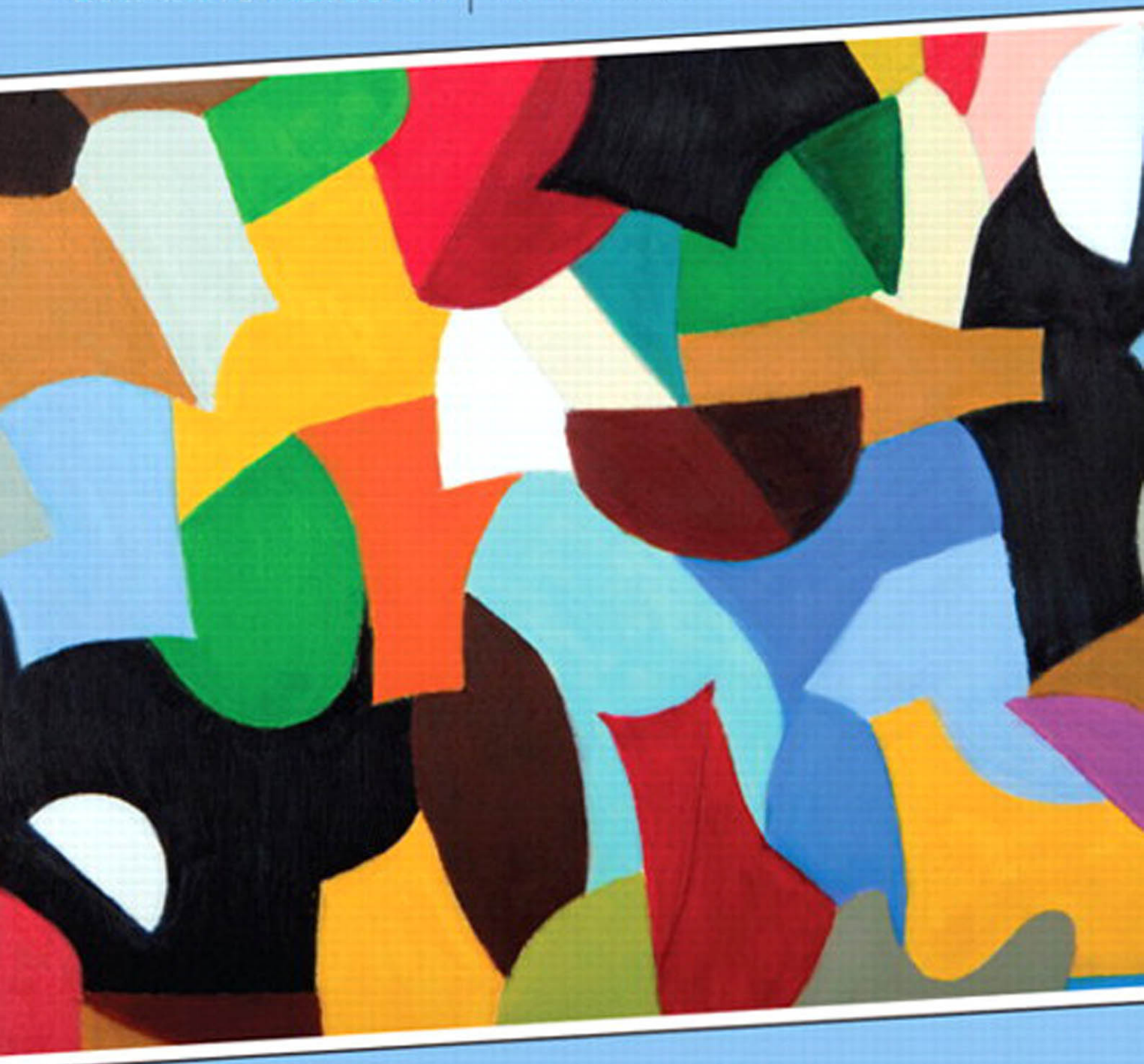
Educational Research

Planning, Conducting, and Evaluating Quantitative and Qualitative Research | FIFTH EDITION



JOHN CRESWELL

Educational Research

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Planning, Conducting, and Evaluating Quantitative and Qualitative Research

FIFTH EDITION

John W. Creswell
University of Nebraska–Lincoln

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This text is dedicated to Karen, who provided caring editorial help and support through five editions of this book. You have been my inspiration and thoughtful advocate throughout this project. Thanks for standing beside me.

