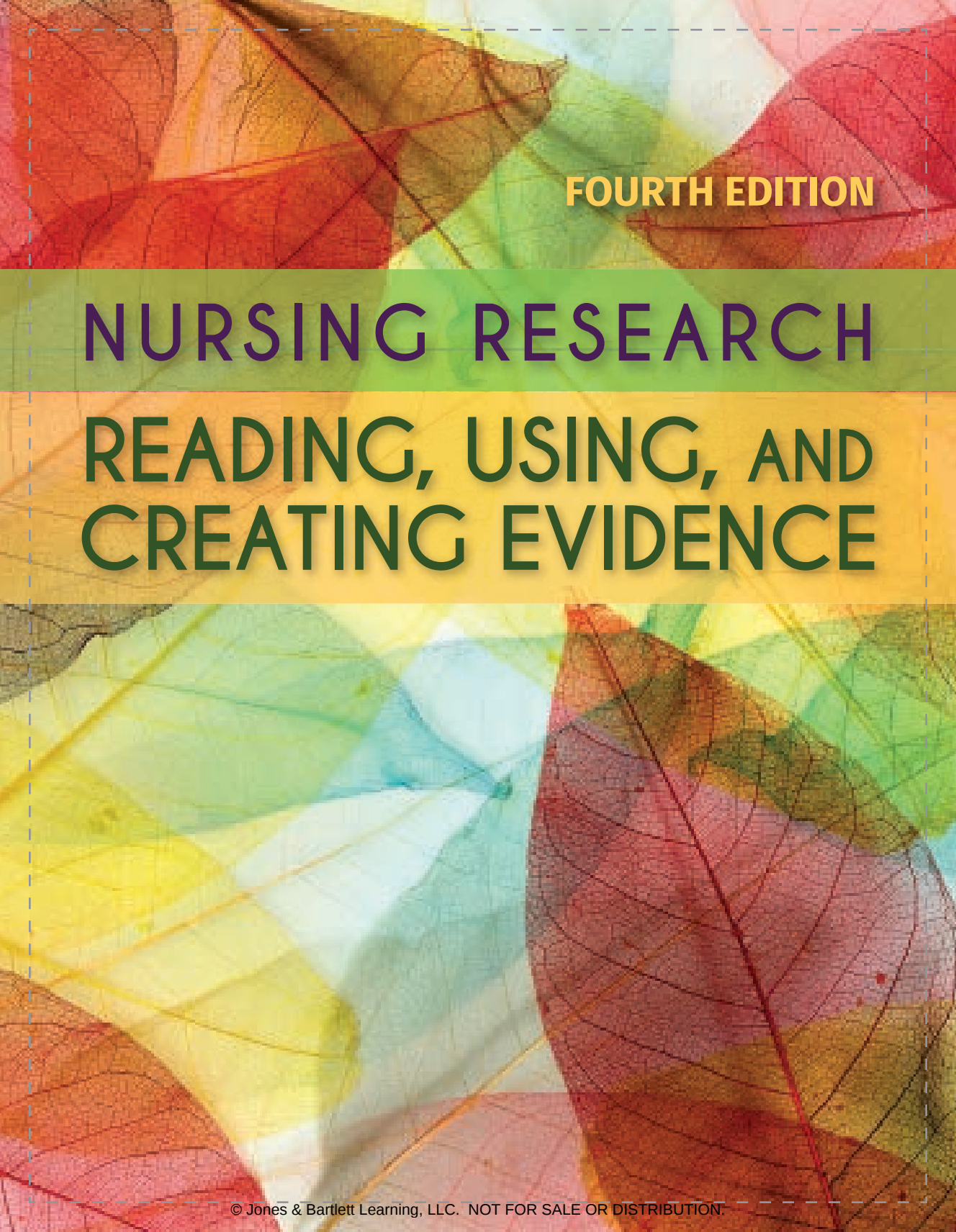




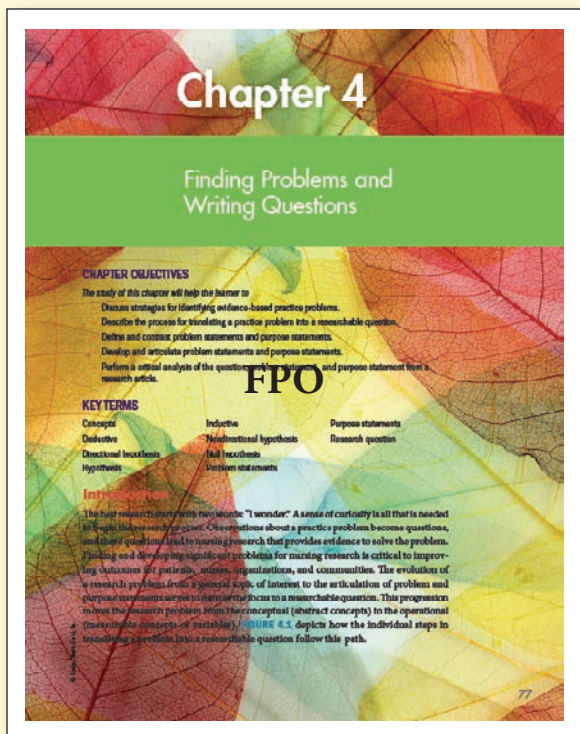
FOURTH EDITION

NURSING RESEARCH

READING, USING, AND CREATING EVIDENCE

The Pedagogy

Nursing Research: Reading, Using, and Creating Evidence, Third Edition demonstrates how to use research as evidence for successful nursing practice. Fully updated and revised, this reader-friendly new edition provides students with the fundamentals of appraising and utilizing research and translating it into actionable guidelines for practice. Organized around the different types of research in evidence-based practice, it addresses contemporary methods, especially the use of technology in data collection, advice for culturally competent research, and suggestions for accessing hard to reach subjects. Additionally, it explores both quantitative and qualitative traditions as they apply as evidence, and encourages students to read, use, and participate in the research process. The pedagogical aids that appear in most chapters include the following:



Chapter Objectives

These objectives provide instructors and students with a snapshot of the key information they will encounter in each chapter. They can serve as a checklist to help guide and focus study. Access the online resources that accompany this text to complete these objectives and submit them directly to your instructor.

Key Terms Found in a list at the beginning of each chapter and in bold within the chapter, these terms will create an expanded vocabulary in evidence-based practice. Access the online resources that accompany this text to see these terms in an interactive glossary and use flashcards and word puzzles to nail the definitions.

Voices from the Field

Found at the beginning of each chapter, these features illustrate stories from practicing nurses and their real experiences with the research process.

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PART II Planning for Research

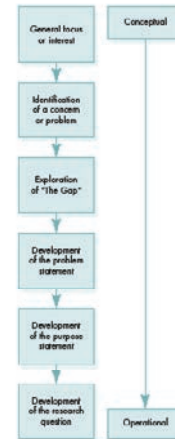


FIGURE 4.3 Traditional Evolution of the Research Process

VOICES FROM THE FIELD

The idea for this research study actually had its beginnings when we took a class on critically reading research. We work on a medical-surgical unit, and we decided that we would like to try to do a small project. We decided to do some observation and find a question to study, even though it is a really busy unit. About that time, we had a physician who began doing more holistic surgery. The standing orders for these patients were to have physical and occupational therapy personnel evaluate the patients and get them up and walking. We had always interpreted that as the next morning, because the therapies were generally not

