

A photograph of a traditional Japanese garden. A stone path leads through a lush green landscape with moss-covered ground, various trees, and a low rope fence. The scene is peaceful and naturalistic.

Introduction to Psychology

9e

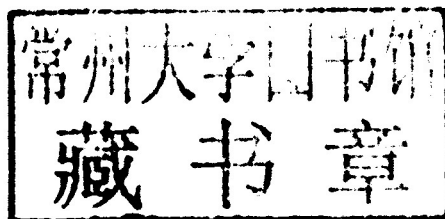
JAMES W. KALAT

Introduction to Psychology

9e

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North Carolina State University



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To my grandchildren: Ann, Liam, and Max.

about the author



JAMES W. KALAT (rhymes with ballot) is Professor of Psychology at North Carolina State University, where he teaches Introduction to Psychology and Biological Psychology. Born in 1946, he received an AB degree summa cum laude from Duke University in 1968 and a PhD in psychology from the University of Pennsylvania, under the supervision of Paul Rozin. He is also the author of *Biological Psychology*, 10th Edition (Belmont, CA: Wadsworth, 2009), and co-author with Michelle N. Shiota of *Emotion* (Belmont, CA: Wadsworth, 2007). In addition to textbooks, he has written journal articles on taste-aversion learning, the teaching of psychology, and other topics. A remarried widower, he has three children, two stepsons, and three grandchildren. When not working on something related to psychology, his hobby is bird-watching.

preface to the instructor

A few years ago, I was on a plane that had to turn around shortly after takeoff because one of its two engines had failed. When we were told to get into crash position, the first thing I thought was, “I don’t want to die yet! I was looking forward to writing the next edition of my textbook!” True story.

I remember taking my first course in psychology as a freshman at Duke University in 1965. Frequently, I would describe the fascinating facts I had just learned to my roommate, friends, relatives, or anyone else who would listen. I haven’t changed much since then. When I read about new research or think of a new example to illustrate some point, I want to tell my wife, children, colleagues, and students. Through this textbook, I can tell even more people. I hope my readers will share this excitement and want to tell still others.

Ideally, a course or textbook in psychology should accomplish two goals. The first is to instill a love of learning so that our graduates will continue to update their education. Even if students remembered everything they learned in this text—and I know they won’t—their understanding would gradually go out of date unless they continue to learn about new developments. I fantasize that some of my former students occasionally read *Scientific American Mind* or similar publications. The second goal is to teach people skills of evaluating evidence and questioning assertions, so that when they do read or hear about some newly reported discovery, they will ask the right questions and draw the appropriate conclusions (or draw no conclusion if the evidence is weak). That skill can carry over to fields other than psychology.

Throughout this text, I have tried to model the habit of critical thinking or evaluating the evidence, particularly in the **What’s the Evidence** features, which describe research studies in some detail. I have pointed out the limitations of the evidence and the possibilities for alternative interpretations. The goal is to help students ask their own questions, distinguish between good and weak evidence, and ultimately, appreciate the excitement of psychological inquiry.

APPROACHES, FEATURES, AND STUDENT AIDS

Many years ago, I read an educational psychology textbook that said children with learning disabilities and attention problems learn best from specific, concrete examples. I remember thinking, “Wait a minute. I do, too! Don’t we *all* learn best from specific, concrete examples?” For this reason, science classes use laboratories, to let students try demonstrations and experiments. Few introductory psychology classes offer laboratories, but we can nevertheless encourage students to try procedures that require little or no equipment. At various points, the text describes simple **Try It Yourself** exercises, such as negative afterimages, binocular rivalry, encoding specificity, and the Stroop effect. Some of these activities are available as **Online Try It Yourself** activities on the companion website at www.cengage.com/psychology/kalat. Students who try these activities will understand and remember the concepts far better than if they read about them only in abstract terms. A few of the online activities enable students to collect and report their own data.

Reading the material is good, but using it is better. Researchers find that we learn more if we alternate between reading and testing than if we spend the same amount of time reading. The **Concept Checks** pose questions that attentive readers should be able to answer with a little thought. Students who answer correctly can feel encouraged; those who miss a question should use the feedback to reread the relevant passages.

