABLE RESEARCHERS

Psychological research has a long history involving important figures from diverse backgrounds. While the introductory chapter discussed several researchers who made significant contributions to the discipline, there are many more individuals who deserve attention in considering how psychology has advanced as a science through their work (Figure 2.3). For instance, Margaret Floy Washburn (1871–1939) was the first woman to earn a PhD in psychology. Her research focused on animal behavior and cognition (Margaret Floy Washburn, PhD, n.d.). Mary Whiton Calkins (1863–1930) was a preeminent first-generation American psychologist who opposed the behaviorist movement, conducted significant research into memory, and established one of the earliest experimental psychology labs in the United States (Mary Whiton Calkins, n.d.).

Francis Sumner (1895–1954) was the first African American to receive a PhD in psychology in 1920. His dissertation focused on issues related to psychoanalysis. Sumner also had research interests in racial bias and educational justice. Sumner was one of the founders of Howard University’s department of psychology, and because of his accomplishments, he is sometimes referred to as the “Father of Black Psychology.” Thirteen years later, Inez Beverly Prosser (1895–1934) became the first African American woman to receive a PhD in psychology. Prosser’s research highlighted issues related to education in segregated versus integrated schools, and ultimately, her work was very influential in the landmark *Brown v. Board of Education* Supreme Court ruling that segregation of public schools was unconstitutional (Ethnicity and Health in America Series: Featured Psychologists, n.d.).



(a)



(b)

FIGURE 2.3 (a) Margaret Floy Washburn was the first woman to earn a doctorate degree in psychology. (b) The outcome of *Brown v. Board of Education* was influenced by the research of psychologist Inez Beverly Prosser, who was the first African American woman to earn a PhD in psychology.

Although the establishment of psychology’s scientific roots occurred first in Europe and the United States, it did not take much time until researchers from around the world began to establish their own laboratories and research programs. For example, some of the first experimental psychology laboratories in South America were founded by Horatio Piñero (1869–1919) at two institutions in Buenos Aires, Argentina (Godoy & Brussino, 2010). In India, Gunamudian David Boaz (1908–1965) and Narendra Nath Sen Gupta (1889–1944) established