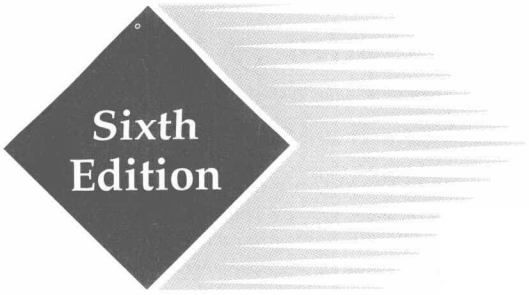
Research Methods in Psychology

John J. Shaughnessy · Eugene B. Zechmeister · Jeanne S. Zechmeister



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John J. Shaughnessy
Hope College

Eugene B. Zechmeister
Loyola University of Chicago

Jeanne S. Zechmeister
Loyola University of Chicago

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About the Authors

JOHN J. SHAUGHNESSY is Professor of Psychology at Hope College, a relatively small, select, undergraduate liberal arts college in Holland, Michigan. After completing the B.S. degree at Loyola University of Chicago in 1969, he received the Ph.D. in 1972 from Northwestern University. He is a Fellow of the American Psychological Society whose recent research has focused on practical aspects of memory. He is coauthor, with Benton J. Underwood, of *Experimentation in Psychology* (Wiley, 1975). Students selected him as the Hope Outstanding Professor Educator in 1992, and he serves as a mentor in the College's Faculty Development Program.

EUGENE B. ZECHMEISTER is Professor of Psychology at Loyola University of Chicago, a large metropolitan university where he has taught both undergraduate and graduate courses since 1970. Professor Zechmeister completed his B.A. degree in 1966 at the University of New Mexico. He later received both the M.S. (1968) and Ph.D. (1970) from Northwestern University. A specialist in the field of human cognition, and experimental methodology, Professor Zechmeister has co-authored books on human memory, critical thinking, statistics and research methods. *Data Analysis and Interpretation in the Behavioral Sciences,* written with E. J. Posavac, was recently published by Wadsworth (2003). He has been a Fellow both of the American Psychological Association (Divisions 1, 2, and 3) and the American Psychological Society. In 1994 he was awarded the Loyola University Sujack Award for Teaching Excellence in the College of Arts and Sciences.

JEANNE S. ZECHMEISTER has been Associate Professor of Psychology at Loyola University of Chicago since 1990. Professor Zechmeister completed her B.A. at University of Wisconsin-Madison (1983) and her M.S. (1988) and Ph.D. (1990) in Clinical Psychology at Northwestern University. She teaches undergraduate and graduate courses in research methodology and her research focuses on psychological processes associated with forgiveness. Her effectiveness as a teacher is evidenced by her many years of high teacher ratings and by her being identified consistently each year by graduating seniors as one of their best teachers at Loyola.

To Paula
and to the Memory of
Martha,
two women to whom I am
greatly indebted
(J.J.S.)

To Ruth O'Keane
and to the Memory of
James O'Keane,
Kathleen O'Keane Zechmeister,
and My Mother
(E.B.Z.)

To My Family
(J.S.Z.)

Preface

Detectives can know the excitement of discovering a critical piece of evidence. Prosecuting attorneys can know the satisfaction of bringing a guilty person to justice, and defense attorneys can prevent a miscarriage of justice. Judges and juries bear the responsibility of discerning the truth. Research psychologists play all these roles as they search for evidence, make the case, and render verdicts about what principles of behavior and mental processes are true. What are the effects of day care on children's intellectual and social development? To what extent do our genes determine our personalities? What are the consequences of racial stereotyping on the targets and perpetrators of these stereotypes?

For over two decades we have been writing editions of this research methods textbook with the hope that we could capture the excitement of psychological inquiry as well as the importance of understanding the methods used to conduct research. Our greatest satisfaction from writing this textbook and teaching research methods has been seeing students who enter the course feeling mild trepidations, leave not only feeling competent and confident but also excited about their understanding of the research process.

