

BAILEY'S

Research for the Health Professional

Angela N. Hissong | Jennifer E. Lape | Diana M. Bailey





**Bailey's
Research for
the Health
Professional**

THIRD EDITION

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*For students, practitioners, and educators
embarking on the research journey . . .*

It is easy to think of an idea.

It is challenging to make your idea a reality.

It is inspiring to see the idea change lives.



*There are blue skies and
endless territory to explore.*

Preface

Research for the Health Professional was designed to be a practical and informative guide for research and evidence-based practice for a variety of healthcare students and professionals. The text will guide you to:

1. Differentiate research from evidence-based practice
2. Discriminate between quantitative, qualitative, and mixed methods research methodologies
3. Access and critically evaluate literature related to your practice area
4. Ignite your passion for your profession or chosen practice area to inspire participation in research and evidence-based practice activities
5. Apply principles of research and evidence-based practice to design, implement, and evaluate meaningful research studies or innovative evidence-based practice projects
6. Share research and evidence-based practice findings through a variety of methods
7. Engage in collaborative and self-directed learning activities to become researchers, evidence-based practitioners, and professional leaders

We have taken a straightforward, positive, and engaging approach to research and evidence-based practice that draws upon our combined 25 years of teaching experience, from the associate to doctoral levels. Understanding and engaging in research and evidence-based practice can be challenging, but with use of a structured process and a passion for the chosen topic, both can be extremely rewarding and enlightening. The philosophy of the text is to learn by “doing,” meaning that mastery of the content is facilitated via hands-on activities, engaging assignments and discussions, and collaboration with others.

Our intention was not to write a comprehensive research text, but rather to lead you through each phase of the research process in a simplified and systematic

way. This text is appropriate for those just beginning in the research or evidence-based practice journey, but can also be an effective tool for more advanced students and practitioners or those needing a refresher course. With these goals in mind, each chapter contains several features.

First, **Learning Outcomes** define the chapter goals and let you know what you can expect to learn in each chapter. Second, **Skill-Building Tips** are included at the end of each chapter in bulleted format to summarize practical suggestions for understanding and applying chapter content. These tips have been accumulated through our experiences in conducting research and evidence-based practice and in teaching others to do the same. These tips should allow you to avoid some of the common pitfalls and to move through the research process with greater ease. Third, **Learning Activities** conclude each chapter and provide opportunities for critical thinking about the chapter content. These questions can serve as a foundation for each phase of the research process, by allowing you to consider chapter content from the perspective of your clinic, practice, or research situation. Finally, **additional resources and templates** are available within the chapters and in the online resources through DavisPlus to guide you through the research process. In addition, a variety of examples from multiple disciplines have been included throughout the chapters to demystify more complex concepts.

Reviewing the chapters in chronological order reflects the approach we have found to be most effective for research in traditional, online, and blended academic settings. For those more interested in evidence-based practice, we recommend reviewing sections in the following order: Section I, Section III, Section II, Section IV. In either case, we hope this text will guide you to design and conduct a successful

study or project, and to pursue grant writing or to present and publish to share your work with others.

One final feature that we chose to include is the **inspirational quotes and photos** that open each chapter to set the tone for a positive and engaging learning experience. Research and evidence-based practice can be challenging and time-consuming, but we believe that it can also be inspiring and fun with proper life balance. Balancing competing activities and finding time to enjoy the simple pleasures is fundamental to a

healthy and fulfilling life, and we remind our students of this frequently. The chapter photos were taken throughout our writing journey for this book, as we tried to stay true to our own philosophy. We hope you enjoy the journey and embrace the joys of research and conducting evidence-based practice! The process will surely change you if you let it!

*Angela N. Hissong
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Finally, to our students—past and present—who inspired us through their journeys of research and evidence-based practice, to write a sensible and lighthearted book to ease the process.

*A special thank you from Angela to Dr. Julie Beck for contributing to the **Adult & Transformative Learning Influences on the Inquiry Process** dialogue in Chapter 2.*

Photographs

The chapter opener photos taken during our writing journey are:

