

Chapter 1

The Science of Psychology and Its Research Methods

Outline

- I. Toward a Definition
 - A. **Psychology** is the science of behavior and mental processes.
 - B. Psychologists have an interest in animals as well as humans.

- II. The Subject Matter of Psychology
 - A. **Behavior** is what organisms do—their actions and responses.
 1. The behaviors of organisms are observable and potentially measurable.
 2. Observable behaviors are *publicly verifiable*.
 - B. Psychologists also study two types of mental processes: cognitions and affects.
 1. **Cognitions** are mental events, such as perceptions, beliefs, thoughts, ideas, and memories.
 2. **Affect** refers to mental processes that involve one's feelings, mood, or emotional state.
 - C. The ABCs of psychology refer to the science of affect, behavior, and cognition.
 - D. An **operational definition** defines concepts in terms of the procedures used to measure or create them.

- III. Psychology: Science and Practice
 - A. A **science** is an organized body of knowledge gained through application of scientific methods.
 1. The **scientific method** is a method of acquiring knowledge by observing a phenomenon, formulating hypotheses, further observing and experimenting, and refining and re-testing hypotheses.
 2. A **hypothesis** is a tentative explanation of some phenomenon that can be tested and either supported or rejected.
 3. A scientific hypothesis may be rejected or supported, but it cannot be “proven” as true.
 - B. The goal of many psychologists is to apply what is known to their work.
 1. Most psychologists are scientists.
 2. *Science-practitioners* include clinical or counseling psychologists, I/O psychologists, sports psychologists, etc.
 3. We may say that psychology has four interrelated goals.
 - a. Observe and describe its subject matter clearly and objectively.
 - b. Understand and explain its subject matter, which implies knowing something of the causes of affects, behaviors, and cognitions.
 - c. Predict behaviors and mental processes, based on one's understanding.
 - d. Influence or control mental processes and behaviors when appropriate to do so.

IV. Psychological Approaches Past and Present

- A. No two psychologists approach their subject matter exactly the same way.
- B. Each psychologist brings unique experiences, expertise, values, and prejudices to the study of behavior and mental processes. This is true today, and always has been.

V. Psychology's Roots in Philosophy and Science

- A. René Descartes (1596-1650) viewed the human body as a machine, subject to physical laws.
 - 1. This doctrine is known as **mechanism**.
 - 2. **Dualism** refers to the idea that a human possesses a mind as well as a body.
 - 3. Descartes proposed *interactive dualism* to explain how the mind and body influence each other.
- B. John Locke (1632-1704) and his British followers developed the doctrine of **empiricism**.
 - 1. Like Aristotle in the third century B.C., Locke and his followers believed the mind of a newborn was like a blank slate, or *tabula rasa*.
 - 2. They believed that the mind became filled with ideas and memories due to experience and observation.
- C. Charles Darwin (1809-1882) had a profound effect on psychology by confirming that the human species was part of the natural world of animal life.
 - 1. *The Origin of the Species* was published in 1859.
 - 2. Darwin emphasized that *adaptation* to one's environment was often a mental as well as a physical process.
- D. Gustav Fechner (1801-1887), a German physicist, applied his training in the methods of physics to the psychological process of sensation.
- E. Hermann von Helmholtz (1821-1894) performed experiments and developed theories in the physiology laboratory to explain how long it takes the nervous system to respond to stimuli, how information is processed through the senses, and how we experience color.

VI. The Early Years: Structuralism and Functionalism

- A. Wilhelm Wundt (1832-1920) is often credited as the founder of psychology for opening his laboratory at the University of Leipzig in 1879.
 - 1. For Wundt, psychology was the scientific study of the mind and of consciousness.
 - 2. His approach is known as **structuralism**.
 - 3. It was a pointed attempt to actually begin a new science.
- B. William James (1842-1910) thought consciousness was continuous.
 - 1. He did not believe that it could be broken into elements.
 - 2. He believed that psychology should not be concerned with the structure of the mind, but rather its function: How does the mind *function* to help the organism adapt to its environment?
 - 3. This approach is called **functionalism**.
- C. Margaret Floy Washburn (1871-1939), the first woman to be awarded a Ph.D. in psychology, addressed questions of animal consciousness and intelligence in a textbook she wrote, *The Animal Mind*.
- D. Mary Calkins (1863-1930) was the first woman elected president of the American Psychological Association in 1905, even though Harvard would not award her a Ph.D. for which she had met all academic requirements.
- E. Christine Ladd-Franklin (1847-1930) received her Ph.D. 40 years after it was earned, and authored an influential theory on how humans perceive color.

VII. Behaviorism

- A. John B. Watson (1878-1958) believed that psychology had to focus on events that can be observed and measured, an approach known as **behaviorism**.
 - 1. He banished the study of the mind from psychology.
 - 2. Watson essentially changed the definition of psychology.
- B. B.F. Skinner (1904-1990) studied relationships between responses and the circumstances under which those responses occur.
 - 1. He believed that psychology should be defined as “the science of behavior.”
 - 2. What mattered for Skinner is how behaviors are modified by events in the environment.

VIII. Psychoanalytic Psychology

- A. Sigmund Freud (1856-1939), a Viennese physician, was interested in “nervous disorders.”
- B. His insights came from observations of patients and himself.
- C. His approach emphasized the influence of instincts and the unconscious mind, a school of psychology called **psychoanalytic psychology**.
- D. His approach was the beginning of modern clinical psychology.