Organization and Approach

Our approach is based on our years of teaching experience. As instructors of research methods, we recognize that most students in our classes will be consumers of research and not producers of research. Students who choose to take on either role will benefit from developing critical thinking skills. We believe that we can best help our students think critically by taking a problem-solving approach to the study of research methods. Researchers begin with a good question and then select a research method that can best help them answer their question. The sometimes painstaking task of gathering evidence is only the beginning of the research process. Analyzing and interpreting the evidence are equally important in making claims about psychological processes. Researchers (and students) must analyze the strengths and weaknesses of the method they have chosen in order to be able to evaluate critically the nature of the evidence they have obtained.

Another feature that we continue from our last edition is the website designed for our book. There are interactive exercises and quizzes for students to test their knowledge of text material, as well as links to other important psychology websites. Instructors will find the instructor's manual and lecture/discussion aids helpful. Both students and instructors may easily contact the authors via this site. Please come see us at www.mhhe.com/shaughnessy6.

Changes in This Edition

The expression "The more things change, the more they stay the same" applies when writing a sixth edition of a textbook. We continue in this edition to illustrate the strengths and weaknesses of each research method using examples from the rich psychology literature. We do so because we think that reading actual research examples will help students appreciate the critical link between research methods and psychological knowledge. We believe that it is this appreciation for research methods and their findings that makes the study of psychology even more fulfilling and meaningful. We also continue to use bullet points within the chapters and Review Questions at the end of chapters to help students see clearly what points we think are most important for them to learn. And we continue to rely on the Challenge Questions at the end of chapters to help students learn to apply the principles they have learned. Building on the model of the Challenge Questions, we have embedded Stretching Exercises in most chapters to allow students to apply research principles while they are learning about the principles.

But things *do* change. Since we published our last edition, APA has revised the ethical principles and code of conduct for psychologists, and published a new edition of the *Publication Manual*. We have included these APA changes in Chapter 3 on ethical issues and in Chapter 14 (an appendix in previous editions) on communication in psychology. We have revised the overall structure of the book to include 14 chapters rather than the 10 in the previous edition. We have streamlined the text by emphasizing student relevant examples that clearly illustrate the major principles of the research method presented in each chapter. We hope that the shorter chapters will facilitate students' learning of the material and instructors' flexibility in designing their course. We have also added a new opening chapter that welcomes students to the study of research methods by using an analogy between the criminal justice process and the scientific process. Discussion questions at the end of this chapter encourage students to become active learners from the beginning.

A final and major structural change we have made is to revise the appendix on statistics from previous editions into two new chapters that deal with data analysis and interpretation (Chapters 12 and 13). We leaned heavily on Robert Abelson's ideas as elucidated in his published articles and book, *Statistics as Principled Argument* (1995/Erlbaum), and on the APA Task Force on Statistical Inference (Wilkinson et al., 1999). Students will be introduced in these two chapters to a three-stage approach to analysis: an exploratory stage (getting to know the data); a summary (descriptive) stage; and a confirmation stage (confirming what the data reveal). We are optimistic that careful study of the material in these chapters will give students the necessary background both to read published research articles critically and to analyze data from their own research projects. Having more complete coverage of statistical issues in these two chapters has allowed us to focus on the conceptual issues of data analysis in the individual chapters covering specific research methods. Students can gain an appreciation of the way in which research methods and data analysis are intertwined without studying Chapters 12 and 13. By studying these

chapters, however, their understanding of both data analysis and research methods will be enriched.

Words of Thanks

Many knowledgeable and discerning reviewers over the years contributed to this latest edition. Among the most recent to whom we are grateful are:

Michael J. Bayly
University of Charleston
Samuel Hill
The Sage Colleges
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Ph.D., Eastern Kentucky University
Stephen T. Paul
Mississippi State University
Steven Robbins
Ph.D., Beaver College
Virgil L. Sheets
Indiana State University

If a change that was recommended didn't appear, it wasn't because we didn't consider carefully what these reviewers were telling us. We did. Thanks for pushing us to be better.

