Teaching Critical Thinking in Psychology

# Teaching Critical Thinking in Psychology

## A Handbook of Best Practices

Edited by

Dana S. Dunn, Jane S. Halonen,
and Randolph A. Smith

In memory of my grandmother, Yvonne Harman, ever a critical thinker. DSD

In honor of my amazing colleagues at Alverno College who helped me find such satisfaction in the mystery of teaching critical thinking. JSH

To my parents—Anna and Hugh—and my mentors—Phil, Dick, Eric, and Mrs. Flowers—who encouraged my early efforts at critical thinking. RAS

# Contents

# Contents

*Contents*

# List of Contributors

Jeffrey Andre, James Madison University – andrejt@jmu.edu
Kevin J. Apple, James Madison University – applekj@jmu.edu
Suzanne C. Baker, James Madison University – bakers@jmu.edu
Kenneth E. Barron, James Madison University – barronke@jmu.edu
Bernard C. Beins, Ithaca College – beins@ithaca.edu
Ronald W. Belter, University of West Florida – rbelter@uwf.edu
Deborah S. Briihl, Valdosta State University – dbriihl@valdosta.edu
William Buskist, Auburn University – buskiwf@auburn.edu
David W. Carroll, University of Wisconsin-Superior – dcarroll@uwsuper.edu
Maria Darcy, Private practice, Orlando, FL – drmariadarcy@cfl.rr.com
Beth Dietz-Uhler, Miami University – uhlerbd@muohio.edu
Bryan J. Dik, Colorado State University – Bryan.dik@ColoState.edu
Dana S. Dunn, Moravian College – dunn@moravian.edu
Laird R. O. Edman, Northwestern College – ledman@nwciowa.edu
Alisha L. Francis, Northwest Missouri State University – ALISHAF@nwmissouri.edu
Marin Gillis, University of Nevada School of Medicine – mgillis@medicine.nevada.edu
Dana Gross, St. Olaf College – grossd@stolaf.edu
Jane S. Halonen, University of West Florida – jhalonen@uwf.edu
Diane F. Halpern, Claremont McKenna College – diane.halpern@
    claremontmckenna.edu
Elizabeth Yost Hammer, Xavier University of Louisiana – eyhammer@xula.edu
Richard D. Harvey, Saint Louis University – harveyr@slu.edu
Jeffrey D. Holmes, Ithaca College – jholmes@ithaca.edu
Jessica G. Irons, James Madison University – ironsjg@jmu.edu
Kiersten A. Jarvis, University of North Florida – kiersten.jarvis@unf.edu
Allen H. Keniston, University of Wisconsin-Eau Claire – kenistah@uwec.edu
Trina C. Kershaw, University of Massachusetts Dartmouth – tkershaw@umassd.edu

Katherine Kipp, Gainesville College-Oconee Campus – kkipp@gsc.edu

James H. Korn, Saint Louis University – kornjh@earthlink.net

Janet E. Kuebli, Saint Louis University – kueblije@slu.edu

Nina Lamson, Gainesville College–Oconee Campus – nlamson@gsc.edu

Sherri B. Lantinga, Dordt College – lantinga@dordt.edu

Natalie Kerr Lawrence, James Madison University – lawrennk@jmu.edu

Lawrence Benjamin Lewis, Loyola University of New Orleans – lewis@loyno.edu

Scott O. Lilienfeld, Emory University – slilien@emory.edu

Jordan P. Lippman, University of Illinois at Chicago – jlippman@uic.edu

Jeffrey M. Lohr, University of Arkansas – jlohr@uark.edu

Sherrie L. Mahurin, George Fox University – slmahurin@comcast.net

Joseph A. Mayo, Gordon College – joe _m@gdn.edu

Susan L. O'Donnell, George Fox University – sodonnell@georgefox.edu

Stellan Ohlsson, University of Illinois at Chicago – stellan@uic.edu

Bunmi O. Olatunji, Vanderbilt University – olubunmi.o.olatunji@vanderbilt.edu

Blaine F. Peden, University of Wisconsin-Eau Claire – pedenbf@uwec.edu

James W. Pellegrino, University of Illinois at Chicago – pellejw@uic.edu

Monica J. Reis-Bergan, James Madison University – reisbemj@jmu.edu

Bryan K. Saville, James Madison University – savillbk@jmu.edu

Sherry L. Serdikoff, James Madison University – serdiksl@jmu.edu

Paul C. Smith, Alverno College – paul.smith@alverno.edu

Randolph A. Smith, Lamar University – randolph.smith@lamar.edu

Stacie M. Spencer, Massachusetts College of Pharmacy and Health Sciences – stacie.spencer@mcphs.edu