Education was long a very traditional field in which the procedures hardly changed since the invention of chalk and desks. Recently, however, educators have been learning to use the power of new technologies, and this text offers several important technological enhancements. The website already mentioned includes the Online Try It Yourself exercises as well as flash cards, quizzes, an online glossary, and links to other interesting sites related to each chapter. An eBook (electronic version of the text) is available at www.ichapters.com. In addition to the usual text material, it includes links to videos, animations, and Online Try

It Yourself activities. It also includes multiple-choice questions with feedback. If a student chooses an incorrect answer, the eBook explains why it was wrong and then explains the correct answer.

Each chapter of this text is divided into two to five modules, each with its own summary. Modules provide flexibility for the instructor who wishes to take sections in a different order—for example, operant conditioning before classical conditioning—or who wishes to omit a section. Modular format also breaks up the reading assignments so that a student reads one or two modules for each class. Key terms are listed at the end of each module, and a list with definitions can be downloaded from the website. At the end of the text, a combined Subject Index and Glossary provides definitions of key terms as well as page references for those terms and others.

WHAT'S NEW IN THE NINTH EDITION

Does psychology really change fast enough to justify a new edition of an introductory text every 3 years? Some areas of psychology admittedly do not, but others do. This edition has more than 600 new references, including more than 500 from 2006 or later. The chapter on memory was substantially reorganized. A few new topics have been added, such as the Myers-Briggs and NEO-PI-R personality tests. Many of the figures are new or revised. Two of the “What’s the Evidence?” sections are new, dealing with criminal profiling (chapter 13) and the problems of a before-and-after study without a control group (chapter 2). Even in topics where the content has not changed much, an author always finds many small ways to improve the presentation. Here are a few of my favorite new studies:

- People show a slight preference for a job that sounds similar to their own name (e.g. Larry and lawyer), as well as a place to live, employer, or spouse who shares their initials. (chapter 1)
- If students take a test with the instructions in red letters, or any other red mark on the test, their scores suffer. Evidently, the red discourages students by reminding them of teachers’ corrections on past tests and papers. (chapter 1)
- If you measure how strongly various people’s brains respond to somewhat frightening pictures, you can predict their political leanings with moderate accuracy. (chapter 3)
- Although males and females differ on the average in their interests, even in early childhood, supposed differences in abilities are either ab-

sent or elusive. In cultures where women have low status, males do better than females in mathematics, but where status is about equal, so is math performance. (chapter 5)

- After you have learned something, such as a vocabulary list, additional study at the same time is nearly a complete waste of time. Study is much more effective if you go away from it for a day or so and then return to review. (chapter 7)
- People often do not know why they made a decision. If you ask, “Why did you choose this picture instead of the other one?” and then show the picture that the person *didn’t* choose, the person often doesn’t recognize that you made a switch and confidently describes plausible reasons for the choice. (chapter 8)
- The Flynn effect is the observation that mean IQ performance has increased from one generation to the next for several generations. New data show a similar generational increase in developmental milestones of the first 2 or 3 years. Because health and nutrition seem the preeminent explanations for this change in early development, they become likely candidates to explain the Flynn effect, too. (chapter 9)
- If you monitor people’s brain activity while they are about to make a “spontaneous” decision to press the left or right key, you can predict their choice 5 to 10 seconds before they are conscious of their decision. (chapter 10)
- When an area shifts to daylight savings time, people’s alertness and performance suffer for a week or two. The effects are greatest for people who were already sleep deprived, such as most college students. (chapter 10)
- Men with higher testosterone levels are less likely than other men to marry, and if they do marry, they are less likely to be faithful. (chapter 11)
- After you make a decision about anything, even something trivial, you become more likely than before to take action on other matters instead of procrastinating. (chapter 11)
- Spending a little money on a gift for someone else raises your happiness more than spending that money on yourself would. (chapter 12)
- Happiness is contagious. If your friends become happier, you probably will, too, and then you may spread it to still other people. (chapter 12)
- Becoming familiar with someone does not necessarily increase liking. You find out what you have in common but also what you don’t have in common, and you discover the other person’s flaws. (chapter 13)
- Psychologists have long assumed that no one would ever again replicate Milgram’s obedi-

ence experiment, but J. M. Burger did, in part. He asked people to deliver shocks only up to 150 volts, relieving the serious ethical problem of the original study. He found that people obeyed authority almost as much today as they did in the 1960s. (chapter 13)

