

Essentials of Psychology

Exploration and Application

SIXTH EDITION

Dennis Coon



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(continued following index)

■ To the Student

Psychology is a large and rapidly growing field. It is at once familiar, exotic, commonplace, surprising, and challenging. Most of all, psychology is changing. Indeed, this book can be no more than a “snapshot” of a colorful passing scene. And yet, it is rapid change that makes psychology especially fascinating: What, really, could be more intriguing than our evolving understanding of human behavior?

Psychology is about each of us. Psychology asks, “How can we step outside of ourselves for a more objective look at how we live, think, and act?” Psychologists believe the answer is through careful thought, observation, and inquiry. As simple as this may seem, it is the guiding light for everything that follows in this book.

I sincerely hope that you will find psychology as fascinating as I do. In this text, I have done all that I could imagine to make your first encounter with psychology enjoyable and worthwhile. To help you get off to a good start, the Introduction preceding Chapter 1 discusses how to study effectively. The ideas covered there will help you get the most out of this text, class lectures, and your psychology course as a whole. In the remaining chapters, I hope that the delight I have found in my own students’ curiosity, insights, imagination, and interests will be apparent. Please view this book as a long letter from me to you. It is, in a very real sense, written about you, for you, and to you.

■ To the Instructor

This book differs from traditional texts in a number of important ways. If you are already familiar with its format, a description of Sixth Edition changes follows shortly. If the text is unfamiliar, a brief account of its design and underlying philosophy is in order.

A Book for Students As an instructor I have learned that selecting a textbook is half the battle in teaching a course. A good text does much of the work of imparting information to students. This frees class time for discussion and it leaves students asking for more. When a book overwhelms students or cools their interest, teaching and learning become an uphill battle. For this reason, I have worked hard to make this a clear, readable, and interesting text.

I believe an important question to ask of the introductory course is “What will students remember next year, or in 10 years?” Consequently, I have tried to give students a clear grasp of major concepts, rather than bury them in details. At the

same time, I have tried to provide a broad overview that does justice to psychology's diversity. I think students will find this book full of intellectual challenge, and teachers will find traditional topics covered to their satisfaction. In addition, I have made a special effort to relate psychology to common experiences and to practical problems of daily life.

A major feature of this book is the *Applications* section in each chapter. These sections explicitly bridge the gap between psychological theory and practical application. I believe students have every right to ask, "Does this mean anything to me? Can I use it? Why should I learn it if I can't?" No matter how interesting a text may be, if it fails to show the practical value of adopting new ideas, it is irrelevant in a very basic sense. Applications sections spell out how students can use the principles of psychology. By doing so, they breathe life into its concepts.

■ A Format for Learning

Before this book first appeared, psychology texts made surprisingly little use of learning principles to teach psychology. The extensive use of learning aids herein is based on my belief that students can be guided into more effective study and reading habits while they learn course content. Each chapter is built around the well-known SQ3R study-reading formula. Thus, in addition to helping students learn psychology, the chapter format encourages the development of valuable study skills. Student response to this feature of the text has been very positive, with many students reporting that they transfer the SQ3R technique to other texts as well.

Notice how the time-tested steps of the SQ3R method—*survey, question, read, recite, and review*—underlie the design of each chapter.

Survey A short *Chapter Preview* arouses reader interest, gives an overview of the chapter, and focuses attention on the task at hand. An outline, titled *In This Chapter*, accompanies the Preview and lists upcoming topics. After that, *Survey Questions* spotlight major issues so that students will read with a purpose. Beginning with this edition, Survey Questions are repeated in the margins throughout each chapter, where they help students develop an overview of major topics.

Question Throughout each chapter, *Guide Questions* act as advance organizers to prime students to look for important ideas as they read. This helps ensure that reading is an active learning experience. Guide Questions also create a dialogue in which student questions and reactions are anticipated. This clarifies difficult points in a lively give-and-take between questions and responses. And, significantly, many Guide Questions model critical thinking skills, to encourage reflection and inquiry.

Read The readability of each chapter has been carefully controlled for maximum student involvement and comprehension. I made every effort to keep the text as clear and accessible as possible. To further facilitate comprehension, the text employs a full array of traditional learning aids. These include boldface type and phonetic pronunciations for important terms, margin definitions, bullet summaries, a glossary, summary tables, a detailed index, and a robust illustration program. In addition, figure and table references in the text are now marked with small geometric shapes so that students can find their place when they return to reading. This new feature also allows readers to start at a figure or table and easily find the place in the text where it is discussed.

Special boxed *Highlights*—which discuss recent research, interesting topics, and original viewpoints—are judiciously placed in each chapter. Highlights serve as stimulating but non-intrusive supplements to the main text. They clearly enrich the content of each chapter.