- EPIGRAPH:** The Cabin, Breezewood, Pennsylvania
 - CHAPTER 1:** Harbor of Christiansen, St. Croix, U.S. Virgin Islands
 - CHAPTER 2:** Breathe & Balance Lecture, Philadelphia, PA
 - CHAPTER 3:** Seaside Mahoe Tree, Carambola Beach Resort, St. Croix, U.S. Virgin Islands
 - CHAPTER 4:** Osprey Nest, Westport, Ontario, Canada
 - CHAPTER 5:** Grandfather Mountain, Linville, North Carolina
 - CHAPTER 6:** Woody Pines—Whitetail Mountain Forest, Beech Creek, Pennsylvania
 - CHAPTER 7:** North Atlantic Ocean, Island of Bermuda
 - CHAPTER 8:** Enchantment Resort, Sedona, Arizona
 - CHAPTER 9:** Moais Stone Head, Valparaíso, Chile
 - CHAPTER 10:** Cape Hatteras Lighthouse, Buxton, North Carolina
 - CHAPTER 11:** Snowy Stream, Springwood Farm, Pennsylvania
 - CHAPTER 12:** Butterfly, Dupont State Forest, North Carolina
 - CHAPTER 13:** Bald Cypress Tree in the Bayou, New Orleans, Louisiana
 - CHAPTER 14:** Wright Brothers National Memorial, Kill Devil Hills, North Carolina
 - CHAPTER 15:** Bee & Lily, Garrison Institute, New York
- (Photos taken by Angela Hisson, Jennifer Lape, and Joe Lape.)*

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Section 1

Beginning the Journey

Chapter 1

Concepts of Research: Embarking on the Journey



*The universe is full of magical things, patiently waiting for
our wits to grow sharper.*

—Eden Phillpotts

LEARNING OUTCOMES

The information provided in this chapter will assist the reader to:

- Understand the components of engaging in the research process.
- Define the steps required to complete a research process.
- Identify potential challenges in the research process.

Introduction to Research

Research can be an enjoyable, stimulating, and fascinating activity to engage in along one's professional journey. Often anyone who is required to write a research thesis starts out overwhelmed by the idea, yet comes to enjoy the challenge and ends up feeling proud of the results. Great satisfaction can be derived from completing this exacting, often complex, and always stimulating process.

Unfortunately, some people avoid research because of their preconceived notions. Research is the systematic investigation of a problem, issue, or question undertaken to increase our knowledge. This includes

reviewing numerous sources of literature on a given topic and drawing new conclusions about that topic, manipulating certain variables to see what happens to other variables, or searching for the meaningfulness of a variable to an individual or group.

Systematic investigation involves the process of logic, often called *deductive* and *inductive* reasoning. Deductive reasoning starts with a general theory and ends with a specific conclusion; this is sometimes called a “top-down” approach. For example, the researcher starts with a general theory, forms a hypothesis based on the theory, tests the hypothesis, assesses the results, and forms a conclusion (Box 1-1).

Inductive reasoning starts with a specific observation that eventually forms a general theory; this is sometimes called a “bottom-up” approach. In this type of reasoning, the researcher starts with an interesting observation, then looks for a pattern of similar observations. From this pattern, the researcher develops a hypothesis, which forms the basis of a general theory (Box 1-2).

When using inductive reasoning, one accepts or believes a finding about a situation and then applies that belief to all similar individuals, assuming that the finding will be true for all. For example, if a healthcare practitioner finds that having clients complete a

BOX 1-1 ■ Deductive Reasoning**Theory → Hypothesis → Observations → Conclusion**

An occupational therapist believes that positive encouragement improves patient outcomes (**general theory**) and **hypothesizes** that positive reinforcement will decrease stroke recovery time. The therapist tests the hypothesis on 100 patients and finds that stroke recovery time decreased by 50% (**observations**). The therapist concludes that positive reinforcement decreases stroke recovery time (**conclusion**). This confirms the original theory.

BOX 1-2 ■ Inductive Reasoning**Observation → Pattern → Hypothesis → Theory**

An occupational therapist **observes** that a patient's ability to climb stairs improves when preceded by a balance task (e.g., standing on one leg with eyes closed). Over the next several months, the therapist **looks for a pattern** whether the balance task causes improvements in other areas (cognition, motor skills, etc.). After observing improvements in other areas, the therapist believes that the balance task should be performed at the beginning of every occupational session (**hypothesis**) and implements this as standard protocol for all therapists (**theory**).

specific questionnaire about their health history is beneficial during an initial evaluation, the practitioner may choose to give all subsequent clients the questionnaire to fill out.

The point of consideration with deductive reasoning is that, although the principle is usually true, there may be exceptions. The point of consideration with inductive reasoning is that the individual upon whom you have based the principle may be the exception, so

that the principle will probably not apply to all other cases that follow.

Journey of Exploration in Research

Research in the health sciences is a challenging task; however, it can be accomplished with the proper tools and guidance. Human behavior is extremely complex and, therefore, difficult to isolate and measure. Because we are working in the health field, added dimensions must be considered when working with and conducting research with clients. These may include time constraints of the client and the healthcare practitioner, complicated medical diagnoses, working within the many layers of the healthcare system, and the numerous ethical issues involved when doing research with people. With that said, we are nonetheless seeing more support for healthcare practitioners as they conduct research in the community setting with a focus on preventative or wellness programs.