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Preface

NEW TO THE FIFTH EDITION

You will find several key changes in this edition as a result of reader feedback and the careful review of the last edition by anonymous external reviewers.

- Increased coverage can be found on the quantitative topics of single-subject research and meta-analysis. This coverage especially identifies the processes involved in using these procedures as well as the latest issues and challenges being discussed about them in texts and in journal articles.
- Increased emphasis is mentioned about the more advanced statistical procedures being discussed in the literature. These include structural equation modeling, hierarchical linear modeling, and the use factor analysis, path analysis, and discriminant function analysis. Also in the quantitative approaches, the distinctions among types of variables are expanded as well as the use of causal comparative research approaches versus experiments in the discussion about experimental designs.
- Validity is an important issue in qualitative research. This edition expands the discussion about the types of validity strategies and the processes that educational researchers might use.
- The chapter on mixed methods analysis has been updated to reflect current thinking about mixed methods, especially about the types of basic and advanced designs available.
- The sample articles used in the fourth edition of the text have remained the same. They provide good illustrations of quantitative and qualitative approaches as well as the many research designs covered in this book. As with past editions, these articles are annotated with marginal notes to help readers locate key passages of research and important characteristics of research.
- The references used in this edition have been extensively updated from past editions of this book. Key writers in research methods have issued new editions of books, and readers need to be introduced to these new editions. In addition, new books on research methods are continually being published, and readers need to be informed of the latest writings. At the end of each chapter are suggestions for additional resources to consider for more information about certain topics. References to software and their Web sites have been updated when needed.
- The evaluation criteria for each type of research design have been updated to include indicators of higher quality and lower quality for specific criteria. This evaluation should provide a better understanding for both reading studies as well as conducting your own study.

THE PHILOSOPHY OF THE TEXT

The philosophy that guided the development of this text is twofold. First, research involves a process of interrelated activities rather than the application of isolated, unrelated concepts and ideas. Educators practice research following a general sequence of procedures—from the initial identification of a research problem to the final report of research. This means that understanding the sequence or flow of activities is central to inquiry. Thus, the text begins with specific chapters devoted to each step in the process of research and the inclusion of concepts and ideas within this process.

Second, the educational researcher today needs a large toolbox of approaches to study the complex educational issues in our society. No longer can we, as educators, use only experiments or surveys to address our research problems. Educators in this new century—whether conducting research or reading research to self-inform—need to know about quantitative, qualitative, and combined approaches to inquiry and to have an in-depth understanding of the multiple research designs and procedures used in our studies today. In each step in the process of research, this text will introduce you to quantitative, qualitative, and combined approaches. Throughout the text, you will learn about the differences and similarities of qualitative and quantitative research. In the last section of the text, you will be introduced to eight distinct quantitative and qualitative research designs or procedures that make up the repertoire of the educational researcher in the quantitative, qualitative, and combined applications of research.

KEY FEATURES

This text offers a truly balanced, inclusive, and integrated overview of the field as it currently stands. As you will see from the table of contents, the book's coverage is unique in its balanced presentation of quantitative and qualitative research. Moreover, it consistently examines foundational issues of research—for example, determining how to approach a project and understanding what constitutes data and how to analyze them—from quantitative, qualitative, and mixed perspectives. This approach helps students understand fundamental differences *and* similarities among these approaches. This text has three main purposes:

- It provides balanced coverage of quantitative and qualitative research.
- It helps students learn how to begin to conduct research.
- It helps students learn how to read and evaluate research studies.

Let's look at each of these in detail to see how each can help you achieve your course objectives.

Balances Coverage of Quantitative and Qualitative Research

This text provides balanced coverage of all types of research designs. This provides readers with a complete picture of educational research as it is currently practiced. The text begins with an overview in Part 1 of the general nature of educational research and the specific quantitative and qualitative approaches to educational research. Next, in Part 2, Chapters 2 through 9, the book examines in depth the steps in the research process:

1. Identifying a research problem
2. Reviewing the literature

3. Specifying a purpose and research questions or hypotheses
4. Collecting either quantitative or qualitative data
5. Analyzing and interpreting either quantitative or qualitative data
6. Reporting and evaluating the research

Looking at the process simultaneously from both quantitative and qualitative perspectives helps students understand what choices a researcher has available and what meaning exists for a particular choice.

