

# PSYCHOLOGY

CUSTOM TEXT

JOHN W. SANTROCK





FIFTH  
EDITION



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*University of Texas at Dallas*

# PSYCHOLOGY

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**Chapters from  
PSYCHOLOGY**

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# PREFACE TO CUSTOM VERSIONS

**T**he first three editions of *Psychology* were conventional textbooks of 17 chapters. The fourth edition of *Psychology* was a completely customized book with no standard version, a unique departure from the standard 15–19 chapter text. Instructors could construct their own book from any of the thirty chapters and have them bound in any order they wished. This, the fifth edition of *Psychology*, is available in **both** a standard version of 17 chapters **and** as a completely customizable, 4-color text, with 40 different chapters from which to choose.

This text has been custom-built by your instructor from a menu of 40 chapters to match your course.

Throughout all 40 chapters, the fifth edition of *Psychology* features:

- Solid, outstanding research content throughout that expert consultants, among the leading psychologists in the world, praised as being among the best of all introductory psychology texts
- Contributions to individual chapters by leading psychologists in their fields
- Full color throughout (the fourth edition was not in color)
- Excellent pedagogy, clear writing, and a student-friendly character
- New chapter end pieces: overview/cognitive tree, critical thinking about behavior, and resources and readings in psychology
- Flexibility by allowing instructors to package their notes, readings, and virtually any other material with the text

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## SOLID, OUTSTANDING RESEARCH CONTENT PRAISED BY EXPERT CONSULTANTS

Thirteen expert consultants went over the content of *Psychology*, Fifth Edition, in their area of expertise and made detailed recommendations. The photographs and brief biographies of the expert consultants, many of them among

the world's leading psychologists in their fields, appear in this preface. In many instances, the expert consultants offered glowing praise of *Psychology*, Fifth Edition's content.

### Co-Authors of Individual Chapters by Leading Psychologists in Their Fields

The task of creating a 40-chapter introductory psychology text was a formidable one. To include outstanding content across psychology's many areas, I not only obtained the input of expert consultants as reviewers, but I also asked a number of psychologists to co-author individual chapters. They wrote material for the following chapters:

#### James Bartlett

*Ph.D. Yale; University of Texas at Dallas*  
Memory; Thinking and Language

#### Robert Gifford

*Ph.D. Simon Fraser; University of Victoria*  
Environmental Psychology; Applied Psychology

#### Morton Harmatz

*Ph.D. U. of Washington; University of Massachusetts*  
Introduction to Clinical Psychology

#### William Katz

*Ph.D. Brown; University of Texas at Dallas*  
Thinking and Language

#### Laura King

*Ph.D. U. of California at Davis; Southern Methodist University*  
Motivation; Motivation and Emotion

#### David Neufeldt

*Ph.D. U. of Arkansas; Hutchinson Community College*  
Industrial/Organizational Psychology and Career Development;  
Applied Psychology

#### Alice O'Toole

*Ph.D. Brown; University of Texas at Dallas*  
Methods; Sensation; Perception; Sensation and Perception

#### Raymond Paloutzian

*Ph.D. Claremont Graduate School; Westmont College*  
The Psychology of Religion

## Barry Stein

Ph.D. Vanderbilt; Tennessee Technological University  
Thinking and Language

After each of these experts completed their writing, I rewrote the material in my style and added the appropriate pedagogy.

## WRITING AND PEDAGOGY

I continue to strive to make *Psychology* a book that has excellent pedagogy, is well-written, and is student-friendly. The fifth edition of the book has a comprehensive, effective pedagogical system that will help students learn the material. The highlights of this learning system are presented in a **visual preface** that follows this preface.

In addition to the pedagogy and clear writing, high-interest chapter introductions (called Images of Psychology), special feature boxes, beautiful photographs and art, and personalized, applied examples of concepts are among the other features that make the fifth edition of *Psychology* a student-friendly book.

## Expert Consultants



**J**ackson Beatty is a Professor of Behavioral Neuroscience in the UCLA Department of Psychology. He received both his B.A. and Ph.D. degrees from the University of Michigan. He is a member of the UCLA Brain Research Institute and a Fellow of the American Association for the Advancement of Science in psychology.

He has earned an international reputation for his research on neurobiological issues in the study of higher cognitive processes of the human brain.

Professor Beatty is currently principal investigator on a National Science Foundation grant to expand undergraduate neuroscience laboratory instruction at UCLA.

**C**harles L. Brewer received his Ph.D. in general experimental psychology from the University of Arkansas in 1965 and did postdoctoral work at Harvard University and the University of Michigan. He has taught at the College of Wooster and Elmira College and is now a professor of psychology at Furman University. Author

of numerous book chapters and journal articles, he is coeditor of handbooks for teachers of introductory psychology and of statistics and research methods and is editor of the journal *Teaching of Psychology*. In the American Psychological Association (APA), he is a fellow of Divisions 1, 2, and 26 and is a charter fellow of the

American Psychological Society. He is a past president of APA's Divisions 1 and 2 and of the Southeastern Psychological Association. He received the American Psychological Foundation's Distinguished Teaching Award in 1989 and APA's Distinguished Career Contributions to Education and Training Award for 1995.



**R**ichard Brislin is the Senior Fellow and Director of Intercultural Programs at the East-West Center in Honolulu, Hawaii. He is the author of several books which have been used as texts in college courses, including *Cross-Cultural Research Methods* (1973), *Cross-Cultural Encounters: Face to Face Interaction* (1981), *Intercultural Interactions: A*

*Practical Guide* (1986), *Understanding Culture's Influence on Behavior* (1993), and *Intercultural Communication Training: An Introduction* (1994). He was a G. Stanley Hall Lecturer for the American Psychological Association and is coeditor of *Improving Intercultural Interactions: Modules for Cross-Cultural Training Programs* (1994).

Three new chapter-ending features in *Psychology*, Fifth Edition, are:

1. **Overview/Cognitive Tree Section.** This section briefly summarizes the main chapter topics and provides a visual cognitive tree of those topics.
2. **Critical Thinking About Behavior.** This section presents high-interest topics and encourages students to think critically about the topics. The critical thinking pieces were written by leading expert Jane Halonen of Alverno College.
3. **Resources and Readings in Psychology.** This innovative feature includes research-oriented books; popular, easy-to-read trade books of high quality; and telephone numbers and addresses of resources related to the chapter's contents.