Recite Every few pages, a *Learning Check* allows students to test their understanding and recall of the preceding discussion. Learning Checks are short, non-compre-

hensive quizzes that require students to stop and actively process information. Students who miss any questions are encouraged to back-track and clarify their understanding before reading more. Completing each Learning Check serves as a form of recitation to enhance learning. It also provides feedback so that students can gauge their progress.

A course in psychology naturally contributes to the development of critical thinking abilities. To further facilitate critical thinking, *Essentials of Psychology* includes a feature called Critical Thinking Exercises. Stimulating questions in each exercise challenge students to think critically and analytically about psychology. Each *Critical Thinking Exercise* includes a brief answer with which students can compare their own responses.

Review As mentioned earlier, an Applications section follows the core of each chapter. Applications show students how psychological concepts relate to practical problems, including problems in their own lives. Through these discussions, students review and extend the ideas they have learned. Applications help reinforce and consolidate learning by illustrating psychology's practicality.

To complete the review phase of the SQ3R method, a point-by-point *Chapter Summary* provides a concise synopsis of all major topics. The Chapter Summary is organized around the same Survey Questions posed at the beginning of the chapter and repeated in the margins. This brings the SQ3R process full-circle and provides closure with respect to the learning objectives of each chapter.

Sixth Edition Changes

My primary goal for this revision was to report, as much as possible, psychology's latest ideas, insights, and findings. As this defines a virtual deluge of information, I tried to be very selective about what I included. To make the grade, information had to be conceptually significant or inherently fascinating—or preferably both. Almost every chapter of the Sixth Edition contains new ideas that I personally believe meet these criteria. I hope that you will agree with the often difficult choices I had to make.

My three additional goals for this edition were as follows: (1) Improve the chapter design and pedagogy; (2) Strengthen the text's contribution to the development of critical thinking skills; and (3) Include, where appropriate, more information on human diversity and cultural differences.

Chapter Format With this revision, the chapter format has evolved in several ways. As mentioned earlier, Survey Questions now appear in page margins, next to relevant topics. Larger pages allow virtually every boldface term that appears in the text to be defined in the margins. A new section titled *A Look Ahead* provides a better transition from general text to the Applications sections that conclude each chapter. As noted earlier, Summaries now restate Survey Questions to help students organize their review of each chapter. Every chapter benefits from improved art and new photographs that will motivate students and sustain their interest. Taken together, such changes represent a further refinement of *Essentials'* student-oriented format.

Human Diversity Student populations increasingly reflect the multicultural, multifaceted nature of contemporary society. The Sixth Edition of *Essentials of Psychology* includes numerous discussions of human diversity, including differences in race, ethnicity, culture, gender, abilities, sexual orientation, and age. Too often, such differences needlessly divide people into opposing groups. My intent throughout the text is to discourage stereotyping, prejudice, discrimination, and intolerance. Numerous topics and examples in the Sixth Edition encourage students to appreciate social, physical, and cultural differences and to accept them as a natural part of being human.

New Topics and Updated Coverage Virtually every chapter of the Sixth Edition has been improved, with new information evident on every page. I have drawn on hundreds of new references (many as recent as 1993 and some in press) for this revision. Seventeen Highlights in this edition are new or substantially revised. One Applications section is entirely new and four are substantially revised.

The following list spotlights some of the more prominent new topics that appear in this edition.

- Ch. 1 New Highlight, *B. F. Skinner American Behaviorist*; new or improved art, photographs, tables, examples; update on the profession of psychology.
- Ch. 2 New section on psychobiological research methods and brain imaging; improved art; also research updates; updated Applications section on handedness.
- Ch. 3 New Highlight, *Infant Cognition—Surprising Babies*; updates on parenting styles, social development, attachment and day care, language development, Piaget, early childhood education programs, and moral development; major revision of Applications section on enlightened parenting and the enhancement of early development.
- Ch. 4 New Highlight, *Minority Youth and the Search for Identity*; research updates on childhood problems, midlife development, aging; upgraded Applications section on effective parenting.
- Ch. 5 Improved art; research updates.
- Ch. 6 New Highlight, *The “Boiled Frog Syndrome”*; improved art; research updates.
- Ch. 7 Two new Highlights, *States of Consciousness in Other Cultures*, and *Eliminating Nightmares*; updates on circadian rhythms, sleep physiology, sleep disorders, hypnosis, drug effects, cocaine abuse, marijuana, the causes of drug abuse; lucid dreaming is now covered in the Applications section.
- Ch. 8 New Highlight, *Self-Regulated Learning—Academic All-Stars*; new art, tables, and examples clarify classical and operant conditioning; higher-order conditioning is now covered; reorganized discussion of punishment and negative reinforcement; more examples of human behavior.
- Ch. 9 New Highlight, *The False Memory Syndrome*; research updates; new discussion of implicit memory and priming.
- Ch. 10 New Highlight, *A Voice for the Deaf*; new information on animal language experiments; improved examples for difficult concepts; updated discussion of mental retardation; new table summarizes the characteristics of creative persons.
- Ch. 11 Updated discussion on the hypothalamus and mechanisms of hunger; new table aids identification of eating disorders; revised discussion of Maslow’s hierarchy of motives; new table links facial expressions and felt emotions; new table on appraisal and emotion.
- Ch. 12 New Highlight, *Strategies for Reducing Hostility*; research updates; brief discussion of guided imagery added to Applications section.
- Ch. 13 New Highlights, *Personality—When Is the Plaster Set?* and *Honesty Tests—Do They Tell the Truth?*; Big Five model of personality is now covered; research updates.
- Ch. 14 Chapter 14 has been extensively revised to conform to the new DSM-IV classification of mental disorders; revised and expanded Highlight, *The Politics of Madness*; reorganized discussions of abnormality, affective disorders;

