Good scientific research depends on critical thinking at least as much as factual knowledge; psychology is no exception to this rule. And yet, despite the importance of critical thinking, psychology students are rarely taught how to think critically about the theories, methods, and concepts they must use. This book shows students and researchers how to think critically about key topics such as experimental research, statistical inference, case studies, logical fallacies, and ethical judgments. Using updated research findings and new insights, this volume provides a comprehensive overview of what critical thinking is and how to teach it in psychology. Written by leading experts in critical thinking in psychology, each chapter contains useful pedagogical features, such as critical thinking questions, brief summaries, and definitions of key terms. It also supplies descriptions of each chapter author’s critical thinking experience, which evidences how critical thinking has made a difference to facilitating career development.

Robert J. Sternberg is Professor of Human Development at Cornell University, USA, and Honorary Professor of Psychology at Heidelberg University, Germany.

Diane F. Halpern is Professor Emerita of Psychology at Claremont McKenna College, USA.
CRITICAL THINKING IN PSYCHOLOGY

Second Edition

EDITED BY

ROBERT J. STERNBERG
Cornell University

DIANE F. HALPERN
Claremont McKenna College
Contents

List of Figures  page vii
List of Tables     viii
List of Contributors  ix
Preface          xi

1 An Introduction to Critical Thinking: Maybe It Will Change Your Life
   Diane F. Halpern and Robert J. Sternberg  1

2 Nobelists Gone Wild: Case Studies in the Domain Specificity of Critical Thinking
   Scott O. Lilienfeld, Candice Basterfield, Shauna M. Bowes and Thomas H. Costello  10

3 Why Science Succeeds, and Sometimes Doesn’t
   Jonathan Baron  39

4 Critical Thinking and the Rejection of Unsubstantiated Claims
   D. Alan Bensley  68

5 Promoting Critical Thinking by Teaching, or Taking, Psychology Courses
   Douglas A. Bernstein  103

6 Avoiding and Overcoming Misinformation on the Internet
   Jason L. G. Braasch and Arthur C. Graesser  125

7 Critical Thinking Impacts Our Everyday Lives
   Heather A. Butler and Diane F. Halpern  152

8 Research Suffers When We All Agree: How Sociopolitical Homogeneity Impairs Critical Thinking in the Academy
   Stephen J. Ceci and Wendy M. Williams  173
## Contents

9  When All Is Just a Click Away: Is Critical Thinking Obsolete in the Digital Age?  
   Gerd Gigerenzer  
   197

10  Critical Thinking: Promise, Progress, and Paradox  
    Jane S. Halonen and Dana S. Dunn  
    224

11  Evaluating Experimental Research  
    Henry L. Roediger, III and Jeremy K. Yamashiro  
    249

12  Critical Thinking as Scientific Reasoning: Examining the Power of Sports Momentum  
    John Ruscio and Kevin Brady  
    280

13  Critical Thinking in STEM Disciplines  
    Robert J. Sternberg  
    309

14  Why Would Anyone Do or Believe Such a Thing? A Social Influence Analysis  
    Anthony R. Pratkanis  
    328

15  Conclusion: How to Think Critically about Politics . . . and Anything Else!  
    Robert J. Sternberg and Diane F. Halpern  
    354

Index  

377
Figures

8.1 Percentage of participants answering 4–7 on “willingness to discriminate against” items page 178
8.2 Number of Democratic faculty members for every Republican in 25 academic fields 186
9.1 Probability of HIV infection when test is positive 203
9.2 Lead time bias 207
10.1 Bloom’s taxonomy updated 227
11.1 Jenkins’s tetrahedral model of memory experiments 270
12.1 Autocorrelations for two illustrative team-seasons 295
12.2 Do smaller samples of more recent games predict outcomes better than larger samples that include more distant games? 301
12.3 Are long streaks observed more often than expected by chance? 302
Tables

2.1 Other Nobel laureates who held/hold weird ideas page 13
4.1 Percentage of undergraduates endorsing various psychological misconceptions 74
5.1 Common claims about behavior and mental processes 106
5.2 Some sources of scientifically unsupported claims 109
5.3 Some targets for critical thinking 110
5.4 Additional topics for use in a course on myths and illusions about human behavior 116
7.1 Critical thinking skills 154
7.2 Characteristics of a critical thinking disposition 155
8.1 Number of faculty and their registration by liberal arts college 185
12.1 Does a bye week affect the probability of winning? 298
12.2 Are there fewer runs than expected by chance? 299
12.3 Are outcomes for back-to-back games positively correlated 300
13.1 Why critical thinking is largely domain-specific 321
14.1 Some additional influence tactics used to promote strange beliefs and behavior 343
Contributors

