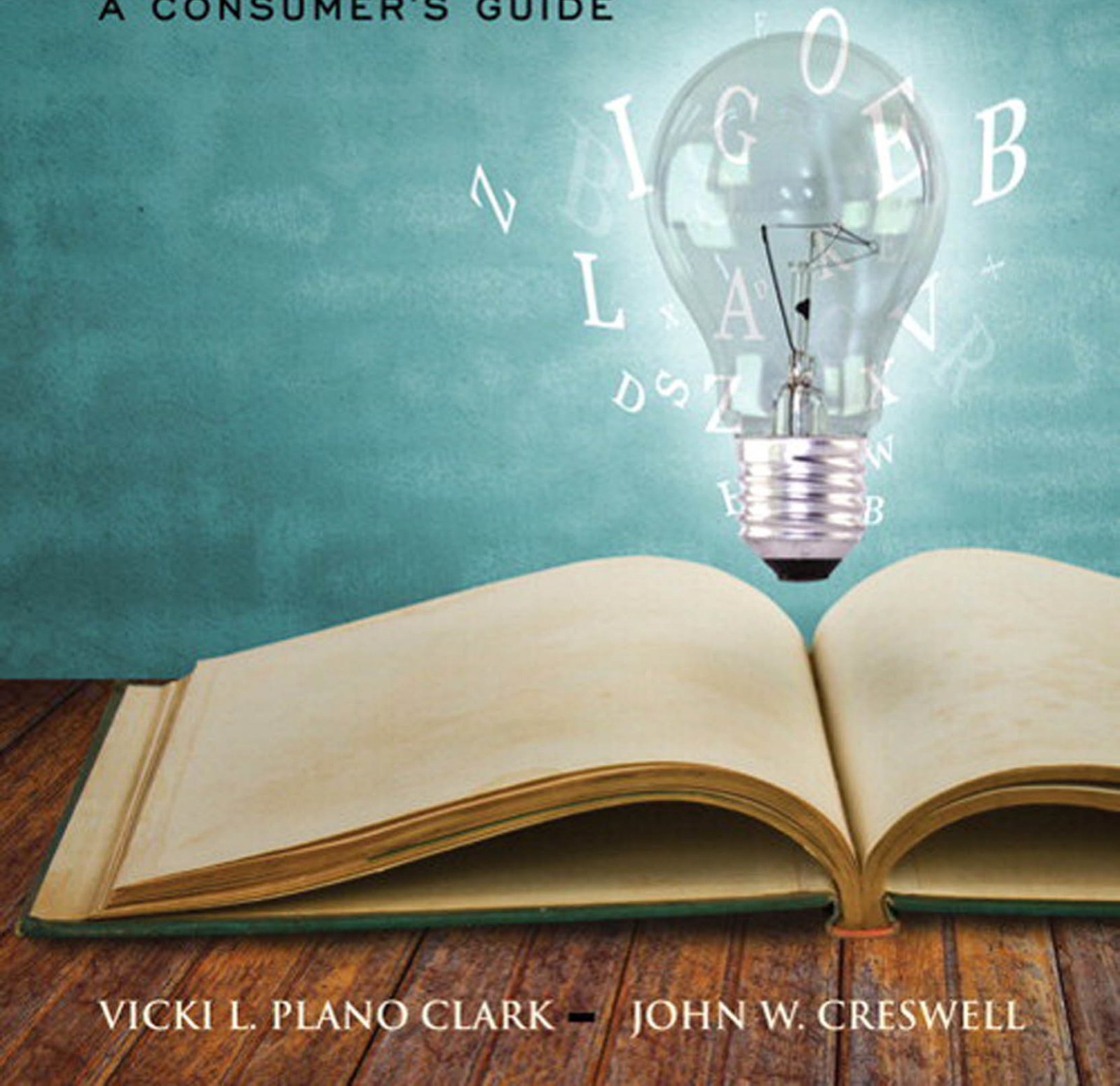
SECOND EDITION

# UNDERSTANDING RESEARCH

## A CONSUMER'S GUIDE



VICKI L. PLANO CLARK — JOHN W. CRESWELL

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# Understanding Research

## A Consumer's Guide

**Vicki L. Plano Clark**
*University of Cincinnati*

**John W. Creswell**
*University of Nebraska–Lincoln*

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*To my parents, Jack C. and Ellen L. Plano, for all their support and encouragement and in recognition of their many scholarly accomplishments that showed me such a gratifying path to follow.*

*—Vicki*

*This text is dedicated to all of the students in my educational research classes at the University of Nebraska–Lincoln, and to all of the staff and graduate students who have devoted hours of time to projects in the research Office of Qualitative and Mixed Methods Research at the University of Nebraska–Lincoln.*

*—John*

# About The Authors

**Vicki L. Plano Clark** (Ph.D., University of Nebraska–Lincoln) is an Assistant Professor in Educational Studies in the College of Education, Criminal Justice, and Human Services at the University of Cincinnati. She teaches research methods courses, including foundations of research, qualitative research, and mixed methods research in the Quantitative and Mixed Methods Research Methodologies program. As an applied methodologist, Dr. Plano Clark studies how other researchers conduct their studies, and her scholarship focuses on the foundations, designs, and contexts for mixed methods research. In addition, she actively applies a variety of research approaches in research and evaluation studies in the areas of education, family research, counseling psychology, nursing, and family medicine. Prior to joining the University of Cincinnati, she spent 19 years at the University of Nebraska–Lincoln (UNL), where she initially focused on physics education as Laboratory Manager in UNL's Department of Physics and Astronomy and then switched to a focus on research methodology, which culminated with her serving as the Director of UNL's Office of Qualitative and Mixed Methods Research. In her spare time, she pursues quilt making and the game of golf, and she and her husband, Mark, take many walks with their scruffy mutt, Peet.