After this discussion, in Part 3, students will learn the procedures for conducting specific types of quantitative, qualitative, and mixed methods studies. Chapters 10 through 17 provide balanced coverage and examples of each of these types of educational research designs: experimental, correlational, survey, grounded theory, ethnographic, narrative, mixed methods, and action research.

Helps Students Learn How to Begin to Conduct Research

Both the research process and the design chapters offer the researcher step-by-step guidance in the basic aspects of planning, conducting, and evaluating research. A number of features guide readers through the steps and procedures of research. For example, a fictional beginning researcher, Maria, who is also a high school teacher and new graduate student, is followed throughout Parts 2 and 3 to illustrate one researcher's efforts and to provide students with a realistic perspective of the process of research and the selection of specific research designs. Other features include, but are not limited to, the following:

- Tips on planning and conducting research in "Useful Information for Producers of Research"
- Checklists that summarize key points such as evaluation criteria used to assess the quality of a quantitative or qualitative study
- In-text examples of actual and hypothetical studies that illustrate the correct and incorrect ways of reporting research
- Follow-up activities in "Understanding Concepts and Evaluating Research Studies" to help students apply the concepts they've just learned
- A "Think-Aloud" feature that describes practices the author has found useful

Helps Students Learn How to Read and Evaluate Research Studies

Direct guidance on reading research is offered throughout the text. To further help students become more skilled at interpreting and evaluating research, the text offers a number of features. Most important among these are the many articles included in the text and the "Useful Information for Consumers of Research" feature:

- The text provides annotated research articles in each of the design chapters in Part 3. Two other articles—one qualitative, one quantitative—appear at the end of Chapter 1. All of these complete articles (there are numerous other, shorter article excerpts in the book) include highlighted marginal annotations that help students understand the structure of articles and the key issues with which a reader should be concerned when evaluating the quality and the applicable scope of each particular piece of research.
- The "Useful Information for Consumers of Research" feature appears at the end of every chapter and offers concrete guidance in interpreting and evaluating research.

NEW INTERACTIVE LEARNING FEATURES

Practice Using What You Have Learned These interactive activities appear in Chapters 2–9 and provide opportunities for readers to make key decisions regarding research design and statistical analysis. (See Chapter 3, page 108 for an example).

Understanding Concepts and Evaluating Research Studies These interactive activities appear in Chapters 1–9 and allow readers to apply the basic research concepts they've just learned by identifying key elements of published studies or considering how the concepts influence planning a new study. (See Chapter 3, page 108 for an example).

Reading Research Interactive Reading Research exercises in Chapters 1 and 10–17 provide readers with scaffolding to read and evaluate published research articles of the types discussed in the target chapter. (See Chapter 12, page 412, for an example.)

Check Your Understanding of Chapter Content Interactive Self-Assessment Chapter Quizzes with feedback enable students to check how well they understand chapter content. (See Chapter 3, pages 91 and 104 for examples.)

SUPPLEMENTARY MATERIALS

The following resources are available for instructors to download at **pearsonhighered.com/educators**:

Online Test Bank 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 and qualitative studies and research situations.

TestGen TestGen is a powerful test generator available exclusively from Pearson Education publishers. You install TestGen on your personal computer (Windows or Macintosh) and create your own tests for classroom testing and for other specialized delivery options, such as over a local area network or on the web. A test bank, which is also called a Test Item File (TIF), typically contains a large set of test items, organized by chapter and ready for your use in creating a test, based on the associated textbook material. Assessments—including equations, graphs, and scientific notation—may be created in either paper-and-pencil or online form.

The tests can be downloaded in the following formats:

TestGen Testbank file—PC
TestGen Testbank file—MAC
TestGen Testbank—Blackboard 9 TIF
TestGen Testbank—Blackboard CE/Vista (WebCT) TIF
Angel Test Bank (zip)
D2L TestBank (zip)
Moodle Test Bank
Sakai Test Bank (zip)

PowerPoint® Slides These slides include key concept summarizations and other graphic aids to help students understand, organize, and remember core concepts and ideas.

