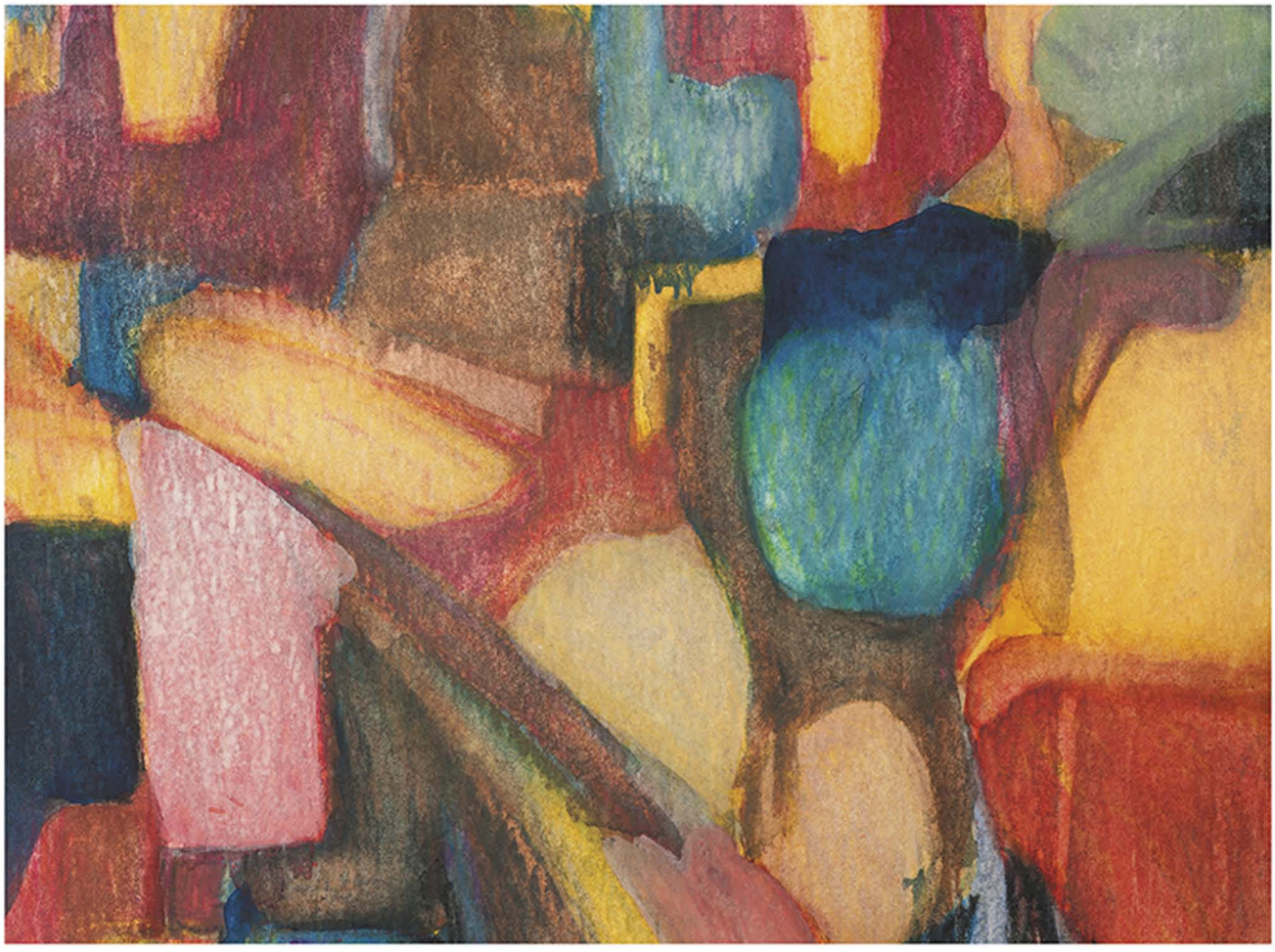
SIXTH EDITION

EDUCATIONAL RESEARCH

PLANNING, CONDUCTING, AND EVALUATING QUANTITATIVE AND QUALITATIVE RESEARCH



JOHN W. CRESWELL
TIMOTHY C. GUETTERMAN

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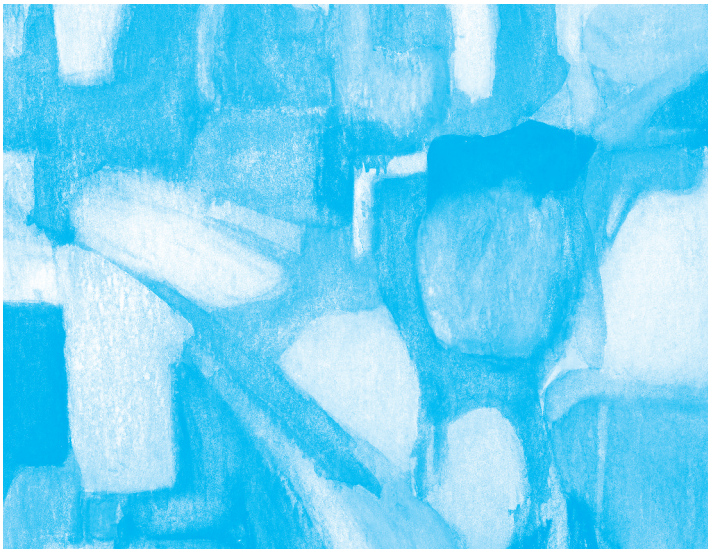

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This text is dedicated to our students in educational and health science research who through the years at Nebraska and Michigan helped us to understand and apply research.

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Preface

NEW TO THE SIXTH 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.

- We have broadened the examples beyond teacher education to reflect the increasingly diverse disciplines and subdisciplines in educational research. We searched for examples of educational research in fields such as program evaluation, multicultural research, counseling, school psychology, learning and cognition, nutrition, sports psychology, education in the professions, and other fields.
- Another focus of the revision was to emphasize technology [e.g., use of online programs for a table of random numbers, use of online surveys, various databases available (like Google scholar or Web of Science), reference tools (like EndNote), and cell-phone random digit dialing].
- Coverage of reviewing the literature has been expanded with an emphasis on current literature database searches, reference management software, and how to synthesize findings from a literature review.
- Quantitative research methods are updated to cover mediating variables, use of online surveys, and additional statistical methods such as intraclass correlation coefficients. We provide a new example of performance assessment and step-by-step examples to calculate *t*-test and chi-square statistics.
- Coverage of quantitative designs is expanded to include causal inferences in experimental designs and more detail about causal comparative research and single-subject designs. We provide examples of threats to validity in experimental research. The chapter on survey research is substantially updated to reflect the use of online surveys, methodological considerations, and sources for more information.
- The chapters on qualitative research are also updated, including coverage of qualitative data analysis software and recent developments in qualitative methods. This edition includes a table comparing different approaches to grounded theory, new ethnographic study examples, and developments in narrative research.
- The mixed methods chapter is substantially updated to reflect methodological developments, in particular the discussion of integration of qualitative and quantitative data. We added recent examples of mixed methods research using convergent, explanatory sequential, exploratory sequential, and experimental mixed methods designs.
- References are substantially updated to give readers the newest thinking on research methods as other writers have updated the original editions of their work.

- Although the sample articles from the fifth edition remain the same, many older studies mentioned throughout the text have been updated with current research. As with the previous edition, the sample articles are annotated to help readers identify important research characteristics.

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 mixed approaches to inquiry and to develop 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, mixed methods, and action research approaches. Throughout the text, you will learn about the differences and similarities between 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 mixed 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 the 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 these in detail to see how each can help you achieve your course objectives.

Balances Coverage of Quantitative and Qualitative Research

This text offers 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, we follow a fictional beginning researcher, Maria, who is also a high school teacher and new graduate student, throughout Parts 2 and 3 to illustrate one researcher's efforts and to provide students with a realistic perspective on 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 the 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

Helps Students Learn How to Read and Evaluate Research Studies

Direct guidance on reading research is provided 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 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 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.

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 summaries 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. Dr. Amanda Garrett offered 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 our graduate program area (quantitative, qualitative, and psychometric methods of education), as did students in classes on the foundations of educational research. Dr. Bill Mickelson served as a statistics consultant and quantitative analysis reviewer on earlier editions.

We are 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. Carolyn Schweitzer, our development editor at Pearson for this edition, offered a close eye for detail, support, and helpful suggestions to improve the text for the reader.

Numerous reviewers helped to shape this book: Jacqueline Swank—University of Florida; Linda S. Behar-Horenstein and Susan Carol Losh—Florida State University; and Keena Arbuthnot—Louisiana State University.

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EDUCATIONAL RESEARCH

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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.

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 to understand a topic or issue. 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 individuals in education fields 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 more 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 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.

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.