When considering your research agenda, keep the following six points in mind:

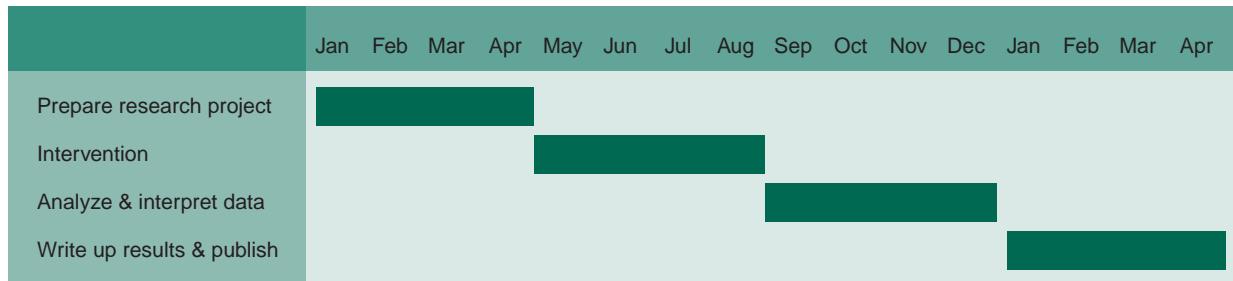
- First and foremost, explore and understand the types of research and determine which type best fits the question you are pondering (Table 1-1);
- Be aware that finding collaborators who are interested in your research is time-consuming;
- Give considerable thought to the type of research project you want to engage in;
- Learn as much as you can about the embedded systems or structural rules that will affect, and at times overrule, how you conduct your research;
- Be willing to compromise and accept that perseverance is a key asset during the research process;
- Finalize your research question, then sit down and write up a time line (Figure 1-1).

Estimate Time to Complete a Research Project

Practitioners often ask, “How long will it take to complete a research study?” or “How long should I devote to conducting research each day or week?” In my experience in advising graduate occupational therapy students in their thesis preparation and writing, the time frame is an average of 6 to 12 months. This includes

Table 1-1 ■ Description of Categories of Research

A	Basic Abstract, general, and concerned with generating new theory and gaining new knowledge for knowledge's sake.	Applied Designed to answer a practical question to help people do their jobs better.
B	Experimental Manipulate a variable to see its effect on another variable, control for as many other variables as possible, and randomly assign subjects to groups.	Descriptive Describe a group, a situation, or an individual to gain knowledge that may be applied to other groups or situations, as in case studies or trend analyses.
C	Clinical Performed in the “real world” where control over variables is quite difficult.	Laboratory Performed in laboratory surroundings that are controlled.

**Figure 1-1** Time Line for Tasks of a Research Project

conceptualizing the issue to be studied, carrying out the project, and writing the study. Students are usually not carrying a caseload of clients or tied to a 40-hour work week; however, they do have classes to attend and often are working full-time on an affiliation.

Research conducted by practitioners tends to take longer—about 1 year to 18 months—with some time spent on the project each week. Of course, different phases of the research demand more or less input. For example, if a new treatment approach is being investigated, the practitioner must adhere to the number and length of treatment sessions stipulated in the research protocol and put time into preparation and record-keeping. Activities such as reading the literature and writing the results are done on one's own time and on a less precise schedule. A therapist who works from 9 to 5 should plan on reading and writing in the evening and on weekends because few clinical situations afford

therapists enough free time during the day to do the extra work required to complete a research study.

Steps in the Research Process

It is helpful to remember that research is a circular process. The researcher starts with a question in mind, goes through the investigative stages, and ends up with an answer to the question. More often than not, further questions arise during the analysis and interpretation of the data, leading to yet more research ideas.

There are different points of entry into the research process. Some people enjoy starting afresh at the question identification stage; others may discover some study results that they question and feel they would like to investigate for themselves. Still others enter at various phases along the way. Whatever the

entry point, the steps required to complete a research project follow a logical sequence:

1. Identify a problem that needs to be solved or a question that needs to be answered.
2. Review the existing literature related to the problem or question.
3. Formulate a question or hypothesis about the problem based on the literature.
4. Design a procedure that will address the question or hypothesis.
5. Carry out the procedure.
6. Collect and interpret the findings.
7. Present findings to one or more committees.
8. Publish your research so that others may benefit from the identified knowledge. It is very helpful to talk to your committee and peers about where to publish your research.

This process will be addressed step by step later in this text. As each step is explored, practical hints are offered that explain each step, along with suggestions on how to get over the hurdles that frequently present themselves.

Remember that, if you persevere, you can carry out a research project from its inception to publication by using this book as your step-by-step guide. This book is designed to guide you through each stage of negotiation and navigate through your own and other people's questions about the research process.