- If you ask people in different countries to rate how conscientious they are, the reports don't differ much from one country to another. However, direct observations of conscientious behaviors show clear differences among countries. (chapter 14)
- People with early-onset depression usually have other relatives with the same or other psychiatric conditions. People with late-onset depression usually have relatives with blood circulation disorders. (chapter 16)
- Apparently, schizophrenia can be caused by mutations (including new mutations) in so many different genes that no one gene will emerge as consistently linked to schizophrenia. (chapter 16)

TEACHING AND LEARNING SUPPLEMENTS

You're familiar with those television advertisements that offer something, usually for \$19.95, and then say, "But wait, there's more!" Same here. In addition to the text, the publisher offers many supplements:

Study Guide, revised by Mark Ludorf, provides learning objectives, chapter outlines, other study aids, and practice test items, with an explanation of why each wrong answer is wrong. It also includes a language-building component especially helpful for nonnative speakers of English.

Test Bank, revised by Ralf Greenwald, includes questions from the previous edition, hundreds of new items contributed by James Kalat and tested in his classes, and many new ones by Ralf Greenwald. That bank is also available in ExamView® electronic format. Many of the items have already been tested with classes at North Carolina State University, and the Test Bank indicates the percentage correct and point biserial. Note also that the Test Bank includes a special file of items that cut across chapters, intended for a comprehensive final exam.

Instructor's Resource Manual, revised by Nancy Jo Melucci, is both thorough and creative. It includes suggestions for class demonstrations and lecture material. It also contains the author's suggested answers to the Step Further questions available online.

PowerLecture with JoinIn and ExamView is designed to facilitate an instructor's assembly of PowerPoint® or similar demonstrations and contains lecture slides, figures and tables from the text, the Instructor's Resource Manual and Test Bank, and Resource Integration Guide. With PowerLecture, all of your media resources are in one place, including an image library with graphics from the book itself, video clips, and more. ExamView® includes all of the test items from the printed Test Bank in electronic format and enables you to create customized tests in print or online, and JoinIn™ Student Response System offers instant assessment and better student results.

CengageNOW with Critical Thinking Videos is an online self-study and assessment system that helps students study efficiently and effectively while allowing instructors to easily manage their courses. CengageNOW analyzes student performance and discovers which areas students need the most help with. Students take a pretest, and based on their answers, the system creates a personalized learning plan unique to each student. This learning plan is full of engaging pedagogy that aids student understanding of core concepts in psychology. After completing the personalized learning plan, the student follows up with a posttest to ensure mastery of the material. The self-study and assessment questions were revised for this edition by Alisha Janowsky.

Available on the website, WebTutor, and CengageNow for *Introduction to Psychology*, 9th Edition, **Online Try It Yourself** exercises illustrate concepts and promote critical thinking about various topics in the text.

ACKNOWLEDGMENTS

To begin the job of writing a textbook, a potential author needs self-confidence bordering on arrogance and, to complete it, the humility to accept criticism of favorite ideas and carefully written prose. A great many people provided helpful suggestions that made this a far better text than it would have been without them.

During preparation of this edition, I have worked with three acquisition editors, Erik Evans, Michelle Sordi, and Jane Potter. The transition proceeded as smoothly as I could hope, and I particularly thank Jane Potter for guiding the text through most of the process. Tali Beesley served as developmental editor, offering detailed suggestions ranging from organization of a chapter to

choice of words to new and improved figures. I thank each of these people for their tireless help.