IX. Humanistic Psychology

- A. The leaders of this approach were Carl Rogers (1902-1987) and Abraham Maslow (1908-1970).
- B. **Humanistic psychology** posits that the individual, or self, is the central concern of psychology.
- C. This approach emphasizes individuals being in control of their destinies.
- D. Rogers developed a system of psychotherapy and Maslow developed a theory of human motivation.

X. Gestalt Psychology

- A. This approach was championed by Max Wertheimer (1880-1943).
- B. Gestalt is a German word that roughly means “whole” or “totality.”
- C. This approach emphasized the notion of the “whole being more than the sum of its parts.”
- D. **Gestalt psychology** focuses on perception and how we select and organize information from the outside world.

XI. SPOTLIGHT: Minority Pioneers

- A. Francis Sumner (1895-1954) was the first African American to earn a Ph.D.
 - 1. The last graduate student of G. Stanley Hall.
 - 2. Worked to bring more African American students to college, and to psychology.
- B. Kenneth Clark (1914-2005) and Mamie Clark (1917-1963) did award-winning work on self-esteem and self-perception of Black and White children.
- C. Robert Guthrie (1932-) brought attention to the lack of minority students in psychology with the publication of *Even the Rat Was White: A Historical View of Psychology*.
- D. George Sanchez (1906-1972) is often referred to as the “founder of Chicano psychology,” having standardized intelligence tests for Spanish-speaking children, among other things.

XII. Contemporary Approaches to Psychology

- A. There are over 500,000 psychologists in the world today.
- B. The American Psychological Association has more than 155,000 members, and has over 50 divisions to which its members belong.
- C. The American Psychological Society, formed in 1988, has about 15,000 members.
- D. **The Biological Approach** emphasizes biochemistry to explain psychological functioning in terms of genetics and the operation of the nervous system.

- E. **The Evolutionary Approach** focuses on how behaviors and mental processes promote the species' survival and adaptation to the environment.
- F. **The Cognitive Approach** focuses on how an organism processes information about itself and the world in which it lives.
- G. **The Developmental Approach** looks at the organism as it grows and develops throughout the lifespan, usually with an emphasis on childhood.
- H. **The Cross-Cultural Approach** appreciates that what an individual finds reinforcing or motivating and how mental illness is defined, varies enormously from culture to culture.
- I. **An Emerging Approach: Positive Psychology** focuses on mental health.
 - 1. Martin Seligman and Mihaly Csikszentmihayi introduced this approach.
 - 2. Seligman says that there are three pillars to positive psychology: the study of subjective well-being, positive individual traits, and positive institutions.

XIII. SPOTLIGHT: Women in Psychology

- A. Mary Ainsworth's research focus has been on the formation of attachments between children and their care-givers.
- B. Anne Anastasi provided guidance to generations of psychologists on the strengths and weaknesses of psychological tests.
- C. Linda Batoshuk is one of the world's foremost experts on the sense of taste.
- D. Sandra Bem is best known for her work on gender identity and the development of gender roles.
- E. Eleanor Gibson was a pioneer in the study of perception, the development of depth perception in particular.
- F. Carol Gilligan expanded earlier work on moral development to include comparisons between men and women and how they approach moral issues.
- G. Elizabeth Loftus is a renowned experimenter on issues of the accuracy of long-term memories, eyewitness testimony and repressed memories of childhood experiences.
- H. Eleanor Macoby is best known for her work on measuring and interpreting gender differences and the development of socialization in children.
- I. Janet Spence, the sixth woman to be president of the APA, is best known for work on varieties of anxiety and how anxiety is to be measured.

XIV. Research Methods: Making Observations

- A. All of science begins with observation.
- B. Before we can explain what organisms do, we must observe what it is that they do.
- C. **Naturalistic observation** involves carefully and systematically watching behaviors as they occur naturally, with a minimum of involvement by the observer.
 - 1. It is important that observed organisms do not realize they are being observed.
 - 2. One must overcome the **observer bias** of having one's expectations, motives, experiences, etc. interfere with one's observations.
 - 3. Naturalistic observation often takes great patience because the behaviors of interest may not occur very often.
- D. **Surveys** amount to systematically asking a large number of persons the same question or questions.
 - 1. A **sample** is a subset of a larger population that has been chosen for study.
 - 2. To be useful one's sample for a survey needs to be relatively large and representative of the population of interest.
- E. In a **case history approach**, a single person, or a small group of persons, is studied in considerable depth.
 - 1. The method is retrospective, reviewing what has happened in the past.
 - 2. It was the method most often used by Sigmund Freud.

XV. Research Methods: Looking For Relationships

- A. **Correlational research** is a process in which variables are not manipulated, but relationships between two or more variables are measured and investigated.
- B. In **experimental research**, one or more variables are manipulated, and scientists look for a relationship between manipulation and changes in behavior.

XVI. Correlational Research

- A. Correlational research involves measuring two or more variables and looking for a relationship or association between them.
- B. No variables are manipulated.
- C. If it is not proper or possible to manipulate a variable of interest, then this method is warranted.
- D. Any research involving the age of a person as a variable is correlational, because a person's age is fixed, although it may be associated with many other variables.