**John W. Creswell** (Ph.D., University of Iowa) is a Professor of Educational Psychology at the University of Nebraska–Lincoln. In addition to teaching at the University, he has authored numerous articles on mixed methods research, qualitative methodology, and general research design and 21 books (including new editions), many of which focus on types of research designs, comparisons of different qualitative methodologies, and the nature and use of mixed methods research. His books are translated into many languages and used around the world. He held the Clifton Institute Endowed Professor Chair for five years at the University of Nebraska–Lincoln. For the last five years, Dr. Creswell served as a co-director at the Office of Qualitative and Mixed Methods Research at the University of Nebraska–Lincoln, which provided support for scholars incorporating qualitative and mixed methods research into projects for extramural funding. He served as the founding Co-Editor for the *Journal of Mixed Methods Research* (SAGE Publications) and as an Adjunct Professor of Family Medicine at the University of Michigan, where he assisted investigators in the health sciences and education with research methodology for National Institutes of Health and National Science Foundation projects. He also served extensively as a consultant in the health services research area for the Veterans Administration. Dr. Creswell was a Senior Fulbright Scholar to South Africa and in 2008 lectured to faculty at five universities on education and the health sciences. In 2012, he again was a Senior Fulbright Scholar to Thailand. In 2011 he served as a co-leader of a national working group at NIH developing "best practices" for mixed methods research in the health sciences. In spring 2013, Dr. Creswell has been a Visiting Professor at Harvard's School of Public Health. In the summer of 2013, he conducted mixed methods training at Cambridge University in the United Kingdom. In 2014, he will be awarded an honorary doctorate from the University of Pretoria in South Africa.

# Preface

## New to the Second Edition

You will find several important changes in this edition that were based on user feedback and the careful review of the first edition by anonymous external reviewers. Taken together, these changes aim to make the book more focused, applicable, and practical to developing critical consumers of up-to-date research across disciplinary topic areas. The key changes include the following:

- ***Enhanced focus on* reading *research.*** This edition has more clearly placed the focus on reading research in all aspects of the book's content, from the introduction to each chapter's topic to how consumers can evaluate research reports. This focus helps students through the process of reading, understanding, and evaluating the key elements of research articles.
- ***Advanced considerations for evaluating research.*** This edition has significantly expanded its treatment of how students can learn to evaluate the research studies that they read. To facilitate this development, Chapters 3–14 include tables that introduce criteria useful for evaluating research articles and provide indicators of higher and lower quality for each of the criteria. Each chapter also includes a rating scale form that students can use to apply the criteria to study reports.
- ***New full-text articles that apply the book's content.*** This edition includes a total of eight new full-text articles to assist students with applying the content they are learning. The articles represent current research on diverse topics and using diverse research approaches. They are "typical" examples of the kinds of articles that students might read, meaning that they demonstrate the limitations and messiness often found in published reports of real research studies. Two of the articles include annotations to help students locate key ideas, but students are expected to provide their own annotations for the remaining articles to better develop their skills for reading research.
- ***More coverage of higher-level research approaches.*** Additional information has been included to provide students with resources to understand the more sophisticated methods found in published research. Examples of this additional information are tables that summarize a wider array of common quantitative and qualitative research designs (Chapters 6 and 9), the inclusion of more higher-level statistical approaches in summary tables (Chapter 8), and more consideration to the kind of claims that can be made at the conclusion of different types of research studies throughout this edition.
- ***Inclusion of more examples that are up-to-date and represent diverse disciplines.*** More examples from published studies have been included throughout this edition. Furthermore, the references have been extensively updated to include more current examples of published research and expanded to better represent a variety of content areas in addition to education.
- ***Improved pedagogical features in the presentation of the content.*** Steps have been taken to better align the pedagogical features in this edition. For example, each chapter's learning objectives focus on what the students will be able to do as critical consumers of research and are aligned with the major headings throughout the chapter. In addition, each chapter concludes with a *Reviewing What You've Learned To Do* feature that helps students to synthesize the content addressed for each specific learning objective.
- ***Additional activities to practice and apply the chapter content.*** The number of activities embedded within the chapters has been increased to give students more

opportunities to engage with the content and check their own understanding as they read. End-of-chapter exercises have also been expanded to include *Reading Research Articles* activities that ask students to identify features within published articles, *Understanding Research Articles* activities that ask students to apply concepts and vocabulary introduced in the chapter, and *Evaluating Research Articles* activities that ask students to critically assess published articles using the chapter content.