Claudia J. Stanny, University of West Florida – cstanny@uwf.edu

Andrew P. Tix, Normandale Community College – andrew.tix@normandale.edu

Kris Vasquez, Alverno College – kris.vasquez@alverno.edu

Carole Wade, Dominican University of California – cwade2@sbcglobal.net

Rebecca Wenrich Wheeler, Southeast Raleigh Magnet High School – rwheeler1@wcpss.net

Todd J. Wilkinson, University of Minnesota – wilk0159@umn.edu

Tracy E. Zinn, James Madison University – zinnte@jmu.edu

# About the Editors

*Dana S. Dunn*, a social psychologist, is professor of psychology and director of the Learning in Common Curriculum at Moravian College, Bethlehem, PA. He received his PhD from the University of Virginia, having graduated previously with a BA in psychology from Carnegie Mellon University. A Fellow of the American Psychological Association, Dunn is active in the Society for the Teaching of Psychology, and served as the Chair of Moravian's Department of Psychology from 1995 to 2001. He writes frequently about his areas of research interest: the teaching of psychology, social psychology, and rehabilitation psychology. Dunn is the author of five previous books—*The Practical Researcher: A Student Guide to Conducting Psychological Research*, *Statistics and Data Analysis for the Behavioral Sciences*, *A Short Guide to Writing about Psychology*, *Research Methods for Social Psychology*, and *Psychology Applied to Modern Life* (with Wayne Weiten, Margaret Lloyd, and Elizabeth Y. Hammer)—and the coeditor of three others—*Measuring Up: Educational Assessment Challenges and Practices for Psychology* (with Chandra M. Mehrotra and Jane S. Halonen), *Best Practices for Teaching Introduction to Psychology* (with Stephen L. Chew), and *Best Practices for Teaching Statistics and Research Methods in the Behavioral Sciences* (with Randolph Smith and Bernard C. Beins).

*Jane S. Halonen*, a clinical psychologist by training, is Dean of Arts and Sciences at the University of West Florida. Jane began her career at Alverno College, an institution widely recognized as a leader in higher education assessment. She served as Director of the School of Psychology at James Madison University from 1998 to 2002. She received her bachelor's degree from Butler University and her advanced degrees from the University of Wisconsin-Milwaukee. A Fellow of the American Psychological Association's Division 2 (Teaching), she has served as both president of the division and associate editor of its journal, *Teaching of Psychology*. Named an Eminent Woman in Psychology by the APA in 2002, her service contributions to the teaching community have been recognized by Division 2, which named its Early Career Achievement award in her honor. The award is

given annually to the most compelling national candidate in the first five years of an academic career. Jane has been an academic consultant to universities on critical thinking and faculty development as well as a department reviewer for nearly two dozen psychology departments. She served on the steering committees of both the St. Mary's Conference and the Psychology Partnerships Project, both national forums to address quality in undergraduate programs. She has been involved with every project undertaken by the American Psychological Association to help establish student performance standards since the initial project on high school student learning outcomes. She has authored and collaborated on a variety of publications, including *Your Guide to College Success,* a first year experience textbook coauthored with John Santrock, which is going into its seventh edition. She codirects the annual international Improving University Teaching Conference with Peter Seldin. Jane is completing her final year as Chief Reader in managing the Advanced Placement Psychology Reading.

*Randolph A. Smith* is currently Professor and Chair of the Department of Psychology at Lamar University. He taught at Kennesaw State University from 2003 to 2007; prior to that time, he spent 26 years at Ouachita Baptist University (Arkadelphia, AR). Randy is a Fellow of the American Psychological Association (Divisions 1 and 2) and has filled a variety of positions within the Society for the Teaching of Psychology. Currently, he is editor of *Teaching of Psychology*, a post he has held since 1997. He is coauthor (with Steve Davis) of a research methods textbook (*The Psychologist as Detective: An Introduction to Conducting Research in Psychology*) and a combined statistics/research methods text (*An Introduction to Statistics and Research Methods: Becoming a Psychological Detective*). In addition, he has authored a critical thinking book (*Challenging Your Preconceptions: Thinking Critically About Psychology*) and has edited the Instructor's Manual for Wayne Weiten's introductory psychology text. Randy has more than 50 publications, including books, journal articles, and book chapters. In addition, he has given over 100 presentations and has supervised almost 150 undergraduate conference presentations. Randy's interests and research revolve around the scholarship of teaching of psychology. He was a cofounder of the Southwestern Conference for Teachers of Psychology and the Arkansas Symposium for Psychology Students, a student research conference that has existed for more than 20 years. He was a participant in the St. Mary's Conference in 1991 and on the Steering Committee for the Psychology Partnerships Project in 1999. Randy is also a member of the American Psychological Society, Psi Chi, and the Southwestern Psychological Association (where he served as President in 1990–91). He earned his bachelor's degree from the University of Houston and his doctorate from Texas Tech University.