The cumulative contributions of many others to this and earlier editions are by now beyond easy acknowledgment. Yet, some people stand out as helping to prepare this latest edition. They include our colleagues at Loyola University Chicago, Emil Posavac and Scott Tindale, who read and critiqued the new chapters dealing with data analysis and interpretation, and Joe Sherwin, Director of Research Services at Loyola, who read carefully the ethics chapter and made important suggestions for changes. Many thanks go to Paula N. Shaughnessy, who did the final formatting of the entire manuscript and prepared the Glossary and References. We also acknowledge Liz Zechmeister who helped us obtain permissions for photos and work cited.

We also would like to acknowledge the editorial and production staff at McGraw-Hill. Melissa Mashburn got us started on this edition and Cheri Dellelo provided an insightful summary of the reviews we received. We benefited from the experience and high expectations of Ken King who was our senior sponsoring editor. Georgia Gero-Chen's competence made our work more efficient and her graciousness made our experience more pleasant. Jenny El-Shamy created an inviting cover design for our book. Lou Ann Wilson identified photos that are well suited to the text material. This is the third edition that has benefited from the beautiful drawings by our good friend Fran Hughes. Our copyeditor, Linda Gomoll, demonstrated an attention to detail that even extended to catching errors in computations in the text. Finally, our project manager, Mary Lee Harms, kept us all on schedule while keeping her focus on an even higher priority—the quality of the work we were doing.

John J. Shaughnessy
Eugene B. Zechmeister
Jeanne S. Zechmeister

Brief Contents

Contents

Introduction

CHAPTER OUTLINE

Thinking Like a Researcher

Let's get right down to work. Consider the following headlines drawn from local newspapers and decide what kinds of evidence you think are implied by each statement.

1 A man from California is suspected of arson in the recent school fire.
2 Chicago police arrested a company vice president for embezzling $250,000.
3 A couple from Dubuque were arraigned in court today on a charge of parental neglect.
4 A reclusive woman in upstate New York was convicted of manslaughter in the case involving the death of her neighbor.

The specific evidence in these four cases would likely vary because the alleged crimes vary from arson to manslaughter. In addition, the evidence implied in the four statements would likely vary systematically on another dimension. The quality and the extent of the evidence required to *convict* a person of a crime, as in the fourth statement, are greater than those required for each of the first three statements. For instance, a person might be suspected of a crime based on the personal opinion of an investigator and might be arrested based on circumstantial evidence. For arraignment and conviction, however, more definitive evidence such as physical evidence is often necessary. The "tightest" cases involve converging evidence from a variety of sources. Even in cases that result in conviction, we recognize that our conclusion is based on a decision that is "beyond a reasonable doubt." The legal system strives for truth, but certainty is often beyond its grasp.

Having examined a set of statements in the context of legal cases, we turn now to a second set of statements. Again, consider the statements and decide what kinds of evidence you think are implied by each statement.

1 In a survey of U.S. adults, 96% of married people reported they had been faithful to their spouse during the past year.
2 Research has shown that whether a teen begins to smoke is more related to whether the teen's friends smoke than to whether the teen's parents smoke.
3 Experimental research demonstrates that writing about emotional experiences associated with beginning college (compared with superficial writing) causes college students to have better health and academic outcomes.
4 Over many replications of the same false-memory experiment, researchers consistently found that about three-fourths of the time participants falsely reported that certain words were presented when, in fact, the words were never presented in the experiment.

You likely noticed that these four statements cover a range of research topics in psychology from marital fidelity to the formation of false memories. The measures that researchers use to gather evidence vary because of the specific area of psychology they are investigating. As you considered the four research statements, you may have noticed that they also varied systematically in terms of the extent and quality of the evidence. Just as legal professionals must have