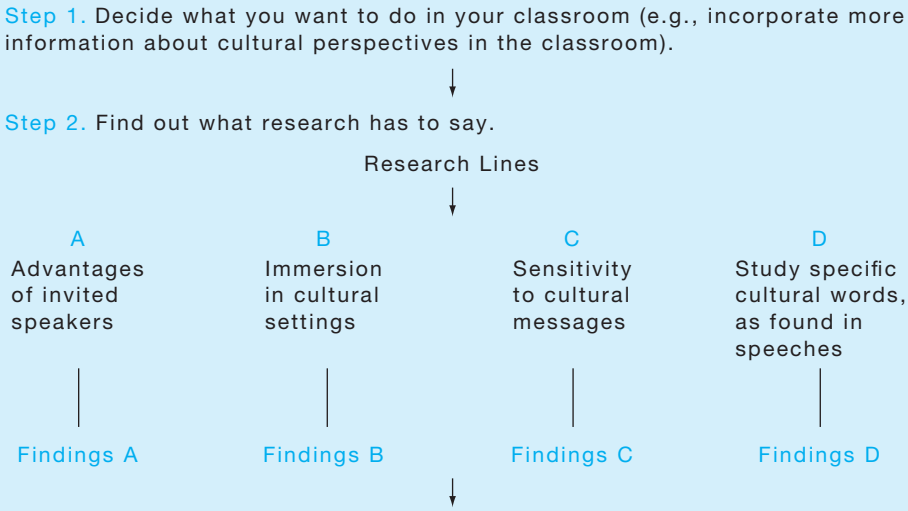
Research also helps practitioners *evaluate approaches* that they hope will work with individuals in educational settings. This process involves sifting through research to determine which results will be most useful. This process is demonstrated in Figure 1.1, which focuses on three steps that a classroom 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.

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.

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.

Research Informs Policy Debates

In addition to potentially 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 become 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 vague 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, 2016). 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:

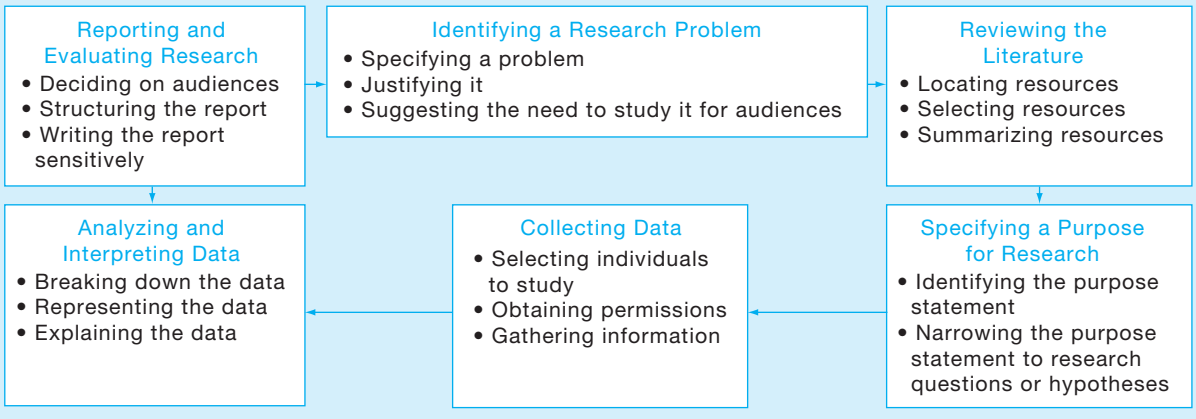
1. Identifying a research problem
2. Reviewing the literature
3. Specifying a purpose for research
4. Collecting data
5. Analyzing and interpreting the data
6. Reporting and evaluating research

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; synthesizing the literature 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 through an academic library's computerized databases, choose and evaluate the quality of research on your topic, and summarize it in a review. The summary is not reporting articles one by one but identifying the key ideas across the related body of literature. 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 resources, spending time reviewing literature databases, and making decisions about what literature to use, and writing a formal summary of the literature on school violence. She consults the electronic 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 work with her university library website. Most universities have librarians and information experts who can guide your search.

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 (called hypotheses) 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 sections offer detailed, technical discussions about the mechanics and administration of data collection. Many decisions, however, go into creating a good data collection procedure. Let's see how Maria will address data collection.

> At this point in the research process, Maria needs to think about where she will conduct her study of school violence and weapon possession, who will participate in the study, how she will obtain permission to study them, what data she will collect, and how she will gather the data. She needs to decide whether she will have students fill out forms or talk to them directly to gather data to answer her research questions. Whichever course she chooses, she will need permission from the high school students and, because the students are minors, from their parents.

Maria will engage in the steps of data collection to gather the data she needs to address her research questions.

Analyzing and Interpreting the Data

During or immediately after data collection, you need to make sense of the information supplied by individuals in the study. Analysis consists of "taking the data apart" to determine individual responses and then "putting it together" to summarize it. **Analyzing and interpreting the data** involve drawing conclusions about it; representing it in tables, figures, and pictures to summarize it; and explaining the conclusions in words to provide answers to your research questions. You report analysis and interpretation in sections of a research report usually titled "Results," "Findings," or "Discussion." How will Maria analyze and interpret the data in her research?

> If Maria collects information on a written questionnaire from students across the school district, she will need to enter the questionnaire responses into a computer program, choose a statistical procedure, conduct the analyses, report the results in tables, and draw conclusions about (or interpret) whether the data confirms or disconfirms her expected trends or predictions. If she conducts face-to-face interviews, she will collect audio recordings of students talking about weapon possession at school and transcribe these recordings to obtain text. With her transcripts, she will engage in making sense of student comments by selecting specific sentences and paragraphs and by identifying themes of information. From these themes, she will interpret the meaning of student comments in light of her own personal stance and the suggestions found in past studies.

For help in the data analysis and interpretation phase of her study, Maria will need to analyze her data and make an interpretation to answer her research questions.

Reporting and Evaluating Research

After conducting your research, you will develop a written report and distribute it to select audiences (such as fellow teachers, administrators, parents, or students) that can use your information. **Reporting research** involves deciding on audiences, structuring the report in a format acceptable to these audiences, and then writing the report in a manner that is sensitive to all readers. The audiences for research will vary and will include academic researchers who contribute and read journal articles, faculty advisers and committees that review master's theses and dissertations, and personnel in educational agencies and school districts who look for reports of research on timely topics.

Your structure for the research report will vary for each audience, from a formal format for theses and dissertations to a more informal document for internal reports. In all types of reports, however, researchers need to be respectful and avoid language that discriminates on the basis of gender, sexual orientation, race, or ethnic group.

The audience for your report will have its own standards for judging the quality and utility of the research. **Evaluating research** involves assessing the quality of a study using standards advanced by individuals in education. Unfortunately, there are no ironclad standards for evaluating educational research in the academic research community, in school districts, or in local, state, or federal agencies. Still, we need some means of determining the quality of studies, especially published research or reports presented to practitioner audiences. Let's look at how Maria thinks about organizing her research report.

> Maria thinks about how she will organize her final report to her school committee and to her university graduate committee. Her graduate committee likely has a structure in mind for her graduate research study, and she needs to consult her faculty adviser about the format that students typically use. She should have a general idea about what the major sections of the study will be, but the contents of the specific paragraphs and ideas will take shape as her data analysis and interpretation progress.
>
> Her school report will likely be different from her research report. The school report will be informative and concise, will offer recommendations, and will include minimal discussions about methods and procedures. Whatever the audience and structure for her report, it must be respectful of the audience and be devoid of discriminatory language.

Maria will need to organize and report her research in ways suitable for different audiences.