# Foreword

## *Diane F. Halpern*

Everyone wants to do it—help their students become better thinkers—but it is always difficult to know where or how to start. All professors believe they have been teaching critical thinking. As one miffed professor once asked me, "What kind of thinking do you think I have been teaching all these years—noncritical thinking?" Actually, I didn't want to answer that question because I was afraid that he was doing just that. Not deliberately of course, but without a clear idea of what critical thinking is, it is easy to teach as you were taught, following a long and well-meaning lineage of professors who are teaching for a time that no longer exists. Our knowledge is constantly being revised and new skills are needed to replace old ones. What do our students need to know and be able to do, and how can we help them know it and do it?

Before we answer this question, let's think about the current and future lives of our students and today's college students in general. According to several different surveys, college students spend many hours every day Facebooking, e-mailing, and IMing (instant messaging for those of you whose lives are not a constant blur of technology-mediated communication). They are rarely disconnected. They walk to class talking with invisible others via small wires that hang from their ears, and sing along with music that is piped directly into their ears. Many of today's college students spend the equivalent of one workday every week playing online games, some of which are so intricate that they make any assignment we could think up look like child's play. Many of our students work while going to school, with close to one-fifth working full-time while they are racking up debts the size of a mortgage. Surveys conducted as a creative class project devised by Michael Wesch, an assistant professor of cultural anthropology at Kansas State University, found that college students spend much of their time multitasking. How else could they create more online hours in a real, not virtually real, day? The students who collected the data chronicle the lives of many students who rarely come to class, do not buy the books we assign, or if they do buy them, do only half of the assigned readings. Of course, our students are more diverse than ever before, and any summary statistic fails to capture the essential essence of their busy lives.

*Foreword*

Our students are likely to change jobs six times, working at jobs that do not exist today. They expect to find any fact with no more than three clicks of a mouse, but much of what they retrieve is of questionable quality, and I sincerely hope they are stopping to question it. It has been estimated that there is more information in a weekday edition of *The New York Times* than an average person living in the 17th century would encounter in a lifetime. We are awash with information, which creates the real danger of having all of the answers and still not knowing what they mean. Our students will need to solve the problems that we created, including pollution, terrorism, racism, poverty, nuclear weapons, obesity, and loneliness, just to name a few.

It is against this background of our students' current and future lives that I return to the question of what our students need to know and be able to do and how we can help them know it and know how to do it. Given the reliance on the Internet for information ranging from finding a date, engaging in online gaming, finding research from university libraries, making health decisions, and investing in an array of options that guarantee quick riches, the ability to recognize credible evidence is critical. The need is great and the task is large—how can we help our students become better thinkers?

Help is on the way. Dana Dunn, Jane Halonen, and Randy Smith have put together this collection of short gems that provide guideposts for faculty who need some help in knowing what to do to enhance their students' critical thinking skills. Each of the chapters provides an activity or new way of thinking about thinking for anyone who is thinking about the how-tos and what-to-dos in their classes this afternoon or later on in this semester. There are short activities that do not sacrifice standard course content in exchange for improving the process of thinking about that content. In addition, there are numerous tips on assessing growth in critical thinking, and overviews that discuss skills, dispositions, and the activities to develop them. Looking through the listing of chapters is like opening a new box of chocolates. They all look enticing. You can take a bite out of one, and if it is not to your liking you can put it back in the box and go on and find just the ones you like best. There are some great ideas and lots to think about. There is surely something to enhance critical thinking skills for everyone and every class. I enjoyed reading the varied chapters and cannot wait to try out some of the ideas in my own classes. You will too.