XVII. The Correlation Coefficient

- A. A **correlation coefficient** (r) is a statistic that yields a number between -1.00 and +1.00.
- B. A **positive correlation** tells us that two responses are related to each other.
 - 1. As the value of one variable increases (or decreases), the value of the second also increases (or decreases).
 - 2. The direction for change for each variable is in the same.
- C. A negative sign indicates a **negative correlation** or inverse relationship between variables.
 - 1. As the value of one variable increases, the value of the second decreases.
 - 2. Here, the direction of change for each variable is opposite.
- D. If the correlation coefficient is near zero, there is no relationship between the two measures.
 - 1. As correlations approach zero, predictability decreases.
 - 2. The closer to the extreme of +1.00 or -1.00, the stronger the relationship between the measured responses, and the more confidence we can have predicting the value of one knowing the other.
- E. One cannot infer a causal relationship between variables based on a correlational study.
- F. Even when two responses are highly correlated, one cannot make predictions for individual cases.

XVIII. Research Methods: Doing Experiments

- A. An **experiment** is a series of operations used to investigate relationships between manipulated events and measured events, while other events are controlled or eliminated.
- B. Experiments are designed to discover cause-and-effect relationships among variables.
- C. An **independent variable** is the variable that is manipulated by the experimenter, and its value is determined by the experimenter.
- D. A **dependent variable** provides the measure of a participant's behavior, and its value depends on what the participant does.
- E. The **experimental group** receives a nonzero level of the independent variable.
- F. The **control group** receives a zero level of the independent variable and provides a baseline of behavior to which performance of subjects in the experimental group is compared.
- G. A **placebo** is something given to research participants that has no identifiable effect on performance.
- H. An **extraneous variable** is any factor—other than the independent variable—that might affect the value of the dependent variable.
 - 1. These variables need to be controlled or eliminated.
 - 2. The quality or value of an experiment is often a reflection of the extent to which extraneous variables have been successfully controlled.

XIX. Exercising Control

- A. Extraneous variables need to be considered and controlled for before an experiment begins.
- B. **Random assignment** insures that participants have an equal chance of being assigned to any one of the groups used in the experiment.
- C. A **baseline design** allows participants to serve in both experimental and control group conditions while their behavior is observed.

XX. The Generality of Psychological Research

- A. **Generalization** (in the context of doing scientific research) refers to the ability to apply results of one's research beyond the restricted conditions of the experiment.
- B. **Field experiments** are conducted in the real world.
- C. A balance must be struck between experimental control and generality.

XXI. Using a Meta-analysis

- A. A **meta-analysis** is a statistical procedure of combining the results of many studies to more clearly see the relationship, if any, between independent and dependent variables.
- B. A meta-analysis minimizes the errors that can plague single, smaller studies.

XXI. Ethics in Psychological Research

- A. Psychologists have long been concerned with the ethical implications of their work.
- B. Psychologists need to be concerned not only with the application of their research but also with the gathering of information.

XXII. Research with Human Participants

- A. The **APA ethical guidelines** specifies ethical treatment of human and animal subjects used in psychological research.
- B. Participants' confidentiality must be guaranteed.
- C. Participation in research must be voluntary.
- D. Persons should be included in experiments only after they have given their consent.
- E. All participants should be debriefed after the experiment has been completed.
- F. There are additional guidelines if children or other specialized populations are used.

XXIII. Animal Subjects in Research

- A. APA ethical guidelines for using animals in research are quite stringent.
- B. Government regulations also must be followed.
- C. All these guidelines and regulations protect the safety and well-being of animals used in research.

XIV. Some Key Principles to Guide Us

- A. Explanations in psychology often involve interactions.
 - 1. One's genetic, biological nature interacts with one's experiences or nurture.
 - 2. The forces of the situation interact with internal, personal dispositions.
- B. There are individual differences.
 - 1. No two organisms are exactly alike; what holds for one may not hold for the other.
 - 2. No one organism is exactly the same from one point in time to another.
- C. Our experience of the world often matters more than what it is in the world.

Practice Test Questions

Multiple Choice

1. If you feel queasy, apprehensive, or nervous at the sight of exam papers, you are experiencing
 a. cognition. c. placebo.
 b. affect. d. conflict.
2. Which of the following best describes psychology's subject matter?
 a. what people do, normally and abnormally
 b. the actions of people when they are stimulated
 c. the mental activities and behaviors of organisms
 d. what people think about the things that affect them
3. Which of the following is the best example of an operational definition?
 a. Hypotheses are educated guesses that can be confirmed or rejected by evidence.
 b. Class participation is the number of times a student raises his or her hand in class.
 c. Cognitive processes include perception, remembering, problem solving, and understanding.
 d. Reading ability can be used to predict success in introductory psychology classes.
4. When a researcher develops a tentative explanation for some phenomenon that can be tested and then either rejected or supported, that researcher has developed
 a. a scientific method. c. a hypothesis.
 b. empirical evidence. d. an operational definition.
5. Clinical psychologists and industrial/organizational psychologists are sometimes referred to as "scientist-practitioners" because they
 a. seldom have a Ph.D. in psychology.
 b. work in clinics and hospitals.
 c. usually do not use the scientific method in their work.
 d. work to apply psychological knowledge in the real world.
6. When psychology emerged as a separate discipline, it did so because it had combined
 a. energy with matter.
 b. scientific methods with philosophical questions.
 c. cognitive processes with affective reactions.
 d. mental process with behavior.
7. René Descartes and John Locke deserve mention in any discussion of the history of psychology because they
 a. predicted that the science of psychology would be successful and popular.
 b. believed that human actions could be explained in their own right, without relying on God or religion.
 c. realized the importance of the pineal gland in human behavior.
 d. applied scientific methods to issues of human nature and understanding.
8. Which of these psychologists placed the LEAST emphasis on human consciousness?
 a. Wilhelm Wundt c. John Locke
 b. John Watson d. William James