ACKNOWLEDGMENTS

This book is a culmination of 35 years of experience in conducting both quantitative and qualitative research in education and the social sciences. It could not have been written without the capable assistance of numerous individuals such as graduate students, research assistants, and colleagues at the University of Nebraska–Lincoln. Dr. Dana Miller assisted in a timely and thorough review of many chapters. Dr. Vicki Plano Clark provided editorial assistance and a key conceptual eye for missing details as well as useful leads for sample illustrative articles. Amanda Garrett has provided invaluable assistance in locating up-to-date materials and in conceptualizing ideas. Dr. Ron Shope developed the initial PowerPoint presentation. Others have been helpful as well. Dong Dong Zhang provided inspiration for many applied ideas and support at critical phases of the project. Other graduate students offered useful ideas, including Michael Toland, Kathy Shapely, and many other students in my graduate program area (quantitative and qualitative methods of education), as did students in my classes on the foundations of educational research. Dr. Bill Mickelson served as a statistics consultant and quantitative analysis reviewer on earlier editions.

I am also indebted to Kevin Davis at Pearson for initiating this book and providing the vision to launch it as the "next-generation" research methods text in education. Gail Gottfried, my development editor at Pearson for this edition, provided patience, support, and useful insights throughout the project.

Numerous reviewers helped to shape this book: Sheri Berkeley, George Mason University; Anne Dahlman, Minnesota State University–Mankato; Kathleen Gee, California State University, Sacramento; Tracey Stuckey-Mickell, The Ohio State University; and Maria D. Vasquez, Florida Atlantic University.

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PART 1

An Introduction to Educational Research

Consider research your personal journey. It will be challenging but also exciting. Pack along for your journey a tool kit. In Chapter 1, you will be introduced to the basic supplies. In your pack, place a solid understanding of "research." Also include a map—the six steps in the process of conducting research. Realize that on this journey, you need to respect people and the places you visit. Enjoy the process using your natural skills, such as your ability to solve puzzles, use library resources, and write. After learning the process of research, decide on which of two major paths—quantitative or qualitative research—you will follow. Each is viable, and, in the end, you may choose to incorporate both, but as you begin a study, consider one of the paths for your research journey.

Let us begin.

CHAPTER 1

The Process of Conducting Research Using Quantitative and Qualitative Approaches

What is research? Research is a process in which you engage in a small set of logical steps. In this chapter, I define research, discuss why it is important, advance six steps for conducting research, and identify how you can conduct research ethically by employing skills that you already have. You can approach research in two ways—through a quantitative study or a qualitative study—depending on the type of problem you need to research. Your choice of one of these approaches will shape the procedures you use in each of the six steps of research. In this chapter, I explore the many ways these two approaches are similar and different.

By the end of this chapter, you should be able to:

- Define and describe the importance of educational research.
- Describe the six steps in the process of research.
- Identify the characteristics of quantitative and qualitative research in the six steps.
- Identify the type of research designs associated with quantitative and qualitative research.
- Discuss important ethical issues in conducting research.
- Recognize skills needed to design and conduct research.

To begin, consider Maria, a teacher with 10 years of experience who teaches English at a midsize metropolitan high school. Lately, a number of incidents in the school district have involved students possessing weapons:

- A teacher found a 10th grader hiding a knife in his locker.
- A 12th-grade student threatened another student, telling him "he wouldn't see the light of day" unless he stopped harassing her.
- At a nearby high school, a student pointed a handgun at another student outside the school.

These incidents alarm district officials, school administrators, and teachers. The principal forms a committee made up of administrators and teachers to develop guidelines about how the school should respond to these situations. In response to a call for teachers to serve on this committee, Maria volunteers immediately.

Maria sees the school committee assignment and her graduate program's research study requirement as mutual opportunities to research school violence and weapon possession and to have a positive impact on her school. Where does she begin?

Maria's situation of balancing the dual roles of professional and graduate student may be familiar to you. Let's assess her present research situation:

- Maria recognizes the need to closely examine an important issue—school violence and weapons at school—although she is new to research. However, she is not a stranger to looking up topics in libraries or to searching the Internet when she has a question about something. She has occasionally looked at a few research journals, such as the *High School Journal*, the *Journal of Educational Research*, and *Theory Into Practice*, in her school library, and she has overheard other teachers talking about research studies on the subject of school violence. Although she has no research background, she expects that research will yield important findings for her school committee and also help her fulfill the requirement to conduct a small-scale research study for her graduate degree.
- To complete the required research for her graduate program, Maria must overcome her fears about planning and conducting a study. To do this, she needs to think about research not as a large, formidable task but rather as a series of small, manageable steps. Knowing these smaller steps is key to the success of planning and completing her research.