## ACKNOWLEDGMENTS

I owe special debts to the expert consultants who provided detailed reviews of content.





**L**illian Comas-Díaz received her Ph.D. in Clinical Psychology from the University of Massachusetts. She is the Executive Director of the Transcultural *Mental Health Institute*, and maintains a private practice of clinical psychology in Washington, D.C.

Dr. Comas-Díaz is the former director of the APA's Office of Ethnic Minority Affairs, and the former direc-

tor of the Hispanic Clinic, at Yale University School of Medicine.

She has also published extensively on the topics of ethnocultural mental health, gender and ethnic factors in psychotherapy, treatment of torture victims, international psychology, and Latino mental health. Her book, *Ethnocultural Psychotherapy*, is in preparation and will be published by Basic Books.



**F**lorence L. Denmark is an internationally recognized scholar, administrator, leader, researcher, and policy maker. She received her Ph.D. in Social Psychology from the University of Pennsylvania and has since made many contributions in that area, particularly to the psychology of women. Denmark has authored more than 75 articles and 15 books, pre-

sented over 100 talks and invited addresses, and appeared on numerous radio and television shows. Denmark has been the Thomas Hunter Professor of Psychology at Hunter College of the City University of New York and at present is the Robert Scott Pace Distinguished Professor of Psychology at Pace University, where she is the chair of the Department of Psychology.



**J**ane Halonen earned her Ph.D. in Clinical Psychology from the University of Wisconsin-Milwaukee and is a professor in the Behavioral Science Division at Alverno College. Jane has served as a consultant to numerous psychology departments and has au-

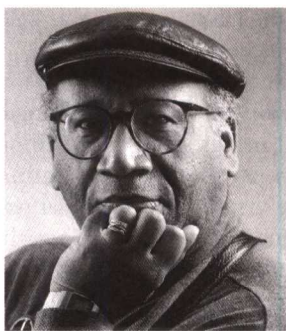
thored two texts for teachers, *Teaching Critical Thinking in Psychology* and *Teaching Social Interaction*. She is past President of the Council of Teachers of Undergraduate Psychology and is a fellow and program chair for Division 2 of the American Psychological Association.



**J**ohn H. Harvey is a professor of psychology at the University of Iowa. He obtained his Ph.D. in social psychology at the University of Missouri-Columbia, working with Judson Mills, was an NIMH Postdoctoral Fellow at UCLA, working with Harold Kelley, and assumed his first faculty position at Vanderbilt University.

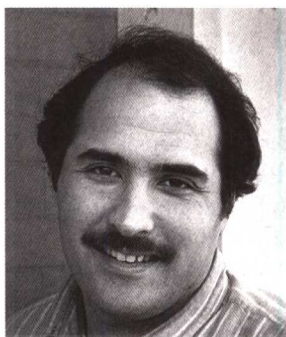
Harvey currently works on topics in the areas of attribution and

accounts in close relationships, and how people deal with personal and interpersonal loss. He is the editor of *Contemporary Psychology* and of a journal started in 1996 entitled the *Journal of Personal and Interpersonal Loss*. He is the author of 18 books including most recently *Odyssey of the Heart* (Freeman, 1995) and *Embracing Their Memory: Loss and the Social-Psychology of Story-Telling* (Allyn & Bacon, 1996).



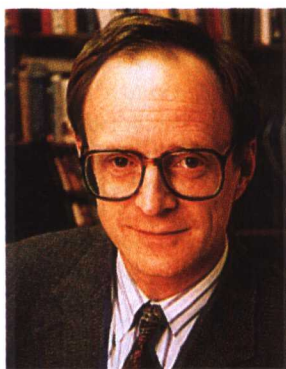
**J**ames M. Jones has written extensively in the area of race relations over the past twenty years. After earning a B.A. degree from Oberlin College in 1963, and an M.A. from Temple University in 1967, Dr. Jones undertook his doctoral training in experimental social psychology at Yale University, earning his Ph.D. in 1970. In 1972, Dr. Jones' book *Prejudice and*

*Racism* was published and continues to be one of the most comprehensive treatments of the relationships among prejudice, group conflict, and racism. Dr. Jones is currently professor of psychology at the University of Delaware and at APA, Director of the Minority Fellowship Program and Affirmative Action Officer.



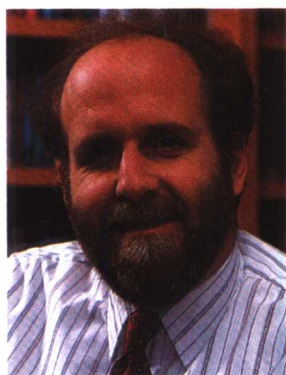
**S**eth Kalichman is an Assistant Professor in the Department of Psychology at Georgia State University. His research focuses on three main areas: factors related to AIDS risk behavior and using this information to develop better programs for AIDS prevention; sexually aggressive behavior, including rape, date rape, and child sexual abuse; and finally, how psychologists and other mental health professionals can help prevent child abuse.

Dr. Kalichman received his Ph.D. in Clinical-Community Psychology from the University of South Carolina and did his undergraduate work at the University of South Florida. Dr. Kalichman is the author of *Understanding AIDS: A Guide for Mental Health Professionals* and *Mandates Reporting of Suspected Child Abuse: Ethics, Law, and Policy*, both published by the American Psychological Association.



**J**ames W. Pennebaker is Professor and Chair of Psychology at Southern Methodist University. Since receiving his Ph.D. in 1977 from the University of Texas at Austin, he has been on the faculty at the University of Virginia, and, in 1989, was the Hilgard Visiting Professor at Stanford University. In 1993, he was awarded an honorary doctorate degree from the University of Louvain in Belgium.

Since joining the faculty of Southern Methodist University in 1983, Pennebaker and his students have explored the links between traumatic experiences and physical and mental health. He has published almost 100 scientific articles and 5 books. His most recent studies are focusing on the nature of language and emotion.



**D**aniel Schacter is a Professor of Psychology at Harvard University. He received a B.A. degree from the University of North Carolina in 1974 and a Ph.D. from the University of Toronto in 1981. He remained at Toronto for the next six years as director of the Unit for Memory Disorders and Assistant Professor of Psychology. In 1987, he moved to the University of Arizona as an Associate Professor, and was promoted to Pro-

fessor in 1989. He became Professor of Psychology at Harvard in 1991. Schacter received the Arthur Benton Award from the International Neuropsychological Society in 1989, the Distinguished Award for an Early Career Contribution to Psychology from the American Psychological Association in 1990, and the Troland Research Award from the National Academy of Sciences in 1991.