True/False

1. ___ True ___ False Science is the only way to gain insight into the nature of human behavior.
2. ___ True ___ False Psychologists study the ABCs; Affect, Behavior, and Cognition.
3. ___ True ___ False The first psychology laboratory was opened in the late 1900s by Sigmund Freud in Vienna.
4. ___ True ___ False Psychology began as “the science of the mind, or of consciousness.”
5. ___ True ___ False Clinical and counseling psychologists may be referred to as “scientist-practitioners.”
6. ___ True ___ False Surveys provide more useful information than do either case history studies or naturalistic observation.
7. ___ True ___ False Positive correlations are more useful than negative correlations.
8. ___ True ___ False Experiments are the only scientific methods used by psychologists.
9. ___ True ___ False An experiment should involve only two groups, one experimental and one control group.
10. ___ True ___ False A meta-analysis involves the re-examination of previously collected data.

Key Terms and Concepts

psychology _____

behavior _____

cognitions _____

affect _____

operational definition _____

science _____

scientific methods _____

hypothesis _____

mechanism _____

dualism _____

interactive dualism _____

empiricists _____

structuralism _____

functionalism _____

behaviorism _____

psychoanalytic psychology _____

humanistic psychology _____

gestalt psychology _____

naturalistic observation _____

observer bias _____

survey _____

sample _____

case history _____

correlational research _____

experimental research _____

correlation coefficient _____

positive correlation coefficient _____

negative correlation coefficient _____

experiment _____

independent variable _____

dependent variable _____

experimental group _____

control group _____

placebo _____

extraneous variables _____

random assignment _____

baseline design _____

generalization (in research) _____

field experiments _____

meta-analysis _____

APA ethical guidelines _____

Answers to Practice Test Questions

Multiple Choice

1. **b** If you feel anything, you are having, or experiencing affect. Remember: cognitions are thoughts or ideas. Conflicts often give rise to affect.
2. **c** Psychologists study all of these things, but the only answer that is general enough not to exclude a part of psychology's subject matter is alternative **c**.
3. **b** Operational definitions tell us how we are to measure something, not what that thing is. Here we have four correct statements (or reasonable definitions), but alternative **b** is the only one that provides an operational definition.
4. **c** All you need to do here is recognize the definition of the term "hypothesis."
5. **d** What makes psychologists "scientist-practitioners" is that they spend most of their time trying to apply psychological knowledge to problems in the real world. That is, they "practice" the "science" of psychology.
6. **b** Alternatives **c** and **d** tell us about psychology's subject matter. When psychology began, the focus was on applying scientific methods to deal with old philosophical questions about the nature of the mind.
7. **b** What both these men did—as philosophers, not as scientists—was to focus on understanding human nature without reference to deity or to religious beliefs.
8. **b** Wundt, James, and Locke would have been comfortable defining psychology as the study of human consciousness. It was John B. Watson who had a problem with a science of consciousness and preferred to define psychology as the science of behavior.
9. **d** Perception is a basic process that has been a concern of every variety of psychology over the years, but it was the German gestalt psychologists who made perception their central concern.
10. **c** In fact she wrote the first text on animal behaviors. Christine Ladd-Franklin focused on color vision. Wertheimer was a gestalt psychologist, and Maslow a humanistic psychologist.
11. **b**. Kenneth Clark and his wife Mamie did this ground-breaking research, a significant factor in the *Brown vs. Board of Education* decision of 1954.
12. **d** Although no psychologist would actually disagree with such a statement, it is most likely to have been made by a humanistic psychologist. [What sort of statement would be best associated with each of the other types of psychologist?]
13. **c** The most common association with Freud is "psychoanalytic" and we shall encounter the term often in the study of psychology.
14. **b** This alternative goes a long way toward defining just what the new, emerging approach of "positive psychology" is all about.
15. **c**. Among other things, Anastasi is the author of the classic text, *Psychological Testing*.
16. **c** No matter which of the scientific methods one uses in psychology, all of them flow from first making careful observations of one's subject matter.
17. **a** Yes, there are many specific methods, but ultimately they will yield either a correlation or a cause-and-effect statement resulting from experimentation.
18. **c** The advantage of surveys is that it generally gathers observations from large numbers of persons. Its analysis is seldom very deep, but it can be very broad.
19. **b** The whole point of naturalistic observation is to view behaviors as they actually occur in nature with as little influence of the observer as possible.
20. **c** Actually, this is a rather "standard" test item. Alternative **d** is wrong because correlation coefficients cannot exceed +1.00 or -1.00. Useful predictions hinge on how close the coefficient is to either extreme of +1.00 or -1.00, where the sign (+ or -) is irrelevant.
21. **d** With a negative correlation, high scores on one variable are associated with low scores on the other. It is our experience, at least, that as the lighting in a restaurant goes up (think "fast food"), the quality goes down.