Your situation may be similar to Maria's. At this stage, your concerns may start with the question "What is research?"

A DEFINITION OF RESEARCH AND ITS IMPORTANCE

Research is a process of steps used to collect and analyze information to increase our understanding of a topic or issue. At a general level, research consists of three steps:

1. Pose a question
2. Collect data to answer the question
3. Present an answer to the question

This should be a familiar process. You engage in solving problems every day, and you start with a question, collect some information, and then form an answer. Although there are a few more steps in research than these three, this is the overall framework for research. When you examine a published study or conduct your own study, you will find these three parts as the core elements.

Not all educators have an understanding and appreciation of research. For some, research may seem like something that is important only for faculty members in colleges and universities. Although it is true that college and university faculty members value and conduct research, personnel in other educational settings, such as school psychologists, principals, school board members, adult educators, college administrators, and graduate students, also read and use research. Research is important for three reasons.

Research Adds to Our Knowledge

Educators strive for continual improvement. This requires addressing problems or issues and searching for potential solutions. **Adding to knowledge** means that educators undertake research to contribute to existing information about issues. We are all aware of pressing educational issues being debated today, such as the integration of AIDS education into the school curriculum.

Research plays a vital role in addressing these issues. Through research, we develop results that help answer questions, and as we accumulate these results, we gain a deeper understanding of the problems. In this way, researchers are much like bricklayers who build a wall brick by brick, continually adding to the wall and, in the process, creating a stronger structure.

How can research specifically add to the knowledge base and existing literature? A research report might provide a study that has not been conducted and thereby fill a void in existing knowledge. It can also provide additional results to confirm or disconfirm results of prior studies. It can help add to the literature about practices that work or advance better practices that educators might try in their educational setting. It can provide information about people and places that have not been previously studied.

Suppose that you decide to research how elementary schoolchildren learn social skills. If you study how children develop social skills and past research has not examined this topic, your research study addresses a gap in knowledge. If your study explores how African American children use social skills on their way home from school, your study might replicate past studies but would test results with new participants at a different research site. If your study examines how children use social skills when at play, not on the school grounds but on the way home from school, the study would contribute to knowledge by expanding our understanding of the topic. If your study examines female children on the way home from school, your study would add female voices seldom heard in the research. If your study has implications for how to teach social skills to students, it has practical value.

Research Improves Practice

Research is also important because it *suggests improvements* for practice. Armed with research results, teachers and other educators become more effective professionals. This effectiveness translates into better learning for kids. For instance, through research, personnel involved in teacher education programs in schools of education know much more about training teachers today than they did 20 years ago. Zeichner (1999) summarized the impact of research on teacher training during this period (see Table 1.1). Teacher trainers today know about the academic capabilities of students, the characteristics of good teacher training programs, the recurring practices in teacher training programs, the need to challenge student beliefs and worldviews, and the tensions teacher educators face in their institutions. However, before these research results can impact teacher training or any other aspect of education, individuals in educational settings need to be aware of results from investigations, to know how to read research studies, to locate useful conclusions from them, and to apply the findings to their own unique situations. Educators using research may be teachers in preschool through grade 12, superintendents in school district offices, school psychologists working with children with behavioral problems, or adult educators who teach English as a second language. Research may help these individuals improve their practices on the job.

Research offers practicing educators *new ideas* to consider as they go about their jobs. From reading research studies, educators can learn about new practices that have been

TABLE 1.1

Zeichner's (1999) Summary of Major Research Results in Teacher Education

Research Conducted	What Researchers Have Learned
Surveys about students in teacher education programs	• From academic, social class, racial, ethnic, and gender characteristics of both teacher educators and their students, the research has challenged the misconception that students who go into teaching are academically inferior to those who go into other fields. • Despite changing U.S. demographics, teacher education programs admit mostly students who are white, monolingual English speakers.
Specific case studies of individual teacher education programs	• Successful teacher education programs have a coherent vision of good teaching and close links to local schools. • Researchers need to spend time living in teacher education programs to understand them.
Conceptual and historical research on teacher education programs	• Teacher education programs differ in their approaches, such as the importance of disciplinary knowledge versus students learning versus critiquing societal inequalities in schooling practices. • Programs throughout the 20th century have emphasized recurring practices such as performance-based teacher education.
Studies of learning to teach in different settings	• It is difficult to change the tacit beliefs, understandings, and worldviews that students bring to teacher education programs. • The impact of a program on students can be increased through cohort groups, portfolio development, case studies, and narratives in which they examine their beliefs.
Nature and impact of teacher education activities and self-studies	• Despite the sometimes unfavorable structural conditions of teacher educators' work, their voices are being heard. • Teachers, in these self-studies, describe the tensions and contradictions involved in being a teacher educator.

