**Chapter 1**

***Psychology and Scientific Thinking: A Framework for Everyday Life***

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**CHAPTER-AT-A-GLANCE**

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**LECTURE GUIDE**

1. **WHAT IS PSYCHOLOGY? SCIENCE VERSUS INTUITION (Text p. 3)**

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* 1. *Psychology and Levels of Analysis*
     1. Psychology is difficult to define. In this text, we’ll refer to **psychology** as what scientific psychologists do—study the mind, brain, and behavior.
     2. There are many **levels of analysis** within the psychology discipline. These include biological and sociocultural explanations for behavior (**Figure 1.1, text p. 4**).
     3. Each level of explanation tells us something different about the mind, brain, and behavior. This text avoids emphasizing the extremes.
  2. *What Makes Psychology Distinctive—and Fascinating*
     1. This text covers five challenges that psychologists face:
        1. Almost all actions are **multiply determined**, produced by many factors.
           1. We should be skeptical of single-variable explanations of behavior.
        2. Psychological influences are rarely independent of each other.
           1. **Anorexia nervosa**, a severe eating disorder, has many psychological influences that are interrelated.
        3. **Individual differences** help to explain why we respond differently to the same objective situation. This makes it difficult to develop explanations that apply to everyone.
        4. Reciprocal determinism: The fact that people mutually influence each others’ behavior.
        5. Behavior is often shaped by culture.
  3. *Why We Can’t Always Trust Our Common Sense*
     1. The way that we intuitively understand the world is frequently incorrect. Common sense is not always right!
        1. The adage “There’s safety in numbers” is actually disproven by psychological research that shows that the more people present in an emergency, the less likely it is that people will help (Darley & Latané, 1968a, Latané & Nida, 1981, see Chapter 13).
        2. Common sense can lead us to believe things that, when examined together, appear contradictory.
           1. Birds of a feather flock together/Opposites attract.
           2. Two heads are better than one/Too many cooks spoil the broth.
           3. Actions speak louder than words/The pen is mightier than the sword.
     2. Naïve Realism: Is Seeing Believing?
        1. **Naïve realism** is the mistaken belief that we see the world as it really is (Ross & Ward, 1996).
        2. Our perceptions are not always wrong, but appearance can be deceiving.
           1. The Earth seems flat.
           2. The sun seems to revolve around the Earth (**Figure 1.2, text p. 6**).
        3. People who don’t share our political views are biased, whereas we are objective. Research shows that we all tend to evaluate political issues with bias (Pronin, Gilvich, & Ross, 2004).
     3. When Our Common Sense Is Right
        1. Our intuition can also be quite accurate (Gigerenzer, 2007; Gladwell, 2005; Meyers, 2002).
           1. Our snap judgments on the trustworthiness of someone we watched on a videotape are right more often than would be expected by chance (Fowler, Lilienfeld, & Patrick, 2007).
        2. Common sense can help us to generate hypotheses that scientists can later test rigorously (Redding, 1998).
        3. Learning to think scientifically teaches us when to trust our common sense and when not to. This helps us become better consumers of popular psychology and make better decisions in the real world.
  4. *Psychology as a Science*
     1. Science isn’t a body of knowledge.
        1. Science is an *approach* to evidence, designed to prevent us from fooling ourselves.
     2. What is a Scientific Theory?
        1. **Scientific theory**—Explanation for a large number of findings in the natural world.
           1. Offers an account that ties multiple findings together.
           2. Good theories do more than account for existing data. They generate predictions regarding new data not yet observed.
           3. A testable prediction is termed a **hypothesis**.
           4. Testing hypotheses can lead scientists to provisionally accept the theory that generated the hypothesis, reject the theory outright, or revise it.
     3. Science as a Safeguard Against Bias: Protecting Us from Ourselves
        1. The best scientists are aware of their biases, or at least aware they have them.
        2. They also know that because of personal investment, they may bias the results unintentionally to make them turn out they way they want.
        3. **Confirmation Bias—**the tendency to seek out evidence that supports our hypotheses and neglect or distort evidence that contradicts them (i.e., *Seek and ye shall find*).
           1. Our preconceptions often lead us to focus on evidence that supports our beliefs, resulting in psychological tunnel vision.

e.g., the Wason selection task (Wason, 1966) (**Figure 1.3, text p. 10**)

* + - 1. Confirmation bias is the “mother of all biases.”
         1. It can easily fool us into seeing what we want to see.
         2. It is the most crucial bias scientists need to counteract.
         3. Scientists differ from nonscientists in that the former use systematic safeguards to protect against confirmation bias, whereas the latter don’t.
      2. Belief Perseverance
         1. **Belief perseverance** is the tendency to stick to our initial beliefs even when evidence contradicts them.
         2. “Don’t confuse me with the facts” effect.
         3. Because none of us wants to believe we’re wrong, we’re usually reluctant to give up our beliefs.
  1. *Metaphysical Claims: The Boundaries of Science*
     1. **Metaphysical claims**—assertions about the world that are unfalsifiable.
        1. Claims include assertions about the existence of God, the afterlife.
     2. This is not to say that metaphysical claims are wrong or unimportant.
        1. Many scholars believe questions concerning the existence of God are more significant than scientific questions.
        2. It is important to treat these questions with profound respect, regardless of our beliefs about religion.
        3. Testable claims fall within the province of science; untestable claims don’t (**Figure 1.4, text p. 12**).
  2. *Recognizing That We Might Be Wrong*
     1. Good psychological scientists understand that they might be mistaken.
        1. Initial scientific conclusions are often wrong or off-base.
        2. Scientific knowledge is tentative and potentially open to revision.
        3. Continually revising and updating findings is a key process in science.

1. **PSYCHOLOGICAL PSEUDOSCIENCE: IMPOSTERS OF SCIENCE (Text p. 13)**

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**> Lecture Launchers**

[Psychology and Common Sense](#LDPsychCommon)

* 1. *The Amazing Growth of Popular Psychology*
     1. On the positive side, the American public has unprecedented access to psychological knowledge.
     2. On the negative side, this increased popularity has led to a *misinformation explosion* because there’s little quality control over what the industry produces.
     3. Self-Help and Media
        1. There are approximately 3,500 self-help books published every year (Arkowitz & Lilienfeld, 2006).
           1. But 95 percent of those books targeting psychological problems remain untested (Gould & Clum, 1993; Gregory, Canning, Lee, & Wise, 2004; Rosen, 1993).
           2. Still, other self-help books may actually make certain psychological conditions worse (Rosen, Glasgow, & Moore, 2003).
        2. There are hundreds of Internet sites concerning psychology, but it’s nearly impossible to determine how many are scientifically accurate.
        3. Fortunately, there are accurate sources of scientific information about human behavior.
           1. Some books base their recommendations on solid psychological research; there are excellent media outlets that present high-quality information (e.g., *New York Times*; *Scientific American Mind*; *Discover* magazine).
           2. There are many websites that provide remarkable helpful information about a variety of topics related to psychology (e.g., websites of the American Psychological Association, Center for Evidence-Based Mental Health).
  2. *What Is Pseudoscience?*
     1. **Pseudoscience**—a set of claims that seems scientific but isn’t.
        1. Pseudoscience lacks the safeguards against confirmation bias and belief perseverance that characterize science.
        2. It is troubling that many believe that pseudoscientific claims are correct even though scientific evidence for them is weak or essentially nonexistent.
     2. Many popular psychology claims are pseudoscientific. These include assertions regarding recovered memories of child abuse, handwriting analysis, and some questionable psychotherapies.
        1. There may be a core of truth to some of these assertions.
        2. Others might be shown to be true in future research.
        3. However, proponents of these claims don’t follow the rules of science.
     3. While the difference between science and pseudoscience isn’t always clear-cut, we can pinpoint a number of helpful distinctions between the two (Leahy & Leahy, 1983; Lindeman, 1998).
     4. Warning Signs of Pseudoscience
        1. Several warning signs can help us distinguish science from pseudoscience (**see Table 1.1, text p. 15**).
           1. Overuse of **ad hoc immunizing hypotheses**
           2. Exaggerated claims
           3. Overreliance on anecdotes
           4. Absence of connectivity to other research
           5. Lack of review by other scholars or replication by independent lab
           6. Lack of self-correction when contrary evidence is published
           7. Meaningless “psychobabble” that uses fancy scientific-sounding terms that don’t make sense
           8. Talk of “proof” instead of “evidence”
        2. The more of these signs that are present, the more skeptical of these claims we should become.
     5. Why Are We Drawn to Pseudoscience?
        1. Our brains are predisposed to make order out of disorder and find sense out of nonsense.
           1. **Patternicity**—the tendency to perceive meaningful patterns in their absence.
           2. This is generally adaptive because it helps us simplify an overwhelming world.
           3. But this tendency can also be misleading because we perceive meaningful patterns when they’re not there.
        2. Finding Comfort in Our Beliefs
           1. Many pseudoscientific claims give us comfort because they offer control over an unpredictable world.
           2. According to **terror management theory**, the awareness of our inevitable death leaves many with an underlying sense of terror.