- ***Additional scaffolding for use of the APA Style.*** All information about the American Psychological Association (APA) style has been updated to the 6th edition manual (APA, 2010) in this edition. Information about recording references for different types of publications has been included in Chapter 1 and more information about the use of references and headings is included in Chapter 4. In addition, a paper that illustrates the major elements of the APA style has been included as an Appendix to provide students with a concrete example of how the style elements can look when applied in their own writing.
- ***New embedded etext features to enhance students' engagement.*** The etext version of the book includes several new features embedded into the chapters that facilitate students active engagement with the chapter's content. The *Reviewing What You've Learned To Do* pop-up feature provides students with 10–15 questions similar to the text bank questions and instant feedback to help them self-assess their comprehension of the chapter content. The *Reading Research Articles* activities ask students to create APA-style references for the assigned articles and provide them with feedback. In addition, they are asked to locate and annotate statements within the articles that demonstrate the chapter's content. The *Understanding Research Articles* activities ask students to complete short-answer questions about the articles and provide them with the corresponding answers to check their understanding. The *Evaluating Research Articles* activities ask students to complete their own assessment of the quality of research studies using the provided rating scales and include a small number of hints to help work through these challenging considerations.

## Philosophy and Purpose for this Book

Welcome to *Understanding Research: A Consumer's Guide*! This title captures the four perspectives that guided the development of this book.

First, this is a book about ***research***. We view research as a process of interconnected activities that individuals use to gain new knowledge that addresses important concerns or issues in fields such as education, social work, counseling, nutrition, and nursing. Individuals practicing research follow a general set of steps from the initial identification of a research problem to ultimately disseminating their conclusions, and knowing about the research process provides a useful framework for understanding and evaluating the information that researchers include in the reports of their studies. We also recognize that researchers today have a large toolbox of approaches for conducting their studies, including quantitative, qualitative, mixed methods, and action research. Each of these approaches is legitimate and appropriate for addressing certain types of research situations, and researchers are making extensive use of the different approaches across all major disciplines. Therefore, this book examines the application of diverse research tools to meet the needs of today's students who should become familiar with all the prominent approaches used to develop new knowledge through research studies.

Second, this book is written specifically for ***consumers***. Consumers use research in their jobs. Consumers include anyone who uses the results and implications of research studies to enhance their knowledge and improve their practice. Practitioners such as teachers, school administrators, counselors, social workers, nurses, dieticians, and therapists can all benefit from becoming critical consumers of research. To effectively use the results of research, consumers need to know how to read, understand, and evaluate the quality of research. This book's content and approach have been conceptualized specifically to meet the needs of this important consumer audience.

Third, fitting the needs of a consumer audience, the focus of this book is on ***understanding*** research; it is not about how to conduct research. Specifically, this book addresses the skills, knowledge, and strategies needed to read and interpret research

reports and to evaluate the quality of such reports. This focus is reflected in the overarching organization of the content, which is based on the major sections of a research article. After an introduction to research in Part I, Parts II–VI present chapters related to understanding the Introduction, Method, Results, and Conclusion sections of research articles that report studies using the different research approaches.

Finally, this book has been written as a ***guide*** that offers readers practical advice and strategies for learning to understand research reports. Throughout this book, we relate the process of research to the process of taking a journey. When travelers take journeys, they use travel guides to navigate new places, to identify special attractions and sights, and to develop an appreciation for local customs. Likewise, this guide to understanding research aims to help consumers navigate the major sections and content of research reports by identifying key elements when reading each section and developing an appreciation for how different types of research are conducted and ultimately reported.

Keep in mind that this is not an advanced text, and it does not discuss all of the approaches to research that are available. In addition, this book does not provide an exhaustive treatment of the research process, as it does not present details that are necessary for research producers, such as how to conduct statistical calculations. This is an introductory book focused on helping students who plan to be research consumers learn to read, understand, and evaluate research reports so they can better apply the results of research to their knowledge base and professional practices.

## Key Features

This book is a comprehensive introduction to help students learn how to understand research articles. In developing the content and writing style, we have attempted to consider the concerns and experiences of a consumer audience by developing a book that is engaging to read, includes up-to-date content, and has a strong applied focus. The following key features highlight the approach of this book:

- It focuses on helping students learn to read and evaluate research articles.
- It provides a balanced coverage of diverse approaches to research: quantitative, qualitative, and combined approaches.
- It includes extensive examples and practice activities to engage students with the content.

Let's examine these in detail to see how each can help instructors and students achieve their course objectives.

## Helps Students Learn to Read and Evaluate Research Articles

This book emphasizes helping students become competent and critical readers of research articles. To this end, we offer guides throughout the text for reading and evaluating research articles. The book also provides many features to further help students become more skilled at interpreting and evaluating research reports, including what follows:

- The organization is built around the major sections one typically finds when reading research articles and reports: Introduction, Method, Results, and Conclusions.
- Each chapter begins with a section that discusses how to locate and identify the chapter's focus when reading a research article.
- Eight full-text research articles are included. The first two articles are annotated to help readers recognize the characteristics of the different research approaches. For the remaining six articles, students are prompted to read for and identify key elements of the research report that apply the content covered in the chapters to further develop their own skills for interpreting the information presented in research articles. The articles also serve as the context for applying each chapter's content in the *Reading Research Articles* and *Understanding Research Articles* exercises found at the end of each chapter.

- The *Here's a Tip!* feature offers practical advice for applying the chapter concepts when students read actual studies.
- Criteria for evaluating published studies, including indicators of higher and lower quality, are provided. In addition, the chapters include a rating scale that students can use to apply the stated criteria to evaluate a study of their choice or as assigned by the instructor. The *Evaluating Research Articles* exercises found at the end of the chapters ask students to apply the rating scales to articles included in the book.