Diane F. Halpern, Claremont McKenna College

# Preface

Critical thinking is not one activity; rather, the term refers to a collection of thinking skills that advance intellectual focus, motivation, and engagement with new ideas (Halonen & Gray, 2000). These thinking skills include the ability to recognize patterns; to solve problems in practical, creative, or scientific ways; to engage in psychological reasoning; and to adopt different perspectives when evaluating ideas or issues. Teaching students to think critically in or outside the classroom improves their abilities to observe, infer, question, decide, develop new ideas, and analyze arguments.

The goal of teaching critical thinking to psychology students is to refine their abilities to describe, predict, explain, and control behavior. Teachers need relevant tools and classroom strategies for enhancing students' critical thinking abilities in psychology. Our handbook contains a variety of scholarly perspectives aimed at teaching faculty how to teach critical thinking to students regardless of the course level or content area in psychology. As well as asking our authors to provide strategies and ideas for improving critical thinking pedagogy in the discipline, we asked them to discuss how to assess critical thinking within the context covered in their contributions.

This edited handbook is a scholarly yet pedagogically practical attempt to teach critical thinking skills in the context of the discipline of psychology. Our authors provide a showcase for best practices for teaching critical thinking issues in psychology courses taught at four-year colleges and universities, two-year colleges, and high schools. The chapters and short reports in this book grew out of professional presentations delivered at the September 30–October 1, 2005 conference, *Engaging Minds: Best Practices in Teaching Critical Thinking Across the Psychology Curriculum*, which was held in Atlanta, GA. The conference was sponsored by the Society for the Teaching of Psychology (STP), the National Institute on the Teaching of Psychology (NIToP), and the Kennesaw State University Center for Excellence in Teaching and Learning (CETL).

What's new about teaching critical thinking? The chapters and reports herein reveal innovations on various pedagogical fronts, including:

1   *New materials and perspectives*. The book offers novel, nontraditional approaches to teaching critical thinking, including strategies, tactics, diversity issues, service learning, and the use of case studies.
2   *New course delivery formats*. Faculty can create online course materials to foster critical thinking within a diverse student audience.
3   *A focus on assessment*. Authors place specific emphasis on how to both teach and assess critical thinking in the classroom. Discussion also focuses on issues of wider program assessment.
4   *Critical thinking in course contexts*. Contributors discuss ways to use critical thinking in the psychology classroom from the introductory psychology course into mid and upper level course offerings, including statistics and research methods courses, cognitive psychology, and capstone offerings.
5   *Developmental perspectives on critical thinking*. Students' stages of social and intellectual development—their "readiness"—for learning different types of critical thinking are explored.
6   *Teaching critical thinking through student-generated research*. Critical thinking has a purpose, especially the practice of creating, conducting, and evaluating empirical research in psychology.
7   *Critical thinking and scientific literacy*. How can critical thinking help our students become more scientifically aware and literate?
8   *Writing and critical thinking*. The role of critical thinking in learning and using APA-style writing, as well as improving writing generally, is considered.

Who will benefit from using this book? This book is aimed at educators—teachers, researchers, and graduate students—who teach critical thinking in psychology or who want to insert critical thinking activities into their teaching of the discipline. The added value found in this handbook is the diversity of approaches to teaching critical thinking found within it.

<div align="right">

Dana S. Dunn, Jane S. Halonen,
and Randolph A. Smith

</div>

## Reference

Halonen, J., & Gray, C. (2000). *The critical thinking companion for introductory psychology* (2nd ed.). New York: Worth.

# Acknowledgments

# Chapter 1

## Engaging Minds: Introducing Best Practices in Teaching Critical Thinking in Psychology

*Dana S. Dunn, Jane S. Halonen,
and Randolph A. Smith*

Critical thinking is consequential thinking. As teachers, we want our students to both appreciate and exemplify the sort of critical thinking displayed by Dr. John Snow, a mid-19th-century London physician who searched for a pattern in cholera-plagued neighborhoods in the city's center. Using a city map, Snow plotted the addresses of the known dead—around 500 people—as well as the location of all the local public water pumps (cholera is a water-borne bacterial infection). Upon discovering that the majority of deaths occurred near one pump, he had it removed. The epidemic ended when his observation and analysis led to insight and action (Gilbert, 1958; Johnson, 2007; Tufte, 1983).