THE CHARACTERISTICS OF QUANTITATIVE AND QUALITATIVE RESEARCH IN EACH OF THE SIX STEPS

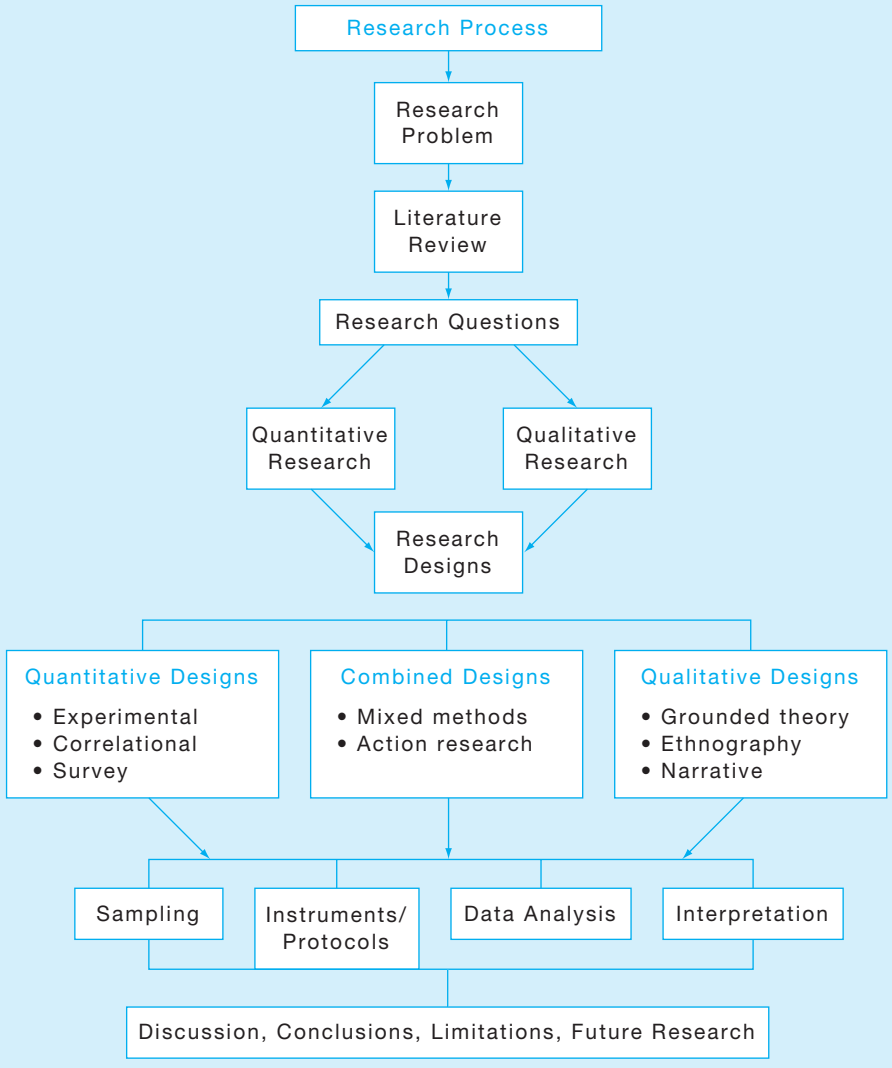
Conducting educational research is more than engaging in the major steps in the process of research. It also includes designing and writing the research in one of the two major tracks: quantitative research or qualitative research. The way that this unfolds is illustrated in the flow of the research process, as shown in Figure 1.3.

Based on the nature of the research problem and the questions that will be asked to address the problem (and accompanying review of the literature that establishes the importance of the problem), the researcher chooses either the quantitative or the qualitative research track. The problem, the questions, and the literature reviews help steer the researcher toward either the quantitative or the qualitative track. These, in turn, inform the specific research design to be used and the procedures involved in them, such as sample selection, data collection instruments or protocols, the procedures, the data analysis, and the final interpretation of results.

What are the characteristics of quantitative and qualitative research tracks at each step in this research process? As each characteristic is discussed, it is helpful to first examine two sample journal articles at the end of this chapter because these articles will be cited with illustrations for each characteristic. Marginal notes have been inserted into the articles to identify the specific passage containing the quantitative and qualitative

FIGURE 1.3

Flow of the Research Process through Quantitative and Qualitative Research



characteristics. The first article offers quantitative research, the second qualitative research. These two articles were chosen because they are good representatives of both tracks of research and illustrate within them good procedures of research. They will become a frame of reference for each step in the process of research for the quantitative and qualitative tracks. The two articles are the following:

- *Quantitative:* Deslandes, R., & Bertrand, R. (2005). Motivation of parent involvement in secondary-level schooling. *Journal of Educational Research, 98*(3), 164–175.
- *Qualitative:* Shelden, D. L., Angell, M. E., Stoner, J. B., & Roseland, B. D. (2010). School principals' influence on trust: Perspectives of mothers of children with disabilities. *Journal of Educational Research, 103,* 159–170.

Quantitative Research Characteristics

In **quantitative research**, the major characteristics are the following:

- Describing a research problem through a description of trends or a need for an explanation of the relationship among variables
- Providing a major role for the literature through suggesting the research questions to be asked and justifying the research problem and creating a need for the direction (purpose statement and research questions or hypotheses) of the study
- Creating purpose statements, research questions, and hypotheses that are specific, narrow, measurable, and observable
- Collecting numeric data from a large number of people using instruments with preset questions and responses
- Analyzing trends, comparing groups, or relating variables using statistical analysis and interpreting results by comparing them with prior predictions and past research
- Writing the research report using standard, fixed structures and evaluation criteria and taking an objective, unbiased approach

In *quantitative research*, the investigator *identifies a research problem* based on trends in the field or on the need to explain why something occurs. Describing a trend means that the research problem can be answered best by a study in which the researcher seeks to establish the overall tendency of responses from individuals and to note how this tendency varies among people. For example, you might seek to learn how voters describe their attitudes toward a bond issue. Results from this study can provide information on how a large population views an issue and the diversity of these views.

However, some quantitative research problems require that you explain how one variable affects another. *Variables* are an attribute (e.g., attitude toward the school bond issue) or characteristic of individuals (e.g., gender) that researchers study. By explaining a relation among variables, you are interested in determining whether one or more variables might influence another variable. For example, quantitative researchers may seek to know why certain voters voted against the school bond issue. The variables—gender and attitude toward the quality of the schools—may influence individuals' vote on the bond issue.

For example, examine the sample quantitative article—the parent involvement study—at the end of this chapter. The authors in the parent involvement study (Deslandes & Bertrand, 2005) are less interested in describing the level of parent involvement in secondary-level schooling and more interested in examining the relationship between four factors—parents' role construction, self-efficacy, perceptions of teacher invitations, and perceptions of adolescent invitations—as predictors of parent involvement at home and at school. To examine this relation, they collect survey data from 770 parents of children in grades 7, 8, and 9 (American system equivalents to Canadian schools). Thus, the problem being addressed is that we know little about what factors relate to parental involvement in secondary-level schooling. Assessing whether certain factors predict an outcome is best suited to quantitative research.

In *reviewing the literature* in quantitative research, you will typically include a substantial literature review at the beginning of the study. Thus, the literature plays a major role in two ways: justifying the need for the research problem and suggesting potential purposes and research questions for the study. Justifying the research problem means that you use the literature to document the importance of the issue examined in the study. To accomplish this, you search the literature, locate studies that identify the problem as important to examine, and then cite this literature in the opening sections of a research report.

The literature also creates a need for the study, as expressed specifically in the purpose statement and the research questions or hypotheses. You identify in the literature

key variables, relations, and trends and use these to provide direction for your research questions and hypotheses. A literature review on college students, for example, may show that we know little about the problem of binge drinking. Existing literature, however, may identify the importance of peer groups and styles of interacting among student peer groups. Thus, important research questions might address how peers and their interaction styles influence binge drinking on college campuses. In this way, the literature in a quantitative study both documents the need to study the problem and provides direction for the research questions.

In the quantitative parent involvement study (Deslandes & Bertrand, 2005), the authors cite extensive literature at the beginning of the article. In these paragraphs, the authors rely on the model of the parent involvement process, and they discuss the literature surrounding each of the four major factors that are expected to influence parental involvement. They begin by reviewing the literature about demographic or personal factors, such as family size and educational level, and then proceed to review the literature about the major factors in the study that they predict will influence parental involvement—parents' role construction, parents' self-efficacy, parents' perceptions of teacher invitations, and parents' perceptions of student invitations. In this way, the introduction establishes the research that has been reported in the literature on each of the four factors in the study and foreshadows the research questions that will be addressed in the study.

In *quantitative research questions*, you ask specific, narrow questions to obtain measurable and observable data on variables. The major statements and questions of direction in a study—the purpose statement, the research questions, and the hypotheses—are specific and narrow because you identify only a few variables to study. From a study of these variables, you obtain measures or assessments on an instrument or record scores on a scale from observations. For example, in a study of adolescent career choices, the variable—the role of the school counselor—narrows the study to a specific variable from among many variables that might be studied (e.g., role of parents or personal investment by student). To examine the impact of the school counselor on adolescent career choices, data must be obtained from the students.

In the quantitative parent involvement study (Deslandes & Bertrand, 2005), the authors narrow and select a few factors that they predict will explain parental involvement. They state the purpose of their study and the major research questions. They say that they will examine four factors that influence parental involvement at home and at school and then identify the four factors that they predict will influence this involvement. Thus, their research questions are specific to four factors, and later in the method section, they explain how they will measure these factors.

In *quantitative data collection*, you use an instrument to measure the variables in the study. An *instrument* is a tool for measuring, observing, or documenting quantitative data. It contains specific questions and response possibilities that you establish or develop in advance of the study. Examples of instruments are survey questionnaires, standardized tests, and checklists that you might use to observe a student's or teacher's behaviors. You administer this instrument to participants and collect data in the form of numbers. For instance, you might collect responses based on students checking boxes on a form or from checklists that you complete as you watch a student perform a task in the classroom. The intent of this process is to apply the results (called *generalizing the results*) from a small number of people to a large number. The larger the number of individuals studied, the stronger the case for applying the results to a large number of people. For example, on a survey sent to 500 parents in a school district, the researcher seeks information about parents' attitudes toward the educational needs of pregnant teenagers in the schools. The researcher selects an instrument, "Attitudes Toward Education of Pregnant Teenagers," found through a search of library resources. The 500 parents who receive this instrument

represent a cross section of people from all socioeconomic levels in the school district. After collecting and analyzing these data, the investigator will draw conclusions about all parents in this school district based on the representative sample studied.