- 22. **a** When doing an experiment, the most important—and often the most difficult—thing is to be sure that one has adequately controlled all extraneous variables.
- 23. **b** The independent variable is the one that you manipulate; here, the amount or dosage of the drug. Degree of improvement might be your dependent variable, while the type of disorder being treated and other concurrent therapies would be extraneous variables.
- 24. **d** Actually, the most proper name for this group is “placebo control.”
- 25. **a** Baseline designs use subjects as their own controls, where each participant gets both the experimental treatment and the control condition. None of the statements, **b**, **c**, or **d** is correct.
- 26. **c** All sciences have ethical concerns about how (or if) to apply what they have learned. The unique problem for psychology—because it uses living organisms as the focus of its study—is that ethical issues are important in the collection of information as well as in its application.

True/False

- 1. **F** There are many ways of gaining insight into the nature of the world and the organisms that populate it. As it happens, psychology values science above the others, but there *are* others.
- 2. **T** There are lots of different ABCs, but in psychology, our ABCs are indeed, affect, behavior, and cognition.
- 3. **F** The first laboratory was opened in the late 1800s (1879) in Leipzig, Germany, by Wilhelm Wundt.
- 4. **T** Yes, it did. Then it became “the science of behavior.” Now it is the “science of behavior and mental processes.
- 5. **T** Clinical and counseling psychologists are among those scientist-practitioners who apply psychological information in the real world.
- 6. **F** The type of information afforded by these three techniques is different, to be sure, but to say that one is any more useful than the others depends entirely upon the use to which the observations are to be put. That is, they are just different, not better or worse.
- 7. **F** The usefulness of a correlation is not determined by whether it is positive or negative, but by its magnitude.
- 8. **F** Probably most of what we know in psychology we have learned by doing experiments, but it is not correct to argue that experimentation is the only scientific method that psychologists use.
- 9. **F** Although there is seldom a need for more than one control group, there is considerable good sense for having more than one independent variable—as in factorial experiments.
- 10. **T** By definition, one does not (or does not need to) collect new data to perform a meta-analysis; it is a statistical analysis of existing data.

Flash Cards In Psychology

As students, nearly all of us have had some experience using flash cards. For one purpose or another, most of us were first introduced to flash cards in elementary school. I can recall simple arithmetic flash cards that my second-grade teacher used. There was a simple problem on one side ($8 + 3$) and the answer (11) on the other side. Over and over she drilled us on simple addition and subtraction problems. My other clear recollection of flash cards is of those I made for myself as I struggled with French vocabulary in high school. Do you have any memories of having used flash cards?

What I am proposing here is that this (very “low tech”) method can be useful in learning many of the terms and concepts of general psychology. College students sometimes feel that flash cards are too elementary to be truly helpful. And I agree that there are many learning situations for which flash cards may not be advisable. For learning basic vocabulary and for memorizing basic ideas and facts, however, flash cards have much to recommend them. Here I will do three things: (1) I’ll explain why—or how—flash cards can be useful, (2) I’ll provide some guidelines for making and using flash cards, and (3) I’ll provide a sample of a few flash cards for each of the first five chapters of Psychology: An Introduction, Seventh Edition, just to get you started. I am reluctant to provide too many, because the process of making flash cards can be as much of a learning experience as using them.

The Nature and Advantages of Flash Cards

Flash cards are simple cards—3x5 inch index cards work very well—which are used to rehearse associative learning. Whenever you have two pieces of information, say a term and its definition, and you are required to learn to associate one with the other, you will find flash cards useful. One piece of information (the term) is written on one side of the card and the associated information (the definition) is written on the other side.

Flash cards help you learn basic facts and vocabulary. It is important for you to realize that learning about psychology and preparing for exams involves more than just memorizing facts and the definitions of terms. Good exams will also test on conceptual understanding, relationships, the “big picture,” and the application of facts. (This is why we ask, “Before You Go On” questions throughout the text and why we’ve provided “Practice Tests” in this study guide.). What flash cards can do is ensure that you know the foundations for the higher level thinking that will be required on exams.

Flash cards have several advantages, most of which are quite self-evident:

1. They are portable. When carrying your textbook or your notebook is not convenient, you can always find a place for a few 3x5 index cards.
2. They help you practice retrieval skills. Exams require that you locate and retrieve information that you have stored in your memory. Yes, you do have to get that information into memory—which is what learning is all about. But on an exam, you will also have to get that information out of memory storage—which is what retrieval is all about. By using flash cards, you not only will be learning new information, you will be practicing retrieval as well.
3. Flash cards help to inform you about what you know and where trouble spots may be. Self-testing with flash cards can help you avoid surprises at exam time.

Making and Using Flash Cards

On the face of it, making useful flash cards should be a simple matter, and it is. There are, however, a few guidelines that you might want to keep in mind.

1. Place only one concept, term, or phrase on each card. Index cards are relatively inexpensive, and it defeats the purpose of the cards to overload them.
2. At the same time, use only one card for each term, concept, or phrase. If you need more than one card to describe a concept or define a term, you’re probably dealing with the sort of information for which flash cards are unsuitable.

3. You have to be careful with technical terminology, but whenever possible, use your own words. Remember, these cards are to help you—to provide you with cues for retrieving information from your own memory.
4. Be creative. Cards easily can accommodate simple drawings, pictures, diagrams, flow charts, and the like, just as easily as they can accommodate words.
5. Don't feel bound to the textbook. Flash cards can help you learn material from class as well as from the text.
6. Guard against “busy work.” Attend to what you are doing, and don't spend a lot of time simply copying information (particularly information you already know) directly from the textbook onto cards just for the sake of making flash cards.