JONATHAN BARON, University of Pennsylvania
CANDICE BASTERFIELD, University of Melbourne
D. ALAN BENSLEY, Frostburg State University
DOUGLAS A. BERNSTEIN, University of South Florida
SHAUNA M. BOWES, Emory University
JASON L. G. BRAASCH, University of Memphis
KEVIN BRADY, The College of New Jersey
HEATHER A. BUTLER, California State University, Dominguez Hills
STEPHEN J. CECI, Cornell University
THOMAS H. COSTELLO, Emory University
DANA S. DUNN, Moravian College
GERD GIGERENZER, Max Planck Institute for Human Development, Berlin
ARTHUR C. GRAESSER, University of Memphis
JANE S. HALONEN, University of West Florida
DIANE F. HALPERN, Claremont McKenna College
SCOTT O. LILIENFELD, Emory University, University of Melbourne
ANTHONY R. PRATKANIS, Santa Cruz, California
HENRY L. ROEDIGER, III, Washington University in St. Louis
JOHN RUSCIO, The College of New Jersey
List of Contributors

ROBERT J. STERNBERG, Cornell University
WENDY M. WILLIAMS, Cornell University
JEREMY K. YAMASHIRO, Washington University in St. Louis
More than a decade ago, we coedited with Henry Roediger, III, a volume on *Critical Thinking in Psychology*, published by Cambridge University Press. The goal then, as now, was to promote critical thinking in the field of psychology. But the world has changed greatly in the past twelve years:

• Students rely much more on unedited Internet content than they did in the past. Often, they accept what they read without thinking about it critically.

• At the same time, students rely much less on carefully edited and fact-vetted textbooks than they did before. Indeed, the textbook industry is in something of a turmoil because it has become so hard to sell books. Some students, it appears, read hardly at all.

• Despite some textbooks claiming to emphasize critical thinking, the reading levels of textbooks continue on a downward trend. (The average adult in the US reads at a 7th or 8th grade level.)

• Students of psychology need to learn to think in a different way. A decade ago, terms like “registered replications,” “preregistration of hypotheses and data analyses,” “results-free reviewing,” and the like either did not exist or were not relevant to the life of a psychologist, whether a student or a professional. HARKing (hypothesizing after results are known) was standard practice. So-called *p*-hacking (collecting data as needed to reach a hoped-for *p* value) was not only common, but in many institutions, encouraged. Critical thinking today thus is not even quite the same as what it was back then.

• The results of “uncritical” thinking today are in some ways more severe. In the past, at worst, one was privately excoriated by confidential journal or grant reviewers. Today, there is an active “industry” of bloggers and other psychological scientists who go after and sometimes attack those whose work they believe does not represent sound critical
thinking. Sometimes, the blogs themselves represent thinking that is less than critical.

• We live in an age in which, frankly, many people have begun to wonder whether our society as a whole and its governing officers have lost their ability to think critically. Officials at the highest levels of government talk about “alternative facts” or argue that “truth isn’t truth.”

If ever there has been a need for a volume on critical thinking, we believe that time is now. Psychologists, who study thinking and factors that affect thinking, should be in an excellent position to encourage, teach for, and assess critical thinking. But how should they go about doing these things? And how can they do so in a way that will encourage transfer of training not only to psychology courses, but also to people’s everyday professional and personal lives?

In this collection, we present essays by some of the foremost experts on critical thinking in the field of psychology. The book is oriented toward students of psychology who hope to learn how to improve their critical thinking skills, and also to instructors who seek to teach and assess for critical thinking.

In order to facilitate attainment of our goals, we have asked all authors to include in their chapters:

• Key terms (stated and defined), so that users of the book can be sure they understand what the key terms are and how they are defined.
• A chapter summary, so that readers will have a sense of the main issues discussed in each chapter.
• Critical thinking about critical thinking questions (at least five per chapter), so that readers can think critically about what they have learned with regard to critical thinking.
• A section in each chapter on how critical thinking has played an important role in the author’s own professional career, so that readers can see how the authors apply their own ideas about critical thinking to their work and their lives.

We hope you find the book useful in learning about critical thinking and also for improving your own and others’ critical thinking.