new tables define levels of functioning and list major risk factors for mental disorders; new table lists major risk factors in suicide; research updates throughout chapter.

- Ch. 15 New Highlights, *Eye-movement Desensitization—Watching the Trauma Fade* and *Cultural Issues in Counseling and Psychotherapy*; new table lists major elements of mental health; improved discussion of family therapy; updated discussion of core features of psychotherapies; new table lists the most common reasons for seeking therapy; research updates.
- Ch. 16 New Highlight, *Genes, the Brain, and Homosexuality*; this chapter also includes the latest information on sexual behavior from the *Janus Report*; updates on HIV and AIDS; new information on sexual orientation; major revision of the Applications section on sexual problems.
- Ch. 17 New Highlight, *A Closer Look at Touch and Status*; new art, examples; research updates.
- Ch. 18 New section explains how to improve communication in work settings; new Applications section discusses ways to combat prejudice and to promote greater acceptance of human diversity.

To summarize, I have tried to update and enhance *Essentials of Psychology* while retaining its existing strengths. I hope that you will be pleased with the final result.

■ Teaching and Learning Supplements

An enlarged and improved array of supporting materials has been created to accompany *Essentials of Psychology*. A brief description of each follows. Please contact your West Publishing representative for more information about any of these materials.

Study Guide An excellent study guide will again be available to accompany this text. Each chapter of the *Study Guide*, by Tom Bond and Bill Cunningham, offers a very thorough review and a chance to practice concepts. The *Study Guide* includes a list of important terms and individuals, learning objectives (with space for student responses), two tests (“Do You Know the Information,” “Can You Apply the Information”), and a fill-in-the-blanks Chapter Review.

Microguide A computerized study guide called *Microguide* is also available to accompany this edition of *Essentials*. *Microguide* poses questions to students in a format that challenges them to test themselves and review in detail. When used by one or more students, *Microguide* is a motivating and enjoyable study aid.

Developmental/ESL Reader’s Guide For many students the challenge of learning psychology extends beyond technical terms and concepts. Differences in language and culture can be major barriers to full comprehension. The new *Developmental/ESL Reader’s Guide* helps clarify idioms and special phrases, cultural and historical allusions, and difficult vocabulary found in the text. All terms and phrases in the manual are page referenced and followed by a concise definition. Like a helpful tutor, the *Developmental/ESL Reader’s Guide* can answer questions about the meaning of unfamiliar terms and expressions. It is especially suitable for ESL or developmental skills students.

College Survival Guide Bruce Rowe’s revised *College Survival Guide* is designed to help students succeed in college. The guide presents valuable practical information that students often must pick up on their own. Rowe reduces the frustration and anxiety that many college students experience with tips on how to finance an education, how to manage time effectively, how to study for and take exams, and more. New sections focus on maintaining concentration, credit by examination, use of the

credit/no credit option, cooperative education programs, and the importance of a liberal arts education. The *College Survival Guide* will be especially useful to first-year college students, students reentering college, and non-native students.

Cross-Cultural Perspectives in Psychology How well do the concepts of Western psychology apply to non-Western cultures? What can we learn about human behavior from cultures different from our own? These, and similar questions lie behind a collection of original articles written by William F. Price and Rich Crapo. *Cross-Cultural Perspectives in Psychology* draws on examples from around the world to provide a multicultural view of human behavior. Readings begin with an intriguing question about behavior which is then explored through cross-cultural research. *Cross-Cultural Perspectives in Psychology* introduces students to ideas that will challenge their assumptions about behavior. In the process, our own cultural practices are illuminated and placed in perspective.