Advocates of this theory propose that we cope with this fear by adopting cultural worldviews that reassure us that life possesses a broader meaning and purpose.

* + 1. Thinking Clearly: An Antidote Against Pseudoscience
       1. To avoid being seduced by the charms of pseudoscience, we must learn to avoid commonplace pitfalls in reasoning.
       2. There are several common logical fallacies—traps in thinking that lead to mistaken conclusions (see **Table 1.3, text p. 19**).
       3. Three important logical fallacies:
          1. Emotional Reasoning Fallacy—error of using our emotions as guides for evaluating the validity of a claim.
          2. Bandwagon Fallacy—error of assuming that a claim is correct just because many people believe it.
          3. Not Me Fallacy—error of believing that we are immune to errors in thinking.
  1. *The Dangers of Pseudoscience: Why Should We Care?*
     1. Three major reasons we should be concerned:
        1. Opportunity Cost: What We Give Up
           1. Opportunity cost—investment of time, energy, and effort in a questionable treatment that can lead people to forfeit chances to obtain effective treatment.
        2. Direct Harm—pseudoscientific treatments occasionally do direct and dreadful harm to those who receive them.
        3. Inability to Think Scientifically as Citizens—An inability to think scientifically about a seemingly unimportant domain, such as astrology, can easily spill over to an inability to think critically about issues like global warming, genetic engineering, and stem cell research.
     2. Pseudoscience matters. While not foolproof, scientific thinking is our best safeguard against human error.

1. **SCIENTIFIC THINKING: DISTINGUISHING FACT FROM FICTION (Text p. 21)**

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* 1. *Scientific Skepticism*

1. **Scientific skepticism** is an approach of evaluating all claims with an open mind but insisting on persuasive evidence before accepting them.

a. Scientific skeptics must adopt two seemingly contradictory attitudes.

i. *First*, a willingness to keep an open mind to all claims;

ii. *Second*, a willingness to accept these claims only after researchers have subjected them to careful scientific tests.

* 1. *A Basic Framework for Scientific Thinking*
     1. Scientific skepticism is characterized by **critical thinking.** 
        1. Critical thinking—a set of skills for evaluating all claims in an open-minded and careful fashion.
        2. This text emphasizes *six* principles of critical thinking.
        3. Throughout the text, whenever one principle arises in the discussion, an arrow will be displayed in the margin to remind you of the principle (**Figure 1.7, text p. 23**).
     2. Scientific Thinking Principle #1: *Ruling Out Rival Hypotheses*
        1. Whenever we evaluate a psychological claim, we should ask ourselves whether we’ve excluded other plausible explanations for this claim.
     3. Scientific Thinking Principle #2: *Correlation Isn’t Causation*
        1. One of the most crucial principles in this book—*correlations don’t permit causal inferences,* or, in other words, *correlation isn’t causation.*
        2. **Correlation-causation fallacy—**error of assuming that because one thing is associated with another, it must cause the other.
        3. **Variable—**anything that can *vary* across people, such as height, IQ, or extraversion.
        4. If two variables, A and B, are correlated, three major explanations can be given for this correlation.
           1. A -> B. First, it’s possible that variable A causes variable B
           2. B -> A. Second, it’s possible that variable B causes variable A; here the “causal arrow” (the arrow connecting the two variables) is reversed.
           3. C -> A and B. In this third scenario, there’s a third variable, C, that causes *both* A and B.

Third variable problem**—**a case in which a third variable causes the correlation between two other variables.

It’s a “problem” because it can lead us to conclude mistakenly that A and B are causally related to each other when they’re not.

Making matters worse, we may never have thought to measure “third variable” C in our study.

* + - 1. For example, in a recent study, researchers found that teenagers who listened to raunchy music with lots of sexual lyrics had sexual intercourse considerably more often than teenagers who listened to music with far tamer lyrics (Martino et al., 2006); in other words, listening to sexual lyrics is *correlated* with sexual behavior.
         1. It’s indeed possible that music with sexual lyrics (A) causes sexual behavior (B).
         2. It’s possible that sexual behavior (B) causes teens to listen to music with sexual lyrics (B).
         3. It’s also possible that a third variable, like impulsivity (C), both causes teens to listen to music with sexual lyrics *and* to engage in sexual behavior.
      2. *The bottom line*: We should remember that a correlation between two things doesn’t demonstrate a causal connection between them.
    1. Scientific Thinking Principle #3: *Falsifiability*
       1. Philosopher of science Sir Karl Popper (1959) observed that for a claim to be meaningful, it must be **falsifiable,** that is, capable of being disproved.
       2. For a theory to be meaningful, it *could* be proved wrong if there were certain types of evidence against it.
       3. For a claim to be falsifiable, the proponent of the claim must state clearly *in advance,* not after the fact, which findings would count as evidence for and against the claim.
       4. A key implication of the falsifiability principle is that a theory that can account for every conceivable outcome actually explains nothing.
       5. A good scientific theory must predict only certain outcomes, but not others.
       6. *The bottom line:* Whenever we evaluate a psychological claim, we should ask ourselves whether one could in principle disprove it or whether it’s consistent with any conceivable body of evidence.
    2. Scientific Thinking Principle #4: *Replicability*
       1. **Replicability—**the idea that a study’s findings can be duplicated consistently; if they can’t be duplicated, it’s possible that the original findings were due to chance.
       2. *We shouldn’t place too much stock in a psychological finding until it’s been replicated.*
       3. The media are more likely to report initial positive findings than failures to replicate.
          1. The literature on ESP offers an excellent example of why replicability is so essential (see Chapter 4).

Occasionally, a researcher reports a finding that seemingly confirms the existence of ESP, which inevitably garners media publicity.

Yet time and again, independent researchers haven’t been able to replicate these tantalizing results (Gilovich, 1991; Hyman, 1989; Lilienfeld, 1999a).

* + - 1. **Decline effect**—fact that the size of certain psychological findings appears to be shrinking over time.
      2. *The bottom line:* Whenever we evaluate a psychological claim, we should ask ourselves whether the independent investigators have replicated the findings that support this claim; otherwise, the findings might be a one-time-only fluke.
    1. Scientific Thinking Principle #5: *Extraordinary Claims Require Extraordinary Evidence*
       1. According to Scottish philosopher David Hume, the more a claim contradicts what we already know, the more persuasive the evidence for this claim must be before we should accept it.
          1. e.g., a few scientists believe that some Americans are being lifted out of their beds, brought aboard flying saucers, and experimented upon by aliens, only to be returned safely to their beds hours later.
          2. While alien abduction proponents *might* be right, and we shouldn’t dismiss their claims out of hand, their claims are extraordinary and require substantial evidence.
          3. Thus far, however, all that alien abduction proponents have to show for their claims are the self-criticalreports of supposed abductees, most of which have been contaminated by hypnosis.
       2. *The bottom line:* Whenever we evaluate a psychological claim, we should ask ourselves whether this claim runs counter to many things that we know already and, if it does, whether the evidence is as extraordinary as the claim is.
    2. Scientific Thinking Principle #6: *Occam’s Razor*
       1. Also called the “principle of parsimony” (*parsimony means logical simplicity*).
       2. Occam’s Razor—if two explanations account for a phenomenon equally well, we should generally select the more parsimonious one. Some scientists refer to Occam’s Razor as the principle of KISS: Keep it simple, stupid!
       3. Occasionally the best explanation for a phenomenon is the most complex, not the simplest; but Occam’s razor is a helpful rule of thumb, as it’s right far more often than wrong.
          1. e.g., crop circles; thought by some to be created by aliens, were actually created by human pranksters.
       4. *The bottom line:* Whenever we evaluate a psychological claim, we should ask ourselves whether it is the simplest explanation that accounts for the data, or whether simpler explanations can account for the data equally well.

1. **PSYCHOLOGY’S PAST AND PRESENT: WHAT A LONG, STRANGE TRIP IT’S BEEN (Text p.** **28)**

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* 1. *Psychology’s Early History*

1. The section presents a description of psychology’s road from nonscience to science (**Figure 1.8, text p. 29**).
2. For centuries, the field of psychology was difficult to distinguish from philosophy.
3. In the 1800s, the landscape of psychology changed dramatically.
4. Wilhelm Wundt developed the first psychological laboratory in Germany.
5. Wundt used a technique called **introspection**, which required trained observers to reflect and report on their mental experiences.
   1. *The Great Theoretical Frameworks of Psychology*
6. Five major theoretical perspectives have played an important role in shaping contemporary psychology—structuralism, functionalism, behaviorism, psychoanalysis, and cognitivism.
7. Each perspective consists of valuable contributions to psychology, and each has limitations (**Table 1.5, text p. 31**).
8. Structuralism: The Elements of the Mind
9. Edward Bradford Titchener (1867–1927), a student of Wilhelm Wundt, who developed the first psychological laboratory in 1879, founded structuralism.
10. **Structuralism**—school of psychology that aimed to identify the basic elements, or “structures,” of psychological experience.
11. Using Wundt’s method of introspection, structuralists dreamed of creating a comprehensive map of the elements of consciousness.
12. Two major problems with structuralism emerged.
    * + - 1. First, highly trained introspectionists often disagreed on their subjective reports.
          2. Second, Oswald Kulpe showed that subjects asked to solve certain mental problems engage in *imageless thought*—thinking unaccompanied by conscious experience.