## Balances Coverage of Diverse Approaches to Research

This book provides balanced coverage of all types of research design. This provides readers with a complete picture of educational, social science, and health science research, as it is currently practiced. The book begins with an overview of the process of research and then guides the reader through understanding how this process is presented within the major sections of a research report. The content describes and compares four major approaches to research: quantitative, qualitative, mixed methods, and action research. Keeping with the balanced coverage, the full-text articles represent three quantitative, three qualitative, one mixed methods, and one action research study.

The book also encourages readers to go beyond the general approach to recognizing and evaluating specific designs commonly used to implement each of the major approaches. The research designs are introduced as important considerations for understanding the methods and results of research reports. The highlighted research designs include:

- experimental (i.e., true experiments, quasi-experiments, and single-subject research) and nonexperimental (i.e., correlational and survey) quantitative research designs;
- narrative, grounded theory, case study, and ethnographic qualitative research designs;
- convergent parallel, sequential explanatory, sequential exploratory, and embedded mixed methods research designs; and
- practical and participatory action research designs.

## Includes Extensive Examples and Practice Activities to Engage Students with the Content

Learning to understand research reports is not easy. For most students, research reports represent new vocabulary, new concepts, and new ways of thinking critically about unfamiliar information. This book incorporates many features to help students engage directly with the content so that they can better develop their understanding and skills. Examples of these features include what follows:

- Consumer-focused learning objectives that indicate concrete goals for what students will be able to do after learning the chapter content. *Reviewing What You've Learned To Do* summaries and etext quizzes at the end of the chapters help students review and self-assess their mastery of the learning objectives.
- Topics that are focused on the needs of consumers new to learning about research, such as how to identify examples of research in the literature and why reading research is relevant for practitioners.
- Practical examples from students' own real-world experiences to help explain research concepts.
- Extensive in-text examples from recently published research articles to illustrate the topics discussed. Note that citations included within example excerpts are not included in the book's reference list.
- Key terms are boldface within the text and defined in the glossary to provide easy reference.

- *What Do You Think?* exercises with *Check Your Understanding* feedback help students engage with the new content as they are reading.
- *Here's a Tip!* notes that offer students advice for applying chapter content to their own situations.
- *Reading, Understanding, and Evaluating Research Articles* application activities, short-answer questions, and evaluation activities help students apply chapter content to published research reports. Suggested answers for the short-answer questions help students assess their own progress in understanding the content, while application and evaluation activities provide opportunities to meaningfully apply the content.

## SUPPLEMENTARY MATERIALS

### Online Instructor's Manual with Test Bank

This supplement developed by Dr. Michelle Howell Smith provides instructors with opportunities to support, enrich, expand upon, and assess chapter material. For each chapter in the book, this manual provides lecture notes that summarize important concepts requiring review and reinforcement, strategies for teaching chapter content, and suggestions for when and how to use the supplements with the text. The test bank contains various types of items—multiple-choice, matching, short essay, and fill-in-the-blank—for each chapter. Questions ask students to identify and describe research processes and design characteristics they have learned about and to classify and evaluate quantitative, qualitative, and combined study reports.

### Online PowerPoint® Slides

PowerPoint slides are available to instructors for download on www.pearsonhighered.com/educator. These slides include key concept summarizations and other graphic aids to help students understand, organize, and remember core concepts and ideas.

### TestGen

This computerized test bank software allows instructors to create and customize exams. TestGen is available in both Macintosh and PC/Windows versions.

### Acknowledgments

This book is a culmination of our collective experiences in the classroom, working with colleagues and students, and writing about research methods. We could not have written it without the assistance of and support from many individuals. Our thinking about teaching and writing about research methods, including many ideas that helped to shape this book, has benefited from colleagues in the Office of Qualitative and Mixed Methods Research (University of Nebraska–Lincoln) and from faculty and students in the Quantitative, Qualitative, and Psychometric Methods graduate program (University of Nebraska–Lincoln) and Quantitative and Mixed Methods Research Methodologies graduate program (University of Cincinnati). In particular, we thank Dr. Ronald J. Shope, Dr. Denise Green, Amanda Garrett, Dr. Kimberly Galt, Sherry Wang, Alex Morales, Courtney Haines, Timothy Gaskill, Theresa McKinney, Nancy Anderson, Debbie Miller, Michelle Howell Smith, and Yuchun Zhou. We also appreciate the support, expertise, and feedback that we have received during the process of preparing the second edition. We specifically thank Robert C. Hilborn of the American Association of Physics Teachers; Amanda Garrett and Doug Abbott at the University of

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PART I

# AN INTRODUCTION TO UNDERSTANDING RESEARCH

Discussions of research are all around you in your day-to-day life. You see research reported in the local news, hear about recent findings from your physician, and may even consider it when deciding which new cell phone to buy. You may even have participated in research by responding to a survey conducted over the phone about an upcoming election or answering questions about your opinions of a new product at a store. Research also plays an important role for us as professionals. Whatever our professional area is, research is often used to justify new policies and form the basis for new materials and practice guidelines.