Data collection is also an integral part of the quantitative parent involvement study (Deslandes & Bertrand, 2005). The authors study a large number of parents (i.e., 770) of children in grades 7, 8, and 9. They survey parents using an adaptation of the instrument, the "Sharing the Dream! Parent Questionnaire," as well as items on a questionnaire designed by other researchers to assess parents' perceptions of student invitations. The survey items are translated into French to fit the Quebec context, and they gather quantifiable data (scores) on the survey. They discuss the scales used to collect the data and how they are scored (i.e., from 1 = *disagree very strongly* to 6 = *agree very strongly*).

In *quantitative data analysis*, you analyze the data using mathematical procedures, called *statistics*. These analyses consist of breaking down the data into parts to answer the research questions. The process always begins with describing your data by looking at measures, such as the mean (average), standard deviation, and the frequency of values. Statistical procedures such as comparing groups or relating scores for individuals provide information to address the research questions or hypotheses. You then interpret the results of this analysis in light of initial predictions or prior studies. This interpretation is an explanation as to why the results may have turned out the way they did, and often you will explain how the results either support or refute the expected predictions in the study.

For example, in the parent involvement study (Deslandes & Bertrand, 2005), the authors collect responses from the parents of secondary-level students who provide scores on the survey instrument. The survey has questions relating to each of the eight factors (or constructs) and the outcome measures, as shown in Table 2 in the article. To examine the relation of factors to parental involvement, the researchers do not use all the items on the survey because some were not good measures of the factors. They use a statistical program to conduct factor analysis to help them identify the most important questions for each of the four scales composed of items (or factors) in the study. With this reduced set of questions for each of the four factors in the study, they then conduct descriptive analysis (i.e., means and standard deviations, as shown in Table 3) and use the statistical program of regression statistical analysis to predict whether the control or personal items or four predictors best explain the variation in scores for parent involvement. From Tables 4 and 5, we see what variables best explain the variation for each grade level (7, 8, and 9) and for the two outcome measures of parent involvement at home and parent involvement at school. In short, the authors use statistical analysis consisting of three phases: factor analysis, descriptive analysis, and regression analysis. The ultimate goal was to relate variables to see what predictors (demographics or the four factors) best explain parental involvement. Then, in the implication section of the article, the authors discuss the main results of the study and compare their results with those found in other studies in the literature.

In *reporting and evaluating* quantitative research, the overall format for a study follows a predictable pattern: introduction, review of the literature, methods, results, and discussion. This form creates a standardized structure for quantitative studies. In addition, it also leads to specific criteria that you might use to judge the quality of a quantitative research report. For example, you examine a quantitative study to see if it has an extensive literature review; tests good research questions and hypotheses; uses rigorous, impartial data collection procedures; applies appropriate statistical procedures; and forms interpretations that naturally follow from the data.

In quantitative research, you also use procedures to ensure that your own personal biases and values do not influence the results. You use instruments that are tested and that have reliable and valid scores from past uses. You design studies to control for all

variables that might introduce bias into a study. Finally, you report research without referring to yourself or your personal reaction.

In the quantitative parent involvement study (Deslandes & Bertrand, 2005), the authors subdivide the research into standard sections typically found in quantitative studies. The study begins with an introduction that includes the literature review, purpose statement, and research questions; the methods; the results; the discussion; and, finally, the implications and limitations. The entire study conveys an impersonal, objective tone, and they do not bring either their biases or their personal opinions into the study. They use validated instruments to measure variables and employ multiple statistical procedures to build objectivity into the study.

Qualitative Research Characteristics

In **qualitative research**, we see different major characteristics at each stage of the research process:

- Exploring a problem and developing a detailed understanding of a central phenomenon
- Having the literature review play a minor role but justify the problem
- Stating the purpose and research questions in an open-ended way to capture the participants' experiences
- Collecting data that is based on words (e.g., from interviews) or images (e.g., photographs) from a small number of individuals so that the participants' views are obtained
- Analyzing the data for description and themes using text analysis and interpreting the larger meaning of the findings
- Writing the report using flexible, emerging structures and evaluative criteria and including the researchers' subjective **reflexivity** and bias

Qualitative research is best suited to address a *research problem* in which you do not know the variables and need to explore. The literature might yield little information about the phenomenon of study, and you need to learn more from participants through exploration. For example, the literature may not adequately address the use of sign language in distance education courses. A qualitative research study is needed to explore this phenomenon from the perspective of distance education students. Unquestionably, using sign language in such courses is complex and may not have been examined in the prior literature. A *central phenomenon* is the key concept, idea, or process studied in qualitative research. Thus, the research problem of the difficulty in teaching children who are deaf requires both an exploration (because we need to better know how to teach these children) and an understanding (because of its complexity) of the process of teaching and learning.

The authors in the sample article on mothers' trust in school principals (Shelden, Angell, Stoner, & Roseland, 2010) build a case for the importance of trust in the opening passages of the article. They suggest that it is an important issue and that it has a positive effect on student outcomes. They then narrow the discussion to trust of school leaders and then to parents of children with disabilities and finally to the relationships between home and school partnerships for students with disabilities. They point out the problem of possible discrepant viewpoints between parents and schools—a potential problem that needs to be addressed. They then discuss the need for exploring further the critical role of principals in establishing trust in the relationships between families of children with disabilities and education professionals. In sum, they open the article by discussing the important central phenomenon of trust and exploring the potential discrepant viewpoints

between mothers of individuals with disabilities and principals. They say that they view trust as the "central phenomenon requiring exploration and understanding" (p. 161).

In qualitative research, the *literature review* plays a less substantial role at the beginning of the study than in quantitative research. In qualitative research, although you may review the literature to justify the need to study the research problem, the literature does not provide major direction for the research questions. One reason is that in qualitative research we often need to explore a topic for which little is known. Another reason is that qualitative research relies more on the views of participants in the study and less on the direction identified in the literature by the researcher. Thus, to use the literature to foreshadow or specify the direction for the study is inconsistent with the qualitative approach of learning from participants. For example, one qualitative researcher who studied bullying in the schools cited several studies at the beginning of the research to provide evidence for the problem but did not use the literature to specify the research questions. Instead, this researcher attempted to answer in the research the most general, open question possible—"What is bullying?"—and to learn how students constructed their view of this experience.

In the illustrative sample qualitative study by Shelden et al. (2010), the authors begin the article by citing numerous studies from the literature. This literature review is not to identify specific questions that need to be answered; instead, the literature review establishes the meaning and importance of the central phenomenon of trust—why it is important and the relationships needed in schools that involve parents and educational teams, including principals. In this article, there is no separate literature review section, and the literature is used to justify the importance of studying the potential problem of the relationships between parents (i.e., mothers) and the schools (i.e., principals).

In qualitative research, the *purpose statement* and the *research questions* are stated so that you can best learn from participants. You research a single phenomenon of interest and state this phenomenon in a purpose statement. A qualitative study that examines the "professionalism" of teachers, for example, asks high school teachers, "What does it mean to be a professional?" This question focuses on understanding a single idea—being a professional—and the responses to it will yield qualitative data, such as the words of participants.

In the qualitative study of mothers' trust in school principals (Shelden et al., 2010), the authors say that the study emerged from a broader study of the perspectives of mothers of children with disabilities on trust in education personnel. The authors raise this question: "What are the perspectives of mothers of children with disabilities on trust in school principals?" (p. 161). This is a general and broad question that seeks to understand (or "gain insight into," p. 161) the perspectives of the mothers.

In qualitative research, you *collect data* to learn from the participants in the study and develop forms, called *protocols*, for recording data as the study proceeds. These forms pose general questions so that the participants can provide answers to the questions. Often questions on these forms will change and emerge during data collection. Examples of these forms include an *interview protocol*, which consists of four or five questions, or an *observational protocol*, in which the researcher records notes about the behavior of participants. Moreover, you gather text (word) or image (picture) data. Transcribed audio recordings form a database composed of words. Observing participants in their work or family setting, you take notes that will become a qualitative database. When researchers ask young children to write their thoughts in a diary, these diary entries, too, become a text database. With each form of data, you will gather as much information as possible to collect detailed accounts for a final research report.

In our sample qualitative study by Shelden et al. (2010), the authors recruited a sample of mothers of school-age children with disabilities and conducted interviews with 16 of these parents. In the journal article, the authors provide the eight open-ended

questions that they asked. These interviews enabled them to probe for further information, elaboration, and clarification of responses while maintaining a "feeling of openness" to the participants' responses.