This dealt a serious blow to structuralism because it demonstrated that some important aspects of human psychology lie outside of conscious awareness.

1. Structuralism emphasized the importance of systematic observation to study the conscious experience.
2. Functionalism: Psychology Meets Darwin
3. **Functionalism**—school of psychology that aimed to understand the adaptive purposes of psychological characteristics.
4. Founded by William James, who rejected structuralists’ approach and methods. James coined the term “stream of consciousness,” to describe the ever-changing elements of consciousness identified using the structuralist approach.
5. Functionalists were influenced by Darwin’s theory of **natural selection**, which emphasized that many physical characteristics evolved because they were useful for organisms.
6. Functionalists believed that this theory applied to psychological characteristics as well.
7. This school of thought maintained that psychologists should act as “detectives,” figuring out the evolved functions that psychological characteristics serve for organisms.
8. Functionalism does not exist in its original form, but has been gradually absorbed into mainstream scientific psychology.
9. Behaviorism: The Laws of Learning
10. **Behaviorism**—school of psychology founded by John B. Watson that focused on uncovering the general principles of learning underlying human and animal behavior.
11. For Watson, the proper subject matter of psychology was observable behavior. Subjective reports of conscious experience should play no part in psychology.
12. Watson believed that all behaviors were products of a handful of basic learning principles (see Chapter 6).
13. Watson believed that behavior can be comprehended by exclusively focusing outside of the organism, rewards and punishments delivered by the environment.
14. Traditional behaviorists see the human mind as a *black box*—we know what goes into it and what comes out of it, but we needn’t worry about what happens between the inputs and outputs.
15. Behaviorism has left a long-lasting stamp on scientific psychology.
16. By identifying the fundamental laws of learning that help explain human and animal behavior, behaviorists placed psychology on firmer scientific footing.
17. Cognitivism: Opening the Black Box
18. Cognition—mental processes involved in different aspects of thinking.
19. Proponents of **cognitive psychology** argued that our thinking affects our behavior in significant ways.
20. Jean Piaget argued that children conceptualize the world quite differently than do adults (see Chapter 8).
21. Ulric Neisser led the argument that thinking is so central to psychology that it merits its own separate discipline.
22. Cognitivists believe focusing solely on rewards and punishments from the environment is inadequate in explaining human behavior because that approach neglects our *interpretation* of those reinforcers.
23. It is important to understand how people evaluate information to understand the causes of their behavior.
24. Humans also learn by *insight*—grasping the underlying nature of problems (see Chapter 8).
25. Cognitive psychology is a thriving approach.
26. Its reach addresses a variety of domains, including language, problem solving, concept formation, intelligence, memory, and psychotherapy.
27. This approach has also helped us to better understand the physiological bases of thinking, memory, and other key mental functions.
28. **Cognitive neuroscience**—relatively new field of psychology that examines the relation between brain functioning and thinking.
29. Psychoanalysis: Plumbing the Depths of the Unconscious
30. Founded by Viennese neurologist Sigmund Freud, **psychoanalysis** focuses on internal psychological processes, especially impulses, thoughts, and memories of which we are unaware.
31. Freud argued that the primary influences on behavior are unconscious drives, especially sexuality and aggression.
32. Psychoanalysts suggest that our everyday psychological lives are filled with symbols—things that represent other things.
33. The goal of psychoanalysis is to decode the symbolic meaning of our dreams, psychological symptoms, and slips of the tongue—also known as *Freudian slips*.
34. Psychoanalysts also put considerable emphasis on the role of early experience. They believe that core of personality is molded in the first few years of life.
35. The controversy surrounding psychoanalysis:
36. Some critics insist that psychoanalysis slowed the progress of scientific psychology because it focused on unconscious processes that are nearly impossible to verify.
37. On the other hand, some psychoanalytic claims, like the assertion that a great deal of mental processing occurs outside of our conscious awareness, have been supported by scientific research.
    1. *The Multifaceted World of Modern Psychology*
38. The Growth of a Field
39. There are approximately 500,000 psychologists worldwide. There are more than 100,000 in the United States alone.
40. The American Psychological Association (APA), founded in 1892, is the world’s largest association of psychologists. APA has more 150,000 members today (as compared to 150 APA members in 1900).
41. Types of Psychologists: Fiction and Fact
42. Psychologists work in a variety of settings (**Figure 1.9, text p. 34**).
43. **Table 1.6** (**text p. 35**) describes a few of the most important types of psychologists whose work is described in this book.
44. Though the field is broad and remarkably diverse, most psychologists rely on the scientific method to generate new findings in basic or applied research.
    1. *The Great Debates of Psychology*
45. The Nature–Nurture Debate
46. The Nature–Nurture debate asks the following: *Are our behaviors attributable mostly to our genes (nature) or to our rearing environments (nurture)?*
47. This debate is especially controversial in the domains of intelligence, personality, or psychopathology.
48. Early thinkers like John Locke (1632–1704) likened the human mind at birth to a blank sheet of paper.

Later thinkers referred to the mind as a *tabula rasa*—a blank slate.

Locke and followers thought that we’re shaped exclusively by our environment.

For much of the twentieth century, psychologists assumed all behavior was a product of learning.

1. Research by *behavior geneticists* shows that most psychological traits, including intelligence, interests, personality, and mental illnesses, are influenced substantially by genes.
2. Current Status of the Nature–Nurture Debate
3. Most agree that both genes and the environment play a crucial role in most human behavior.
4. There is still a great deal to learn about how much nature or nurture contributes to different behaviors and how the two work together.
5. Nature and nurture sometimes interact in complex and surprising ways.
6. Evolutionary Psychology
7. **Evolutionary psychology**, also called sociobiology, is a discipline that applies Darwin’s theory of natural selection to human and animal behavior.
8. William James and other functionalists believed that many human psychological systems, like memory, emotion, and personality, serve key adaptive functions—to help the organism survive and reproduce.
9. Believed that, based on principles forwarded by Darwin, natural selection favored certain mental traits.
10. Fitness—the extent to which a trait increases the chances that organisms that possess this trait will survive and reproduce at a higher rate than competitors who lack it.

By surviving and reproducing at higher rates than others, more fit organisms pass on their genes more successfully to later generations.

Early humans with some degree of anxiety probably survived at higher rates than those who lacked it, because anxiety is essential: It warns of us impending danger.

1. Criticisms of evolutionary psychology
2. Theories are difficult to test because behaviors don’t leave fossils.
3. Theories are difficult to falsify, even when testable.
4. Evolutionary psychology has the potential to be an important unifying framework for psychology.
5. The Free Will–Determinism Debate
6. The free will–determinism debate asks: *to what extent are our behaviors freely selected rather than caused by factors outside of our control?*
7. Most of us believe that we are free to do what we want whenever we want.
8. Many psychologists suggest that free will is a powerful illusion.
9. B. F. Skinner argues that our sense of free will stems from the fact that we aren’t consciously aware of the thousands of subtle environmental influences impinging on our behavior at any given moment.
   1. *How Psychology Affects Our Lives*
10. Basic versus applied research
11. **Basic research** examines how the mind works, whereas **applied research** examines how to use basic research to solve real-world problems.
12. In most large psychology departments, there is a healthy mix of investigators whose work ranges from the study of the human brain and learning to helping people cope with the psychological burden of cancer.
13. Applications of Psychological Research
14. Psychological research affects our everyday lives.
15. New fire trucks are often the color lime-yellow because psychological researchers found that lime-yellow objects are easier to detect in the dark (American Psychological Association, 2000; Solomon & King, 1995).
16. Before 1954, law required the racial segregation of public schools. But pioneering research by Kenneth and Mamie Clark (1950) demonstrating African American children’s preference for white rather than African American dolls led the Supreme Court to conclude, in the landmark case, *Brown v. Board of Education of Topeka, Kansas*, that school segregation exerted a negative impact on the self-esteem of African American children.
17. Thinking Scientifically: It’s a Way of Life
18. Learning to think scientifically will help you make better decisions.
19. The scientific thinking skills learned in this chapter can assist you in successfully navigating the bewildering world of popular psychology and popular culture.
20. Throughout this text and in life, “Insist on evidence.”