The importance of research in our personal and professional lives is clear, but learning to understand research is not always easy. Researchers have developed a specialized process and language for conducting and reporting their studies, and you need to learn how to interpret the relevant steps and vocabulary as you read research reports. By developing your skills for understanding research, you will open up resources and knowledge that can help you become better informed about topics important to you personally and professionally. By understanding research, you will also become a critical consumer of research who is better able to evaluate the basis of new information reported from research studies.

Your first step to becoming a critical consumer of research is to develop a big picture of what research is to help you decipher the information included in research reports. Let's consider an analogy to help us think about how researchers conduct and report their research studies. When a researcher conducts a study and writes up a report, it is a lot like a traveler taking a journey to a destination and putting together a scrapbook of the trip. Travelers use road maps to find their way along unfamiliar territory and researchers use the process of research to guide their research "journeys." In Chapter 1, you will be introduced to the steps in the process of research that researchers use to plan and conduct the activities in their research studies. Knowing about this process will provide you with a general research "road map" for navigating the information you read in research reports. Travelers also take different types of journeys to reach their destinations—some use specific routes planned from the start and others allow the routes to unfold as they go in order to explore unexpected places along the way. Likewise, researchers conduct different types of studies to cover the "terrain" of interest. In Chapter 2, we will focus on two major types of research—quantitative and qualitative—that researchers use when conducting different studies. We will consider how to understand research articles that report these different types of research "journeys" using the same general "map" of the research process.

Let's get started on your own journey to becoming a critical consumer of research!

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CHAPTER

1

# THE PROCESS OF RESEARCH: LEARNING HOW RESEARCH IS CONDUCTED AND REPORTED

*The goal of this book is to help you learn how to read and make sense of research reports. To understand research reports, however, you first need to know a little about what research is and how researchers conduct and report it. By learning how research is done, you can better recognize and evaluate the information that researchers include in their reports. This chapter begins by first considering the question: What is research? Armed with a definition, you will next consider reasons for reading research studies and where you can find research studies reported. In this chapter, you will also learn the steps researchers use to conduct studies and how you find these steps discussed within the major sections of research reports.*

**BY THE END OF THIS CHAPTER, YOU SHOULD BE ABLE TO:**

- State a definition of research and use it to recognize reports of research studies.
- Identify your reasons for needing to read research reports.
- Name different formats where you can find reports of research studies.
- Name the steps in the process of research that researchers undertake when they conduct research studies.
- Identify the major sections of a research report, and know which steps of the research process are reported within each section.
- Read a research report and recognize the information included about a study's research process.

Let's begin by taking a moment to welcome you to this endeavor of learning to read and understand research reports. Whether you are a student just starting your career or an experienced professional enhancing your knowledge, we hope you will find learning about research a rewarding experience. Whatever your profession—teacher, principal, counselor, social worker, child care provider, nurse, nutritionist, or other practitioner—reading research studies can provide you with information useful for your practice. For example, perhaps you work with children in a community of professionals that is concerned about the children getting enough physical activity to maintain healthy weights and support appropriate development. Some personnel think that a new program should be started to encourage physical activity within the schools to help children be more active. Other personnel are not convinced that such a program would be the best use of resources. In addition, no one knows what types of programs are possible, what benefits the programs can have, or which type will work best within the community.

This example is a perfect illustration of how you could benefit from reading research on an important issue such as physical activity in schools. Although you may have personal experience with this issue, you may not be familiar with how to identify and read reports of research. However, reading research on the issues that matter to you can provide you with new ideas and insights that can make a difference in your practice. Developing your skills for reading and understanding research reports starts by obtaining a good understanding of what research is and why you should want to read it. Therefore, let's start by considering how you identify research, why you should read research, and where you might find research reports.

## How Do You Identify Reports of Research?

Before going any further, we need to answer the question: What is research? Simply stated, **research** is a process of steps used to collect and analyze information in order to increase our knowledge about a topic or issue. At a general level, this process of research consists of three steps:

1. Posing a question.
2. Collecting data about the question.
3. Analyzing the data to answer the question.

These steps should be a familiar process as we all have engaged in informal research many times. Toddlers use this process when they wonder how their parents will react if they knock a bowl of spaghetti on to the floor (and then try it!). Students use it when engaging in inquiry-based learning activities in science class. Sports fans use it when they gather information to decide which players to include on their fantasy teams. And you likely use it regularly when solving problems at home or at work when you start with a question, collect some information, and then form an answer. Engaging in *informal* research gives you a useful process for learning about and solving problems that you face. It also provides you with experiences that will be helpful for understanding formal research. In *formal* research, researchers have developed a more rigorous approach to the research process for studying topics than what we all use in our daily lives for solving problems. It is this more *formal* process of research that is the focus of this book.

### Recognize That Formal Research Includes the Collection and Analysis of Data

When researchers conduct formal research studies, they include a few more steps in the research process than the three listed above. For example, researchers actually complete multiple steps when "posing the question" of interest in a research study. We will learn much more about these steps later in this chapter and throughout this book. For now, the key idea for identifying research is that researchers use a process of research to *collect and analyze data* in order to increase our knowledge about a topic or issue. The collection and analysis of data is what differentiates research from all other types of activities. Data are pieces of information (numbers, words, facts, attitudes, actions, and so on) that researchers systematically gather from entities, such as individuals, families, organizations, or communities. Researchers analyze or make sense of this data in some way to produce results that answer their question. Therefore, the defining feature of research is that researchers go out and gather data to answer their question as opposed to answering it based on their own opinions, experience, logic, hunches, or creativity.