**C**harles T. Snowdon is John T. Emlen Professor of Psychology and Zoology at the University of Wisconsin–Madison. He and his students study primate behavior with special interest in vocal and chemical communication and the breeding behavior of endangered primates.

Professor Snowdon has served as editor of *Animal Behavior* and is cur-

rently editor of the *Journal of Comparative Psychology*. He has been President of the Animal Behavior Society and has served on grant review committees for animal behavior research for the National Science Foundation and the National Institute of Mental Health. He teaches courses in Animal Behavior and Animal Communication.

**H**elen Tager-Flusberg is a Professor of Psychology at the University of Massachusetts–Boston. She received her B.Sc. with first class honors

from the University of London in 1973 and her Ph.D. from Harvard University in 1978. Her writings include *Constraints on Language Acquisition* (1994) and

*Language and Communication in Autism* (1995), and she is coeditor of the book *Understanding Other Minds* from Oxford University Press.

In addition, I also benefitted enormously from the comments of the following reviewers who provided detailed recommendations about individual chapters for *Psychology*, Fifth Edition.

**Richard D. Barnes**, Randolph-Macon Woman's College

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Bill Balance, University of Windsor

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Lewis M. Barker, Baylor University

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James Bartlett, University of Texas at Dallas

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Richard Bauer, Middle Tennessee State University

Gordon Bear, Ramapo College of New Jersey

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With 40 chapters that can be fully customized, the editorial and production group at Brown & Benchmark Publishers did an amazing job on this project. Special thanks go to Steven Yetter and Linda Falkenstein of the

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Finally, I want to thank my wife, Mary Jo, for her continued support, affection, and wisdom.



# TO THE STUDENT

## How the Learning System Works

This book contains a number of learning devices, each of which presents the field of psychology in a meaningful way. The learning devices in *Psychology* will help you learn the material more effectively.

### Chapter Outlines

Each chapter begins with an outline, showing the organization of topics by heading levels. The outline functions as an overview to the arrangement and structure of the chapter.

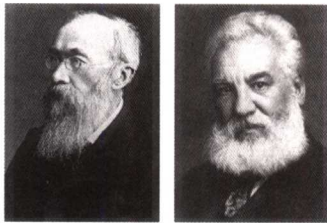


FIGURE 1

The Beginning of Psychology as a Science  
(a) Wilhelm Wundt established the first research laboratory in psychology at Germany's University of Leipzig in 1879. (b) To help you place Wundt's achievement in history, consider that Alexander Graham Bell invented the telephone in 1876.

their world. Wundt's and Titchener's attempts to classify the structures of the mind were not unlike a chemist's breaking down chemicals into their component parts—water into hydrogen and oxygen, for example. This approach became quite logically known as **structuralism**, the early theory of psychology developed by Wundt and Titchener that emphasized the importance of conscious thought and classification of the mind's structures.

#### James and Functionalism

The first of the new psychologists in the United States was not Titchener, but William James. James (1890/1950) did not believe that the elementary, rigid structures for which Titchener searched existed. James argued that our minds are characterized by a continuous flow of information about our experiences rather than by discrete components. Following in the steps of Darwin, James emphasized the mind's ability to continuously evolve as it adapts to information about the environment. This approach became known as **functionalism**. William James' theory that psychology's role is to study the functions of the mind and behavior in adapting to the environment.

Many of the early psychologists, such as Wundt, Titchener, and James, used introspection to discover information about conscious experiences. **Introspection** is a technique whereby specially trained people carefully observe and analyze their own mental experiences. It is a process of turning inward in search of mind's nature.

Wundt was the master of introspection training. Before his students were permitted to describe their images and perceptions, they had to participate in a minimum of 10,000 practice observations. Philosophers had used introspection for several thousand years, but they had never varied conditions so systematically. The technique of introspection, however, came under heavy fire. The introspectionists thought they were studying immediate experience, but, in reality, it takes time to introspect. Introspection was actually retrospection; thus, the act of introspection changed the observer's experience, thereby modifying or contaminating the observation.

But psychology's initial emphasis on conscious experience, because it lacked objectivity and investigated mental processes that were too vague, went the way of the dinosaur. Other approaches to mental processes and behavior soon emerged (Holtzworth, 1996).

#### EARLY AND CONTEMPORARY APPROACHES TO PSYCHOLOGY

Whether psychologists study behavior and the external factors that influence behavior, or mental processes and the internal factors that influence behavior, depends on their approach. There are six important approaches to psychology: behavioral, psychoanalytic, humanistic, cognitive, neurobiological, and sociocultural. We will briefly study each of these approaches in turn, but we will return to them in much greater detail in later chapters. Because the abstract principles of psychological approaches can be difficult to remember—almost like swimming upstream against an onrushing current—we'll apply each approach to something each of us has done in our lives, dating.

#### The Behavioral Approach

The year is 1898. You are ushered into a room, where you see a dog hooked up to a harness. The dog is salivating profusely, and you wonder what is going on. A gentleman in a white laboratory coat walks over and quietly informs you that an experiment on learning is taking place. He explains that it is a very simple form of learning, in this case documented by the dog's salivation in anticipation of being fed. The man is Ivan Pavlov, who shows you that if he puts the dog's tray down or allows the dog to catch a glimpse of the attendant who fed him the previous day, the dog will begin to salivate.

What Is Psychology?

CHAPTER WIP	
What Is Psychology?	
CHAPTER OUTLINE	CHAPTER BOXES
IMAGES OF PSYCHOLOGY Portrait of a Psychologist WIP—3	EXPLORATIONS IN PSYCHOLOGY Anxiety and Psychology's Skepticism WIP—14
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The three to know and understand . . . these are the goods in life's rich hand.  
—Sir William Watson

### Page Numbering

In one sense, *Psychology*, Fifth Edition, is really a 40-chapter book! We have created a “menu” of 40 chapters to choose from, designed to be used in any order. The book you are holding in your hands has been designed by your instructor to match exactly the topics you will cover in your class.