**CHAPTER 1**

## Learning Objectives

On completion of this chapter, students should be able to

1.1a: explain why psychology is more than just common sense (text p. 4); APA LO 1.1b (Explain why psychology is a science with the primary objectives of describing, understanding, predicting, and controlling behavior and mental processes)

1.1b: explain the importance of science as a set of safeguards against biases (text p. 9); APA LO 2.1e (Describe common fallacies in thinking (e.g., confirmation bias, post hoc explanations, implying causation from correlation) that impair accurate conclusions and predictions)

1.2a: describe psychological pseudoscience and distinguish it from psychological science (text p. 14); APA LO 2.2c (Identify and navigate psychology databases and other legitimate sources of psychology information)

1.2b: identify the reasons we are drawn to pseudoscience (text p. 17); APA LO 2.2b (Describe what kinds of additional information beyond personal experience are acceptable in developing behavioral explanations (i.e., popular press reports vs. scientific findings))

1.3a: identify the key features of scientific skepticism (text p. 21); APA LO 2.1e (Describe common fallacies in thinking (e.g., confirmation bias, post hoc explanations, implying causation from correlation) that impair accurate conclusions and predictions)

1.3b: identify and explain the text’s six principles of scientific thinking (text p. 23); APA LO 2.1e (Describe common fallacies in thinking (e.g., confirmation bias, post hoc explanations, implying causation from correlation) that impair accurate conclusions and predictions)

1.4a: identify the major theoretical frameworks of psychology (text p. 30); APA LO 1.1a (Use basic psychological terminology, concepts, and theories in psychology to explain behavior and mental processes)

1.4b: describe the different types of psychologists and identify what each of them does (text p. 34); APA LO 1.2c (Recognize major historical events, theoretical perspectives, and figures in psychology and their link to trends in contemporary research)

1.4c: describe the two great debates that have shaped the field of psychology (text p. 36); APA LO 1.2d (Provide examples of unique contributions of content domain to the understanding of complex behavioral issues)

1.4d: describe how psychological research affects our daily lives (text p. 38); APA LO 1.3a (Describe examples of relevant and practical applications of psychological principles to everyday life).

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**CHAPTER 1**

## Key Terms

|  |  |
| --- | --- |
| Ad hoc Immunizing Hypothesis (text p. 15)  Anorexia Nervosa (text p. 5)  Applied Research (text p. 38)  Basic Research (text p. 38)  Behaviorism (text p. 32)  Belief Perseverance (text p. 11)  Cognitive Psychology (text p. 33)  Cognitive Neuroscience (text p. 33)  Correlation–Causation Fallacy (text p. 24)  Confirmation Bias (text p. 10)  Critical Thinking (text p. 22)  Decline Effect (text p. 25)  Evolutionary Psychology (text p. 36)  Falsifiable (text p. 25)  Functionalism (text p. 32)  Hypothesis (text p. 8)  Individual Differences (text p. 5) | Introspection (text p. 30)  Levels of Analysis (text p. 4)  Metaphysical Claims (text p. 12)  Multiply Determined (text p. 5)  Natural Selection (text p. 32)  Naïve Realism (text p. 6)  Patternicity (text p. 17)  Pseudoscience (text p. 14)  Psychoanalysis (text p. 33)  Psychology (text p. 4)  Replicability (text p. 25)  Scientific Skepticism (text p. 21)  Scientific Theory (text p. 8)  Structuralism (text p. 31)  Terror Management Theory (text p. 18)  Variable (text p. 24) |

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**▼** **LECTURE LAUNCHERS AND DISCUSSION TOPICS**

[How Do We Know What We Know?](#LDHowDoWe)

[Psychology and Common Sense](#LDPsychCommon)

[Correlations and Causal Relationships](#LDCorrCausal)

[African Americans and Psychology](#LDAfricAmer)

[Women in the History of Psychology in America](#LDWomenHist)

[Biographical Profiles](#LDBiogrProf)

[Scandal in Psychology—John Watson’s Fall from the Throne](#LDScandal)

[Careers in Psychology](#LDCareers)

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**Lecture/Discussion:** **How Do We Know What We Know?**

***How do you know that***

***George Washington was the first president of the United States?***

***you really have a stomach?***

Dependence on observation is one of the hallmarks of science, but it is not the only way humans acquire knowledge. There are, in fact, many questions that cannot be answered by scientific methods and for which other means of acquiring knowledge are more appropriate. Begin by asking the following questions.

* How do you know that George Washington was the first president of the United States?
* How do you know that you really have a stomach?
* What makes you so sure the sun will rise tomorrow?
* How do you know the color of the shirt I’m wearing?
* How can you be sure that there aren’t little creatures inside computers that are responsible for the things computers do?
* Are you sure you don’t have a big hole in the back of your pants or skirt?

*Authority* is one source of knowledge. We know, or believe, that Washington was the first president because we trust the authority of historians and history books. During the centuries that Western civilization was dominated by the Church, the authority of holy writings was believed to be the only dependable way of knowing.

*Reason* was considered by Renaissance scholars to be the most reliable source of knowledge. If you say, “All humans have stomachs; I am human; therefore, I have a stomach,” you have used deductive reasoning. If you say, “The sun rose today, yesterday, the day before yesterday, and for as long as I or anyone can remember; therefore, it will rise tomorrow,” you are using inductive reasoning.

*Observation* is still another way of acquiring knowledge. You know the color of my shirt because you can see the shirt. You assume that you do not have a hole in the posterior of your clothing because you have not observed stares and giggles.

One might use any of these ways of knowing to deny the existence of little creatures in computers. People you perceive to be authorities about computer innards may have told you how they work. You may have reasoned that creatures need nourishment and there is no food supply inside microprocessors. Or you may have looked inside a computer and failed to see little creatures waiting to solve your problems. But there is no way one can absolutely refute the computer-creature hypothesis; so if you want to keep your computer running, maybe you should find out what the little creatures eat.

All these ways of knowing—authority, reason, and observation—are used by scientists, but observation must be the basis for knowledge that is scientific. Science puts greater emphasis on evidence provided by the senses than on authority of others or reasoning. Science relies on empirical evidence.

An extension of this activity might involve a discussion of some of the following contradictory beliefs:

*Birds of a feather flock together Opposites attract*

*Absence makes the heart grow fonder Out of sight, out of mind*

*You can’t teach an old dog new tricks Never too old to learn*

Often students will have anecdotal stories about each belief. Ask students to think about their beliefs from an empirical point of view. You may want to facilitate discussion by providing students with the following questions:

*Can you rely on one person’s account to believe in a phenomenon?*

*How might each set of beliefs be tested empirically?*

*When will you “believe” in a certain phenomenon?*

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**Lecture Launcher:** **Psychology and Common Sense**

A common refrain voiced by laypeople and scientists is that most, if not all, of behavioral science “is just common sense.” Introductory psychology students are particularly apt to make this claim, given that much of their prior exposure to psychology is likely to have been very common-sensical (though perhaps not well-established) claims by a variety of “professionals” on the talk-show circuit. In a nutshell, it’s difficult to counter the “common-sense” stigma when so much of behavior seems to be explainable at an intuitive surface level.

Mark Leary shares some suggestions for discussing this issue with your students. It is true that the subject matter of psychology is much more familiar to most people than is the subject matter of subatomic physics or gastroendocrinological biology; we see behavior all around us, but rarely stumble over a gluon. Psychology would be an odd science of thought and behavior if it only considered thoughts and behaviors completely foreign to people’s experiences, or if its findings always ran counter to most people’s beliefs. But neither greater visibility of subject matter nor popular consensus guarantees greater understanding. Many people believed whole-heartedly in flat earths and cheese moons, only to find their common-sense views dismantled in the face of scientific evidence. So too with psychology. Although most people would like to believe that large rewards produce greater liking for a boring task, that the behavior of men and women is determined by their biology, or that absence makes the heart grow fonder, researchers studying cognitive dissonance, sex-role stereotypes, and close relationships would be happy to share their findings to the contrary. In short, the popularity of a common-sense belief may not always support the weight of scientific evidence.

More importantly, psychologists (like all scientists) are primarily engaged in the task of explaining behavior, rather than merely cataloging it. The difference between theory and description—”why” versus “what”—echoes the difference between science and common sense. Common sense certainly helps describe what takes place in behavior, but it doesn’t compel us to understand why it takes place. The development of theory in understanding behavior sets science apart from everyday, common-sense accounts.

Leary, M. (1995). *Behavioral Research Methods* (2nd ed., pp. 24–25). Pacific Grove, CA: Brooks/Cole.

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**Lecture/Discussion:** **Correlations and Causal Relationships**

There seems to be a general human tendency to attribute causality to correlated events. The lay person, like the psychologist, often imposes patterns of (apparently) lawful regularity on observed events. Given what is perceived as an “effect,” we search for causes. Events are more likely to be singled out for attention and analysis when they are unusual, anomalous, and discontinuous with our prior experience. When such events are natural phenomena, they are typically relegated to the status of “cause” and then the search is directed toward their aftereffects.

One of the most persistent instances in which pseudo-correlations of behavior consequences are reported to flow from salient natural and human events is the “baby boom” syndrome. For example, the allegation of increased births nine months after a major power blackout in New York is well known. So too, is the baby boom in Israel nine months after their war with Egypt.