Research Process Challenges

When one begins with a research project there is a time of balancing out new tasks with everyday activities. We have compiled a list of common challenges that may be encountered prior to starting and/or in the initial stages of the research process:

- Balance commitments to allow for time to complete all stages of a research inquiry.
- Underestimate how much assistance or cooperation you may need from all the people involved in the research inquiry.
- Sort out how much time you need to complete each phase of the project.
- Say no to “tempting” opportunities that come up while you are engaged in the research inquiry that you really want to do.
- Understand the reality that your social life will be limited secondary to engaging in a research inquiry.
- Construct support systems to help you complete the research agenda in a timely and cost-effective manner.

Synopsis of This Book

The following is a *picture in preview* of the forthcoming chapters of this book. You have just read Chapter 1, which gives you an overview of how you should approach your research journey. The four chapters in Section I will assist you in beginning the research process. Section II of the book addresses research methodologies and designs, whereas Section III addresses evidence-based practice. Section IV gives you detailed information regarding common tasks along the journey related to preparing to implement your project, analyzing your findings, presenting the research to committees, and finally publishing and presenting the knowledge to the larger community.

SKILL-BUILDING TIPS

- As you begin to navigate and negotiate through various research processes, do not fault yourself or others.
- Remember that others around you may not be as passionate about your topic as you are and that they may not understand the research process or your research project. It isn't their fault. Be kind to them and yourself.
- Don't worry too much about the rules when you begin the research. You will not do everything correctly the first time and will have to go back and redo a few things. This is part of the learning process.
- Be humble and honest during the process from start to finish. If you need help, ask for it.
- Keep excellent notes.
- Find these four key people to assist you with the following tasks:
 - A person who understands the technical aspects of your research

- A person who is familiar with various writing styles such as APA (American Psychological Association) or MLA (Modern Language Association)
 - A person who will read your manuscript and correct grammar and spelling (that's right, the computer still does not pick up everything!)
 - A kind person who will take you out for dinner, bring you a chocolate cupcake, or sign you up for a massage when you most need a break from your research project
-

LEARNING ACTIVITIES

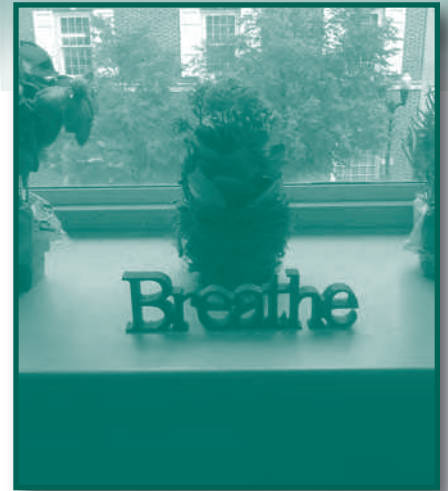
1. What is your mission statement (i.e., why do you want to complete your research project at this point in time)?
2. Are you ready to give up social time for research time? If the answer is yes, how will you accomplish this? For example: Rather than going out for dinner with friends three nights a week, you might go out only on Friday night.
3. List five reasons why you are passionate about completing your research study at this point in time.



For additional materials, please visit <http://davisplus.fadavis.com>,
key word: Hissong.

Chapter 2

Identifying a Topic: Purpose Balanced With Passion



The shape of one's knowing becomes the shape of one's being, doing, and becoming.

—Unknown

LEARNING OUTCOMES

The information provided in this chapter will assist the reader to:

- Explore the process of identifying topics that elicit a professional passion for inquiry.
- Appreciate the influence adult and transformative learning provide when aligned with the processes of engaging in an inquiry.
- Acknowledge the need for a balance of personal and professional obligations while engaged in an inquiry.

Identifying a Topic: Passion Within One's Profession

An idea for an inquiry project typically begins from a grounding experience you have had in your field of study, although it may start anywhere. One key starting point to remember, and one that will consistently guide you through the inquiry process, is to begin with, maintain, and end with a passion for what you are studying. Think about a professional grounding experience that has been a guiding force in your life

as a student or practitioner. Ironically, this grounding experience will not only guide your inquiry, but will also fuel your passion to plan and execute your inquiry. It will truly assist you in coming to know, understand, and engage in evidence-based practice and inquiry.

Post the process of looking within to discern what you want to study, and take time to consider the many philosophies and pedagogies of practice that you have been exposed to over the years. First, philosophical perspectives of evaluation, intervention, and care have helped shape and guide your practice more than you may think about on a daily basis, secondary to them becoming engrained in your work and second nature. Next, consider the experience you have in practice with your clients in terms of the teaching–learning process. Each time we engage in practice with clients there is a teaching–learning component to the session. A few pedagogical methods for any given session may include collaboration, critical reflection, transformation, and replication of a therapeutic modality or exercise. Again, it is very important to take time to ponder the philosophical and pedagogical perspectives and notions that have influenced and enlightened you on areas of practice that you want to explore