Psychware *Psychware* is a CAI package to supplement the introductory course. Robert S. Slotnick and the staff of the New York Institute of Technology have developed a stimulating collection of tutorials, simulations, and experiments for use on Apple PCs. Each exercise is highly interactive and features engaging graphics. By using *Psychware*, students can apply the principles of operant conditioning, they can test their short-term memory, they can explore social behavior or gain insight into Piaget's stages of cognitive development, and much more.

Mind Scope Software This splendid program was created by Robert W. Hendersen. *Mind Scope* consists of 14 computerized exercises in perception, learning, memory, and cognition. The series is designed to help students discover and analyze aspects of their own behavior that might otherwise be hidden from them. In each exercise, students perform a task and record their own responses. By analyzing the results, students are able to see psychological processes illustrated by their own behavior. *Mind Scope* will run on any IBM-compatible microcomputer.

The Brain Videotapes Lectures can be enriched with a pair of 60-minute videotapes from PBS's award-winning series, *The Brain*. Segments of these videos apply to subjects throughout the text, but they are especially relevant to Chapters 2, 5, 7, 8, 11, 12, and 14. Topics are carefully indexed on the tapes for classroom use and an *Instructor's Manual* is included. These videotapes are available free to qualified adopters of the text.

The Mind Videotapes This valuable collection consists of 38 video teaching modules from the PBS series *The Mind*. The modules range from about 3 minutes to 12 minutes in length and they address topics spanning the entire introductory course. A *Faculty Guide*, prepared by Frank J. Vattano, matches video segments with appropriate text chapters. Although they are brief, the modules are highly interesting and informative. They offer a convenient way for students to see examples of the behavioral phenomena they are studying. For more information, please contact your West representative.

Discovering Psychology Videotapes The *Discovering Psychology* series was produced by WGBH Boston in conjunction with the American Psychological Association. The series consists of 26 half-hour videos on topics spanning the entire introductory psychology course. Most segments correspond directly to chapters or major topics in this text, making them ideal lecture supplements. Each program contrasts historical perspectives with recent findings to encourage critical thinking. Excellent computer animations and documentary footage of classic experiments help students understand psychological concepts and relate them to today's world.

Psychology Videodiscs West's original laser videodisc provides a wealth of lecture materials in a compact and convenient format. The *Psychology Videodisc* contains a large collection of still-frame art, charts and tables, animated sequences, motion video sequences, and on-screen quizzes.

An exciting new two disc set, the *Images of Psychology*, is now available to further enrich lectures. This new two disc set contains close to 2 hours of video material. Video clips range from 2 to 6 minutes in length and cover a wide variety of introductory psychology topics. The clips feature original research footage, classic experiments, interviews with prominent psychologists, and investigation of psychological phenomena. You will also find slides, diagrams, charts, tables, and 3-D animations on the discs. If you have access to a videodisc player, this is a convenient way to bring students closer to the world of psychology. Footage from the videodisc will also be available in videotape format. Both formats are available to qualified adopters of *Essentials of Psychology*. Consult your West representative for details.

Lecture Builder Videodisc materials can be accessed instantly, in any order, by simply entering a frame number. West's *Lecture Builder* software for Macintosh and IBM computers and compatibles allows you to prepare entire videodisc lectures, via hypercard stacks, and save them for future use.

Transparency Acetates A revised set of transparencies will again be available to enliven classroom presentations. These transparencies, organized by Jeff Lee, contain over 120 tables, graphs, charts, and drawings—most in color. Roughly half of the acetates reproduce figures from the text; the rest present supplemental art and tables. Please contact your West representative for more information.

Instructor's Manual The *Instructor's Manual* has been revised and reformatted by Sandra K. Ciccarelli. The manual includes learning objectives, updated film suggestions, demonstrations, supplemental lectures, classroom exercises, and suggested readings. It also contains general teaching strategies and references, a sample course outline, and other helpful materials.

Test Bank Gary Whitehead has skillfully updated the *Test Bank*. This high-quality collection now consists of more than 4000 multiple-choice questions. Over 1000 of these items are new and many more conceptual questions are included. Items are organized to correspond to learning objectives. In addition, items are page referenced and classified according to type (factual, conceptual, applied). All test items are incorporated into *WESTEST*, a microcomputer test-generation program that is available on request.

Summary

I sincerely hope that teachers and students will consider this book and its supporting materials a refreshing change from the ordinary. Writing and revising it has been quite an adventure. In the pages that follow, I think the reader will find an attractive blend of the theoretical and the practical, plus many of the most exciting ideas in psychology.

Acknowledgments The enterprise of psychology is a cooperative effort requiring the talents and energies of a large community of scholars, teachers, researchers, and students. As with earlier versions of this text, this edition has combined the efforts of a large number of people. I would like to thank first the many students who sent comments, suggestions, and letters of encouragement.