Procedures for using your flash cards are also reasonably self-evident. Again, however, there are a few guidelines I'd like you to keep in mind.

1. Once you have written a short pile of cards for a chapter or a topic, shuffle them. Shuffle them again each time you go through the stack. You want to learn about the concepts of general psychology no matter the order in which they appear.
2. Test yourself on both sides of each card. That is, for a vocabulary item, for example, if you were to read the definition first, could you identify the term or concept being defined?
3. After you have gone through a pile of cards a few times, begin to sort them into shorter piles. You might start with two: “I know this for sure” and “I'm totally clueless.” Obviously, a “I'm really not sure of these” pile can be useful as well. Once sorted into shorter piles, you'll know where you'll need to spend most of your flash card study time.

Please remember that the points I've listed here are guidelines, not hard-and-fast rules. Flash cards will help only if you make and use them. They are for you. Because there is benefit to be derived from creating flash cards as well as from using them, I've provided only a sample of possible cards for the first five chapters of Psychology: An introduction. The rest is up to you. Good luck!

I want to acknowledge the generous help of two of my colleagues at Indiana University-Purdue University at Fort Wayne. Drs. Carol Lawton and Craig Hill helped to convince me of the value of a flash card approach to study, and provided most of the hints provided here.

A Few Flash Card Possibilities for Chapter 1

(Remember: These are just suggestions. The best flash cards are those you make yourself.)

SCIENCE	1. organized body of knowledge 2. uses scientific methods
ABCs of PSYCHOLOGY	Affect, Behavior, Cognition; i.e., how one feels, what one does, and thinks
OPERATIONAL DEFINITION	defines concepts in terms of how concept will be measured or created (e.g., intelligence = IQ test score)
RENÉ DESCARTES	philosopher – explained humans without ref. to god – mind & body separate but interact (interactive dualism)
WILHELM WUNDT	Leipzig – first psych. lab (1879) – science of mind (consciousness) – structuralism
SAMPLE	a set or portion of a larger group (population) chosen for study
VALUE OF CORRELATION	+1.00 (strongest positive—high w/ high) 0.00 (no relationship) -1.00 (strongest negative—high w/ low)
VARIABLES in an EXPERIMENT	manipulate INDEPENDENT variable measure DEPENDENT variable control EXTRANEIOUS variables
RANDOM ASSIGNMENT	making sure that every member of a population has an equal chance of being included in a sample
META-ANALYSIS	statistical combination of results of several previous studies to look for relationships between variables

EXPERIENCING PSYCHOLOGY

Defining Right- and Left-Handedness

Approximately 90 percent of the population of North America is right-handed. One fact revealed in the research on handedness is that most people are not as strongly right-handed or left-handed as they may think.

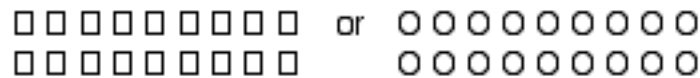
Here's a project you can try yourself. Ask friends and relatives whether they use their right hand or left hand to complete each of the following tasks. They are to indicate frequency on a 5-point scale:

- (1) ALWAYS LEFT
- (2) USUALLY LEFT
- (3) EQUALLY RIGHT AND LEFT
- (4) USUALLY RIGHT, and
- (5) ALWAYS RIGHT

The items to be judged are:

- 1. *Write a letter.*
- 2. *Throw a ball at a target.*
- 3. *Hold scissors to cut paper.*
- 4. *Deal playing cards.*
- 5. *Hold a toothbrush while cleaning teeth.*
- 6. *Unscrew the lid of a jar.*

Now have the same participants in your project actually try the following task, first using one hand, then using the other. You'll need a standard, 8 1/2 x 11 inch sheet of paper on which you have printed two sets of 100 little quarter-inch boxes or circles (something like:



When you say “go,” your subject, using his or her right hand, is to tap on each square or circle once with a pencil, leaving a mark inside. They are to work as rapidly and as accurately as possible. Allow 30 seconds, then call “stop.” After a 30-second rest, have them do the same thing, but now using their left hand. Add up the number of “hits” for each hand (where a “hit” is a mark within the circle—on the line does not count). The hand that earns the higher score may be operationally defined as the dominant hand. Did the results match the participants’ self-report? Which measure (self-report or “test”) provides the most accurate assessment of handedness?

Using the Internet to Expand Your Appreciation of Psychology

By Josh R. Gerow

Introduction

Some of you have had more experience with the Internet and with searching the world-wide-web than have others. Even so, I am going to assume that all college students—even beginning college students—have used the Internet to search for information.

Given my assumption, you fully realize how vast is the Internet. There is simply more information “out there” than any of us can access, even if we had all the time in the world to do so. And I fully realize that as a busy college student, you have no such luxury of extra time for Internet surfing. That is why we have made this feature available.

I have listed, and annotated, a few choice websites for each chapter in *General Psychology*, and begin with a list of general, over-arching sites that cover nearly everything. Before we get started, let me point out a few caveats:

- Websites come and websites go; such is the nature of the Internet. Obviously, all of the sites listed here were functioning perfectly well when the list was made. Should you find any that are no longer accessible, **or** if you find a website that you think should be on our list, please do not hesitate to contact me at: TheCyProf@aol.com
- Neither I, nor Benttree Press, nor the creators/accumulators of the websites listed here accept any responsibility for the accuracy or the relevance of what you find. Clearly, some sites are likely to be more “trustworthy” than others, but it is up to you to be a careful, cautious consumer of information.
- Be sure to check with your instructor about websites that he or she prefers. Many instructors and/or psychology departments maintain very elaborate websites.
- Finally, please remember to keep your priorities in order. As a student of psychology attend to first to information from your instructor, then to information presented in the text, and then to what you find on the Internet. Internet surfing can become addictive (or nearly so). Please don’t get so wrapped up in searching the Internet for additional information that you fail to keep up with assignments that will really count toward your grade.