Because the chapters in *Psychology* can be used in any order, there is no standard, consecutive pagination. Instead of page numbering that goes from page 1 to page 700, from the beginning to the end of the book, each chapter is numbered separately. Each chapter is referred to by an abbreviation and is numbered starting with page 1. For instance, S&P is the abbreviation for the chapter “Sensation and Perception,” and ABN stands for “Abnormal Psychology.” Therefore, a reading assignment on your syllabus might ask you to read from pages ABN—20 to ABN—55. Or if you looked up a topic such as “depth perception” in the index, it might list the page number as S&P—20. So although there is no consecutive pagination, it is possible to locate content through the index. Look at your Contents to determine which chapters you do have and the order in which they appear.

Your index will also list page references to chapters that your instructor has not ordered and are not included in your custom version of *Psychology*. While you may find this somewhat confusing at first, we believe that the benefits of using a completely customizable textbook far outweigh the slight difficulty of extra page referencing in the index.

*My friend . . . cure for  
your psyche, and . . . make it as  
good as possible. . . . Know thyself, for  
only we know ourselves, we may learn  
how to care for ourselves,  
but otherwise we never shall.*

—Socrates

## IMAGES OF PSYCHOLOGY

### Portrait of a Psychologist

**I** imagine you are seated at dinner next to someone you have never met and learn that she is a psychologist. What comes to mind when you find out that she is a psychologist? To many people, it would mean that she likely has a special insight into human nature and treats people who have problems. But might that expectation be wrong?

You will learn in this book that the word *psychologist* refers to a broad spectrum of occupations, some of which have nothing to do with insight into human nature. Also, many psychologists are research scientists, not healers. No single image encompasses the varied activities of psychologists.

For example, consider the following descriptions of some contemporary psychologists at work:

- A research psychologist trained in cognitive psychology painstakingly constructs the thousands of steps of a computer program that, presented with hundreds of sentences, will learn language as an infant does.
- Another research psychologist trained in physiological psychology and neuroscience injects epinephrine into a rat that has learned a maze, to determine how the hormone affects its memory.
- A clinical psychologist probes a depressed client's thoughts for clues about the cause of the depression and thinks about ways to help the client cope more effectively.

- An educational psychologist gives children a number of psychological tests and recommends the most effective learning environment for each child.
- A psychologist interested in gender and women's issues teaches at a small college and works with her college and the community to eliminate sexual harassment.
- An organizational psychologist has a consulting firm that advises corporations on ways to improve communication and work productivity.

These are but a few of the many different portraits of psychologists. As you read this book, you will discover that psychology is a diverse field and psychologists have heterogeneous interests.

## PREVIEW

What is psychology? To provide you with a reasonable answer to this complex question, in this chapter we will take a general look at the field of psychology and psychologists. We will define psychology, explore the beginnings of psychology as a science, examine early and contemporary approaches to psychology, compare psychology with pseudopsychology, and describe psychology's careers and areas of specialization.

### DEFINING PSYCHOLOGY

To some extent, psychology's findings may strike you as being simple common sense, but studies often turn up the unexpected in human behavior. For example, it may seem obvious that couples who live together before marriage have a better chance of making the marriage last. After all,

practice makes perfect, doesn't it? But researchers have found a higher success rate for couples who marry before living together (Teachman & Polonko, 1990). It might also seem obvious that we would experience more stress and be less happy if we have to function in many different roles than if we only functioned in a single role. However, women who engage in multiple roles (such as wife, mother,

*What Is Psychology?*

## CONCEPT TABLE 3

### The Auditory, Skin, Chemical, Kinesthetic, and Vestibular Senses

Concept	Processes/Related Ideas	Characteristics/Description
The Auditory System	The nature of sound and how we experience it	Sounds or sound waves are vibrations in the air that are processed by the auditory or hearing system. Sound waves vary in wavelength, which determines the frequency of the sound wave or the number of cycles per full wavelength that pass through a point in a given time. Pitch is the perceptual interpretation of the frequency of sound. Amplitude is measured in decibels (dB), the amount of pressure produced by a sound wave relative to a standard. Loudness is the perception of a sound wave's amplitude. Complex sounds are those in which numerous frequencies of sound blend together. We experience the particular combination of frequencies in a sound as the quality or timbre of a sound.
	Structures and functions of the ear	The ear serves the function of transmitting a high-fidelity version of sounds in the world to the brain for analysis and interpretation. The ear is divided into the outer ear, middle ear, and inner ear. The outer ear consists of the pinna and the external auditory canal. The middle ear consists of the eardrum, hammer, anvil, and stirrup. The main parts of the inner ear are the oval window, cochlea, and the organ of Corti. The cochlea membrane, located inside the cochlea, is where vibrations are changed into nerve impulses.
	Theories of hearing	Place theory states that each frequency produces vibrations at a particular spot on the basilar membrane. Frequency theory states that the perception of a sound's frequency is due to how often the auditory nerve fires. Volley theory is a modification of place theory, stating that high frequencies can be signaled by bursts of neurons that fire at different offset times to create an overall firing rate that could signal a very high frequency. Frequency theory is better at explaining lower-frequency sounds, while place theory explains higher-frequency sounds.
	Neural-auditory processing	Information about sound is carried from the cochlea to the brain by the auditory nerve. Information is integrated in the temporal lobe.
The Skin Senses	Touch	In touch, we detect mechanical energy, or pressure against the skin.
	Temperature	Thermoreceptors, which are receptors located under the skin, respond to increases and decreases in temperature.
The Chemical Senses	Pain	Pain is the sensation that warns us that damage to our bodies is occurring. Gate-control theory states that the spinal column contains a neural gate that can be opened following the perception of pain or closed following the perception of pain. Gate-control theory has been proposed as one explanation of acupuncture, a technique in which the needles are inserted at specific points in the body to produce various effects, including local anesthesia. Gate-control theory does not completely explain how we experience pain.
	Taste	We use our sense of taste to select food and to regulate food intake. Papillae are rounded bumps above the surface of the tongue that contain taste buds, the receptors for taste. The taste qualities we can respond to are classified as sweet, sour, bitter, and salty.
The Kinesthetic and Vestibular Senses	Smell	The functions of smell include deciding what to eat, tracking, and communication. The olfactory epithelium, located at the top of the nasal cavity, contains a sheet of receptor cells for smell.
	Their nature	The kinesthetic senses provide information about movement, posture, and orientation, while the vestibular sense provides information about balance and movement. The semicircular canals, located in the inner ear, contain the sensory receptors that detect head motion that is caused when we tilt or move our heads and/or bodies.