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the years, contributed to this text's evolution. I especially wish to thank those who helped make this edition a reality:

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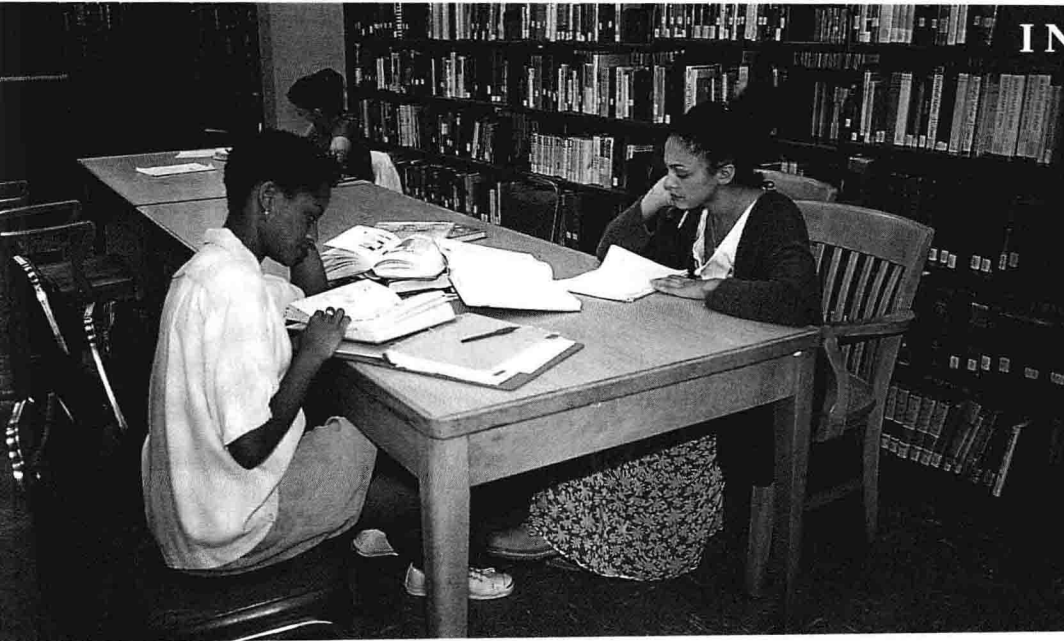
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The task of revising *Essentials of Psychology* and its supplements has grown more complex with each edition. The Sixth Edition reflects the talents and hard work of many people. With this fact in mind, I would like to thank Denis Ralling for his excellent editorial support. Likewise, I am indebted to John Orr and his staff for blazing new pathways in design and production. John's mastery of his craft is evident on every page of this book. Thanks also to Suzie DeFazio, Stephanie Buss, Beth Hoepfner, Stephanie Johnson, and Sheree Mattson for their energetic support. These individuals and many others at West Publishing Company have made this text a reality.

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Last of all, I would like to thank my wife Sevren, whose understanding, emotional support, and countless hours of help made this book possible.

Dennis Coon



The Psychology of Studying

Do you find learning exciting and rewarding? Or painful and intimidating? The second reaction is common even among bright students if they lack basic “tools of the trade.” Even if you’re not one of those students, you may be able to improve your study skills. Would you like to learn more in less time? There is a good chance you can if you apply the methods described here. Students who get good grades tend to work *smarter*, not longer (Hill, 1990; Dickinson & O’Connell, 1990).

■ The SQ3R Method—How To Tame a Textbook

Have you ever finished a reading assignment, only to discover later that you remembered little of what you read? This problem plagues students everywhere. But fortunately, an excellent solution exists. Over 50 years ago, educator Francis Robinson developed a superb reading technique called the **SQ3R method**. Robinson’s method is simply a way of studying while you read. The symbols S-Q-R-R-R stand for survey, question, read, recite, and review. Following these five steps can help you understand ideas quickly, remember more, and review effectively for tests (Robinson, 1970):

- S** = *Survey*. Look ahead through a chapter before you begin reading. As you do, read only topic headings, captions for illustrations, and any chapter summary or review. This step should give you an overall picture of what lies ahead.
- Q** = *Question*. To focus your attention as you read, turn each topic heading into one or more questions. For example, the heading “Stages of Sleep” could raise

questions such as: “Is there more than one stage of sleep?” “What are the stages of sleep?” “How do they differ?” Asking questions will increase your interest. Questions also help relate new ideas to what you already know, for better comprehension.

R1 = Read. The first R in SQ3R refers to read. As you read, try to answer the questions you asked. Read in short “bites,” from *one topic heading* to the next, then stop. (If the material is very difficult you may even want to read only a paragraph or two at a time.)