Invariably, when base rate data are used to compare the assumed “increase in births,” the effect vanishes. That is, when seasonal fluctuations in births are taken into account, there is no unusual effect left to relate to the nine-months-earlier unusual event. But that does not deter the correlation seekers. Three University of North Carolina sociologists attributed a 1955 drop in Southern birth rates to the Supreme Court’s 1954 school desegregation decision (Rindfuss, Reed, & St. John, 1978). They theorized that uncertain prospects for the future “demoralize” prospective parents (both whites and, to a lesser extent, blacks), causing them to postpone any children they might otherwise have conceived in the three- or four-month period immediately following the decision. The subsequent recovery in the birth rate is attributed to the realization that desegregation would in fact proceed slowly.

And on it goes. Less than a week after Chicago’s “Blizzard of ’79,” at least one newspaper columnist was speculating on the possibility of a baby boom in the coming autumn (Kup’s column, *Chicago Sun-Times*, January 17, 1979, p. 52).

Another example of the temptation to confuse correlation with a causal connection is in the area of extramarital sexual affairs. Biracree (1984) found that for men there was an almost perfect positive correlation between annual income and the percentage of men who had been unfaithful to their wives. This relationship was not true for married women. If this finding is valid, what are the possible explanations for these relationships? Is there any strong evidence to support any of these explanations, or are they, at the moment, speculations?

References:

Biracree, T. (1984). *How you rate: Men* and *How you rate: Women*. New York: Dell.

Rindfuss, R. R., Reed, J. S., & St. John, C. A. (1978). A fertility reaction to a historical event: Southern white birthrates and the 1954 desegregation ruling. *Science, 201*, 178–180.

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**Lecture/Discussion:** **African Americans and Psychology**

Like women, African Americans faced many obstacles to their education and participation in psychology. Most white institutions would not accept African American students, and when they were able to enroll, they often experienced discrimination. In addition, few undergraduate black colleges offered a major in psychology until after the 1940s. Howard University, the only major black university offering graduate study, awarded 32 Ph.D.s to African Americans from 1920 to 1950. During the same period only eight African Americans earned a Ph.D. from one of the ten most prestigious white universities. Not only was earning the Ph.D. difficult, employment opportunities were scarce for African American psychologists since neither white universities nor organizations in the private sector would hire them. Most taught at black colleges where opportunities to engage in research were limited, thus restricting opportunities for professional recognition. The situation for African American students has improved dramatically in recent years. Kenneth B. Clark, best known for his research on the effects of racial segregation, became the first African American elected as APA president in 1970.

Guthrie, R. V. (1976). *Even the Rat Was White: A Historical View of Psychology*. New York: Harper and Row.

Schultz, D. P., & Schultz, S. E. (1996). *A History of Modern Psychology* (6th ed.). Orlando, FL: Harcourt Brace Jovanovich.

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**Lecture/Discussion:** **Women in the History of Psychology in America**

Psychology recently has renewed its appreciation of diversity in human behavior. Part of that diversity includes celebrating the accomplishments and contributions of women to the field of psychology. Share with your students the stories of some key figures from psychology’s history:

*Mary Whiton Calkins* (1863–1930) attended Harvard University and worked with William James, but because Harvard did not officially admit women into graduate programs, Calkins never received a Ph.D. from Harvard. At best, Harvard offered her the degree from its sister school Radcliffe. She refused, stating that she ought to be given the degree from the institution where she earned it. Calkins collaborated with Edmund Sanford from neighboring Clark University on a variety of research projects. At that time, women with advanced degrees or training primarily received faculty positions at female colleges, such as Wellesley and Vassar Colleges. Calkins received a position at Wellesley College in 1887, and established a prolific laboratory in 1891 producing short-term memory research (Madigan & O’Hara, 1992). In 1906, Calkins was the first woman elected President of the American Psychological Association (APA).

*Margaret Floy Washburn* (1871–1939) was the first person, male or female, to receive a Ph.D. from Edward B. Titchener in 1884, the leading structuralist in American experimental psychology at that time (Goodwin, 1999). She was also the first female to receive a Ph.D. in the United States. Interestingly, Washburn never believed Titchener taught her much, as she became a leading comparative psychologist at Vassar College. She produced her most influential work in *The Animal Mind* in 1908, and in 1921, she was elected the second woman president of APA. She suffered a cerebral hemorrhage in 1937, and died from its complications in 1939 (Scarborough & Furumoto, 1987).

*Christine Ladd-Franklin* (1847–1930) was a mathematician who developed an interest in visual perception and made great contributions to theories of color vision (Furumoto, 1992). She married a math professor from Columbia University, and she occasionally taught adjunct courses there. However, she was rarely paid. Like Calkins, she did not receive her Ph.D. although she had completed all of the required work. Johns Hopkins University finally granted her the degree shortly before her death. She accepted the degree in person.

At the turn of the twentieth century, one popular belief held that there was more variability in intelligence in men than in women. One implication of this belief was that even the brightest of women would never be as bright or even “outshine” the brightest of men. African American psychologist *Leta Stetter Hollingworth* (1886–1939) challenged these beliefs with her research which showed no evidence that the distribution of intelligence test scores differed between men and women (Hollingworth, 1914). She also challenged the popular belief that women’s intellectual abilities were affected by their menstrual cycles, again finding no statistical evidence to support such claims (Silverman, 1992). Hollingworth’s contributions are often seen as the seedlings for the formal study of the psychology of women.

African American psychologist *Mamie Phipps Clark* (1917–1983) received her bachelor’s and master’s degrees from Howard University, and her Ph.D. from Columbia University in 1944. She is well-known for her studies of racial differences in racial identity and self concept (Clark & Clark, 1950). In the 1940s and 1950s racial segregation was becoming institutionalized, and Clark became interested in the effects of segregation on African American children. She conducted a series of studies in which African American and white children were shown black and white dolls. The children were first asked to pick the doll they most looked like, establishing a measure of racial identity. Then, children were asked which doll they would most like to play with. Both white *and* African American children preferred the white doll, suggesting for both races of children a preference and perhaps more value on being white. Clark’s work was considered and noted in the Supreme Court’s 1954 ruling in *Brown v. Board of Education* desegregation case, which ruled that public school segregation was unconstitutional.

Clark, K. B., & Clark, M. P. (1950). Emotional factors in racial identification and preference in Negro children. *Journal of Negro Education, 19,* 341–350.

Furumoto, L. (1992). Joining separate spheres: Christine Ladd-Franklin, woman-scientist. *American Psychologist, 47,* 175–182.

Furumoto, L., & Scarborough, E. (1992). Placing women in the history of psychology: The first American women psychologists. In J. S. Bohan (Ed.) *Seldom Seen, Rarely Heard* (pp. 337–353). Boulder, CO: Westview Press.

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Hollingworth, L. S. (1914). Variability as related to sex differences in achievement. *American Journal of Sociology, 19,* 510–530.

Madigan, S., & O’Hara, R. (1992). Short-term memory at the turn of the century. *American Psychologist, 47,* 107–174.

Scarborough, E., & Furumoto, L. (1987). *Untold Lives: The First Generation of American Women Psychologists.* New York: Columbia University Press.

Silverman, L. K. (1992). Leta Stetter Hollingworth: Champion of the psychology of women and gifted children. *Journal of Educational Psychology, 84,* 20–27.

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**Lecture/Discussion:** **Biographical Profiles**

#### Wilhelm Wundt (1832–1920)

Born in Neckarau, Germany, Wilhelm Wundt was the fourth child of a Lutheran minister. Despite coming from a family that boasted numerous scholars, scientists, and physicians, Wundt initially was not a good student. After he dropped out of one high school, a teacher suggested that areasonable goal for Wundt would be a career in the postal service. Wundt’s scholastic abilities improved, however, and in 1855 he graduated at the top of his class in medical school. Wundt then went to Berlin to study physiology with Johannes Müller, and he subsequently decided to become an experimental physiologist himself. Wundt then returned to the University of Heidelberg, where he worked as an assistant for Herman von Helmholtz. It was at Heidelberg that Wundt taught his first course in psychology. The year was 1862.

In 1879, at the University of Leipzig, where he held a chair in philosophy, Wundt established the Institute for Experimental Psychology, the first laboratory whose formal purpose was the scientific investigation of the human mind. Wundt is one of the most prolific contributors to the field of psychology. It is estimated that between the years of 1853 and 1920, Wundt wrote 53,735 pages of text. Wundt was not only a voracious writer; he was also responsible for training numerous researchers, some of whom, such as Edward Titchener, brought versions of Wundt’s psychology to America.