As teachers of psychology, we want our students to understand that the analysis and evaluation of behavior—thoughts, feelings, and actions—is also complex. We want to spark students' insights and enthusiasm for tough topics, as we expect them to learn and to appreciate that clinical judgments can never be superficial (e.g., Meehl, 1973), for example, or that social behavior is usually more situational or contextual than personality-driven (e.g., Milgram, 2004; Ross & Nisbett, 1991). We want our students to think deeply about the inferential puzzles posed by less dramatic, everyday, yet still fundamentally psychological problems. Why, for example, do people understand conjoint probabilities in statistics classes but ignore them when they are applied in realistic examples? Consider this classic example:

> Linda is 31 years old, single, outspoken, and very bright. She majored in philosophy. As a student, she was deeply concerned with issues of discrimination and social justice, and also participated in anti-nuclear demonstrations.
>
> Which of the following statements is more probable?
>
> Linda is a bank teller.
>
> Linda is a bank teller who is active in the feminist movement. (Tversky & Kahneman, 1984, p. 297)

Unless we are at our inferential best, the second choice seems obvious, even irrefutable. Pause and reflection, however, lead us to conclude that there are more bank tellers than bank tellers with a feminist bent; the probability of A and B cannot be greater than the probability of A or B alone. Examples here range from those developed through the study of decision-making heuristics and biases involved in intuition (e.g., Gilovich, Griffin, & Kahneman, 2002) to persistent belief in sports-related phenomena, such as "streak shooting" and having "hot hands" in basketball (Gilovich, Vallone, & Tversky, 1985; see also, Risen & Gilovich, 2007). Besides these clever, discipline-based examples, of course, psychology teachers hope their students will use critical thinking to plan for the future, to perform well in their careers, and to continue liberal learning throughout their lives. To achieve these desired ends, however, critical thinking needs to be nurtured, and both teachers and students must be weaned from the sort of noncritical thinking that all too routinely appears in the psychology classroom (Halpern, 2007).

We conceived this handbook to be a scholarly yet practical teaching resource for psychology teachers and others interested in enhancing students' critical thinking skills. We challenged our colleagues to craft chapters demonstrating how to improve the quality of thinking that students display in psychology courses and outside the classroom. In short, we asked them to engage the minds of students by sharing their best practices for teaching critical thinking. We believe that they succeeded admirably.

We and the authors believe that that these best practices for critical thinking allow students to see the world, or important aspects of it, anew. Collectively, the contributors provide a vital, analytical, sometimes skeptical, but ever questioning approach to understanding behavior that both enables students to learn from and to actively contribute to the discipline of psychology. We firmly believe—and the chapters and brief reports in this book show—that as teachers become engaged in designing critical thinking activities, their students will respond by becoming more critical thinkers and consumers of psychological knowledge.

## A Handbook of Best Practices

This handbook has six parts. The first five contain traditional chapters dealing with the need for teaching critical thinking in psychology, assessment, assimilating critical thinking into key courses in the psychology curriculum, broader implications of critical thinking for the curriculum, and exploring critical thinking outside the classroom. The book's sixth part is innovative, as it contains a thoughtful collection of brief reports on critical thinking and psychology. We now introduce the contents of the six parts in greater detail.

### *Making a Case for Teaching Critical Thinking in Psychology*

Carole Wade opens Part I by making a simple case with which we can all agree: The teaching of critical thinking in the psychology classroom is needed now more than ever. In her open, engaging style, Wade observes that although critical thinking tools are ample and available, the challenge for teachers remains convincing students how vital and helpful

these tools are for learning about psychology and life. For example, pointing to various published studies, Wade debunks a variety of scientific myths about behavior that still make the rounds in some therapeutic settings where those practicing the discipline should know better. She then turns to the promise and problems posed by technological advancements—yes, fMRI is a powerful method to study mind and brain, but until researchers know more about precisely what it reveals about behavior, theory and application should be circumspect. Wade closes her contribution by reminding readers that one of the key battles, both in the classroom and our wider culture, is against the relativism that often grips our students, leading to an earnest desire not to argue, debate, or criticize, but to accept or acquiesce. Renewing our efforts in the teaching of critical thinking can help us all combat such banal relativism.

In the second chapter in this section, Natalie Kerr Lawrence, Sherry Serdikoff, Tracy Zinn, and Suzanne Baker bridge the gap lying between faculty and student understanding of what constitutes critical thinking and whether or why it is an important pursuit. These authors share the intriguing results of a survey they conducted at James Madison University, an institution noted for its comprehensive approach to assessing learning outcomes. This effort carries on that tradition nicely, and the authors do an excellent job of linking teacher and student beliefs to the existing critical thinking literature. They then provide a variety of teaching examples aimed at bridging the gap in the classroom between faculty and student beliefs about critical thinking. One important message emerging from this chapter is that the level of students' cognitive development plays a large part in determining how well they understand, learn, and later use critical thinking concepts.