R2 = Recite. The second R stands for *recite*. After you have read from one topic heading to the next, you should stop and recite. That is, try to silently answer your questions. Or better yet, summarize what you’ve read in brief notes. If you can’t summarize main ideas in your own words, scan back over the section until you can. Until you can remember what you just read, there’s little point to reading more.

After you have read a short “bite” of information, turn the next topic heading into questions. Then read to the next heading. Again, you should look for answers as you read, and you should recite before moving on. Repeat the question-read-recite cycle until you’ve read the entire chapter.

R3 = Review. When you’ve finished reading, skim back over the chapter, or read your notes. Then check your memory by reciting and quizzing yourself again. Or better yet, get someone to ask you questions about each topic to see if you can answer in your own words. Try to make frequent review a key element of your study habits. (See ■ Figure I-1.)

Question: Does this method really work?

Experiments show that using the SQ3R method improves both reading comprehension and grades (Boker, 1974; Driskell & Kelly, 1980). Simply reading straight through a chapter often leads to a case of intellectual “indigestion.” That’s why it’s important that you stop often to think, question, recite, review, and “digest” information.

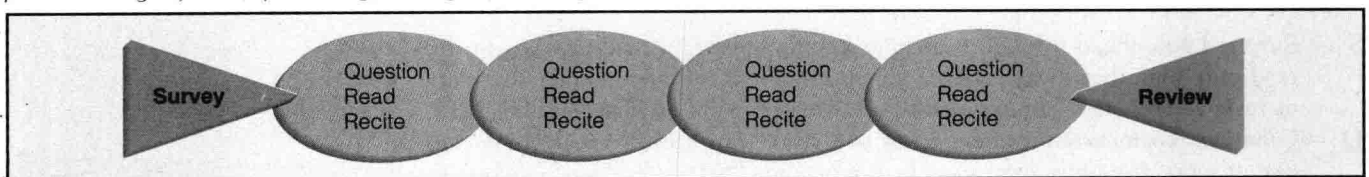
How To Use this Text

With practice, you can apply the SQ3R method to any book. However, as you may have guessed, its steps are built into this text to help you use them.

Each chapter opens with a *Preview*, plus a short outline titled *In This Chapter*. This is followed by *Survey Questions* that identify main points to look for as you read. You can use these features to get an overview of each chapter. Before you begin reading, however, take a minute or two to make your own survey of the chapter. Once you begin reading, additional questions in the text will help clarify ideas and focus your attention. Research shows that this arrangement leads to improved learning and memory (Melton, 1978; Wade & Trathen, 1989).

Every few pages, *Learning Checks* allow you to recite by testing your memory of important points. (Again, you should also take notes or recite on your own.) If you only have 15 or 20 minutes to study between classes, or if you would like to study chapters in smaller sections, Learning Checks make good stopping points. In each

■ **Fig. I-1** The SQ3R method promotes active learning and information processing. You should begin with a survey of the chapter, proceed through cycles of questioning, reading, and reciting, and conclude with a review of the chapter.



chapter you will find an *Applications* section filled with practical information about psychology. Each chapter ends with a *Chapter Summary* you can use for review.

As you read, new terms will be defined where they first appear in the text. Definitions are repeated in the margin so that you can review them easily. Key terms are printed in **boldface type** and occasionally followed by pronunciations. (Capital letters show which syllables are accented.) As a further study aid, a **glossary**, or “mini-dictionary,” of terms also appears near the end of this book. Perhaps you should take a moment to find it now.

Together, these features should make learning psychology enjoyable and effective, but there is still more you can do on your own.

Effective Note-Taking—Good Students, Take Note!

Question: The SQ3R method may be good for reading, but what about taking notes in class when it's difficult to know what's important?

Effective note-taking requires active listening. **Active listeners** know how to control their attention to avoid classroom daydreaming. Here's a listening/note-taking plan that works for many students. The important steps are summarized by the letters **LISAN**, pronounced like the word listen (Carman & Adams, 1985).

- L** = *Lead. Don't follow.* Try to anticipate what the instructor is going to say. As in SQ3R, try to set up questions as guides. Questions can come from the instructor's study guides or the reading assignments.
- I** = *Ideas.* Every lecture is based on a core of important ideas. Usually, an idea is introduced and examples or explanations are given. Ask yourself often, “What is the main idea now? What ideas support it?”
- S** = *Signal words.* Listen for words that tell you the direction the instructor is taking. For instance, here are some groups of signal words:

There are three reasons why . . .	Here come ideas
Most important is . . .	Main ideas
On the contrary . . .	Opposite idea
As an example . . .	Support for main idea
Therefore . . .	Conclusion
- A** = *Actively listen.* Sit where you can hear and where you can be seen if you need to ask a question. Look at the instructor while he or she talks. Bring questions you want answered from the last lecture or from your reading. Raise your hand at the beginning of class or approach your instructor before the lecture begins. Do anything that helps you to be active and alert.
- N** = *Note-taking.* As you listen, write down only key points. Listen to everything, but be selective and don't try to write everything down. If you are too busy writing, you may not grasp what is being said.