#### Sigmund Freud (1856–1939)

Sigmund Freud was born in Pribor, Czechoslovakia, in 1856. Although Freud was a gifted student, it took him eight years to finish his medical degree at the University of Vienna, partly because he was interested in so many topics. Freud first pursued a career as a neurologist, but financial concerns forced him into general medical practice. In cooperation with his friend Joseph Breuer, Freud began to treat hysterical women. This is unusual, because at the time there was no known cure for hysteria, which is now known as a conversion disorder. Through trial and error and feedback from their clients, Breuer and Freud developed the technique known as psychoanalysis. Its fundamental rule is honesty; clients must relay all thoughts and feelings uncensored to the analyst. Clients then follow their stream of thought wherever it may lead, a process known as free association. In the course of free association, clients often uncover traumatic events in the past, and, upon reliving these events, often experience relief from their symptoms. Freud’s first major work, *The Interpretation of Dreams* (1900), detailed the process of dream interpretation, which he felt was the “royal road to the unconscious.” Although it took six years to sell the first 600 copies printed, this work was reprinted eight times during Freud’s lifetime.

Although the technique of psychoanalysis is perhaps Freud’s most important legacy, he made many other substantial contributions to psychology. These include the recognition of the importance of sexuality and unconscious processes, a fully developed system of personality, and an appreciation for the conflict between individual desires and the constraints of society. His work has influenced so many aspects of our thinking that he is often not given full credit for the development of his ideas. Freud’s many detractors are quick to point out that his theories are not based on empirical research. While this is true, just because they lack empirical evidence does not mean that they are wrong, only that they are less likely to be right. Because of the breadth of his intellectual contributions, he remains the most cited psychologist in *Psychology and Life, 16th Edition,* and most comparable texts.

#### William James (1842–1910)

William James, often considered the father of American psychology, was born in New York City, but spent much of his childhood traveling between the United States and Europe, where he attended several private schools. James’ interest in such varied fields as philosophy, religion, and science were cultivated at home in an enriched environment shared with his brother Henry James, the famous author. William James struggled to find a vocation that mated his various interests, trying his hand at art (his paintings have appeared on the cover of recent editions of *American Psychologist),* chemistry, and, finally, medicine. He received his M.D. from Harvard in 1868.

In 1872, James began teaching physiology at Harvard but was preoccupied by his ongoing and deep interest in such philosophical issues as free will and determinism. Though James considered himself a temporary dabbler in the discipline of psychology, his two-volume textbook, *Principles of Psychology* (1890), stood as the field’s definitive textbook through the first half of this century. It is still considered one of the best-written texts on psychology and a source of many original ideas. James’ contributions to psychology include the notion of a stream of consciousness, the importance of habit and instinct, a complex theory of the self, a theory of emotion, and opening the boundaries of psychology to include topics such as religious beliefs.

#### B. F. Skinner (1904–1990)

Burrhus Frederic Skinner was born and raised in Susquehanna, Pennsylvania and received a bachelor’s degree in English from Hamilton College in New York. Skinner enrolled in the experimental psychology program at Harvard and studied under E.G. Boring, earning his masters degree in 1930 and Ph.D. in 1931. In 1936, he began his academic career at the University of Minnesota; then, in 1945, he took a position as chairman of the psychology department at Indiana University. In 1948, however, Harvard offered him a position, which he accepted, and he remained there for the rest of his life. Skinner died of leukemia in 1990.

While Skinner was at Harvard, he was heavily influenced by the work of John B. Watson. From this influence, Skinner dedicated his life’s work to studying the relationship between reinforcement and observable behavior. Throughout his career, he insisted that psychology be a scientific, empirically driven discipline. He is considered by many to be one of the most important figures in twentieth century psychology, and his contribution to both clinical and experimental psychology is evident in the work of psychologists who followed his lead, and to this day, extend his work in associative learning research. The principles of reinforcement that he outlined were built on by clinical psychologists and applied to the conceptualization and treatment of mental disorders. The application of behaviorism to clinical psychology was not short-lived, as empirically supported treatments for anxiety disorders (e.g., panic disorder, simple phobia) and child conduct problems are based upon behavioral principles.

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**Lecture/Discussion:** **Scandal in Psychology—John Watson’s Fall from the Throne**

John B. Watson was a very famous man in his day—something many students never realize, as he usually gets only a few short paragraphs in introductory psychology texts. In fact, at the end of his career in psychology he was an esteemed professor at the world-renowned Johns Hopkins University in Baltimore, Maryland. At one time, he was recognized as an authority on caring for babies, much as Dr. Spock and Dr. Brazelton would later become household words. He was married, a father, and respected in his field.

All of that ended when he was fired over his affair with a beautiful and intelligent graduate student, Rosalie Rayner. Mary Watson, the wronged wife, insisted that the affair stop, as did Watson’s employers. But neither Watson nor Rayner wanted the affair to end, and finally Johns Hopkins insisted that he resign. The subsequent divorce from Mary was front-page news at the time.

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**Lecture/Discussion:** **Careers in Psychology**

In a mad rush to begin covering the tremendous amount of material in introductory psychology, many instructors overlook more practical issues that would be of interest to introductory students, especially those who think they might major in psychology. It’s never too early to introduce students to psychology as a profession, and even students who do not major in psychology are bound to gain a greater understanding and appreciation for the field. After discussing the various subfields of psychology, devote some time (perhaps a class session) to issues pertaining to psychology as a career choice. There are a variety of activities and topics you could introduce, and several suggestions are given here.

To promote early student involvement in psychology, describe the goals and activities of Psi Chi, the National Honor Society in Psychology. Tell students (or better yet, bring in the Psi Chi President to tell students) about the requirements for joining (e.g., psychology major or minor, 3.0 GPA overall and in all psychology courses, completion of 3 semesters or 5 quarters of college courses) and the benefits of membership (e.g., interaction with psychology faculty and majors, participation in worthwhile activities related to psychology, an important honor that will be noticed by graduate schools). Along the same lines, explain to students how they might become student affiliates of the two biggest professional organizations in psychology, the American Psychological Association (APA) and the American Psychological Society (APS). Both organizations have student application forms that you can make available (Call APA at 800-374-2721; APS at 202-783-2077). Stress to students the benefits of presenting their research (perhaps in their sophomore or junior years) at one of these national conferences or perhaps at a regional one (e.g., Southwestern Psychological Association, Western Psychological Association).

Give your students the “straight dope” about graduate school—how to get in, what it’s really like, and what opportunities it affords. Tell students how you got interested in your major field and what life in graduate school was like. Explain degree plans (including how many years it takes, what is expected in the way of course work and research), funding opportunities (many students are surprised that teaching and research assistantships actually cover most graduate school expenses), and research and teaching opportunities. Bring in the latest edition of APA’s Guide to Graduate Study in Psychology and give an overview of its purpose. Briefly outline for students what they should be doing during each year of their undergraduate career if they are interested in going to graduate school (e.g., when to study and take the GRE, when to send for applications, when to get research experience, when to ask for letters of recommendation). Encourage students to seek out a close relationship with a faculty member whose research interests coincide with theirs.

Finally, discuss career opportunities in psychology. Bring to class recent issues of the APA *Monitor* and APS *Observer* and show students representative job listings and requirements for consideration. Show either of two excellent APA-produced videos, *Careers in Psychology: Your Options are Open* (a brief, 9-minute segment that features a panel of psychologists from different specialties discussing career opportunities) or *Career Encounters in Psychology* (a longer, 28-minute segment that provides an overview of the diverse specializations and careers in psychology through interviews with several different types of psychologists). Have someone from your career counseling center give a talk on opportunities for psychology majors (he or she may also have data on the current employment status of recent psychology graduates). Better yet, invite to class (a) a psychologist from an applied setting (e.g., a clinician in private practice, an industrial/organizational psychologist, a sports or forensic psychologist) and (b) a psychologist who works in an academic setting (this could be you, another faculty member at your college or university, or someone outside your institution) to talk about career opportunities and experiences.

[►](#2zbgiuw) [**Return to Lecture Guide: Psychology’s Past and Present: What a Long, Strange Trip It’s Been**](#LGPsychPast)

**[◄ Return to complete list of Lecture Launchers and Discussion Topics for Chapter 1](#Lecture)**

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**▼****CLASSROOM ACTIVITIES, DEMONSTRATIONS, AND EXERCISES**

[Misconceptions About Psychology](#CAMisconcept)

[Psychology’s Goals Applied to Matchmaking](#CAPsychGoals)

[Are Psychologists Scientists?](#CAPsychScientist)

[Can Science Answer This Question?](#CACanScienceAnswer)

[Promoting Cultural Awareness](#CAPromotingCultural)

[Psychologists’ Twenty Questions](#CAPsychTwentyQuestion)

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**Activity:** **Misconceptions about Psychology**

One of the most popular and venerable activities for the introductory course is the administration of a Test of Common Beliefs and subsequent discussion of misconceptions about psychology. Although a new 65-item multiple-choice test was developed by McCutcheon (1991), the most popular test is the Test of Common Beliefs developed by Vaughan (1977). Vaughan’s test, however, has been criticized for the ambiguity of some of the items (Brown, 1984; Gardner & Dalsing, 1986; Ruble, 1986), the fact that all items have “false” as the correct response, which may lead to a response set tendency (Vaughan, 1977), and the finding that many of the items are not really misconceptions since they are often correctly answered (Gardner & Dalsing, 1986; Lamal, 1979). Griggs and Ransdell (1987) compared responses to Vaughan’s Test of Common Beliefs from students that had taken an introductory psychology course in high school to those of several other studies (Lamal, 1979; Gardner & Dalsing, 1986; Vaughan, 1977). Using a criterion of at least a 50 percent error rate for an item (that is, they were answered as “true”), they identified 15 questions that met the criterion in at least two studies and had not been subject to earlier criticisms of ambiguity. These items are reproduced in [**Handout Master 1.1**](#HandoutKnowledge) and are ordered from highest to lowest with respect to their average error rate. You can administer these items to your class and use the responses as a starting point for a discussion on common sense notions and misconceptions about psychology. You may want to note to your students that many of these items are also answered incorrectly by psychologists and other social scientists (see Gardner & Hund, 1983). You can also tell your students that the correct answers to many of these items are discussed in their textbook.