When you are reading a document such as an article on a topic that interests you, you can use the definition of research to determine whether it is describing a research study. Examine the checklist for identifying a document as an example of *research* provided in Figure 1.1. We use this rating scale whenever confronted with a new article about a topic of interest. First, we examine the article's title for clues as to whether it reports a research study. Words such as *research, study, empirical, investigation,* or *inquiry* are often good clues. Next we turn to the abstract to look for evidence that the author collected and analyzed data. An **abstract** is a brief summary of an article's content written by the article's author and placed at the beginning of the article. Because abstracts are so short (often 150 words or less), authors may not include good details about their studies in them. If the abstract does not satisfy the checklist in Figure 1.1, then we examine the full text of the article to see whether the author reports the collection and analysis of data. Using this rating scale will help you distinguish reports of completed research studies from other types of scholarly writing.

### Distinguish Reports of Research From Other Types of Scholarly Writing

A common pitfall for those new to research is to assume that all scholarly writings that they read represent research studies. In fact, there are *many* different types of scholarly writing about different topics that are published and available. Table 1.1 lists several

**FIGURE 1.1 A Rating Scale for Determining Whether an Article Reports a Research Study**

- Examine the article's title, abstract, and Method section.
- For each criteria in the following rating scale, assign a rating of no (0) or yes (1) and record your evidence and/or reasoning behind the rating.
- Add up the ratings. A total of 3 should indicate that the article is a report of a research study. A total of 0–2 likely indicates that the article does not report a full research study and instead reports another type of article such as a literature review.

| Criteria | Rating 0 = No | 1 = Yes | Your Evidence and/or Reasoning |
|---|---|---|---|
| 1. Terms are present that identify the report as research, such as *study*, *investigation*, *empirical research*, or *original research*. | | | |
| 2. The authors describe gathering data. | | | |
| 3. The authors describe analyzing the gathered data and report results of the analysis. | | | |
| **Overall Determination**<br>0–2 = Likely not research<br>3 = Likely research | **Total Score =** | | **My Overall Determination =** |

types of writings that you may be familiar with and may encounter as you read about topics that interest you, such as literature reviews; opinion papers; and creative writing, such as fictional stories. In addition, the table provides an example of how each type of writing might be applied to the topic of children's physical activities. In most of the forms of scholarly writing listed in Table 1.1, the authors start by posing a question in some way, but only in research studies will the authors report the systematic collection

**TABLE 1.1 Different Types of Writings About Topics**

| Type of Writing | Typical Use | Example |
|---|---|---|
| Research | To collect and analyze data in order to increase our knowledge about a topic or issue | The author collected and analyzed data about daily time spent being physically active for children in first through seventh grades |
| Literature Review | To summarize and critique a collection of different writings about a topic | The author summarized 18 writings available in the literature about children's physical activity |
| Theoretical Discussion | To synthesize ideas about a topic into a framework or model that identifies key concepts and how they are related to each other | The author developed a model of the factors believed to encourage and discourage children to be physically active |
| Opinion Paper | To provide one individual's opinions on a topic based on his/her experiences and perspectives | The author provides her opinions on promoting children's physical activity levels based on 25 years as an elementary school physical education teacher |
| Program Description | To provide a description of the features involved in the implementation of a particular program from the individuals who are running the program | The author describes a special "Get Active!" program used at one middle school |
| Fiction Writing | To tell a story about a topic that engages the reader to think about that topic | The author tells a story of three girls growing up and playing together on a volleyball team |
| Poetry | To bring forth an emotional response on a topic through creative uses of language | The author creatively uses words to convey one man's memories of running through the fields by his house as a child to convey the meaning of physical activity for one person |

and analysis of data to answer the question. Therefore, when you want to identify whether a written document is an example of research, focus on the collection and analysis of data as the key indication that the document reports a research study.

With these ideas in mind, let's apply the definition of research and the rating scale in Figure 1.1 to two example abstracts taken from articles found in the literature.

***Example 1—Identifying an article that is a research study***

*An abstract written by Carrington, Templeton, and Papinczak (2003, p. 211):*
This qualitative study investigated the perceptions of friendship faced by teenagers diagnosed with Asperger syndrome. This research aimed to provide teachers with an insight into the social world of Asperger syndrome from a student perspective. A multiple–case study approach was used to collect data from 5 secondary school students in Australia. Data were collected through the use of semistructured interviews. An inductive approach to data analysis resulted in a number of broad themes in the data: (a) understanding of concepts or language regarding friendships, (b) description of what is a friend, (c) description of what is not a friend, (d) description of an acquaintance, and (e) using masquerading to cope with social deficits. The insights provided by the participants in this study are valuable for teachers, parents, and anyone else involved in inclusive education.

Using the rating scale in Figure 1.1, we can conclude that this article is describing a research study. Notice how the authors used key words in the first few sentences, including *study*, *investigated*, and *research*, when referring to their work. This abstract also clearly satisfies items 2 and 3 on the rating scale because the authors indicate that they collected data ("data were collected through the use of semistructured interviews") and analyzed the data (using "an inductive approach to data analysis").