In his chapter, Laird Edman notes that teaching critical thinking as a skills-based approach is inadequate because those skills do not transfer well. Rather, he advocates for a dispositional theory of critical thinking centered in personal epistemology. Taking this approach to developing critical thinking has an important implication for us as teachers: Most of our students will require substantial cognitive reorganization, so we can expect progress to be slow and incremental. According to Edman, we must avoid teaching "facts" to students and, instead, focus on creating disequilibrium for students so that they will make cognitive accommodations.

In the last chapter to put the case for teaching critical thinking to psychology students, William Buskist and Jessica Irons offer a variety of simple strategies they believe promote scientific reasoning. Beyond defining their approach to critical thinking, the authors present general features of the process as well as major qualities that characterize it. They then explore some of the reasons why students avoid doing critical thinking in the classroom without the judicious guidance (and gentle prodding) of committed teachers. As Buskist and Irons nicely demonstrate, with a bit of effort and forethought, faculty can infuse critical thinking into virtually any course within the psychology curriculum.

## Assessment Matters

Jane Halonen, a critical thinking scholar and leader in the assessment movement in psychology, opens Part II, which is dedicated to issues of assessment. As most psychologists now know, assessment is not to be feared, as it is hard to argue against a sincere desire to demonstrate

whether our teaching and learning is leading to the intended outcome in our students. By discussing her teaching experiences and academic biography, Halonen offers sage and sound advice on how critical thinking activities tied to assessment can enhance what happens in the psychology classroom. Her call for measuring critical thinking is tempered by the reality of classroom dynamics and not the limits of our teaching hopes; earnest attempts are better than worrying about achieving immediate accuracy. Halonen counsels that critical thinking holds the promise to move us all, students as well as faculty and administrators, ahead in the goal of making disciplinary knowledge meaningful in the classroom and in our wider lives.

Halonen's enthusiasm for assessment is channeled into a careful, thoughtful, and well-planned chapter written by Kevin Apple, Sherry Serdikoff, Monica Reis-Bergan, and Kenneth Barron. This second assessment-focused chapter presents a programmatic approach to assessing critical thinking in psychology courses, one aimed at tapping into several components linked to the construct rather than assuming one will suffice. The multimodal approach advanced by the authors hearkens back to sound psychometric practice and looks forward to best classroom practices. True to their James Madison lineage, this group of teacher-scholars advocates that critical thinking should be assessed at multiple points during a psychology student's education, not just once or twice. Their experiences inform readers about how best to improve psychology assessment practices and to avoid predictable pitfalls while doing so.

Stacie Spencer and Marin Gillis close Part II by presenting a process-oriented approach to the study of critical thinking regarding complex psychological topics, such as stress. These authors remind us of the power that language plays in the classroom and daily life, so that teachers must be careful to monitor whether students are using appropriate, empirically based conceptions or, instead, everyday understanding of key constructs. Spencer and Gillis point to the subsequent problem: Language limits lead to context-bound understanding of concepts, which in turn prevent students from being able to properly apply psychological information to new settings or situations. To combat this problem, the authors offer a helpful set of steps teachers can use to help students learn to critically learn, understand, and apply complex ideas.

## Integrating Critical Thinking into Critical Psychology Courses

We know that one reason many readers will be interested in this book is to learn how to add critical thinking components into specific courses they teach. The chapters in Part III address this desire very well, beginning with the sage advice of David Carroll, Allen Keniston, and Blaine Peden, who offer counsel to teachers who are not sure of how or where to begin. They offer advice and examples to faculty who want only to add an activity or two, as well as to those who want to overhaul a given course so that critical thinking is embedded throughout it (helpfully, they illustrate their arguments by drawing on exemplar courses examining cognition and the history of psychology). Carroll, Keniston, and Peden conclude by reminding readers of general principles of critical thinking that can inform intellectual experiences throughout the psychology curriculum.

Susan O'Donnell, Alisha Francis, and Sherrie Mahurin advocate using the popular *Taking Sides* book (Slife, 2006) in General Psychology to help students develop their critical

thinking skills. They present a list of nine questions that students can use to help them think critically; O'Donnell and Francis have their students use these questions as they read an issue from the *Taking Sides* book. Finally, they provide assessment ideas based on writing.