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PART II Planning for Research

Directional hypothesis:
A statistical statement of the research question that is interested in only one direction of change.

directional hypothesis would indicate we are interested in reductions in blood pressure, but we would also be interested in rises in blood pressure. Sometimes called two-sided hypothesis, nondirectional hypothesis are appropriate for exploratory research questions or randomized trials of interventions. They require more rigorous tests than directional hypotheses. Research questions, specifically, are often used when no direction of influence is predicted (Connolly, 2015) and so studies with nondirectional hypotheses may not state them explicitly.

Bi-directional hypothesis, or one-sided tests, are interested in only one direction of change. They are appropriate for research questions in which a great deal of literature or empirical support for an existing relationship can be found. Directional hypothesis tests are more liberal than nondirectional ones.

A good hypothesis statement includes the population, variables (dependent and independent), and the comparison (Howell & Cramer, 2013). Using perspective education for short-stay patients undergoing preoperative care as an example, a research hypothesis might look like this:

- Population: In critical preoperative patients staying in the hospital one day after surgery ...
- Comparison: There will be no difference in ...
- Dependent variable: Pain control as measured by a visual analog scale ...
- Independent variables: Assessment between receiving conventional preoperative teaching and standard preoperative teaching.

It is easy to see the analogy between a PICO question and a hypothesis. In this example, the "I" of the PICO question is the independent variable, and the "O," or outcome, is the dependent variable. Hypotheses are worded and slightly differently than PICO questions. Don't use the word *because* in hypotheses; use *as* as a PICO statement when the results will be statistically shown.