## Images of Psychology

This easy-to-read, high-interest piece introduces you to some aspect of the chapter's contents.

## Preview

This section tells you what the chapter's contents are.

34 S&P

## EXPLORATIONS IN PSYCHOLOGY 2

### The Perceptual Worlds of Art

Look at figure A. If you stood very close to this painting and looked at one area, you would see only dabs of colored pigments on a canvas. If you stood back and considered the whole painting, however, you would see the brilliantly colored landscape with a tree, a village, a church, and a turbulent sky. The painting is nineteenth-century Dutch artist Vincent van Gogh's masterpiece *The Starry Night*. This is not likely the scene most of us would paint if we were trying to recreate the real world. Stars do not race about in frenzied whirlpools. What caused van Gogh to paint *The Starry Night* the way he did? For one thing, he was a tormented, intense, mystical man. Some of the torment, and a kind of ecstasy, are built into the painting. Another artist, not experiencing van Gogh's mental anguish, would likely have painted the same starry night very differently.

Was van Gogh painting what he actually saw? We don't know the answer to that question, but we do know that, at some points in history, artists have strived to mirror the world just as it appears to their eyes; at others they have deliberately distorted reality. The Renaissance masters tried to paint the world as accurately as possible, as if their canvas were a photograph (see figure B). They relied on many of the cues for depth perception to portray three-dimensional reality on a flat surface.

Whereas the Renaissance artists tried to paint the world as their eyes saw it, other schools of art strove for something different. For example, the nineteenth-century French Impressionists focused on the impression a scene makes on the observer instead of trying to paint the scene as accurately as possible. They strove to capture the viewer's perception of nature's fleeting sensations of light. Their technique involved the creation of a patchwork of varying dabs of brightly colored paint



**FIGURE 26**  
An Artist's Use of the Monocular Cue of Linear Perspective  
Famous landscape artist J. M. W. Turner used linear perspective to give the perception of depth to his painting *Rain, Steam, and Speed*.

John W. Santrock

## Explorations in Psychology

You'll find one or more of these boxed features in every chapter, giving you an in-depth look at issues of interest to psychologists today.

## Concept Tables

Two or three times in each chapter, you can review what has been discussed so far in that chapter by scanning the information in concept tables. This learning device helps you get a handle on material several times a chapter so you don't wait until the end of the chapter and have too much information to digest.



## CRITICAL THINKING ABOUT BEHAVIOR

### Personal Versus Psychological Evidence

What is needed is not the will to believe, but the wish to find out.  
Bertrand Russell

You have read about the history and scope of psychology and the current methods psychologists use in observing, describing, explaining, and predicting behavior. Just how different are psychology's ways of thinking from the processes you go through when you are making judgments about behavior? There are some critical differences.

- 1. Precise descriptions of behaviors.** Psychologists are exacting in how they define and describe behaviors, being especially careful to distinguish descriptions of behavior from their inferences or interpretations that can be made about behavior. We are constantly confronted with behaviors that we must examine and interpret, prompting us to come to conclusions, infer meanings, or make predictions about behavior; however, psychologists are inclined to be precise in their observations and cautious about their inferences. When confronted with a challenging behavior, critical thinkers trained in psychology are likely to ask, "What exactly do you mean by . . . ?"
- 2. Reliance on systematic observation.** Nonscientific explanations of behavior correspond reasonably well to the first stage of the scientific method: identifying and analyzing a problem. It is in the second stage of the scientific method that scientific and nonscientific ways of interpreting behavior diverge. Scientists collect data systematically, interpret the data, and revise their conclusions or beliefs, based on these interpretations. This procedure reflects a strong preference for conclusions that are based on objective data derived from carefully planned behavioral research rather than subjective conclusions that might not be carefully considered or are more likely to reflect unknown biases of the observer. When confronted with a conclusion about behavior, the critical thinker trained in psychology is likely to ask, "What's your evidence for this conclusion?"
- 3. Pursuit of alternative explanations.** Many questions that we ponder about behavior might not lend themselves easily to objective research. In the absence of systematic observation and scientific interpretation, psychologists are likely to question whether there could be other explanations for the behavior being examined. They actively speculate about other variables that could influence the behavior, demonstrating a thinking characteristic

that could be described as being variable-minded. Psychologists are likely to ask, "Are there other plausible ways to explain the behavior?"

- You might already have formed some conclusions about the following examples of behaviors. What happens to your conclusions when you adopt psychological ways of examining behavior, when you ask for clarity, inquire about evidence, and look for alternative explanations?
- Magicians are well known for making objects disappear. Do they really make objects vanish, or can you think of an alternative explanation for this compelling illusion?
  - Seeing a loved one ushering you through a tunnel toward a bright white light is an example of an experience commonly reported by people having a near-death experience. Is this a confirmation of an afterlife, or could this phenomenon be explained in another way?
  - In psychotherapy, some individuals are startled by their recovery of memories that suggest they have been physically or emotionally abused in childhood. How could it be that something so horrifying isn't remembered until some point quite distant from the event? How many variables or influences might be involved in understanding this phenomenon?
  - Some people are convinced that they have extrasensory powers. They claim to know in advance or from a distance when bad things happen to their relatives, to be able to predict songs that are about to come on the radio, and so on. Is this phenomenon real? What evidence is there for extrasensory abilities? Are there other explanations that account for the behavior?
  - Two twins, separated at birth and raised apart, are reunited to discover that they have an uncanny number of similarities. Their reunion prompts strong speculation regarding the power of genetic influence in shaping behavior. Is this research definitive "proof" of the power of inheritance, or are there other plausible ways to explain the remarkable number of similarities?
  - Many individuals believe that the growing problem of violence in our culture is a direct influence of violence portrayed in movies and television. What evidence supports this position? Is violence really growing? What other factors might contribute to this important problem?

You may have thought about some research strategies that could help you to evaluate the quality of conclusions about behavior. You will find out how these questions and others will be evaluated in the chapters that follow.