Joseph Mayo invites teachers to create critical thinking experiences in their classrooms by borrowing concepts from George Kelly's (1955) personal construct theory, one of the most intriguing and underresearched approaches to understanding personality. Following Kelly, Mayo argues that using critical thinking skills, students can learn to act as "personal scientists" in search of understanding in the psychology classroom. By adapting Kelly's repertory grid technique, Mayo teaches students to examine key theories and constructs from different areas of psychology using this creative and evaluative system. He demonstrates that this pedagogical framework improves comprehension of course content and helps to structure a given psychology course (here, life span development and history and systems) in meaningful, accessible, and assessable ways.

Janet E. Kuebli, Richard Harvey, and James Korn provide helpful ideas for infusing critical thinking into social psychology, a capstone course, and a graduate-level Teaching of Psychology course. In addition, they present a critical thinking pedagogical framework that relates academic skills, instructional methodologies, and critical thinking abilities to one another.

The course (or courses) that routinely calls upon critical thinking skills but is often the most daunting to teach—statistics and research methods—is the topic of a chapter written by Bryan Saville, Tracy Zinn, Natalie Lawrence, Kenneth Barron, and Jeffrey Andre. The challenge for teachers, of course, is to keep students interested and learning while reducing their anxiety about skill demands posed by the nature of the topics. The authors wisely note that acquiring a basic, working understanding should not be the goal; rather, students should develop a critical acumen that allows them to become worldly consumers of psychological research as well as everyday scientific information. They provide a variety of thoughtful course approaches and teaching alternatives that can promote student learning in these key topics in the psychology curriculum.

## Critical Thinking and the Broader Psychology Curriculum

Critical thinking is not unique to any one class in the psychology curriculum. Ideally, critical thinking should appear throughout the curriculum, a promising idea that authors in Part IV of the book address. The first authors to do so are Dana Dunn and Randolph Smith, who discuss writing, one of the most important skills psychology majors can learn and profit from in and outside the discipline's confines. Dunn and Smith discuss the role critical reading plays in the writing process, suggest some practical writing activities faculty can use in their teaching, and explore the critical thinking-enhancing qualities of the discipline's model for writing, APA style.

Elizabeth Hammer discusses critical thinking qualities associated with the now popular curricular innovation, service learning. Hammer describes her own evolution from merely attaching a service-learning activity in a psychology class to designing service-learning objectives that blend seamlessly with learning psychological concepts and theories.

She recommends specific strategies that optimize student learning through their community contributions and also address the nature of the additional workload that service learning entails from the instructor. Her discussion makes the incorporation of service learning in psychology courses not only easily justified, but an exciting addition that will enhance student engagement in the discipline and community.

Although Jordan Lippman, Trina Kershaw, James Pellegrino, and Stellan Ohlsson write about critical thinking activities that they use in their Cognitive Psychology courses, they also believe that the activities are adaptable to other advanced courses. They advocate having students engage in three processes as they learn to think critically: participation in experiments and reflection on the meaning of the data, analysis of empirical articles and connection to class content, and the cognition in daily life exercise in which students interpret daily life events in light of course concepts.

In the next chapter in this section, Bernard Beins visits the meaning behind the Research Methods course, especially where fostering critical thought and scientific literacy are concerned. Beins argues that the Research Methods course makes a true intellectual contribution by helping students develop a critical stance as well as scientific literacy. Knowing and learning what to believe turns out to be a tricky business, and Beins provides teachers with a terrific set of examples that will help their Research Methods students begin to see the world in more complex terms while simultaneously thinking of ways to experimentally simplify it for empirical study.

Paul Smith and Kris Vasquez close Part IV by discussing the particular challenges that ensue when we ask students to think critically about the values they hold deeply. Smith and Vasquez point out that students can relatively easily move from novice to expert status when coming up with critiques of research design as they make progress through the psychology curriculum, but struggle mightily when we ask them to bring their critical skills to bear on a belief that they have already determined is real or true. Smith and Vasquez offer some tips about how to promote transfer of critical thinking skills from research methods to deeply held values.

## Thinking Critically Beyond the Classroom

The single chapter in Part V is devoted to helping students to think critically about their future careers. Deborah S. Briihl, Claudia J. Stanny, Kiersten A. Jarvis, Maria Darcy, and Ronald W. Belter develop profiles of two levels of courses designed to enhance student knowledge about what possibilities await them after the completion of their undergraduate degree. One career course, developed at the University of West Florida, provides an online environment in which students can explore various career options that will facilitate good course choices and other preparation strategies in the courses that remain. In contrast, the senior level career course developed at Valdosta State University emphasizes resume building, interviewing skills, and applicant–job matching to help students make effective decisions at the end of their undergraduate work. The authors conclude the chapter with an analysis of the comparative strengths and weaknesses of both approaches. Their work provides a compelling example of a practical problem—getting their careers launched in psychology—that should profit from well-developed critical thinking abilities in the discipline.