Examples of null, alternative, directional, and nondirectional research hypotheses appear in Table 4.3.

GREY MATTER

- Two essential aspects of a good hypothesis are
- A statement of an expected relationship (or lack of one)
 - An identification of a direction of interest

Reading Research for Evidence-Based Practice

The primary reason for critically reading problem statements is to identify concerns or problems and to understand the diagnosis or gaps between what is known and what still needs to be known about concepts. A secondary reason is to determine the significance of the concerns or problems. The primary reason for critically reading purpose statements is

New Term Found in the margins, these notes provide definitions of key terms when they first appear in the chapter.

Case in Point These case studies expand upon concepts in the chapter and test your knowledge in real-life settings. Access the online resources that accompany this text to answer the questions and submit them to your instructor.

FPO

Where to Look This feature provides guidance on where to look for the key elements of a research paper, the wording that might be used to describe them, and specific things to look for during the evaluation process.

WHERE TO LOOK

Where to look for information about the research question or hypothesis:

- The research question may be explicitly stated in the research abstract but is often simply implied by the title of the article, purpose statement, or objectives for the study.
- Ideally, the question is discussed at the beginning of the article, often at the end of the introduction. When it is stated early, it is followed by evidence from the literature review to support the research and a contention that this question is important to investigate further. It may be written as a statement instead of a question. If it is not found at the beginning of the research report, look for the question at the end of the literature review.
- The null and alternate hypotheses are often found in the methods section where statistical methods are discussed, along with the rationale

for the statistical tests used to test the hypotheses. Hypotheses are typically easy to find and are explicitly identified as such.

- Sometimes a separate section is created for a formal statement of the problem, the purpose of the study, and the research question. It may be labeled "Purpose," "Aims," or "Objectives." The research question may similarly have its own heading.
- If a researcher used any inferential statistical tests—which most quantitative studies do, then there were hypotheses, whether they are stated or not. Sometimes the reader is left to infer what the hypotheses were based on the tests that were reported. Most studies do not report a hypothesis. This is not a weakness except for the most scientific journals. It is not a standard part of a write-up.

Checklist These lists support the "Where to Look" features and provide students with an evaluation of specific research activities and issues.

CHECKLIST FOR CRITICALLY READING PROBLEM STATEMENTS

Development
☐ Deductive narrowing from general focus or interest

Articulation
☐ The problem is stated or inferred
☐ The statement is provided early in the article and is easy to find
☐ The concern, disparity, or gap is clear

Significance
☐ Develops, expands, or validates nursing knowledge
☐ Develops, expands, or validates conceptual models or theoretical frameworks
☐ Improves patient care, staff member, and/or organizational processes and/or outcomes

For More Depth and Detail
 These reference lists are provided for a more in-depth look at the key concepts covered in select chapters.

For More Depth and Detail

- Cheng, S., Curry, T., Katz, E., Cohen, J., & Brennan, G. (2012). Identifying research needs for improving health care. *Annals of Internal Medicine*, 157(6), 439–445.
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- Thoburn, A., Fildes, M., & Thoburn, M. (2011). Developing the research hypothesis. *Journal of Investigative Surgery*, 24(5), 191–194.
- Widford, C., Murphy, K., & Casey, D. (2011). Describing nursing research terminology Part 1. *Nurse Researcher*, 19(4), 48–49.
- Widford, C., Murphy, K., & Casey, D. (2012). Describing nursing research terminology Part 2. *Nurse Researcher*, 20(2), 28–35.

Summary of Key Concepts Found at the end of each chapter, these lists compile the most pertinent concepts and information for quick review and later reference.

Summary of Key Concepts

- Finding and developing significant problems for research is critical for improving processes and outcomes for patients, staff members, and organizations. For both the researcher and the reader, problem statements, purpose statements, and research questions serve to guide and direct research activities.
- The evolution of a research problem from a general topic of interest to the articulation of a problem statement and a purpose statement serves to narrow the focus of the research to a researchable question. Subjects or topics that are too broad are problematic for researchers—because methodological complexities increase, specialized researchers or consultants are required, and resource demands (for example, money, people, and time) grow.
- Sources for researchable problems include clinical practice, educational institutions, consumer/customer feedback, personal experience, frameworks and models, professional literature, performance improvement activities, research reports and priorities, and social issues.
- Research problem statements are declarations of disparity: the difference (gap) between what is known and what needs to be known about a topic. They are written as questions or statements and contain clear, concise, and well-defined components (disparities or gaps and concepts).