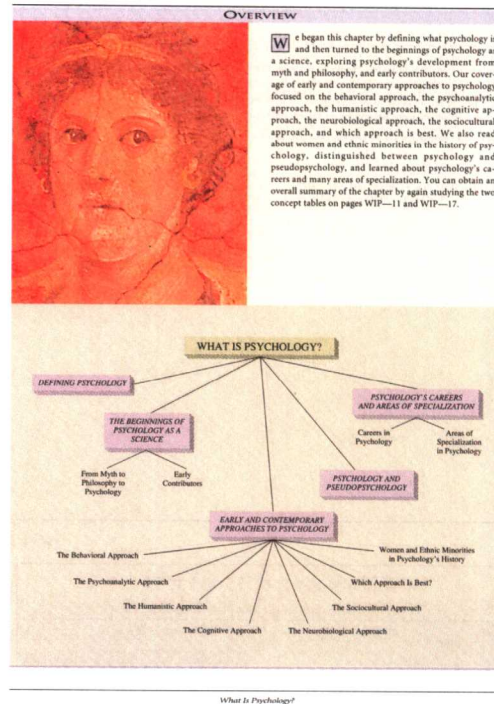
## Critical Thinking About Behavior

This section appears at the end of each standard chapter and involves an elaborate exploration of critical thinking about psychology and behavior.

## Overview

The overview section consists of two parts. (1) a cognitive map that provides you with a visual organization of the chapter's main topics and (2) a brief summary of the chapter's main contents.

WIP-19



## KEY TERMS

**emotion** Feeling, or affect, that involves a mixture of arousal (a fast heartbeat, for example), conscious experience (such as thinking about being in love with someone), and overt behavior (such as smiling or grimacing). p. EMO-4

**positive affectivity (PA)** The range of positive emotion, from high energy, enthusiasm, and excitement, to calm, quiet, and withdrawn. Joy and happiness involve positive affectivity. p. EMO-6

**negative affectivity (NA)** Emotions that are negatively toned, such as anxiety, anger, guilt, and sadness. p. EMO-6

**Yerkes-Dodson law** The law that performance is best under conditions of moderate rather than low or high arousal. p. EMO-6

**flow** Optimal experiences in life that are most likely to occur when people develop a sense of mastery. Flow

involves a state of concentration in which an individual becomes absorbed while engaging in an activity. p. EMO-7

**James-Lange theory** The theory that emotion results from physiological states triggered by stimuli in the environment. p. EMO-10

**Cannon-Bard theory** The theory that emotion and physiological states occur simultaneously. p. EMO-10

**autonomic nervous system** The system that takes messages to and from the body's internal organs, monitoring such processes as breathing, heart rate, and digestion. p. EMO-11

**sympathetic nervous system** The part of the autonomic nervous system that is involved in the arousal of the body, being responsible for quick reactions to a stressor—sometimes referred to as the fight-or-flight response. p. EMO-12

**parasympathetic nervous system** The part of the autonomic nervous system that calms the body and promotes relaxation and healing. p. EMO-12

**polygraph** A machine that is used to try to determine if someone is lying by monitoring changes in the body—heart rate, breathing, and electrodermal response (an index that detects skin resistance to passage of a weak electric current)—thought to be influenced by emotional states. p. EMO-14

**Maximally Discriminative Facial Movement Coding System (MAX)** Izard's system of coding infants' facial expressions that are related to emotion. p. EMO-18

**display rules** Sociocultural standards that determine when, where, and how emotions should be expressed. p. EMO-22

## RESOURCES AND READINGS IN PSYCHOLOGY

**Anger: The Misunderstood Emotion (1989)**

by Carol Tavris  
New York: Touchstone Books

*Anger: The Misunderstood Emotion* covers a wide terrain of anger. Indeed, it is hard to think of any facet of anger—from wrecked friendships to wars—that Tavris does not tackle. In addition to extensive coverage of anger between marital partners, she addresses highway anger, violence in sports, and young women's anger. Tavris debunks myths about anger, attacks the catharsis, ventilation approach to anger, describes the toll of anger on the body, and tells readers how to rethink anger and make more adaptive choices.

**The Dance of Anger (1985)**

by Harriet Lerner  
New York: HarperPerennial

*The Dance of Anger* is written mainly for women about the anger in their lives, both their own anger and the anger of people they live with, especially men. Lerner believes that women have more difficulty coping with anger than men do. Rooted in both family systems and psychoanalytic theory, *The Dance of Anger* discusses styles of managing anger that don't work for women in the long run—silent submission, ineffective fighting and blaming, and emotional distancing. She also paints the cultural context of an American society that has created these ineffective styles in women, and she motivates women to develop the courage to change these old, protective ways.

**Emotions and Culture (1994)**

edited by Shinobu Kitayama and Hazel Markus  
Washington, DC: American Psychological Association

This volume contains chapters by leading authorities in the field of emotion who believe that emotions are influenced and shaped by social and cultural experiences. Major sections of the book focus on emotion as a social product; emotion, language, and cognition; and emotion as moral category and phenomenon.

**Flow (1990)**

by Mihaly Csikszentmihalyi  
New York: Harper & Row

*Flow* is about the optimal experiencing of life. Csikszentmihalyi (pronounced "chik-sent-me-high-yee") has been investigating the concept of flow for more than two decades. Earlier in this chapter we discussed the author's view of what flow is, namely, a deep happiness people feel when they have a sense of mastering something. Flow is a state of concentration in which a person becomes absorbed while engaging in an activity. We can develop flow by setting challenges for ourselves, by stretching ourselves to the limits to achieve something worthwhile, by developing competent coping skills, and by combining life's many experiences into a meaningful pattern.

**Telling Lies: Clues to Deceit in the Marketplace, Politics, and Marriage (1985)**

by Paul Ekman  
New York: W. W. Norton

Ekman explains how to read facial expressions and gestures to determine whether people are lying.

## Key Terms

Listed at the end of each chapter are key terms that are defined throughout the chapter. They are listed with page references and are defined again in a glossary at the end of the book.

## Resources and Readings in Psychology

This section lists books, brochures, agencies, phone numbers, research journals, and psychological organizations. The extensive description of resources is designed to provide you with more information about psychology's many domains and practical information for improving people's lives.

# YOUR STUDY SKILLS

**Y**ou have taken courses in history, math, English, and science, but have you taken a course in study skills? Have you ever seriously sat down and mapped out a time management program for yourself? Have you ever studied how to improve your memory, then tried the techniques to see if they work? Have you ever had an organized plan to “attack” a textbook? Before you begin reading the specific content of this book, take time to read this section on how to improve your study skills. You will be motivated to think about ways to manage your time, to improve your concentration, to memorize more effectively, and to function more efficiently in the classroom. You will learn skills to understand this and other books more clearly, and you will discover how to prepare for and take exams.