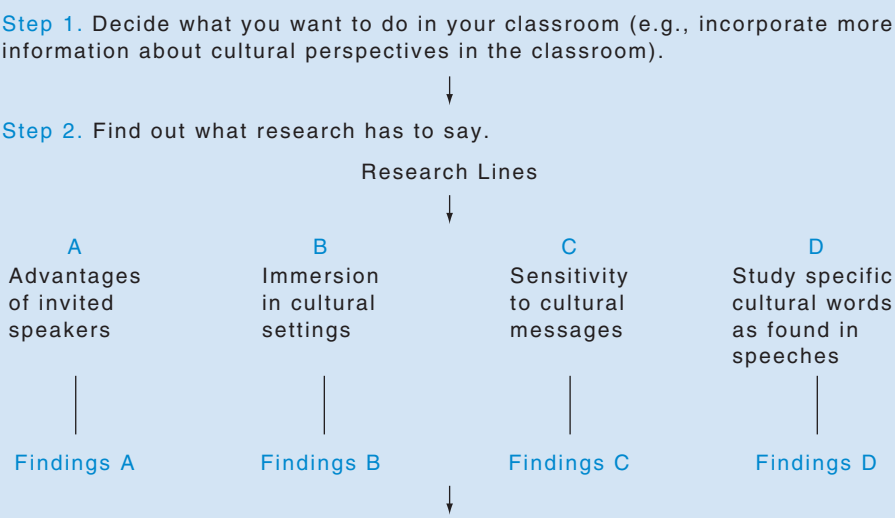
tried in other settings or situations. For example, the adult educator working with immigrants may find that small-group interaction that focuses on using cultural objects from the various homelands may increase the rate at which immigrants learn the English language.

Research also helps practitioners *evaluate approaches* that they hope will work with individuals in educational settings. This process involves sifting through research to determine which results will be most useful. This process is demonstrated in Figure 1.1, which focuses on three steps that a classroom teacher might use (Connelly, Dukacz, & Quinlan, 1980). As shown in Figure 1.1, a teacher first decides what needs to be implemented in the classroom, then examines alternative lines of research, and finally decides which line of research might help accomplish what needs to be done.

For example, a reading teacher decides to incorporate more information about cultural perspectives into the classroom. Research suggests that this 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 messages embedded within advertisements (line C) or identify the cultural subject matter of speeches of famous Americans (line D). A line of research is then chosen that helps the teacher accomplish classroom goals. This teacher might be Maria, our teacher conducting research on weapon possession in schools and its potential for violence. Maria hopes to present options for dealing with this issue to her committee and needs to identify useful research lines and consider approaches taken by other schools.

FIGURE 1.1

Lines of Research and Your Decision Making



Source: "Lines of research and your decision-making" from *Curriculum Planning for the Classroom*, edited by F. Michael Connelly, Albert S. Dukacz, and Frank Quinlan. © Ontario Institute for Studies in Education, 1980. Reprinted with permission of the publisher.

At a broader level, research helps the practicing educator *build connections* with other educators who are trying out similar ideas in different locations. Special education teachers, for example, may establish connections at research conferences where individuals report on topics of mutual interest, such as using small-group strategies for discipline management in classrooms.