In qualitative research, typically you gather a text database, so the *data analysis* of text consists of dividing it into groups of sentences, called *text segments*, and determining the meaning of each group of sentences. Rather than using statistics, you analyze words or pictures to describe the central phenomenon under study. The result may be a description of individual people or places. In some qualitative studies, the entire report is mostly a long description of several individuals. The result may also include themes or broad categories that represent your findings. In qualitative studies in which you both describe individuals and identify themes, a rich, complex picture emerges. From this complex picture, you make an interpretation of the meaning of the data by reflecting on how the findings relate to existing research, by stating a personal reflection about the significance of the lessons learned during the study, or by drawing out larger, more abstract meanings.

In the study of mothers' perspectives of trust in school principals (Shelden et al., 2010), we can see these data analysis steps. The authors analyzed text data based on audio recordings and transcribed verbatim passages, as mentioned in the section on interviews. In their section on data analysis, they talk about the "line-by-line coding" of their data in which they used the words of the participants to form categories. They provide in Table 1 a detailed descriptive portrait of participants in their study, noting the ethnicity, type of disability, grade level, and other personal information. In the results section, we find the various themes that they identified, such as principal attributes and principal actions. In the conclusion section, they review all of these findings, thereby creating a complex picture of the relationship between mothers and school leaders. Although their personal reflections are minimal in this study, the authors discuss their challenges in recruiting participants to the study and how they sought to protect the identity of the participants.

In *reporting* qualitative research, you employ a wide range of formats to report your findings. Although the overall general form follows the standard steps in the process of research, the sequence of these "parts" of research tends to vary from one qualitative report to another. A study may begin with a long, personal narrative told in story form or with a more objective, scientific report that resembles quantitative research. With such variability, it is not surprising that the standards for evaluating qualitative research also are flexible. Good qualitative reports, however, need to be realistic and persuasive to convince the reader that the study is an accurate and credible account. Qualitative reports typically contain extensive data collection to convey the complexity of the phenomenon or process. The data analysis reflects description and themes as well as the interrelation of themes. In addition, you discuss your role or position in a research study, called *being reflexive*. In doing so, you reflect on your own biases, values, and assumptions and actively write them into the research. This reflexive passage may also involve discussing personal experiences and identifying how you collaborated with participants during phases of the project. You may additionally discuss how your experiences and cultural backgrounds (e.g., Asian American perspectives) affect the interpretations and conclusions drawn in the study.

In the sample study of mothers' trust in school principals (Shelden et al., 2010), the authors used more of a scientific structure than a literary structure for writing their article. This may have been done because of the requirements of the journal to address certain aspects (e.g., methods, results, and discussion). However, the article did depart from the traditional structure by not including a separate literature review section; instead, the literature review was incorporated into the introduction to establish the importance of the central phenomenon—trust—and to develop a need for the study. The authors did employ the personal pronoun "we" in referring to themselves in the study, a subjective

orientation typically associated with qualitative, literary writing. As mentioned earlier, references to themselves and especially how their backgrounds shaped their interpretation were absent.

Similarities and Differences between Quantitative and Qualitative Research

At this point, you may be asking how quantitative research and qualitative research are similar and different. In terms of similarity, both forms of research follow the six steps in the process of research. However, they do have minor differences in the introduction to a study—the research problem section—in that both sections need to establish the importance of the problem. In quantitative research, the research problem section is used to direct the types of questions or hypotheses asked in the study, whereas in qualitative research, the research problem discussion is typically used to establish the importance of the central idea. These differences are apparent in the comparison of the introduction to the quantitative parent involvement study (Deslandes & Bertrand, 2005) and the qualitative mothers' trust in school principals study (Shelden et al., 2010).

Another similarity exists in the data collection procedures. Both quantitative and qualitative data collection may employ similar approaches, such as interviews or observations. However, quantitative approaches use more closed-ended methods in which the researcher identifies set response categories (e.g., strongly agree, strongly disagree, etc.), whereas qualitative approaches use more open-ended methods in which the inquirer asks general questions of participants and the participants shape the response possibilities (e.g., in an interview with a teacher, a qualitative researcher might ask, "What does professional development mean to you?").

There are distinct differences that go beyond the forms of gathering data. In data analysis, the procedures are quite different. In quantitative research, the investigator relies on statistical analysis (mathematical analysis) of the data, which is typically in numeric form. In qualitative research, statistics are not used to analyze the data; instead, the inquirer analyzes words (e.g., transcriptions from interviews) or images (e.g., photographs). Rather than relying on statistical procedures, the qualitative researcher analyzes the words to group them into larger meanings of understanding, such as codes, categories, or themes. The reporting formats are also typically different, with the quantitative structure following the typical introduction, literature review, methods, results, and conclusion sections. In qualitative research, some of these sections may be missing, as in the literature review in the Shelden et al. (2010) study, and the format may be more of a literary opening with a personal vignette or passage, an unfolding story, the use of extensive quotes from participants, and personal reflections from the researcher.

It should also be mentioned that rather than viewing quantitative and qualitative as two end points in a dichotomy, they should be viewed as different points on a continuum. Studies may contain some elements of the characteristics of quantitative research and some elements of qualitative research. However, studies do *tend* to lean toward one approach or the other, and knowing the characteristics associated with each type of research enables a researcher to assess whether a particular study is more quantitative or qualitative in its approach.

How do you choose whether to use a quantitative or a qualitative approach? Three factors are important. First, match your approach to your research problem. Remember that the problems best suited for quantitative research are those in which trends or explanations need to be made. For qualitative research, the problems need to be explored to obtain a deep understanding. Second, your approach needs to fit the audience(s) for the

research report. Educators, counselors, and others in the school system write for several audiences, such as policymakers, faculty and graduate committees, editors and review boards, evaluators of grant proposals, and individuals in schools or educational settings. It is important that the audience(s) be familiar with the approach used in a study. Third, relate your approach to your personal experience and training. A quantitative researcher typically has taken some courses or training in measurement, statistics, and quantitative data collection, such as experiments, correlational designs, or survey techniques. Qualitative researchers need experience in field studies in which they practice gathering information in a setting and learning the skills of observing or interviewing individuals. Course work or experience in analyzing text data is helpful, as is experience in research designs, including grounded theory, ethnography, or narrative research. Some individuals have experience and training in approaches to research that combine both quantitative and qualitative methods, such as mixed methods research or action research.

Research Designs Associated with Quantitative and Qualitative Research

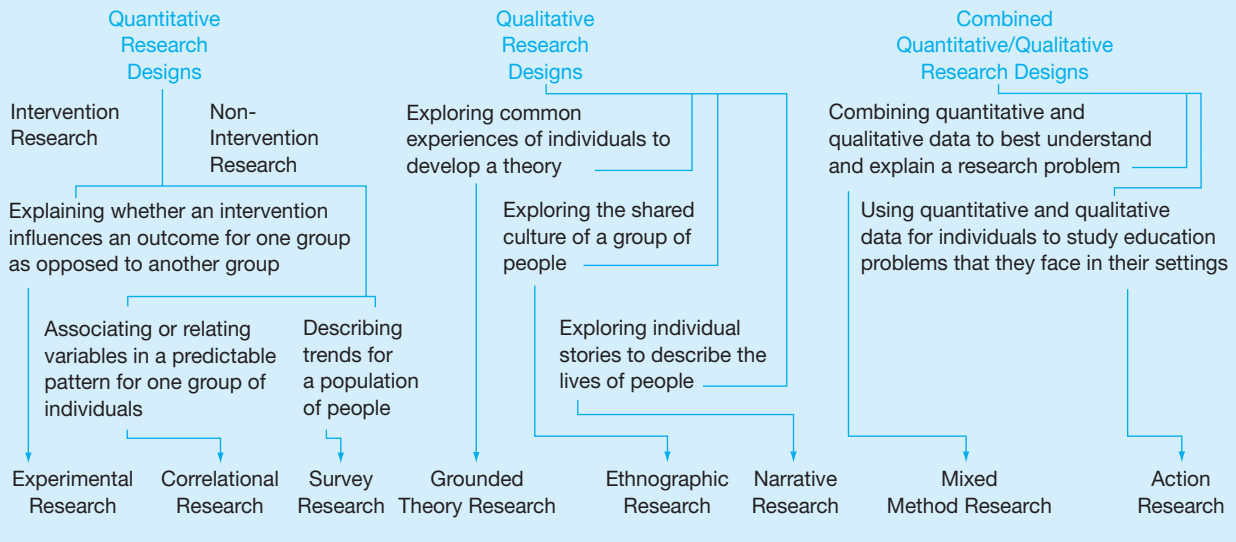
It is not enough to know the steps in the process of research and that quantitative and qualitative procedures differ at each step. This text will also go into detailed procedures involved in quantitative, qualitative, and combined research. **Research designs** are the specific procedures involved in the research process: data collection, data analysis, and report writing. Figure 1.4 illustrates how the steps in the research process relate to quantitative and qualitative research and advances eight different research designs, used by educational researchers, discussed in this book.