Brown, L. T. (1983). Some more misconceptions about psychology among introductory psychology students. *Teaching of Psychology, 10*, 207–210.

Brown, L. T. (1984). Misconceptions about psychology aren’t always what they seem. *Teaching of Psychology, 11*, 75–78.

Gardner, R. M., & Dalsing, S. (1986). Misconceptions about psychology among college students. *Teaching of Psychology, 13*, 32–34.

Gardner, R. M., & Hund, R. M. (1983). Misconceptions of psychology among academicians. *Teaching of Psychology, 10*,   
20–22.

Griggs, R. A., & Ransdell, S. E. (1987). Misconceptions tests or misconceived tests? *Teaching of Psychology, 14*, 210–214.

Lamal, P. A. (1979). College students’ common beliefs about psychology. *Teaching of Psychology, 6*, 155–158.

McCutcheon, L. E. (1991). A new test of misconceptions about psychology. *Psychological Reports, 68*, 647–653.

Ruble, R. (1986). Ambiguous psychological misconceptions. *Teaching of Psychology, 13*, 34–36.

Vaughan, E. D. (1977). Misconceptions about psychology among introductory psychology students. *Teaching of Psychology, 4*,   
138–141.

Reprinted from Hill, W. G. (1995). Instructor’s resource manual for *Psychology* by S. F. Davis and J. J. Palladino. Englewood Cliffs, NJ: Prentice Hall.

[►](#4i7ojhp) [**Return to Lecture Guide: What Is Psychology?**](#LGWhatIsPsych)

**[◄ Return to complete list of Classroom Activities, Demonstrations and Exercises for Chapter 1](#Classroom)**

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**Activity:** **Psychology’s Goals Applied to Matchmaking**

(This class exercise was adapted from an “Experience Break,” originally included in ***Psychology and Life***, 15th Edition, by Philip Zimbardo and Richard Gerrig.)

Based only on the descriptions provided in the grid below, ask your class to guess which pairs of the people listed below belong together. There is no right or wrong answer. Tell them to go with their instincts.

Now lead your class in a discussion of their matchmaking decisions with respect to the goals of psychology:

* How would they describe the behaviors they engaged in while trying to settle on appropriate matches?

Did they read all the descriptions before they began? Did they find the decisions easy to make? Did they change their mind several times?

* How would they explain their behavior?

What rules do they believe they used to match up the couples? Were they most concerned about age? About occupations? About leisure activities? Did they use some combination of all three descriptions? What inferences did they make in their decisions, such as perceived gender? What does the factor(s) that they used most say about them personally and their selection of a partner?

* How might their explanation allow them to predict which real-world relationships would succeed?
* Suppose that based on their day-to-day observations of relationships, they focused on occupations while doing their matchmaking. Are they willing to generalize from the predictions they made on this task to predictions in the real world? Can they begin to imagine the types of research they might carry out to test those predictions?
* Does their explanation allow them to control or improve their own relationship-seeking behavior or to give better advice to others?

Have they learned from this exercise what matters most to them in a relationship? What more would they like to learn from research?

* Could they learn something that would allow them to improve the quality of their own or other people’s lives?
  + If their research reveals the factors that help determine which relationships, in general, will endure, they should be able to improve the quality of people’s lives.

|  |  |
| --- | --- |
| David  Age: 21  Job: Car mechanic  Enjoys: Gourmet food | Dana  Age: 23  Job: Advertising executive  Enjoys: Movies |
| Chris  Age: 29  Job: Dog groomer  Enjoys: Gardening | Anita  Age: 35  Job: Lawyer  Enjoys: Roller coasters |
| Sandy  Age: 54  Job: Flight attendant  Enjoys: Hang gliding | Karen  Age: 18  Job: Sales clerk  Enjoys: Art museums |
| Jamie  Age: 20  Job: Secretary  Enjoys: Football | Pat  Age: 56  Job: Pediatrician  Enjoys: Opera |
| Tony  Age: 37  Job: College professor  Enjoys: Comic books | Rahul  Age: 22  Job: Store manager  Enjoys: Scuba diving |

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**Class Activity:** **Are Psychologists Scientists?**

Before introducing students to the various subfields of psychology, make the point that all psychologists, regardless of their area of expertise, are indeed scientists. This brief exercise (adapted from Smith, 1982) also illustrates students’ stereotypical view of psychologists as clinicians. First, write the word “psychologist” on the board and ask students to describe some characteristics and traits of the typical psychologist. With encouragement to freely answer with any words or images that come to mind, the following responses frequently come up: caring, patient, warm, lying on a couch, soothing, good listener, giving advice, etc. After erasing these responses, write the word “scientist” on the board and ask students to do the same for the typical scientist. Their responses clearly indicate that their perceptions of “scientists” (which include traits like analytical, brilliant, and achieving, and images of conducting research and wearing lab coats and pocket protectors) are markedly different from their perceptions of “psychologists.” Near the end of in the exercise, a few students will invariably catch on and ask, “But aren’t psychologists scientists?”, which leads the class into a discussion of why their perceptions are so divergent. By this time, the idea that psychologists are *scientists* that study the mind and behavior rather than genes, chemicals, or subatomic particles makes perfect sense, and I can then describe cognitive psychologists as *scientists* who study human mental processes, developmental psychologists as *scientists* who study changes in capacities throughout the lifespan, and so on.

Smith, G. (1982). Introducing psychology majors to clinical bias through the adjective generation technique. *Teaching of Psychology*, *9*, 238–239.

[►](#2u6wntf) [**Return to Lecture Guide: Scientific Thinking: Distinguishing Fact from Fiction**](#LGScientificThinking)

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**Activity:** **Can Science Answer This Question?**

Students are asked to identify whether specific questions can be addressed using the methods of science. The student handout is included as [**Handout Master 1.2**](#HandoutCanScience)**.** This is a good exercise to follow-up to the **Lecture Topic**in this chapter [**How Do We Know What We Know**](#LDHowDoWe)**?** Suggested answers and explanations are listed below.

1. No. The question as stated is vague and the terms are not defined. What does “bad” mean? (Good and bad are value judgments.) Who or what is “society”? Bad for whom? However, specific correlates and consequences of abortion can be studied.

2. Yes. The independent variable would be “before or after eating” and the dependent variable would be talkativeness, which could be operationally defined (e.g., as the length of replies to questions).

3. Yes, so long as the variables are operationally defined. The independent variable would be jogging versus not jogging (or perhaps the frequency or duration of jogging); the dependent variable would be some measure of mental attitude, such as scores on a psychological test.

4. Yes. This question requires only the computation of a correlation between doctors’ GPAs in medical school and their subsequent incomes. Such variables as “years in practice” would have to be controlled and a representative sample would have to be selected.

5. No, probably not; it would be a little like comparing apples and oranges. Physiological measures of emotional strength would not be useful because there is not always a relationship between physiological arousal and subjective experience, and because love tends to be a more enduring emotion than anger.

6. Yes. The independent variable would be “bottle-fed versus breast-fed.” The dependent variable would be alertness, which would have to be operationally defined in behavioral terms. If babies were randomly assigned to the two groups, the study would be an experiment. If the researcher used babies whose mothers had already made the decision about feeding method, the study would be correlational, and inferences about cause and effect could not be made.

7. No. “Moral” is a broad, vague term that means different things to different people. Moreover, many unanticipated economic, political, and social developments could affect the outcome. Even if “moral” could be defined adequately, and projections from current trends and conditions could be made, the results might turn out to be meaningless, because definitions of morality change over time. What is “moral” in the 1990s might not be moral in 2020, and vice versa.