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## MANAGING YOUR TIME

A student named Tom came to the author’s office about 2 weeks before the final exam in an introductory psychology course. He had a *D* average in the course and wanted to know what was causing him to get such a low grade. It turned out that he wasn’t doing well in any of his classes, so we talked about his background. Eventually the conversation turned to his study techniques and what he could do to get better grades on his final exams. I asked Tom to put together a study schedule for the four final exams he was getting ready to take in 2 weeks. He planned to study a total of 4 hours for his psychology exam; only 1 of those hours was scheduled for the night before the exam, and no study time was allotted to the morning before the exam (the exam was in the late afternoon).

I told Tom that, although the psychology exam probably was not the most difficult one he would ever take in college, I thought the material would require more than 4 hours of study time if he wanted to improve his grade for the course. As we talked further, it became evident that Tom was a terrible manager of time. True, he

had a part-time job in addition to the 12 credit hours he was taking, but, as we mapped out how he used his time during the day, Tom quickly became aware that he was wasting big chunks of it.

A week is made up of 168 hours. A typical college student sleeps 50 hours, attends class 19 hours, eats 11 hours, and studies 20 hours per week. For Tom, we allotted 15 hours a week for his part-time job and 6 hours a week for transportation to and from school, work, and home. Subtracting the 20 hours of study time, Tom found that his main activities accounted for 101 of the week’s 168 hours, suggesting that, even though he works, he still has 67 hours in which to find time for studying.

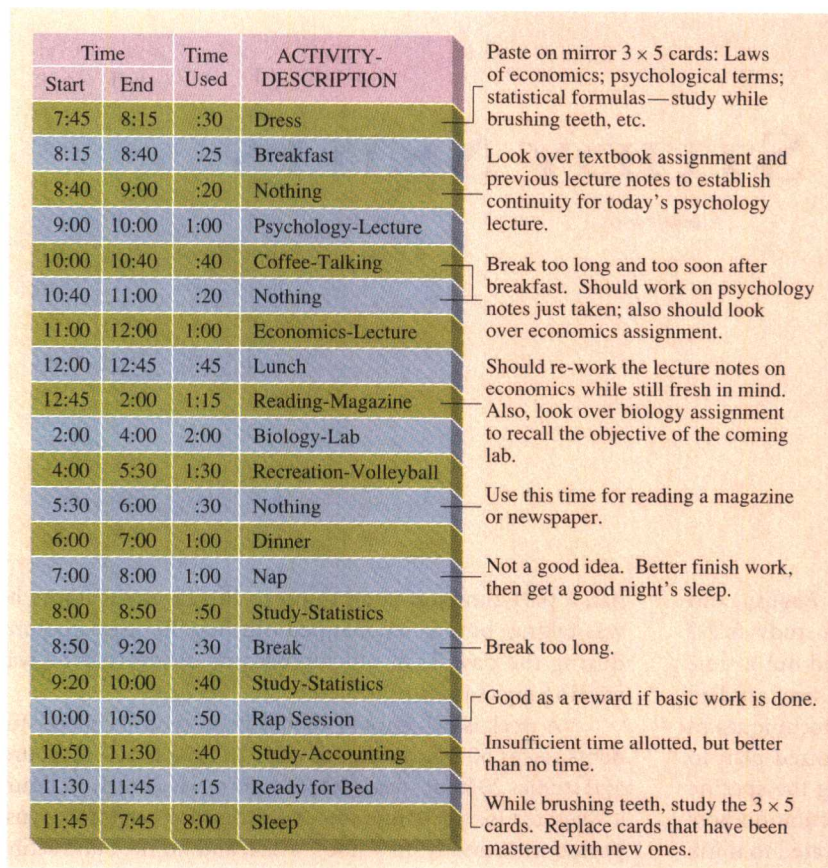
You may find it helpful to fill out a weekly schedule of your activities to see where your time goes. Figure 1 provides an example of one student’s daily time schedule, along with comments about how and where time could have been used more effectively. Some students are afraid that a schedule will make them too rigid; however, successful students usually follow organized schedules and manage their time efficiently. If you waste less time, you actually will have much more free time for personal activities, and, in managing your time effectively, you will feel a sense of control over your life. Try taking 5 minutes every morning to chart your plan for the day. Before you go to bed at night, review your day to see how well you met your schedule. After you have done this for several weeks, it should become routine.

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## STUDY SKILLS

Given that you manage your time efficiently, how can you effectively use the study time you have? First, you need to concentrate on *really* studying in the time set aside for that purpose. Second, you can use a number of memory techniques to help you recall information. Third, you can discover strategies for learning more effectively from textbooks, such as this one. Fourth, you can reduce your





**FIGURE 1**

**Record of One Day's Activities and Suggestions for Better Time Management**

study time by functioning more effectively during class. Fifth, you can learn some important tips in preparing for and taking exams. Let's consider each of these.

## Concentration

There are many distractions that keep you from studying or remembering what you have studied. Select your place of study carefully. Most individuals need a desk—a place where pens, paper, and a book can be placed. Use your desk *only* for studying. If you nap or daydream while you are at your desk, the desk can act as a cue for napping or daydreaming. Use your desk as a cur for studying. When you want to nap or daydream, go somewhere else. Be sure the area where you study is well lighted and does not have glare. Do your utmost to find a place that is quiet when you study. If the library is the right place for you, the go there, especially if there are people in the dorm or at home who distract you. Noise is one of the main distractions to effective studying. For the most part, it is a good idea to turn off the stereo, radio, or television while you are studying.

So far we have talked about the physical aspects of the environment that may help or hinder your ability to concentrate on what you are studying. Psychological and

personal situations may also interfere with your ability to concentrate. Daydreaming is one way to avoid hard work. Even though daydreaming may seem pleasant at the time we are doing it, we pay the consequences later, possibly with a poor grade on a test or in a course. Everyone has personal relationships that may intrude on study time. Force yourself to put personal relationships and problems out of your mind during the time you have set aside for studying. Tell yourself you will deal with them after you have finished studying.

If the problems seem overwhelming and you cannot avoid thinking about them, you may want to contact the student counseling service at your college or university. Most college and university counseling centers not only have counselors who help students with personal problems, but they often have study skills counselors who help students with such matters as time management and concentration.