Rebecca Rosenberg supervised the supplements, a task that grows bigger with each edition. I have now had the pleasure to work with Frank Hubert as my copy editor for several editions, and I greatly appreciate his careful reading and attention to detail. Nic Albert secured numerous quality peer reviews throughout the entire project. Nancy Shammass and Pat Waldo did a marvelous job of supervising the production, a complicated task with a book such as this. Vernon Boes, who managed the design development, Lisa Torri, who managed the art development, and Jeanne Calabrese, who designed the interior and the cover, had the patience and artistic judgment to counterbalance their very nonartistic author. Tierra Morgan planned and executed the marketing strategies. Martha Hall, the photo researcher, found an amazing variety of wonderful photographs and managed the permissions requests. To each of these, my thanks and congratulations.

My wife, Jo Ellen Kalat, not only provided support and encouragement, but also listened to my attempts to explain concepts and offered many helpful suggestions and questions. My son Samuel Kalat provided many insightful ideas and suggestions. I thank my department head, Douglas Gillan, and my N.C. State colleagues—especially David Martin, Bob Pond, Bart Craig, and Rupert Nacoste—for their helpful suggestions.

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James Kalat

preface to the student

Welcome to introductory psychology! I hope you will enjoy reading this text as much as I enjoyed writing it. When you finish, I hope you will send me your comments via email at psych.feedback@cengage.com or by mail using the student reply page at the end of this book. The publisher will pass your comments along to me.

The first time I taught introductory psychology, several students complained that the book we were using was interesting to read but impossible to study. What they meant was that they had trouble finding and remembering the main points. I have tried to make this book interesting and as easy to study as possible.

FEATURES OF THIS TEXT

Modular Format

Each chapter is divided into two or more modules so that you can study a limited section at a time. Each chapter begins with a table of contents to orient you to the topics considered. At the end of each module is a list of key terms and a summary of some important points, each with page references. If a point is unfamiliar, you should reread the appropriate section. At the end of a chapter, you will find suggestions for further reading, a few Internet sites to visit, and other suggestions.

Key Terms

When an important term first appears in the text, it is highlighted in **boldface** and defined in *italics*. All the boldface terms are listed in alphabetical order at the end of each module. They appear again with definitions in the combined Subject Index and Glossary at the end of the book. You might want to find the Subject Index and Glossary right now and familiarize yourself with it. You can also consult or download a list of key terms with their definitions from this Internet site: www.cengage.com/psychology/kalat.

I sometimes meet students who think they have mastered the course because they have memorized the definitions. You do need to understand

the defined words, but don't memorize the definitions word for word. It would be better to try to use each word in a sentence or think of examples of each term. Better yet, when appropriate, think of evidence for or against the concept that the term represents.

Questions to Check Your Understanding

People remember material better if they alternate between reading and testing than if they spend the whole time reading. (We'll consider that point again in the chapter on memory.) At various points in this text are Concept Checks, questions that ask you to use or apply the information you just read. Try to answer each of them before reading the answer. If your answer is correct, you can feel encouraged. If it is incorrect, you should reread the section.

Try It Yourself Activities

The text includes many items marked Try It Yourself. Most of these can be done with little or no equipment in a short time. You will understand and remember the text far better if you try these exercises. Online Try It Yourself activities are also available at www.cengage.com/psychology/kalat. The purpose of these is the same as the Try It Yourself activities in the text; the difference is that online activities can include sounds and motion. The description of a research study will be easier to understand and remember after you have experienced it yourself.

What's the Evidence Sections

Every chapter except the first includes a section titled What's the Evidence? These sections highlight research studies in more than the usual amount of detail, specifying the hypothesis (idea being tested), research methods, results, and interpretation. In some cases, the discussion also mentions the limitations of the study. The purpose of these sections is to provide examples of how to evaluate evidence.

Internet Site

The text website is www.cengage.com/psychology/kalat. This site offers flash cards, quizzes, interactive art, an online glossary, and links to other interesting websites related to each chapter. The site also includes the Online Try It Yourself activities. All of these opportunities are highly recommended; please explore them.

Indexes and Reference List

A list of all the references cited in the text is at the back of the book in case you want to check something for more details. The combined Subject Index and Glossary defines key terms and indicates where in the book to find more information. The name index provides the same information for all names mentioned in the text.