I hope you find exactly what you are looking for, and “Happy Surfin’!”

General Sites

A few websites are so special, so grand, that they deserve a place of their own. These sites—often called “mega-sites” are most noteworthy for the extensive set of additional links found there. In each of these cases the additional links are nicely and sensibly organized. There is hardly a topic or an issue in all of psychology that you cannot research with a head start from the sites listed below.

❖ <http://www.psywww.com>

This site, “Psych Web” hosted by Russell Dewey of Georgia Southern University is very well known among all instructors of psychology. In that regard it is nearly a “famous” website—if there is such a thing. It is maintained “for students and teachers of psychology.” It includes just about anything you might want: writing style manuals, full-length classic books, brochures, pamphlets, self-tests, and scores of links to other psychology websites. I would even suggest that no matter what your need, you would do well to begin your search here.

❖ <http://www.psych-central.com>

“Psychology Online Resource Central” is a huge mega-site, also designed for “psychology students and their professors.” It is no-nonsense, cut-and-dry, but provides *hundreds* of links to psychology websites.

❖ <http://www.psychology.org>

With a web address like that, you would expect something basic and something useful. The site calls itself “The Encyclopedia of Psychology,” and the name is apt. It is a rich source of links to other websites. It is hosted by Professor William Palya of the Department of Psychology, Jacksonville State University.

❖ <http://inst.santafe.cc.fl.us/~mwehr/>

Yes, this address is a bit strange. It does not include the standard www, and it has to be entered carefully. But when you reach this site, hosted by folks at Santa Fe Community College in Gainesville, Florida, you will be well rewarded. It is filled with tons of great stuff, mostly for students. It admits right on its opening page a prejudice for the approach of “Positive Psychology,” but that prejudice remains well hidden. The site contains study guides, and excellent section on “Psychology Laboratory” exercises, including a piece on “developing Internet search skills!”

❖ <http://www.psychology.net>

Here is another general website with a general-sounding address. This one, however, is different from the others listed so far. This site provides a *daily* compilation of psychology-related items gleaned from a wide range of public media. It even includes advertisements. It is administered by Randy Padawer, PhD, a clinical psychologist. The major foci, reflecting the popular media, are mental health, depression, addictions, and parenting.

❖ <http://www.psychologytoday.com>

This is the website for the popular magazine, *Psychology Today*. As a commercial site, it may be expected to include pop-up ads and a good bit of material of little use for serious students of psychology. On the other hand, it is very professionally done and does provide useful links. As does the magazine, it focuses on therapy/counseling issues.

❖ <http://psychology.about.com>

This is another site that is clearly nonacademic. It is part of the “About.com” series, and is aimed at the general population, not just college students. But, college students are part of the general population and if you can overlook the advertising and some of the silly pieces, you will see that there are several very rich links at this site, including one called “Academic Resources.”

❖ <http://epsych.msstate.edu>

When you have a few minutes to spare, you ought to check out this website. It was assembled by college professors for college students and that one of its major goals is to have fun while being instructive. Even getting signed on may take some patience and moving around some of the activities seems slow indeed, the effort is often worth it. Mississippi State University professor Gary Bradshaw is the author/ administrator, and as he says, “This site is designed to teach about psychological processes in a rich experiential setting. But we don’t want to be dull and boring along the way. Cheesy? Sure! Silly? No doubt! Stuffy? Never!! Asking ridiculous rhetorical questions? Guess I’ll plead no contest there.”

TOWARD A DEFINITION (pp. 2-7)

Getting a simple, straightforward answer to a question about the nature of psychology is not going to be easy. Ask ten psychologists and you are likely to get 12 different responses. Oh yes, we all have learned the “textbook” definition, “Psychology is the science that studies the behavior and mental processes of organisms”—or words to that effect. Pressed to be more specific, and quite a divergence of opinion can develop. Beyond checking the general sites listed above, it makes a great deal of sense to begin with a search of the websites of psychology’s two professional organizations, The American Psychological Association (APA) and The American Psychological Society (APS).

<http://www.apa.org>

(includes descriptions of the APA divisions, and thus provides a summary of “what psychologists do”—a sort of operational definition of psychology)

<http://www.psychologicalscience.org>

(includes a link “About APS” and one for students—where you will find an extensive series of additional links to other psychology-related websites)

<http://psychology.about.com/library/weekly/aa010100a.htm>

(a simple site, with aggravating pop-ups, but a good essay on definitions)

<http://www.lhup.edu/~dsimanek/scimeth.htm>

(an engaging essay on the misperception of “the scientific method” by a physicist)

<http://www.punaridge.org/doc/teacher/method/default.htm>

(actually, a site for children about the scientific method, but well worth a look)

APPROACHES TO PSYCHOLOGY, PAST AND PRESENT (pp. 8-21)

A rather smart-aleck definition of psychology would be to say that, “psychology is what psychologists do.” This begs the question of course, of just what it is that psychologists do when while they’re being psychologists. In this regard, a careful look at the history of the science of psychology can be helpful. The websites for the APA and APS provide information related to the section of Chapter 1, “Contemporary Approaches to Psychology.” Here are some good sites on psychologists from both perspectives.