***Example 2—Identifying an article that is NOT a research study***

*An abstract written by Amatea, Smith-Adcock, and Villares (2006, p. 177):*
This article presents an overview of a research-informed family resilience framework, developed as a conceptual map to guide school counselors' preventive and interventive efforts with students and their families. Key processes that characterize children's and families' resilience are outlined along with recommendations for how school counselors might apply this family resilience framework in their work.

This article presents an interesting and scholarly discussion of issues and theories related to family resiliency and the implications for school counselors. Although the abstract refers to research conducted by others ("a research-informed family resilience framework"), it does not satisfy the criteria in the rating scale. Notice that the authors used terms such as *overview*, *developed*, and *outlined* when referring to their work. There is also no indication that the authors collected or analyzed any data based on the information provided in the abstract. Therefore, this article is *not* an example of research, but instead is an example of a theoretical discussion.

## What Do You Think?

Consider the following abstract from an article about a vocabulary instruction program. Does this article report a research study? Why or why not?

*An abstract written by Apthorp (2006, p. 67):* The author examined the effectiveness of a vocabulary intervention that employed structured, supplemental story read-alouds and related oral-language activities. Within each of 7 Title I schools across 2 sites, 15 third-grade teachers were randomly assigned to either use the intervention (treatment condition) or continue their usual practice (control condition). Trained test examiners administered oral and sight vocabulary pre- and posttests and reading achievement posttests. At 1 site, students in treatment, compared with control, classrooms performed significantly higher in vocabulary and reading achievement. In the other site, the intervention was not more effective. Contextual factors and student characteristics appeared to affect the results.

### Check Your Understanding

From this abstract, we can conclude that this article does report a research study. The author did not use the word *study*, but she notes that she "examined" an issue. We also have direct evidence that the author collected data ("oral and sight vocabulary pre- and posttests and reading achievement posttests"). Clues that these data were also analyzed are found by noting that the two groups of students were compared and different types of results from the analysis are reported (e.g., students in the treatment classrooms performed significantly higher).

## Why Do You Need to Read Research Reports?

Now that you are able to identify reports of research, it is important to next consider *why* you might want to read research reports that you identify. It turns out that the reason to read research is actually suggested by its definition. Recall that research is defined as a process of steps used to collect and analyze information to increase our knowledge about a topic or issue. So far we have focused on the first half of the definition that emphasizes the collection and analysis of data, but the second half of the definition is just as important. The reason that researchers conduct and report research studies is to add to the overall knowledge base that exists about a topic. In fact, the primary way that new knowledge is gained about important issues is by scholars conducting research. Researchers are much like bricklayers who build a wall brick by brick with each study. They continually add to the wall by conducting studies about an issue and, in the process, create a stronger structure or understanding.

Whether you are a teacher, counselor, administrator, nurse, special educator, social worker, or other practitioner, the knowledge base of your profession is continually advancing because of the research that is being conducted and reported. When researchers create a strong understanding from many research studies, this understanding also can provide a strong knowledge base for practitioners. Therefore, you need to read research in order to take advantage of the new knowledge that is generated for your own knowledge base, position in policy debates, and practices.

### Read Research to Add to Your Professional Knowledge

No matter how experienced you are in your practices, new problems continue to arise. For example, today we face problems such as increased violence in our schools, the increased use of technology by individuals, and rising rates of childhood obesity. You can be better equipped to develop potential solutions for problems such as these if you remain up to date in your field and continue to add to your knowledge base. Research can play a vital role in our understanding of problems because researchers study questions to which the answers are previously unknown. For example, you can better understand the problem of school violence if you read research studies that provide knowledge about the extent of violence in schools, the factors that encourage and discourage violence, and the meaning that school violence has for individuals. By reading what researchers have learned, you add to your own knowledge about a topic.

### Read Research to Inform Your Position in Policy Debates

Research also creates conversations about important policy issues. We are all aware of pressing issues being debated today, such as policies regarding immigrants and their children, policies about access to health care, and policies that mandate the use of high-stakes testing. Policy makers range from federal government employees and state workers to local school board members, council members, and organization administrators. These individuals take positions and make decisions on issues important to constituencies. For these individuals, research offers results that can help them weigh various perspectives. By reading research on issues related to policies, you become informed

about current debates and stances taken by other public officials as well as form your own opinions. For example, research useful to policy makers might examine the alternatives to welfare and the effect on children's schooling among lower income families, or it might examine the arguments proposed by the opponents and proponents of school choice.

## Read Research to Improve Your Practice

The third reason that it is important to read research is to improve your practice—that is, to improve your ability to do your job effectively. Armed with results based on rigorous research, practitioners become professionals who are more effective, and this effectiveness translates into better outcomes, such as better learning for children or improved mental health for individuals. Today there is a push for practitioners across disciplines to use evidence-based practices. **Evidence-based practices** are personal and professional practices that have been shown to be effective through research. This means that individuals are encouraged to use practices for which there is support from research (the evidence) and not to rely solely on practices that have been done in the past. Here are three ways that research can influence your practices:

> ***Here's a Tip!***
>
> When reading a research study, look for recommendations for how the results apply to practice. These suggestions are usually listed near the end of the report and may be found under a heading such as *Implications for Practice.*