## Memory Techniques

At a certain point in this course and in the other courses you are taking this semester, you will have to remember what you have heard in class and read in books. How can you remember more effectively?

First, make up your mind to remember. If you really want to improve your memory, you can, but you have to motivate yourself to improve it. Second, keep refreshing your memory. Almost everything tends to fade unless you periodically think about what it is you need to remember. Periodically rehearsing what you have heard in class or read in this book will help you store the information and retrieve it when you have a test. Third, organize, outline, or otherwise structure what you want to remember. Pick out the main points in the material you are studying and arrange them in a meaningful pattern or outline. Then recite and repeat them until you can recall them when needed. Select, organize, and repeat—these are time-tested steps for helping you remember.

A number of memory tricks can also be helpful. One memory trick is to relate what you have read to your own life. You will be encouraged to do so throughout this book. You can also use a number of organized systems to improve your memory. One such system involves using the first letter of each word in an ordered series to form a new name or sentence. For example, the colors in the light spectrum are *red, orange, yellow, green, blue, indigo, and violet*. You can learn this order quickly by thinking of the name Roy G. Biv.

## Learning from This and Other Textbooks

This textbook has a number of built-in devices to improve your learning. You can read about many of these in the Preface. One extraordinary technique that can make your reading more efficient is called the SQ3R method, and it was developed by Dr. Frances P. Robinson more than 40 years ago. *S* stands for Survey, *Q* for Question, and *3R* signifies Read, Recite, and Review.

To *survey*, glance over the headings in each chapter to find the main points that will be developed. The outline at the beginning of each chapter will help in this regard. This orientation will help you organize the ideas as you read them later.

To *question*, you may want to begin by turning each heading into a question. This will arouse your curiosity and should increase your comprehension. The question may help make important points stand out. Ask yourself questions as you read through the chapter. As you find information that answers your questions, underline or mark the material with a felt pen.

To accomplish the third step in the SQ3R method, you begin *reading* the book as you normally would. In the SQ3R method, though, your reading should be more efficient because you have already built a foundation for understanding the material by surveying and questioning.

The fourth step in the SQ3R method involves *reciting* information periodically as you go through a chapter. To help you use this strategy, reviews appear several times per chapter; they encourage you to recite what you have read in particular parts of the chapter. In many chapters, you will want to do this more than two or three times. Every several pages, you should stop, think about what you have just read, and briefly recite the main points.

After you have used the techniques suggested so far, you need to *review* the material you have read several times before you take a test. Do not think that just because you have read a chapter you will be able to recall all of its information. By reciting the information over and over and continuing to review the material, you will improve your test performance. At the end of each chapter in this book, you will find a summary outline that will help you in the review process.

## The Classroom Lecture

What goes on in your classroom is just as important as what is in this textbook. You would not skip a chapter in this book if you knew it was assigned for a test, so it is not a good idea to skip a class just to reach the allowable number of cuts or to cram for an exam. Some students feel that, because they go to class and listen passively to the lecture, they do not need to devote further time to it; however, by preparing for a lecture, using your learning skills during the lecture, and doing some follow-up work, you should be able to improve your performance on tests.

In preparing for a lecture, motivate yourself by telling yourself that it is important for you to stay alert, listen carefully to what is said, and take organized notes throughout the class period. During the lecture, record your notes in simple paragraph form. Strive to capture general ideas rather than minute details. Skip lines to show the end of one idea and the beginning of another. Use abbreviations to save time to listen more. Write legibly so that, when you review, you will know what you have written. It also is a wise idea to consolidate your notes during your first free time after the class. At that time, you may want to underline key ideas with a felt-tip pen, just as you would in the book, and, just before the next class period, go over the notes to further improve your ability to recall the information and to prepare yourself for what will be said.

## How to Prepare for and Take Exams

In most cases, your grade in this course will depend on how well you do in 4 to 5 hours of exams spaced periodically throughout the semester or quarter. It is important to devote some time to thinking about how to prepare for and take exams.

All of your textbook reading should be completed several days before an exam. All of your classroom notes should be in order so you can review them easily. All term papers should be written and handed in. In the last few days before an exam, your mind should be free to concentrate on organizing and consolidating the information.

How can you arrive at this ideal state of affairs several days before an exam? Go back to the first day of class. If you have been following a routine of managing your time effectively, taking notes during every lecture, keeping up with textbook assignments, following the SQ3R method, and continuing to recite and review the material you have read and heard, you should be ready to summarize and consolidate what you have learned to prepare for the exam. You may want to develop a summary system, which would follow closely what you did for each chapter or lecture. Several days before the exam, you probably will have to review several chapters and a number of lectures. Try putting them together in an overall system the last day or so before the exam.

Should you cram for an exam? If you have not studied much until several days before the exam, you will probably have to do some cramming. However, be aware that cramming can never replace methodical, consistent study throughout the course.

To ensure success on any exam, you need to be physically and psychologically ready in addition to having the facts, ideas, and principles in your mind. First, you need to have enough rest; second, you need to feel confident. If you keep creating mountains of work for yourself, especially by not studying until the last minute, you will rob yourself of sleep, food, and exercise, probably leaving both your mind and your body in no shape to perform well on

an exam. By following the advice given earlier about time management, concentration, memory techniques, the SQ3R method, the classroom lecture, and how to prepare for exams, you will feel confident going into the exam. You are less likely to panic and will have a positive attitude about taking the test.

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## **FURTHER READING ABOUT STUDY SKILLS**

We have briefly focused on some important ideas that will help you perform better in the courses you are taking. Several books go into much greater detail. If you want to read more about improving your study skills, check your library for the following books:

Shaw, H. (1976). *30 ways to improve your grades*. New York: McGraw-Hill. This is a fun book with interesting

chapters, such as “Taking Care of Your Body and Your Brain,” “Learn to Listen While Listening to Learn,” and “Put into Your Own Words What You Read and Hear.” Twenty-seven other chapters provide valuable information about note taking, time management, thinking clearly, and many other aspects of study skills.

Walter, T., & Siebert, A. (1987). *Student success: How to succeed in college and still have time for your friends*. New York: Holt, Rinehart, & Winston. This book covers the academic, social, and emotional aspects of meeting college’s challenges; an extensive number of tips are provided that will help you study more effectively and still find enough time to enjoy yourself.