Critical Appraisal Exercises Found at the end of each chapter, these exercises direct readers to apply the chapter concepts to a full-length research report. Access the online resources that accompany this text to complete your answers to each question.

CRITICAL APPRAISAL EXERCISE

Retrieve the following full-text article from the Cumulative Index to Nursing and Allied Health Literature or similar search database:

Nicolson, M. (2013). A comparison of warming interventions on the temperatures of inpatients undergoing colorectal surgery. *AORN Journal*, 97(3), 310–322.

Review the article, looking for information about the problem and purpose statements and the research questions and hypotheses. Consider the following appraisal questions in your critical review of these elements of the research article:

1. Is there evidence of deductive reasoning (from general focus to a question) or inductive thinking (from an observation to an overall purpose)? Is it an appropriate approach?
2. Is the problem statement clearly articulated? Is it a question or a statement?
3. Does the problem meet the FINER criteria?
4. Does the research question have all of the PICO elements present?
5. Does the hypothesis describe an expected relationship (or lack of one) and identify a direction of interest?
6. Discuss whether and how this study will contribute to nursing practice.
7. Evaluate which type of research design would answer this question.

Skill Builder Found in select chapters, these features provide practical advice for finding research, reading it critically, and strengthening research skills.

SKILL BUILDER Write Stronger Research Questions

The most important part of the research process is getting the question right. How the problem is stated determines which measures will be used, which data will be collected, which kind of analysis will be used, and which conclusions can be drawn. It is worth the time, then, to carefully consider how this element of the research study is developed. A thoughtful process does not necessarily mean a complicated process, however. Here are some simple suggestions for creating strong research questions:

- Answer the “why” question first. With a solid understanding of the reason for the study, the specifics of the research question are easier to identify.
- Review the literature before finalizing the question. Do not hesitate to replicate the question of a research study that accomplishes similar goals. It is flattering to a researcher—most attributed, well-known ones—to have their work replicated. Be sure to give credit where credit is due.

- Focus, focus, focus. Refine the research question, mull it over for a bit, and then refine it again. The effort spent to get the question just right will be worth it, because less confusion will arise later about how to answer the question.
- That said, do not wait until the question is perfect to begin the design of the study. The question is, to some extent, a work in progress as the specifics of the research unfold. The question can, and likely will, be revised as new information, resources, and constraints come to light.
- Keep the research questions focused: do not include more than one major concept per question. Compound questions are challenging to study and make it more difficult to isolate the effects of a single independent variable. Multiple research questions should be used instead of multiple parts of a single question.

FOURTH EDITION

NURSING RESEARCH READING, USING, AND CREATING EVIDENCE

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Preface

This nursing research text is based on the idea that research is essential for nurses as evidence for practice. Its contents are intended to be relevant for undergraduate nursing students, RNs who are returning to school, and practicing nurses who must apply evidence to practice. All nurses should be able to read research, determine how to use it appropriately in their practice, and participate in the research process in some way during their careers as professionals. This text is intended to support all these efforts.

Evidence-based practice is one of the most exciting trends in nursing practice to emerge in decades. However, its integration into daily practice requires a solid understanding of the foundations of research design, validity, and application. This text is intended as a reader-friendly approach to a complex topic so that beginners can grasp the fundamentals of appraising research, experienced nurses can use research in practice, and practicing nurses can gain skills to create bedside research projects or participate effectively on research teams.

This text is presented in an uncluttered, straightforward manner. Although it uses many bulleted lists to make the material visually interesting, the sidebars, figures, and tables are limited to those that illustrate truly important concepts. This format allows the reader to grasp the information quickly and to navigate the text efficiently. Margin notes provide definitions of new terms when they first appear, and the Gray Matter features offer information about key concepts that are of particular importance.

This text differs in its approach from traditional texts in that it does not focus primarily on interpreting inferential research; rather, it seeks to impart a fundamental understanding of all types of research that may be used as evidence. It adds depth by considering the use of qualitative research in nursing practice—a natural fit with this holistic profession. This text also addresses contemporary concerns for today's nurses, including ethical and legal issues. Although both ethics and legal issues are mentioned in many research texts, a full chapter is devoted to these topics in this text so that the intricacies of these issues can be thoroughly considered.