Optional Study Guide

Also available is a Study Guide to accompany this text, written by Mark Ludorf. It provides detailed chapter outlines, learning objectives, study hints, and other helpful information. The most valuable part for most students is the sample test questions, with an answer key that explains not only which answer is right but also why each of the others is wrong. The website offers some sample questions but not as many. The Study Guide also includes a language-building component. The Study Guide is recommended for students who have struggled with multiple-choice tests in the past and who are willing to spend some time in addition to reading the book and studying lecture notes. If your bookstore does not stock the Study Guide, you can ask them to order a copy. The ISBN is 0495909475.

ANSWERS TO SOME FREQUENTLY ASKED QUESTIONS

Do you have any useful suggestions for improving study habits? Whenever students ask me why they did badly on the last test, I ask, “When did you read the assignment?” Many answer, “Well, I didn’t exactly read *all* of the assignment,” or “I read it the night before the test.” If you want to learn the subject matter well, read the assigned material before the lecture, review it again after the lecture, and quickly go over it again a few days later. Then reread the textbook assignments and your lecture notes before a test. Memory researchers have established that you will understand and remember something better by studying it several times spread out over days than by studying the same amount of time all at once. Also, of course, the more total time you spend studying, the better.

When you study, don’t just read the text but stop and think about it. The more actively you use the material, the better you will remember it. One way to improve your studying is to read by the SPAR method: **S**urvey, **P**rocess meaningfully, **A**sk questions, **R**eview.

Survey: Know what to expect so that you can focus on the main points. When you start a chapter, first look over the outline to get a preview of the contents. When you start a new module, turn to the end and read the summary.

Process meaningfully: Read the chapter carefully, stopping to think from time to time. Tell your roommate something you learned. Think about how you might apply a concept to a real-life situation. Pause when you come to the Concept Checks and try to answer them. Do the Try It Yourself exercises. Try to monitor how well you understand the text and adjust your reading accordingly. Good readers read quickly through easy, familiar content but slowly through difficult material.

Ask questions: When you finish the chapter, try to anticipate what you might be asked later. You can use questions in the Study Guide, on the website, or compose your own. Write out the questions and think about them, but do not answer them yet.

Review: Pause for at least an hour, preferably a day. Now return to your questions and try to answer them. Check your answers against the text or the answers in the Study Guide. Reinforcing your memory a day or two after you first read the chapter will help you retain the material longer and deepen your understanding. If you study the same material several times at lengthy intervals, you increase your chance of remembering it long after the course is over.

What do those parentheses mean, as in “(Baumeister, 2008)”? Am I supposed to remember the names and dates? Psychologists generally cite references in the text in parentheses rather than in footnotes. “(Baumeister, 2008)” refers to an article written by Baumeister, published in 2008. All the references cited in the text are listed in alphabetical order (by the author’s last name) in the References section at the back of the book.

You will also notice a few citations that include two dates separated by a slash, such as “(Wundt, 1862/1961).” This means that Wundt’s document was originally published in 1862 and was republished in 1961.

No, you should not memorize the parenthetical source citations. They are provided so an interested reader can look up the source of a statement and check for further information. The names

that *are* worth remembering, such as B. F. Skinner, Jean Piaget, and Sigmund Freud, are emphasized in the discussion itself.

Can you help me read and understand graphs?

The graphs in this book are easy to follow. Just take a minute or so to study them carefully. You will encounter four kinds: pie graphs, bar graphs, line graphs, and scatter plots. Let's look at each kind.

Pie graphs show how a whole is divided into parts. Figure 1 shows the proportion of psychologists who work in various settings. It shows that many are self-employed, almost as many work in colleges and other educational institutions, and a slightly smaller number work in hospitals and other health-care institutions.

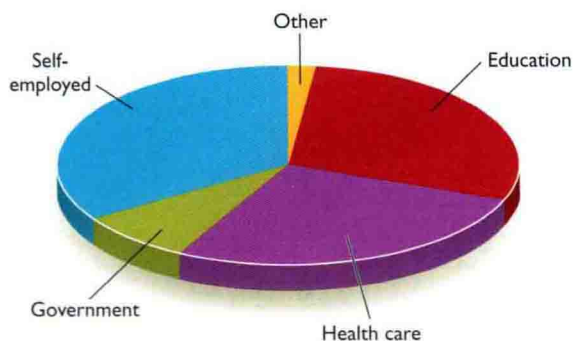


FIGURE 1

Bar graphs show measurements for two or more groups. Figure 2 shows how much unpleasantness three groups of women reported while they were waiting for a painful shock. The unpleasantness was least if a woman could hold her husband's hand while waiting, intermediate if she held a stranger's hand, and most if she was by herself.