Research Informs Policy Debates

In addition to helping educators become better practitioners, research also provides information to policymakers when they research and debate educational topics. Policymakers may range from federal government employees and state workers to local school board members and administrators, and they discuss and take positions on educational issues important to constituencies. For these individuals, research offers results that can help them weigh various perspectives. When policymakers read research on issues, they are informed about current debates and stances taken by other public officials. To be useful, research needs to have clear results, be summarized in a concise fashion, and include data-based evidence. For example, research useful to policymakers might summarize the alternatives on the following:

- Welfare and its effect on children's schooling among lower-income families
- School choice and the arguments proposed by opponents and proponents

Several Problems with Research Today

Despite the importance of research, we need to realistically evaluate its contributions. Sometimes the results show contradictory or vague findings. An education aide to the Education and Labor Committee of the U.S. House of Representatives for 27 years expressed

this confusion: "I read through every single evaluation . . . looking for a hard sentence—a declarative sentence—something that I could put into the legislation, and there were very few" (Viadero, 1999, p. 36). Not only are policymakers looking for a clear "declarative sentence," but many readers of educational research search for some evidence that makes a direct statement about an educational issue. On balance, however, research accumulates slowly, and what may seem contradictory comes together to make sense in time. Based on the information known, for example, it took more than 4 years to identify the most rudimentary factors about how chairpersons help faculty become better researchers (Creswell, Wheeler, Seagren, Egly, & Beyer, 1990).

Another problem with research is the issue of questionable data. The author of a particular research report may not have gathered information from people who are able to understand and address the problem. The number of participants may also be dismally low, which can cause problems in drawing appropriate statistical conclusions. The survey used in a study may contain questions that are ambiguous and vague. At a technical level, the researcher may have chosen an inappropriate statistic for analyzing the data. Just because research is published in a well-known journal does not automatically make it "good" research.

To these issues, we could add unclear statements about the intent of the study, the lack of full disclosure of data collection procedures, or inarticulate statements of the research problem that drives the inquiry. Research has limits, and you need to know how to decipher research studies because researchers may not write them as clearly and accurately as you would like. We cannot erase all "poor" research reported in the educational field. We can, however, as responsible inquirers, seek to reconcile different findings and employ sound procedures to collect and analyze data and to provide clear direction for our own research.

THE SIX STEPS IN THE PROCESS OF RESEARCH

When researchers conduct a study, they proceed through a distinct set of steps. Years ago, these steps were identified as the "scientific method" of inquiry (Kerlinger, 1972; Leedy & Ormrod, 2010). Using a "scientific method," researchers do the following:

- Identify a problem that defines the goal of research
- Make a prediction that, if confirmed, resolves the problem
- Gather data relevant to this prediction
- Analyze and interpret the data to see if it supports the prediction and resolves the question that initiated the research

Applied today, these steps provide the foundation for educational research. Although not all studies include predictions, you engage in these steps whenever you undertake a research study. As shown in Figure 1.2, the **process of research** consists of six steps:

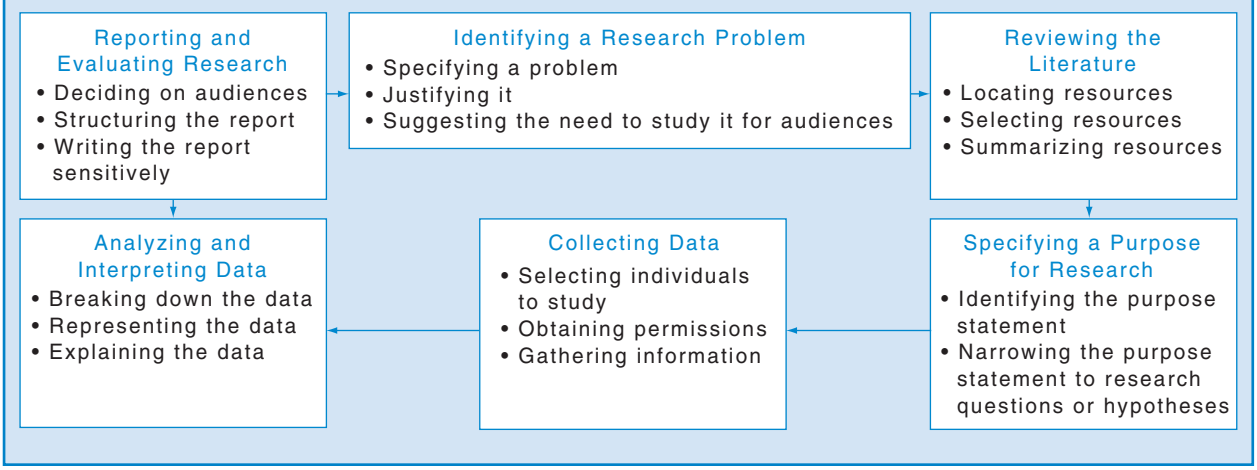
1. Identifying a research problem
2. Reviewing the literature
3. Specifying a purpose for research
4. Collecting data
5. Analyzing and interpreting the data
6. Reporting and evaluating research