Experimental Designs

Some quantitative researchers test whether an educational practice or idea makes a difference for individuals. Experimental research procedures are ideally suited for this study. *Experimental designs* (also called intervention studies or group comparison studies) are procedures in

FIGURE 1.4

Types of Quantitative and Qualitative Research Designs and Their Primary Uses



quantitative research in which the investigator determines whether an activity or materials make a difference in results for participants. You assess this impact by giving one group one set of activities (called an *intervention*) and withholding the set from another group.

Correlational Designs

In some studies, you may be unable to provide an intervention or to assign individuals to groups. Moreover, you focus more on examining the association or relation of one or more variables than in testing the impact of activities or materials. *Correlational designs* are procedures in quantitative research in which investigators measure the degree of association (or relation) between two or more variables using the statistical procedure of correlational analysis. This degree of association, expressed as a number, indicates whether the two variables are related or whether one can predict another. To accomplish this, you study a single group of individuals rather than two or more groups, as in an experiment.

Survey Designs

In another form of quantitative research, you may not want to test an activity or materials or may not be interested in the association among variables. Instead, you seek to describe trends in a large population of individuals. In this case, a survey is a good procedure to use. *Survey designs* are procedures in quantitative research in which you administer a survey or questionnaire to a group of people (called the *sample*) to identify trends in attitudes, opinions, behaviors, or characteristics of a large group of people (called the *population*).

Grounded Theory Designs

Instead of studying a single group, you might examine a number of individuals, all of whom have experienced an action, interaction, or process. *Grounded theory designs* are systematic, qualitative procedures that researchers use to generate a general explanation (grounded in the views of participants, called a *grounded theory*) that explains a process, action, or interaction among people. The procedures for developing this theory include primarily collecting interview data, developing and relating categories (or themes) of information, and composing a figure or visual model that portrays the general explanation. In this way, the explanation is "grounded" in the data from participants. From this explanation, you construct predictive statements about the experiences of individuals.

Ethnographic Designs

You may be interested in studying one group of individuals, in examining them in the setting where they live and work, and in developing a portrait of how they interact. An ethnographic study is well suited for this purpose. *Ethnographic designs* are qualitative procedures for describing, analyzing, and interpreting a cultural group's shared patterns of behavior, beliefs, and language that develop over time. In ethnography, the researcher provides a detailed picture of the culture-sharing group, drawing on various sources of information. The ethnographer also describes the group within its setting, explores themes or issues that develop over time as the group interacts, and details a portrait of the group.

Narrative Research Designs

You may not be interested in describing and interpreting group behavior or ideas or in developing an explanation grounded in the experiences of many individuals. Instead, you wish to tell the stories of one or two individuals. *Narrative research designs* are qualitative procedures in which researchers describe the lives of individuals, collect and tell stories about these individuals' lives, and write narratives about their experiences. In education, these stories often relate to school classroom experiences or activities in schools.

Mixed Methods Designs

You decide to collect both quantitative data (i.e., quantifiable data) and qualitative data (i.e., text or images). The core argument for a mixed methods design is that the combination of both forms of data provides a better understanding of a research problem than either quantitative or qualitative data alone. *Mixed methods designs* are procedures for collecting, analyzing, and integrating (i.e., mixing) both quantitative and qualitative data in a single study or in a multistage series of studies. In this process, you need to decide on the intent of your study (why "mixing" is important), which form of data you will collect first (concurrent or sequential), how you will integrate the data (merge, connect, build, or embed), and whether you will use theory to guide the study (e.g., advocacy or social science theory).

Action Research Designs

Like mixed methods research, action research designs often utilize both quantitative and qualitative data, but they focus more on procedures useful in addressing practical problems in schools and the classrooms. *Action research designs* are systematic procedures used by teachers (or other individuals in an educational setting) to gather quantitative and qualitative data to address improvements in their educational setting, their teaching, and the learning of their students. In some action research designs, you seek to address and solve local, practical problems, such as a classroom-discipline issue for a teacher. In other studies, your objective might be to empower, transform, and emancipate individuals in educational settings.

IMPORTANT ETHICAL ISSUES IN CONDUCTING RESEARCH

Respect for audiences and the use of nondiscriminatory language are **ethical issues** that Maria must observe. Like Maria, all educational researchers need to be aware of and anticipate ethical issues in their research. Such a need stems from the research horrors of treatment of individuals in Nazi Germany and the inappropriate Tuskegee syphilis studies (Mark & Gamble, 2009). From these and other violations in the treatment of participants, policymakers developed federal guidelines for conducting research as announced in the 1978 National Commission for the Protection of Human Subjects on Biomedical and Behavioral Research and its *Belmont Report* (Department of Health, Education, and Welfare, 1978). The three basic principles of this report involve the beneficence of treatment of participants (maximizing good outcomes and minimizing risk); respect for participants (protecting autonomy and ensuring well-informed, voluntary participation); and justice (a fair distribution of risk and benefits). We also follow principles like maintaining the anonymity of our participants.

Institutional Review Boards

Campus offices developed to monitor adherence to these three principles, and offices of institutional review boards emerged. These offices and boards strive to protect human subjects during research that is conducted. Federal funds could be withheld from

campuses if research conducted on those campuses did not take steps to protect the treatment of participants. Accordingly, on campuses that receive federal funds, educational researchers need to learn about the procedures involved in applying for approval from their institutional review board offices and follow guidelines in developing applications for approval and in designing consent forms for participants to complete that guarantee their protection.

Professional Associations

Ethical standards are also available from professional associations. Examples of professional associations that offer helpful guidelines include the American Educational Research Association (2011), the American Psychological Association (2010a), the American Anthropological Association (2012), the American Counseling Association (2014), and the Joint Committee on Standards for Educational Evaluation (Yarbrough, Shulha, Hopson, & Caruthers, 2011).

According to these guidelines, individuals who participate in a study have certain rights. Before participating in research, they need to know the purpose and aims of the study, how the results will be used, and the likely social consequences the study will have on their lives. They also have the right to refuse to participate in a study and to withdraw at any time. When they participate and provide information, their anonymity is protected and guaranteed by the researcher. Individuals are not to be offered excessive financial inducements to participate in a project. Participants also have the right to gain something from a study. Researchers need to actively look for ways to "give back" (or reciprocate) to participants in a study because the participants have freely provided their time. For example, in one study involving individuals with HIV, the author shared book royalties with the participants in the study. In another study, a researcher volunteered to help supervise lunchroom activities in exchange for information from students in the school.

Ethical Practices throughout the Research Process

In all steps of the research process, you need to engage in ethical practices. Practicing ethics is a complex matter that involves much more than merely following a set of static guidelines, such as those from professional associations, or conforming to guidelines from campus institutional review boards. Ethics has become a more pervasive idea stretching from the origins of a research study to its final completion and distribution. Ethics should be a primary consideration rather than an afterthought and should be at the forefront of the researcher's agenda (Hesse-Bieber & Leavy, 2006). Of all the steps in the research process, it does tend to relate more closely to the data collection and reporting and distribution of reports than to any of the other phases of research. Some of these issues are mentioned here.

Some Ethical Issues in Data Collection

It is important to respect the site in which the research takes place. This respect should be shown by gaining permission before entering a site, by disturbing the site as little as possible during a study, and by viewing oneself as a "guest" at the place of study. Lincoln Public Schools (n.d.) in Lincoln, Nebraska, provides illustrative guidelines to follow for conducting research with minimal disruption to a school district. Their guidelines list several reasons why a project may not be approved. Disapproved projects are those that take away considerable amounts of instructional time; require large amounts of teacher, administrator, or office time (the district may ask to be reimbursed for the costs

of compiling information, staff time, or materials); interfere with district data collection or the work of current research projects; are planned for the first or last month of the school year; or are received too late in the year to be adequately reviewed.

Another strategy for respecting the research site with minimal disruption is to gain access through gatekeepers (or officials). Researchers may need to consult with different gatekeepers at multiple levels in an organization. For example, in a study in one high school classroom, the researcher sought permission from several individuals, including the school board responsible for ensuring that the rights of human participants were protected, the research official in the school district, the principal of the school, the teacher in a government class, and the actual students who participated in the study and their parents.

Other ethical issues arise in data collection and are associated with specific types of research designs. You need to not purposefully deprive some participants of helpful treatments, only publish positive results, or fail to disclose the purpose of the study to participants. It is helpful to involve stakeholders in assessing risk to participants and to not pressure participants into signing consent forms (S. Levy, personal communication, May 3, 2010), to not engage in practices that create power imbalances, and to respect norms of indigenous cultures (Lincoln, 2009).