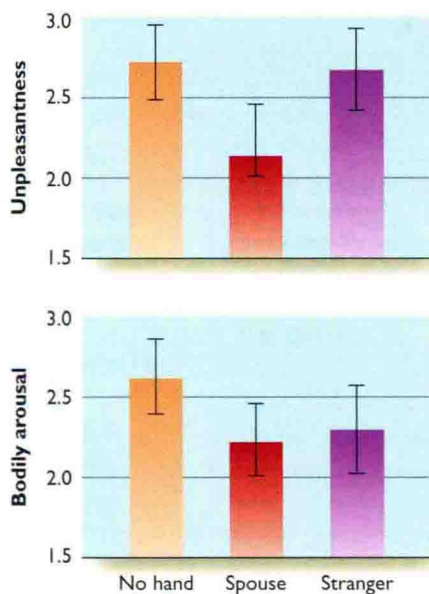


FIGURE 2

Line graphs show how one variable relates to another variable. Figure 3 shows measurements of narcissism (self-centeredness) for young adults tested in various years. The upward trend of the line indicates that over the years, young adults have become more self-centered than in previous generations.



FIGURE 3

Scatter plots are similar to line graphs, with this difference: A line graph shows averages, whereas a scatter plot shows individual data points. By looking at a scatter plot, we can see how much variation occurs among individuals.

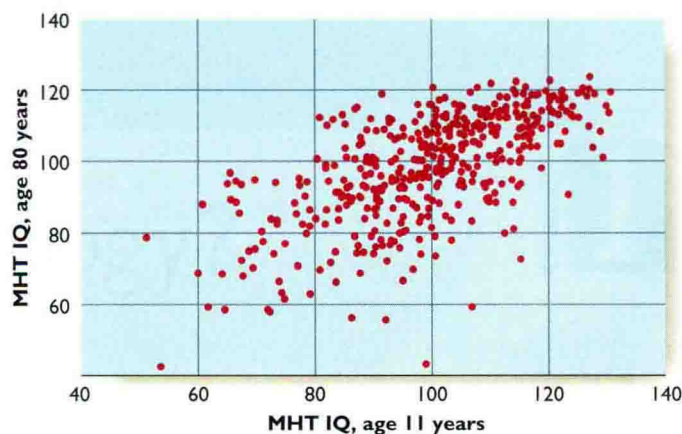


FIGURE 4

To prepare a scatter plot, we make two observations about each individual. In Figure 4, each person is represented by one point. If you take that point and scan down to the x-axis, you find that person's score on an IQ test at age 11. If you then scan across to the y-axis, you find that person's score on a similar test at age 80. You can see about how consistent most people's scores are over a lifetime.

We may have to take multiple-choice tests on this material. How can I do better on those tests?

1. Read each choice carefully. Do not choose the first answer that looks correct; first make sure that the other answers are wrong. If two answers seem reasonable, decide which of the two is better.
2. If you don't know the correct answer, make an educated guess. Eliminate answers that are clearly wrong. An answer that includes absolute words such as *always* or *never* is probably wrong; don't choose it unless you have a good reason to support it. Also eliminate any answer that includes unfamiliar terms. If you have never heard of something, it is probably not the right answer.
3. After you finish, don't be afraid to go back and reconsider your answers. Students have

been telling each other for decades that "you should stick with your first answer," but research says that most people who change their answers improve their scores. When you examine a question a second time, you sometimes discover that you misunderstood it the first time.

LAST WORDS BEFORE WE START . . .

Most of all, I hope you enjoy the text. I have tried to include the liveliest examples I can find. The goal is not just to teach you some facts but also to teach you a love of learning so that you will continue to read more and educate yourself about psychology long after your course is over.

James Kalat

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