The integrated discussion of both the quantitative and the qualitative traditions is another unique facet of this text's coverage of the research process. Most nurse researchers have learned to appreciate the need to consider all paradigms when approaching a research question; separating the two approaches when discussing the fundamental interests of researchers results in a polarized view. Intuitively, nurses know that the lines between quantitative and qualitative designs are not always so clear in practice and that they should consider multiple ways of knowing when evaluating research questions. The planning process covered here helps the novice researcher consider the requirements of both approaches in the context of sampling, measurement, validity, and other crucial

issues they share. Detailed descriptions of the procedures for each type of design are given attention in separate chapters.

The chapters are organized around the types of research processes that make up the evidence base for practice. The first section of the text provides information that is applicable to all research traditions, whether descriptive, quantitative, or qualitative. Part I provides an overview of issues relevant to all researchers: understanding the way research and practice are related, the ways that knowledge is generated, and legal and ethical considerations. Part II describes the processes that go into planning research. The chapters in Part III consider the various decisions that must be made in each phase of the research process.

The evidence generated by descriptive, survey, and qualitative designs is placed in the context of both the definition of evidence-based practice and application in practice guidelines. In Parts IV, V, and VI, each major classification of research is explored in depth through review of available designs, guidelines for methods and procedures, and discussion of appropriate analytic processes. Brief examples of each type of research are provided, along with notes explaining the features demonstrated in each case in point. Finally, Part VII details the models and processes used to translate research into clinical practice.

Many chapters begin with a feature called “Voices from the Field” that relates a real-life story of a nurse’s experience with the research process, illustrating the way that the material covered in that chapter might come to life. The main content for each chapter is broken into five parts:

- A thorough review of the topic under consideration is presented first. This review lays out the fundamental knowledge related to the topic.
- Next, the nurse is guided to consider the aspects of a study that should be appraised when reading research. All nurses—regardless of their experience—should be able to read research critically and apply it appropriately to practice, and the second section of each chapter addresses this skill. Added features include advice on where to look for the key elements of a research paper, the wording that might be used to describe them, and specific things to look for during the evaluation process. Evaluation checklists support this process.
- The third section of the chapter focuses on using research in practice. This section supports the nurse in determining if and how research findings might be used in his or her practice.
- The fourth section is intended for nurses who may be involved with teams that are charged with creating research or who may plan bedside research projects to improve practice. This section gives practical advice and direction about the design and conduct of a realistic, focused nursing research project.
- The final section of each chapter contains summary points and a critical appraisal exercise so that the nurse can immediately apply the chapter concepts to a real research report.

Online materials provide support for both students and faculty. An online workbook is available to support students or nurses as they study the material or to use directly as a

learning exercise in an electronic environment. These materials also provide novel support through discussion threads or topics available for posting on electronic discussion boards or in course chat rooms for online courses. Teachers can find slide presentations, suggested in-class exercises, and Web-based resources to support the instructional process.

All of these features are intended to help the reader gain a comprehensive view of the research process as it is used to provide evidence for professional nursing practice. The use of this text as a supportive resource for learning and for ongoing reference in clinical practice has been integrated into the design of each element of the text. The goal is to stimulate nurses to read, use, and participate in the process of improving nursing practice through the systematic use of evidence. Accomplishing this goal improves the profession for all of us.

Acknowledgments

It is a bit misleading to conclude that a text is produced solely by the person whose name appears on the cover. Help and support are needed from many people on both professional and personal fronts to complete a project of this size. The help of editorial staff is always welcome; advice from Amanda Martin was invaluable in merging the interests of writing with those of producing a book that others will want to read. I appreciate Amanda Clerkin's calm and steady approach after our sixth manuscript together, and I've learned a lot from reading Jill Hobbs's edits, which I must begrudgingly admit make my writing much better.

My family—my husband, Floyd; my sisters, Anne and Ande; my niece, Stef; and mini-me, Amanda—provided me with enough encouragement to keep going, even as they reminded me there is life beyond the pages of a book.

I must thank Regis University profusely for providing me with inspirational colleagues and a place that supports my work. Pat Ladewig, as always, provided pragmatic advice and guidance from her impressive experience publishing her own texts. My contributors and reviewers each provided a unique viewpoint and helped me discover the best way to ensure that students “get it.”

Writing always makes me realize how much I miss my mom, Marty, who encouraged me to publish from the time she surreptitiously sent one of my poems to *Highlights* magazine when I was nine. She was proud of that poem, framed the issue, and had my grandmother embroider it on a pillow. Seeing this book in print would have impressed her only slightly more, but I know she's smiling.

Contributors

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Dr. Janet Houser is currently Provost at Regis University in Denver, Colorado. Prior to her appointment, she was Dean of the Rueckert-Hartman College for Health Professions and the Vice Provost for Resource Planning.

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