## *Critical Briefings on Critical Thinking*

When we planned this book, we decided that beyond soliciting some authors to submit traditional length chapters, we would also invite others to write brief reports on innovative exercises and classroom activities dealing with critical thinking. The short reports allow casual readers as well as already committed teachers of critical thinking techniques to dip into an offering, quickly learn from the work, and then apply the ideas in their own teaching. Thus we believe that our modest innovation provides readers with serious (and immediately accessible) dividends. Each of our short report authors has crafted critical briefings on timely topics. We will not summarize the ideas contained in these reports here, but we will highlight some of the reviewed topics: Web-based critical thinking modules, teaching students to think like psychologists, introducing controversial issues in class, teaching critical thinking via practical application, and a modular approach to writing research papers. We believe these brief, focused reports make for both good reading and fine pedagogy.

## The Rewards of Teaching Critical Thinking

Virtually everyone agrees that teaching critical thinking is a good idea, but as several authors attest, doing so can be hard work. Yet avoiding accepting this responsibility poses perils for us as psychologists and educators (Sternberg, 2007). We want to close this overview chapter by reminding readers that the rewards associated with critical thinking outweigh the demands involved. Where learning is concerned, for example, embedding critical thinking practices in psychology is apt to lead to deeper processing of arguments, ideas, theories, and results. Greater retention may well lead to more frequent application in discipline-related and nondiscipline-related contexts. A less educationally dramatic result is that our classrooms are very likely to become livelier and more welcome places. Just as discussion and small group work have achieved some parity with the traditional lecture method on many campuses in recent years, we believe that critical thinking can also lay siege to established practices that result in less active learning. In the end, we believe one of the best rewards for teaching critical thinking is that at the same time it engages the minds of our students, the necessary preparation for and execution in the classroom serves to rejuvenate our own engagement with the discipline.

## References

Gilbert, E. W. (1958). Pioneer maps of health and disease in England. *Geographical Journal, 124,* 172–183.

Gilovich, T., Griffin, D., & Kahneman, D. (Eds.). (2002). *Heuristics and biases: The psychology of intuitive judgment.* New York: Cambridge University Press.

Gilovich, T., Vallone, R., & Tversky, A. (1985). The hot hand in basketball: On the misperception of random sequences. *Cognitive Psychology, 17,* 295–314.

Halpern, D. F. (2007). The nature and nurture of critical thinking. In R. J. Sternberg, H. L. Roediger, III, & D. F. Halpern (Eds.), *Critical thinking in psychology* (pp. 1–14). New York: Cambridge University Press.

Johnson, S. (2007). *The ghost map: The story of London's most terrifying epidemic—and how it changed science, cities, and the modern world*. New York: Riverhead Trade.

Kelly, G. A. (1955). *The psychology of personal constructs* (Vols. 1–2). New York: Norton.

Meehl, P. E. (1973). *Psychodiagnosis: Selected papers*. New York: Norton.

Milgram, S. (2004). *Obedience to authority*. New York: Harper.

Risen, J., & Gilovich, T. (2007). Informal logical fallacies. In R. J. Sternberg, H. L. Roediger, III, & D. F. Halpern (Eds.), *Critical thinking in psychology* (pp. 110–130). New York: Cambridge University Press.

Ross, L., & Nisbett, R. E. (1991). *The person and the situation*. New York: McGraw-Hill.

Slife, B. (Ed.). (2006). *Taking sides: Clashing views on psychological issues* (14th ed.). New York: Dushkin.

Sternberg, R. J. (2007). Critical thinking in psychology: It really is critical. In R. J. Sternberg, H. L. Roediger, III, & D. F. Halpern (Eds.), *Critical thinking in psychology* (pp. 289–296). New York: Cambridge University Press.

Tufte, E. R. (1983). *The visual display of quantitative information*. Cheshire, CT: Graphics Press.

Tversky, A., & Kahneman, D. (1984). Extensional versus intuitive reasoning: The conjunction fallacy in probability judgment. *Psychological Review, 91,* 293–315.

*Part I*

The Case for Teaching Critical
Thinking in Psychology