8. No. The subjects would be very uncooperative!

[►](#2u6wntf) [**Return to Lecture Guide: Scientific Thinking: Distinguishing Fact from Fiction**](#LGScientificThinking)

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**Activity:** **Promoting Cultural Awareness**

Lani Fujitsubo suggests an exercise that can be used profitably in Introductory Psychology as well as several other courses. Ask students to play the roles of family members and one or two newspaper reporters. The family is a group of aliens from outer space who have arrived on this planet, and the reporters are interviewing them for a story of interest to their readers. Fujitsubo provides the following script for the family member volunteers to rehearse:

*“You are a family (mother, father, and child) from outer space whose spacecraft recently landed in the United States. You are doing your best to assimilate into this society and are being interviewed because your child won the local spelling bee. On your planet of origin you show respect by laughing out loud before answering a direct question. Men are not allowed to speak directly to others, and must whisper their requests to women who will then communicate directly. It is traditional to offer a gift or compliment to someone before making a request or asking for anything. If offended you use nonverbal communication to express your hurt feelings, the most common form of which is to briefly turn your back to the person. Apologies are made by briefly dipping your head. No one on your planet is considered more important than anyone else, and competition is an unknown concept. Eye contact with males is considered offensive. A question is usually never answered directly because this implies that someone is an expert and causes others to lose face.”*

After the demonstration, poll the reporters and family members for their reactions. Reporters often feel frustrated, confused, misunderstood, or helpless in the face of this interaction where they don’t know the “rules.” Family members might also find themselves misunderstood, offended, or frustrated at the inability of the reporter to understand their situation. Class discussion of this activity can focus on the importance of appreciating differences among others and understanding where and how miscommunications might arise.

Fujitsubo, L. C. (1999). The importance of cross-cultural sensitivity in psychology. In L. T. Benjamin, B. F. Nodine, R. M. Ernst, and C. B. Broeker (Eds.), *Activities handbook for the teaching of psychology (Vol. 4*). Washington, DC: American Psychological Association.

[►](#2zbgiuw) [**Return to Lecture Guide: Psychology’s Past and Present: What a Long, Strange Trip It’s Been**](#LGPsychPast)

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**Activity:** **Psychologists’ Twenty Questions**

Play the game, Twenty Questions, with your students to have them try to guess your specialization in psychology. They should be very close to your actual interests by the end of the game. Explain how and why you selected your particular field or specialty in psychology. You might also draw students’ attention to the information in Chapter 1 about possible careers for psychology majors. You may also want to mention the need for more minorities and individuals from working class backgrounds in the field, if such information would be appropriate for your students. Encourage them to visit the APA Web site ([http://www.apa.org](http://www.apa.org/)) to find out more about psychology careers.

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▼WRITING ASSIGNMENTS

[Exploring Psychology and the Media](#WritingExploringMedia)

[Exploring Psychology Through Art](#WritingExploringArt)

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**Activity:** **Exploring Psychology and the Media**

Do the media present a distorted image of psychology? The answer to this question is explored in a good first-week assignment suggested by Lester Sdorow (1994). Instruct your students to spend a week or two observing and noting any coverage of psychology in the media (including radio and television, newspapers and magazines, and motion pictures). Place a copy of Benjamin’s (1986) article on this topic on reserve in the library, and ask students to write a short (2–3 page) paper discussing the “popular” image of psychology from the perspective of their own observations as well as from those noted by Benjamin. Sdorow suggests that students’ papers address the following questions: (a) Do the media present psychology more as a science or more as a form of common sense? (b) Do the media present the diverse fields of psychology or only a few? (If only a few, which are overrepresented and which are underrepresented?) (c) Do the media rely more on psychologists or self-proclaimed experts for information? (d) Do the media present psychological information more in a sober manner or in a sensationalistic manner?

Benjamin, L. T. (1986). Why don’t they understand us? A history of psychology’s public image. *American Psychologist*, 43, 87–94.

Sdorow, L. (1994). *The Frankenstein course: Teaching assistants, laboratory exercises, and papers in introductory psychology*. Paper presented at the Southwest Regional Conference for Teachers of Psychology, Fort Worth.

[►](#2zbgiuw) [**Return to Lecture Guide: What is Psychology? Science versus Intuition**](#LGWhatIsPsych)

[**◄ Return to complete list of Writing Assignments**](#3w19e94)

**Activity:** **Exploring Psychology through Art**

Maureen Pierce suggests a unique ice-breaking assignment that encourages students to explore their ideas about psychology through the creation of a piece of artwork. After you have discussed the definition of psychology during the first or second class session, ask your students to create a piece of art that expresses and reflects their own ideas about the definition of psychology, some topic in the field of psychology, or something they hope to learn in the course. Tell your students that as long as the object reflects a psychological theme, the choice of materials and media is up to them. They should also include a short (1–2 page) summary statement that describes how the art reflects their understanding or definition of psychology. They should explain how and why they chose the media and materials used as well as how their creation specifically expresses their unique interpretation of psychology. Pierce reports that students are typically very creative in using a wide variety of media (including fabrics, modeling clay, and paints) to create sculptures, mobiles, and collages. She also notes that in addition to the fact that students are enthusiastic about the assignment, it gives them an opportunity at an early stage in the course to think critically, to explore the textbook, and to carefully consider their ideas about psychology.

Pierce, M. C., & Davis, S. F. (1995). *Exploring psychology through the visual realm*. Paper presented at the 103rd annual meeting of the American Psychological Association, New York, August.

[►](#2zbgiuw) [**Return to Lecture Guide: Psychology’s Past and Present: What a Long, Strange Trip It’s Been**](#LGPsychPast)

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▼HANDOUT MASTERS

[Handout Master 1.1 Knowledge of Psychology Test](#HandoutKnowledge)

[Handout Master 1.2 Can Science Answer This Question?](#HandoutCanScience)

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Handout Master 1.1

**Knowledge of Psychology Test**

*Instructions*: Read each item carefully and then circle whether you believe the statement to be true or false.

T F 1. To change people’s behavior toward members of ethnic minority groups, we must first change their attitudes.

T F 2. By feeling people’s faces, blind people can visualize how they look in their minds.

T F 3. Children memorize much more easily than adults.

T F 4. Unlike humans, the lower animals are motivated only by their bodily needs—hunger, thirst, sex, etc.

T F 5. The study of the mind” is the best brief definition of psychology today.

T F 6. The more you memorize by rote (e.g., poems), the better you will become at memorizing.

T F 7. The best way to ensure that a desired behavior will persist after training is completed is to reward the behavior every single time it occurs throughout training (rather than intermittently).

T F 8. Fortunately for babies, human beings have a strong maternal instinct.

T F 9. The ability of blind people to avoid obstacles is due to a special sense that develops in compensation for their absence of vision.

T F 10. By giving a young baby lots of extra stimulation (e.g., mobiles and musical toys), we can markedly increase its intelligence.

T F 11. Psychiatrists are defined as medical people who use psychoanalysis.

T F 12. Boys and girls exhibit no behavioral differences until environmental influences begin to produce such differences.

T F 13. The high correlation between cigarette smoking and lung cancer proves that smoking causes lung cancer.

T F 14. Genius is akin to insanity.

T F 15. In love and friendship, more often than not, opposites attract one another.

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Handout Master 1.2

**Can Science Answer This Question?**

Psychology is an empirical science; that is, its knowledge is obtained through observation, experimentation, and measurement. Some questions cannot be answered empirically and are, therefore, outside the realm of science.

Decide whether scientific research can answer the questions below and respond “yes” or “no” to each question. Do not try to answer the question itself. Just say whether or not scientific research can, in principle, address the question. Briefly explain why each question is, or is not, a good candidate for scientific inquiry.

For the questions that can be studied scientifically, identify what the independent and dependent variables would be in the experiment.

1. Is abortion on demand bad for society?

2. Do people talk more after they have eaten than they do when they are hungry?

3. Does jogging lead to a positive mental attitude?

4. Are the incomes of doctors related to the grades they make in medical school?

5. Which emotion is stronger, love or anger?

6. Are breast-fed babies more alert than bottle-fed babies?

7. Will people be more moral in the year 2020 than they are now?

8. Are people who commit suicide sorry after they have done it?

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**POWERPOINT SLIDES**

PowerPoint Presentation (ADA Compliant) for *Psychology: From Inquiry to Understanding*, Fourth Edition (Download only) **(ISBN 10: 0134637674 and 13: 9780134637679).**

Image PowerPoint Presentation for *Psychology: From Inquiry to Understanding*, Fourth Edition (Download only) **(ISBN 10: 0134637623 and 13: 9780134637624).**

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**Accessing Resources for Lilienfeld, *Psychology: From Inquiry to Understanding***

**For a list of all student resources** available with Lilienfeld, go to [www.mypearsonstore.com](http://www.mypearsonstore.com), enter the text ISBN **(ISBN 10: 0134552512 and 13: 9780134552514)** and check out the “Everything That Goes With It” section under the book cover.

**For access to the instructor supplements for Lilienfeld, *Psychology: From Inquiry to Understanding*, Fourth Edition, simply go to** <http://pearsonhighered.com/irc> and follow the directions to register (or log in if you already have a Pearson user name and password).

Once you have registered and your status as an instructor is verified, you will be e-mailed a login name and password. Use your login name and password to access the catalogue. Click on the “online catalogue” link, click on “psychology” followed by “introductory psychology” and then the Lilienfeld, *Psychology: From Inquiry to Understanding*, Fourth Edition text. Under the description of each supplement is a link that allows you to download and save the supplement to your desktop.

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