Some Ethical Issues in Data Reporting

You need to show respect to audiences who read and use information from studies. Data should be reported honestly, without changing or altering the findings to satisfy certain predictions or interest groups. It may, however, be appropriate for the primary investigator to provide those at the research site with a preliminary copy of any publications. In addition, studies completed by others should not be plagiarized, and credit should be given for material quoted from other studies. This credit involves citing the authors and the date of the publication and listing the publication in the reference section of the study. In addition, research should be free of jargon and be understandable to those being studied. As ethical educators, we need to make every effort to communicate the practical significance of our research to the community of researchers and practitioners so that inquiry will be encouraged and used. Educational researchers have an ethical mandate to produce research that is of high quality and to report their results that convey the basic assumptions they are making. This also means that research should not sit unpublished and that researchers should openly share their findings (Brown & Hedges, 2009). Results should be published and disseminated even though they may present findings contrary to accepted standards (S. Levy, personal communication, May 3, 2010).

SKILLS NEEDED TO DESIGN AND CONDUCT RESEARCH

As a new researcher, you may wonder whether you have the ability to read, evaluate, and actually conduct research. Knowing the process of research, you may say, does not guarantee an adequate research study. Certainly, Maria, who is new to research, has these concerns.

You have already learned valuable research skills through your life experiences. These skills include solving puzzles, employing a long attention span, using a library, and, of course, writing out your thoughts.

Solving Puzzles

Researchers look at problems as puzzles to solve. The steps in the research process are viewed as a series of puzzle pieces that the inquirer assembles. You already have skills in solving puzzles. You fit together the debits and credits to balance your checkbook. As a parent (or prospective parent), you engage in multiple roles during the day that require juggling of different tasks. These are puzzles that we work out by breaking them down into manageable parts ("What will be the demands on my time today?"), setting obtainable objectives ("I will have a busy day at work, so I will focus on my job today"), and possibly writing them down ("I need to make a list of what I must accomplish today"). As you examine research studies or engage in the process of inquiry, assembling these parts of the puzzle—such as first working on a research problem and then specifying a purpose for a study—will require that all of the pieces fit together, as with the many puzzles that we solve in daily living.

Lengthening Your Attention Span

Although we generally make time to complete the tasks we love, our attention span certainly varies from task to task. The process of research involves six steps that may span a period of 6 months or more. For example, reading through a journal article and identifying each of these steps requires patience as well as knowledge about what to look for. All of us bring attention spans of varying lengths to the process of research, but if we consider the tasks we love and the amount of time we devote to them, we can see that we have already developed an attention span long enough to spend considerable time at research.

Learning to Use Library Resources

The step in the research process that requires you to review the literature means spending time using an academic library's resources. For most of us, going to the library probably began in grade school with trips to the school library. Today, engaging in research requires spending time with library resources, a process that is facilitated by home computers and Internet connections to library catalogs and literature databases. However, the process of research requires that you use skills in locating studies, summarizing them, and writing a review of the literature. These skills are developed during research, if you do not already have them. They develop from our comfort level with a library and with experiences that began early in our schooling and continue today.

Writing, Editing, and More Writing

Researchers cannot escape the ever-present aspect of writing as a key facet of research. As writers, we work through numerous drafts, receive reactions from others, and develop new drafts. Research involves writing the study for an audience. Do you enjoy writing and communicating your thoughts? Do you like to write in a journal or a diary? Do you get satisfaction from completing projects? You have probably written several essays in college already or worked on a research report with other students or a faculty member. In short, you have experience in writing. As you know, writing is more than recording ideas on paper or in a computer document. It is also organizing ideas, preparing interview questions, jotting down notes during an observation, and writing for permission to use someone else's questions or articles. Writing exists in all phases of the creative process of planning and in conducting research.

KEY IDEAS IN THE CHAPTER

The Definition and Importance of Educational Research

Research involves asking a question, collecting data, and analyzing data to determine the answer to the question. It helps educators understand problems or issues through the accumulation of knowledge. It can assist educators in improving practice, and it focuses attention on important policy issues being discussed and debated by decision makers. In addition, engaging in research provides valuable conceptual writing and presenting skills for students.

The Six Steps in the Process of Research

Six steps are followed when conducting a research study. The study begins with identifying a research problem or issue of study. It then consists of reviewing the literature, advancing direction through research questions and statements, and collecting, analyzing, and interpreting the data. This process culminates in a research report presented, evaluated, and potentially used by the educational community.

The Characteristics of Quantitative and Qualitative Research

In quantitative research, the major characteristics are describing a research problem through a description of trends or a need for an explanation of the relationship among variables; providing a major role for the literature through suggesting the research questions to be asked and justifying the research problem and creating a need for the direction (purpose statement and research questions or hypotheses) of the study; creating purpose statements, research questions, and hypotheses that are specific, narrow, measurable, and observable; collecting numeric data from a large number of people using instruments with preset questions and responses; analyzing trends, comparing groups, or relating variables using statistical analysis and interpreting results by comparing them with prior predictions and past research; and writing the research report using standard, fixed structures and evaluation criteria and taking an objective, unbiased approach.

In qualitative research, we see different major characteristics at each stage of the research process: exploring a problem and developing a detailed understanding of a central phenomenon; having the literature review play a minor role but justify the problem; stating the purpose and research questions in a general and broad way so as to include the participants' experiences; collecting data based on words or images from a small number of individuals so that the participants' views are obtained; analyzing the data for description and themes using text analysis and interpreting the larger meaning of the findings; writing the report using flexible, emerging structures and evaluative criteria; and including the researchers' subjective reflexivity and bias.

Although quantitative and qualitative characteristics need to be seen as points on a continuum rather than opposites, the choice of research between the two is based on matching the approach to a research problem, fitting the approach to your audience, and relating the approach to your experiences.

The Types of Research Designs Associated with Quantitative and Qualitative Research

Researchers tend to employ specific procedures for data collection, analysis, and report writing in the quantitative and qualitative approaches. This text emphasizes eight research designs: experimental, correlational, survey, grounded theory, ethnographic, narrative, mixed methods, and action research designs.

The Important Ethical Issues

A need for attention to ethical issues arose out of the inhumane treatment of participants in past years. As a result, the federal government issued legislation and reports governing good ethical practices. These guidelines have been supplemented by professional organizational reports. As a result, educational researchers need to anticipate ethical issues throughout the research process, but they are especially important during data collection and in writing and disseminating reports.

The Skills Needed to Design and Conduct Research

Research often mirrors the practices found in everyday life, such as solving puzzles, focusing attention on topics, and practicing good writing and editing. It also involves learning how to use the academic library and to locate useful literature for a study.

Useful Information for Producers of Research

- As you plan and conduct a study, keep in mind that research needs to be valuable to educators. Include comments in your study that convey the value to specific educational audiences.
- Use the general framework of the six steps for thinking about your plans and the conduct of research. These six steps make research manageable, help ensure that you conduct thorough inquiries, and provide a useful strategy for the design and writing of the research.
- As you plan and conduct a study, discuss specifically the characteristics of the quantitative and qualitative approach you are using.
- Recognize that research is neither all quantitative nor all qualitative but tends toward one or the other (on a continuum).
- Be ethical in conducting research. Respect the rights of participants, research sites, and individuals who will be readers of your study.
- Consider the skills that you need to develop to be a researcher. You may already have developed the skills of reading and writing, using library resources, solving puzzles, and focusing in on a topic of interest.

Useful Information for Consumers of Research

- As you examine a study, recognize that authors emphasize different reasons for undertaking their study. Look for suggestions by the author for practical applications of a study.
- Recognize that researchers proceed through a process of research and then construct sections of a study that reflect different steps in this process. For the research problem, examine the "introduction" to a study; for the literature review, explore the "literature review" section. For the data collection discussion, visit the "method" or "procedure" section, and for the data analysis and interpretation, see the "results" or "findings" as well as the "discussion" sections.
- Expect that a quantitative study and a qualitative study will not look the same because they differ in many of the steps of the research process. At the same time, they adhere to the same general steps of the overall research process.
- Look for statements in the study where the researcher discusses ethical issues that arose in the study and how they were addressed.

Quantitative Characteristics in Marginal Annotations

Motivation of Parent Involvement in Secondary-Level Schooling

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Abstract

Inspired by K. V. Hoover-Dempsey and H. M. Sandler's (1995, 1997) model of the parent involvement process, the authors examined 4 psychological constructs of parent involvement: (a) relative strength of parents' role construction, (b) parents' self-efficacy for helping adolescents succeed in school, (c) parents' perceptions of teacher invitations to become involved, and (d) parents' perceptions of students' invitations to become involved. The authors obtained survey responses from 770 parents of adolescents in 5 Quebec secondary schools—354 parents of 7th graders, 231 parents of 8th graders, and 185 parents of 9th graders. Results emphasize that it is important that researchers distinguish parent involvement at home and at school when examining the predictive power of the 4 psychological constructs. Findings also provide evidence of grade-level differences in the predictive models of parent involvement at home and at school. Parents' perceptions of students' invitations was the most powerful predictor of parent involvement at home models across the 3 grade levels. Parents' role construction made important contributions to the prediction of their involvement at Grades 7 and 9; parents' perceptions of teacher invitations were associated with parent involvement at school across the 3 grade levels. Whether at home or at school, parents became involved if they perceived that teachers and students expected or desired their involvement.