<http://elvers.udayton.edu/history/welcome.htm>

(a major “history of psychology” website with many links—enjoy!)

<http://www.psych.yorku.ca/orgs/resource.htm>

(a site called History and Philosophy of Psychology Web Resources)

<http://www.uakron.edu.ahap>

(the website of the Archives of the History of American Psychology, housed at the University of Akron—awesome)

<http://psychclassics.yorku.ca>

(please do visit this site, but beware: you might be entranced)

<http://www.cwu.edu/~warren/today.html>

(this address gets you to “Today in the History of Psychology—over 3100 events in the history of psychology)

<http://shp.yorku.ca>

(the homepage of the Society for the History of Psychology—from here you get anywhere)

<http://psychology.about.com/library/weekly/aa021503.htm>

(simplified listing/description of subfields or areas in psychology)

<http://www.apa.org/students/brochure/brochurenew.pdf>

(a 40-page brochure from the APA, “Careers for the Twenty-first Century”)

RESEARCH METHODS: MAKING OBSERVATIONS (pp. 22-24) AND RESEARCH METHODS: LOOKING FOR RELATIONSHIPS (pp. 22-27)

Recommending good websites that cover research methods in psychology is difficult. The problem is not a shortage of such sites—quite the contrary. Most of the websites devoted to particular, specific methods (naturalistic observation, surveys, case histories, etc.) have been authored by instructors for use in their classes. Although many are quite excellent, there are at least a couple of problems with my recommending any to you. First, these are not truly in the “public domain.” They’ve been created for the specific purpose of reaching a specific audience—students in that instructor’s classes. Second, because they are created for specific classes for a given semester, they tend not to have staying power. They come and go, and their website addresses come and go as sites and web pages get revised from one semester to the next.

Another problem is that many websites are terribly commercial in their approach and appeal. There are many, for example, that invite visitors to sign up to take surveys (usually about consumer goods) in exchange for the promise of the possibility of winning prizes or discount coupons. You might want to try such an endeavor, I suppose, but I doubt that it would be very instructive. Under “SURVEYS” there are several websites that offer to help you construct a survey for Internet use. To see what I mean you can safely view <http://www.statpac.com/surveys> which provides a 20-page “tutorial” on “Designing Surveys and Questionnaires” for you to download. And simply entering a term such as “case history method” in a search engine can lead to strange, questionable websites, like the one I found that provided case history accounts by people who had been abducted by aliens. (Note that these case histories were from people who had been abducted, not just folks who claimed to have been abducted.)

<http://psychology.about.com/library/weekly/aa051502.htm>

(the site starts with a piece on correlation and causality and then goes on through all the research methods)

http://www.psychology.org/links/Resources/Doing_Research

(a site of 17 links to other sites on doing research—from the Encyclopedia of Psychology)

RESEARCH METHODS: DOING EXPERIMENTS **(pp. 27-33)**

Most of what psychologists know about their subject matter they have learned by doing experiments. They manipulate one event to see if it produces regular, predictable, measurable changes in some other event. Sounds simple enough. And in essence, it is. In nearly every case, what makes doing experiments difficult is anticipating and controlling for—or eliminating—those extraneous variables that might influence the events the experimenter is measuring. Here are a few sites that provide more information on doing experiments.

<http://allpsych.com/psychology101/experiment.html>

(an annoyingly commercial site, but worth the visit if you stay focused)

<http://psych.fullerton.edu/mbirnbaum/web/IntroWeb.htm>

(a wonderful piece on “Psychological Experiments on the Internet,” including several examples and many links)

<http://psych.hanover.edu/Research/exponnet.html>

(THE website on experiments on the Internet—maintained by John Krantz, Ph.D. of Hanover College in Indiana)

<http://psy1.clarion.edu/mm/General/Methods/Methods.html>

(one of the best summaries of scientific methods in psychology)

ETHICS IN PSYCHOLOGICAL RESEARCH (pp. 33-35)

Researchers do not withhold medications known to be helpful just watch and see what effects might result. Scientists do not knowingly embarrass students participating in an experiment having to do with sexual attitudes. Psychologists do not administer painful shocks to laboratory dogs to see how long they can take it before losing consciousness. Psychology researchers always make sure that once an experiment is over, participants have a full understanding of the experimental hypothesis and how their participation will be handled. In other words, psychologists—like all other researchers—approach their research with the ethical treatment of their research subjects clearly in mind. A few websites on ethics in research follow.

<http://www.apa.org/ethics/code2002.html>

(the full text of the “Ethical Principles of Psychologists and Code of Conduct”)

<http://www.ahrp.org>

(focused on medical research mostly, this is the homepage for the “Alliance for Human Research Protection”)

<http://www.nap.edu/readingroom/books/obas>

(a booklet from the National Academy of Sciences, “On Being a Scientist: Responsible Conduct in Research”)

http://europa.eu.int/comm/research/science-society/ethics/ethics_en.html

(several links on ethics from the Science and Society in Europe website)

<http://www.grants.nih.gov/grants/olaw/olaw.htm>

(the homepage of the National Institutes of Health’s Office of Laboratory Animal Welfare)