Identifying a Research Problem

You begin a research study by identifying a topic to study—typically an issue or problem in education that needs to be resolved. **Identifying a research problem** consists of specifying an issue to study, developing a justification for studying it, and suggesting

FIGURE 1.2

The Research Process Cycle



the importance of the study for select audiences that will read the report. By specifying a "problem," you limit the subject matter and focus attention on a specific aspect of study. Consider the following "problems," each of which merits research:

- Teens are not learning how to connect to others in their communities.
- Teenage smoking will lead to many premature deaths.

These needs, issues, or controversies arise out of an educational need expressed by teachers, schools, policymakers, or researchers, and we refer to them as *research problems*. You will state them in introductory sections of a research report and provide a rationale for their importance. In a formal sense, these problems are part of a larger written section called the "statement of the problem," and this section includes the topic, the problem, a justification for the problem, and the importance of studying it for specific audiences, such as teachers, administrators, or researchers.

Let's examine Maria's research to see how she will specify her study's research problem.

> Maria plans to study school violence and weapon possession in schools. She starts with a problem: escalating weapon possession among students in high schools. She needs to justify the problem by providing evidence about the importance of this problem and documenting how her study will provide new insight into the problem.

In her research, Marie will need to identify and justify the research problem that she is studying.

Reviewing the Literature

It is important to know who has studied the research problem you plan to examine. You may fear that you will initiate and conduct a study that merely replicates prior research. However, faculty and advisers often fear that you will plan a study that does not build on existing knowledge and does not add to the accumulation of findings on a topic. Because of these concerns, reviewing the literature is an important step in the research process.

Reviewing the literature means locating summaries, books, journals, and indexed publications on a topic; selectively choosing which literature to include in your review; and then summarizing the literature in a written report.

The skills required for reviewing the literature develop over time and with practice. You can learn how to locate journal articles and books in an academic library, access computerized databases, choose and evaluate the quality of research on your topic, and summarize it in a review. Library resources can be overwhelming, so having a strategy for searching the literature and writing the review is important. Let's examine Maria's approach to reviewing the literature.

> To inform her committee about the latest literature on school violence and to plan her own research, Maria needs to conduct a literature review. This process will involve becoming familiar with the university library holdings, spending time reviewing resources and making decisions about what literature to use, and writing a formal summary of the literature on school violence. She consults the library catalog at her university and plans to search the computerized databases.

In order to review the literature, Maria will need to become familiar with the literature and visit her university library.

Specifying a Purpose for Research

If your research problem covers a broad topic of concern, you need to focus it so that you can study it. A focused restatement of the problem is the *purpose statement*. This statement conveys the overall objective or intent of your research. As such, it is the most important statement in your research study. It introduces the entire study, signals the procedures you will use to collect data, and indicates the types of results you hope to find.

The **purpose for research** consists of identifying the major intent or objective for a study and narrowing it into specific research questions or hypotheses. The purpose statement contains the major focus of the study, the participants in the study, and the location or site of the inquiry. This purpose statement is then narrowed to research questions or predictions that you plan to answer in your research study. Let's check again with Maria to see how she will write a purpose statement and research questions.

> Maria now needs to write down the purpose of her study and formulate the questions she will ask of the individuals selected for her study. In draft after draft, she sketches this purpose statement, recognizing that it will provide major direction for her study and help keep her focused on the primary aim of her study. From this broad purpose, Maria now needs to narrow her study to specific questions or statements that she would like her participants to answer.

Maria will need to write a good purpose statement and the research questions for her study.

Collecting Data

Evidence helps provide answers to your research questions and hypotheses. To get these answers, you engage in the step of collecting or gathering data. **Collecting data** means identifying and selecting individuals for a study, obtaining their permission to study them, and gathering information by asking people questions or observing their behaviors. Of paramount concern in this process is the need to obtain accurate data from individuals and places. This step will produce a collection of numbers (test scores or frequency of behaviors) or words (responses, opinions, or quotes). Once you identify these individuals and places, you write *method* or *procedure sections* into your research studies. These