Key words: parent involvement, parent motivation, secondary schools

(01) In past decades, a wealth of studies showed that parent involvement is essential in children's educational process and outcomes (Henderson & Mapp, 2002). Parent involvement refers to parents' roles in educating their children at home and in school (Christenson & Sheridan, 2001). Involvement can take different forms, including discussions about school, help with homework, or volunteering at school. Parent involvement appears to have lasting benefits even through high school. When parents are involved, secondary students tend to earn higher grades (Deslandes, Royer, Turcotte, & Bertrand, 1997; Dornbusch & Ritter, 1988; Lee, 1994; Steinberg, Lamborn, Dornbusch, & Darling, 1992), show higher aspirations (Trusty, 1996), and have fewer disciplinary problems (Deslandes & Royer, 1997; Eccles, Early, Frasier, Belansky, & McCarthy, 1997).

(02) Even though the benefits associated with parent involvement at the secondary level seem to be well understood, educators still know little about what factors lead parents to decide to become involved in their adolescents' schooling. In the present study, we explored how the psychological constructs, as defined in Hoover-Dempsey and Sandler's model (1995, 1997), influence the parent involvement process at the secondary level, and more precisely, at the first three grade levels in Quebec secondary schools. We addressed the following research question: What are the relative contributions of parents' (a) role construction, (b) self-efficacy, (c) perception of teacher invitations, and (d) perception of adolescent invitations to predict parent involvement at home and at school in Grades 7, 8, and 9? (Because the invitation for parents to become involved is presented by teachers and students, we considered, as did Walker, Hoover-Dempsey, Reed, and Jones [2000], teacher invitations and student invitations as two different constructs, thus leading to four psychological constructs related to parent involvement.) Previous research

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on the evolution of adolescents' autonomy and parent involvement in secondary schools led us to expect some differences across grade levels in the predictive models of parent involvement at home and at school (Deslandes, 2003).

Influences on Parent Involvement

Jordan, Orozco, and Averett (2001) identified factors that influence levels and aspects of parent involvement. Family (e.g., education level, family structure, family size, parent gender, work outside the home) and child characteristics (e.g., age, gender, grade level, academic performance) are of particular relevance in this study. Research has shown that undereducated parents and single parents are less involved in certain types of involvement activities. For instance, Deslandes, Potvin, and Leclerc (1999) found that adolescents from traditional families and well-educated parents report more affective support (parent encouragement and praise, help with homework, frequent discussions about school, and attendance at school performances or sports events) than do adolescents from nontraditional families and less educated parents. Astone and McLanahan (1991) also indicated that adolescents who live with single parents or stepparents report that their homework is monitored less than the homework of adolescents from traditional families. Deslandes and Cloutier (2000) reported that mothers are more involved with homework than are fathers. Dauber and Epstein (1989) argued that well-educated parents and those who do not work outside the home (Eccles & Harold, 1996) are more likely to be involved at school. Eccles and Harold concluded that parents with fewer children provide more help with homework than do parents with more children. (03)

The literature plays a major role

Child characteristics also may influence parent involvement. For example, Deslandes and Potvin (1999) observed that mothers of adolescent boys communicated with teachers more often than did mothers of adolescent girls. Parents tend to become more involved when their children experience their first learning or behavior difficulties. According to Eccles and Harold (1996), parents of high-achieving children tend to participate more in school activities than do parents of low-achieving children. Epstein (2001) showed that parent involvement decreases dramatically as children move into secondary school. When Deslandes (2003) compared parent involvement in Grades 8, 9, and 10, he found a steady decline in parent involvement, but a steady increase in adolescent autonomy. (04)

Parents' Role Construction

Parents need to understand their roles because that understanding identifies the activities that they believe are necessary and part of their responsibilities as parents. In other words, parents are more likely to become involved if they view their participation as a requirement of parenting. Hoover-Dempsey, Jones, and Reed (1999) hypothesized three components of role construction, depending on whether parents focused responsibility for children's education on themselves as parents, on the school, or on parent–school partnerships. (05)

Parents' Self-Efficacy for Helping Children Succeed in School

Parent self-efficacy is rooted in Bandura's (1997) self-efficacy theory and suggests that parents are more likely to be involved if they believe that they have the skills and knowledge to help their children. In other words, parents become involved if they believe that their actions will improve learning and academic performance (Hoover-Dempsey, Bassler, & Brissie, 1992; Stevenson, Chen, & Uttal, 1990). Prior research has indicated that parents believe that they will have more influence over their children's schooling when their children are in the elementary grades than they will when their children are in the upper grades (Freedman-Doan, Arbreton, Harold, & Eccles, 1993). In general, the stronger their self-efficacy, the more persistence parents exhibit in their involvement (Hoover-Dempsey et al., 2001). (06)

Parents' Perceptions of Teacher Invitations

Research also has shown that teachers' demands and opportunities for involvement, coupled with an inviting school climate, are related significantly to level of parent involvement (Comer & Haynes, 1991; Dauber & Epstein, 1993; Eccles & Harrold, 1996; Epstein, 1986). Parents tend to be more involved if they perceive that teachers and students both want and expect their involvement (Hoover-Dempsey et al., 2001). (07)

Parents' Perceptions of Student Invitations

(08) Parents will become involved if they perceive that their young children or adolescents want them to do so. Students' invitations are either implicit or explicit and emerge as a function of their age, their press for independence, and their performance level (Hoover-Dempsey et al., 2001; Walker et al., 2000). For instance, when young children or adolescents ask for help with homework, they are expressing explicit invitations. On the other hand, if they express the desire to work alone, parents might respond by reducing their involvement. If children bring a poor report card home, they might be conveying implicit invitations. Seeking parental help does not necessarily mean that young children or adolescents are having academic difficulties. For example, Zimmerman and Martinez-Pons (1986) found that high-achieving students wanted more parental assistance than did low-achieving students.

The literature justifies the research problem and provides direction for the study

(09) Reflecting on three of the four psychological constructs to involvement cited in the preceding paragraphs (i.e., parents' role construction, self-efficacy, and perceptions of teacher invitations), Reed, Jones, Walker, and Hoover-Dempsey (2000) found that parents' role construction, self-efficacy for helping the child succeed in school, and perceptions of teacher invitations represent motivators of parents' involvement in their children's education at the elementary level. Role construction was the first predictor of parent involvement; perception of teachers' invitations was the second predictor. Parent self-efficacy seemed less influential. The authors suggested that role construction may be a mediator of efficacy's influence on involvement (Reed et al.).

(10) In a study that compared 5th, 8th, and 11th graders' self-reported invitations to parent involvement in homework, Walker and Hoover-Dempsey (2001) revealed decreased levels of parent homework involvement across adolescence. Across the three age groups, students' invitations for parents' homework involvement was steady, but the authors found that parents of younger students tend to help without being asked.

(11) Investigations are needed to better understand what motivates parents to become involved in their young children's education and, more particularly, in their adolescents' educational process. Researchers need to examine differences in parents' motivation to become involved across secondary-grade levels. To our knowledge, no study has yet examined the individual and combined contributions of Hoover-Dempsey and Sandler's (1995, 1997) four psychological constructs to predict parent involvement decisions across secondary-grade levels.

(12) We targeted adolescents in the first 3 years of secondary school in Quebec (equivalent to Grades 7, 8, and 9 in the American school system). Prior work (Deslandes, 2003) showed that parent involvement is significantly lower, and adolescent autonomy level is significantly higher, in the fourth year of secondary school in Quebec (Grade 10 in the American school system) than in the second and third years of secondary school.

Purpose statements, research questions, and hypotheses are specific and narrow

(13) To examine how the four psychological constructs influence parent-involvement decisions across the three secondary grade levels, we posed the following research question: What are the relative contributions of parents' role construction, self-efficacy, perceptions of teacher invitations, and perceptions of adolescent invitations to predict parent involvement at home and at school in Grades 7, 8, and 9?

Method

Participants

(14) Participants were 770 parents of secondary-level students attending five public schools located in urban and rural areas in the Mauricie and Centre du Quebec and Monteregie regions. The regions are representative of the general Quebec population. Forty-six percent (354) of the participants were parents of Secondary I students (equivalent to Grade 7 students in the American school system), 30% (231) were parents of Secondary II students (equivalent to Grade 8 students in the American system), and 24% (185) were parents of Secondary III students (equivalent to Grade 9 students in the American system). Nearly 51% of the students were girls and 49% were boys. Forty-seven percent of the students were first born in their family, 37% second born, 13% third born, and 3% fourth and fifth born, respectively.

(15) The demographics of the sample were as follows: Approximately 84% of the respondents were mothers, and 13% were fathers. The other respondents were either stepmothers or stepfathers, or