- ***Reading research can suggest improvements for your practice.*** When researchers conduct studies to add to our knowledge about a topic, this new knowledge may result in specific suggestions for how your practice can be improved. You can learn about these suggestions by reading research reports and looking for statements at the end of the report where the authors explain the implications of the results that might pertain to your practice. For example, in a study about youth literacy habits, Nippold, Duthie, and Larsen (2005) concluded their research report with suggestions for numerous programs that could be initiated by speech-language pathologists to promote youth reading habits for all students, including those with language disorders.
- ***Reading research can help you improve practice by offering new ideas to consider.*** You can learn about new practices that have been found to be effective in other settings or situations by reading research. For example, a high school counselor concerned about the smoking rates of students placed at risk in her school may read about a peer-counseling program reported from a different location that was found to help adolescent smokers successfully quit smoking. She could use the results of the research that she read to consider the idea of starting a peer-counseling program at her own school.
- ***Reading research can help you learn about and evaluate alternative approaches to use.*** In many situations, there are multiple approaches that could be used in our practices. We may learn about these approaches from reading research or because they are suggested by other practitioners or policy makers within our professional settings. When faced with multiple alternatives in your practice, reading research can help you not only identify alternative approaches, but also choose the best approach from among the alternatives. When you read several research studies that have been conducted for different approaches, you can evaluate and compare the evidence that is available for the effectiveness of the different approaches. Connelly and Dukacz (1980) provided a useful process that you can use to sift through available research studies to learn about different approaches and determine which will be most useful for your situation. The process is demonstrated in Figure 1.2, which focuses on three steps that practitioners might use to select a new strategy to implement in their practice.

  As shown in the figure, a reading teacher decides to incorporate more information about cultural perspectives into the classroom and wants to find the best strategy that will increase students' understanding of multiculturalism. By reading research on the topic, this teacher learns about four lines of research that suggest alternative strategies. Research suggests that incorporating diverse cultural perspectives may be done with classroom interactions by inviting speakers to the room (line A) or by having the children consider and think (cognitively) about different cultural perspectives by talking with individuals at a local cultural center (line B). It may also be accomplished by having the children inquire into cultural

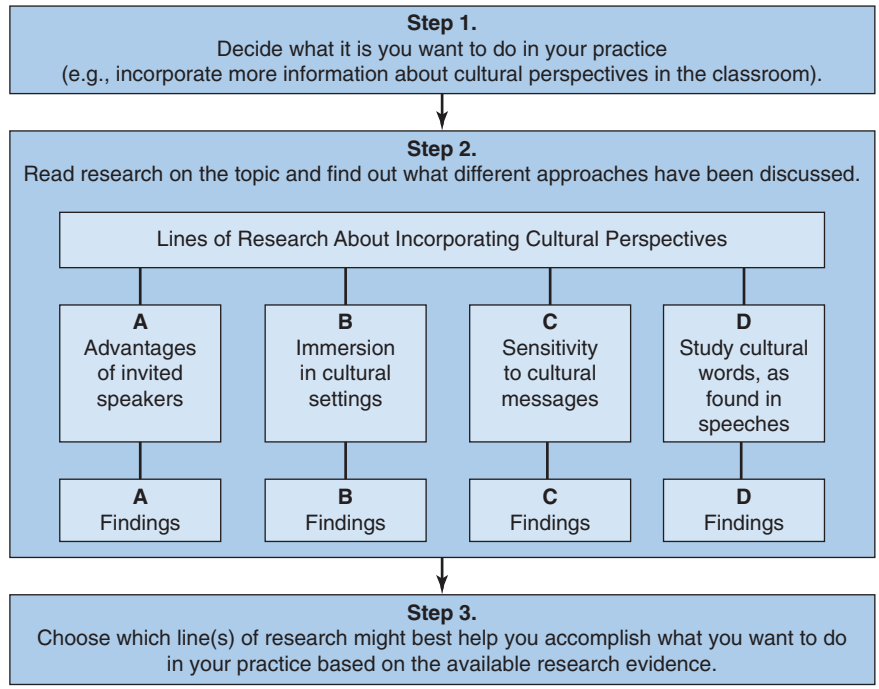


**FIGURE 1.2 Using Lines of Research to Evaluate Alternative Approaches to Practice**

*Source:* Adapted from Connelly and Dukacz, (1980), p. 29.

messages embedded within advertisements (line C) or by having them identify the cultural subject matter of speeches of famous Americans (line D). By critically reading the available research and the findings for each approach, the reading teacher can use the available information to weigh the different strategies and select the one to implement that has research-based evidence for its effectiveness at improving students' multicultural perspectives.

## What Do You Think?

Consider the scenario introduced at the start of this chapter in which professionals are thinking about starting a program to encourage children to be more physically active at school. What are three reasons why you should read research about children's physical activity if you worked at this school?

### Check Your Understanding

There are many possible reasons why you would want to read research about children's physical activity. Recall that researchers conduct and report research studies to add to the knowledge about a topic. Therefore, you can read research about children's physical activity to learn what the overall state of knowledge is about this topic. You should also read research studies to inform your position in the school's debate about whether to initiate a policy for a new physical activity program. Finally, you could read research to inform your practices. By reading and evaluating different lines of research about children's physical activity, you could learn about approaches for getting children to be more physically active at school, such as increasing time for recess and physical education class each week, incorporating a morning workout program at the start of the school day, or having students set daily activity goals.

Did you come up with similar reasons? Now consider some reasons why you need to read research on a topic related to your own professional practice.