There is something more you should know: A revealing study (Palkovitz & Lore, 1980) found that most students take reasonably good notes—and then don't use them! Most students wait until just before exams to review their notes. By then the notes have lost much of their meaning. If you don't want your notes to seem like hieroglyphics or “chicken scratches,” it pays to review them on a regular basis—daily is not too often.

Using and Reviewing Your Notes

When you review, you will learn more if you take the extra steps listed here (Kiewra et al., 1991; King, 1992).

- Return to your notes as soon as you can and improve them by filling gaps and finishing incomplete thoughts.

- Look for connections among ideas. Try to see how the concepts in your notes relate to one another.
- Make an effort to link lecture information with previously acquired knowledge. Relate new ideas to what you already know.
- Summarize your notes. Boil them down and *organize* them.
- Make up questions about lecture material from your notes and make sure you can answer them.

Summary To summarize, the letters LISAN are a good guide whenever it is important to listen actively. But remember that listening and taking good notes is not enough. You must also review, organize, extend, and think about new ideas. This deepens your understanding and helps you build connections in memory.

■ Study Habits—Avoiding the Last-Minute Blues

It is important to realize that virtually every topic is interesting to someone, somewhere. Although I may not be interested in the sex life of the South American tree frog, a biologist might be fascinated. If you wait for your teachers to “make” their courses interesting, you are missing the point. Interest is a matter of *your attitude*. Students and teachers *together* make a class rewarding. It’s a big mistake to blame poor performance in college on circumstances “beyond your control.” Students who believe that success is due to effort and motivation do better in the long run (Noel, et al., 1987).

With the preceding in mind, let’s consider a few things you can do to improve your study habits.

Study in a Specific Place It goes almost without saying that you should study in a quiet, well-lighted area free of distractions. If possible, you should also have at least one place where you only study. Do nothing else at that spot: Keep magazines, radios, friends, pets, posters, games, puzzles, food, lovers, sports cars, elephants, pianos, televisions, hang gliders, kazoos, and other distractions out of the area. In this way, studying will become strongly linked with one specific place (Beneke & Harris, 1972). Then, rather than trying to force yourself to study by “willpower,” all you have to do is go to your study area. Once there, you’ll find it relatively easy to get started.

Use Spaced Study Sessions It is quite reasonable to review intensely before an exam. However, if you are actually learning information for the first time (“cramming”), you are asking for trouble. Research suggests that spaced practice is a more efficient way to study (Naveh-Benjamin, 1990). Spaced practice consists of a large number of relatively short study sessions, rather than one or two long ones (called massed practice). (It might be worth remembering that if you “massed up” your studying, you probably messed it up too.)

Cramming places a tremendous burden on memory. It is far better to learn small amounts on a daily basis and to review frequently. It also makes sense to reward yourself with a treat of some kind after each of your study sessions, to keep yourself motivated between tests.

Try Mnemonics Students sometimes complain about having to memorize for classes. But learning has to start somewhere, and memorizing is often the first step. Psychologists now know a great deal about how to improve memory. Since many of the most important points are summarized in Chapter 9, let’s consider just one technique here.

A **mnemonic** (nee-MON-ik) is a memory aid. Most mnemonics link new information to ideas or images that are easy to remember. For example, imagine that you want to remember that the Spanish word for duck is *pato* (pronounced POT-oh). To use a mnemonic, you could picture a duck in a pot or a duck wearing a pot for a

hat (Pressley, 1987). Or, to remember that the cerebellum controls coordination, you might picture someone named “Sarah Bellum” who is very coordinated. Obviously, there are many ways to create mnemonics. If you would like to learn more, look ahead to Chapter 9).

Test Yourself Many students overlook one of the best ways to improve test scores: When studying, you can arrange to take several practice tests before the real one in class. In other words, studying should include **self-testing** by use of flash cards, Learning Checks, a study guide, or questions you ask yourself. As you study, ask as many questions as you can and be sure you can answer them. Studying without testing yourself is like practicing for a basketball game without shooting any baskets.

Overlearn There is something else to keep in mind: Many students *underprepare* for exams, and most *overestimate* how well they will do on exams (Murray, 1980). A solution to both problems is **overlearning**. To overlearn, you should continue studying beyond bare mastery of a topic. This means that you need to give yourself time for extra study and review *after* you think you are prepared for a test.

Here’s another reason for overlearning. Compared with students who prepare for multiple-choice questions, students who expect to take an essay test (usually the hardest kind) do better on essay, multiple-choice, and short-answer tests (Foos & Clark, 1984). Before tests, students always ask, “Will it be essay or multiple choice?” But as the study shows, *it is best to approach all tests as if they were essays*. By doing so, you will learn information more completely, so that you will really “know your stuff” when you take the test.

Question: All of these study techniques are fine. But what can I do about procrastination?

Procrastination

A tendency to procrastinate is almost universal among college students. (When campus workshops on procrastination are offered, many students never get around to signing up!) High levels of procrastination are associated with lower grades (Rothblum, Solomon, & Murakami, 1986). And, even when procrastination doesn’t lead to failure, it can cause much suffering. Procrastinators put off work until the last moment, work only under pressure, skip classes, give false reasons for late work, and feel ashamed of their last-minute efforts (Burka & Yuen, 1983).

Question: Why do so many students procrastinate?

It is fairly natural to put off long-range assignments, at school and elsewhere. However, there are added reasons for student procrastination. Psychologists Jane Burka and Lenora Yuen observe that many students seem to equate performance in school with their *personal worth*. By procrastinating, students can blame poor work on a late start, rather than a lack of ability (Ferrari, 1991). After all, it wasn’t their best effort, was it?

Perfectionism is a related problem. If you have high expectations for yourself, you may find it hard to start an assignment. Students with high standards expect the impossible from themselves and end up with all-or-nothing work habits (Burka & Yuen, 1983). This is especially true of students who are very sensitive about what others may think about them (Ferrari, 1992).

Time Management Burka and Yuen supervise a program for student procrastinators. Eventually, they say, most procrastinators must face the self-worth conflict; but progress can be made by learning better study skills and more effective time management. Since we have already discussed study skills, let’s consider time management.

A **formal time schedule** can do much to prevent procrastination and maintain motivation in school. To prepare your schedule, make a chart showing all of the hours in each day of the week. Then fill in times that are already committed: sleep, meals, classes, work, team practices, lessons, appointments, and so forth. Next, fill in times when you will study for various classes, and label them. Finally, label the remaining hours as open or free times.

The beauty of keeping a schedule is that you know you are making an honest effort to do well in your classes. In addition to getting more done, you will avoid the trap of yearning to play while you work and feeling guilty about not working when you play. The key to time management is to treat your study times as serious commitments, like class meetings or a job. Be sure to respect your free times, too, so you don't get stale or discouraged. And remember this: Students who practice good time-management do get better grades (Britton & Tesser, 1991).

Goal Setting Many students also find it helpful to set **specific goals** for themselves (Schunk, 1990). If you have trouble staying motivated, it's a good idea to set goals for the semester, the week, the day, and even for single study sessions. Be realistic when setting your goals, but don't underestimate yourself either. You can greatly reduce the "pain" and stress you will experience at the end of the semester by increasing your efforts at the outset (Brown, 1991).

Students who tend to procrastinate do better when they are given frequent smaller assignments (Rothblum, Solomon, & Murakami, 1986). If your professors don't give frequent assignments, make up your own day-to-day goals. An example would be reading, studying, and reviewing eight pages a day to complete a 40-page chapter in five days. Many small steps can add up to an impressive journey.

■ Taking Tests—Are You “Test Wise”?

Question: If I have read and studied effectively, is there anything else I can do to improve my grades?

Learning is only a first step. You must then be able to show what you know on a test. Here are some guidelines for improving your test-taking skills.

Objective Tests

Objective tests (multiple-choice and true-false items) test your ability to recognize a correct statement among wrong answers or a true statement against a false one. If you are taking an objective test, try this:

1. Read the directions carefully; they may give you good advice or clues for the test. If the directions are not clear, ask the instructor to clarify them.
2. Read *all* the choices for each question before you make a decision. If you immediately think that *a* is correct, for instance, and stop reading, you might miss seeing a last choice like “both *a* and *d*” that is a better answer.
3. Read rapidly and skip items you are uncertain about. Later questions may give you “free information” that will help you answer difficult items. Return to skipped items if time allows.
4. Eliminate certain alternatives. With a four-choice-per-item multiple-choice test, the odds are one in four that you could guess right. If you can eliminate two alternatives, your guessing odds improve to 50–50.
5. Unless there is a penalty for guessing, be sure to answer every question. Even if you are not sure of an answer, you may be right. If you skip a question it is automatically wrong. When you are forced to guess, don't make the mistake of choosing the longest answer or the letter you've used the least. Both of these strategies produce lower scores than pure random guessing (Shatz, 1986).