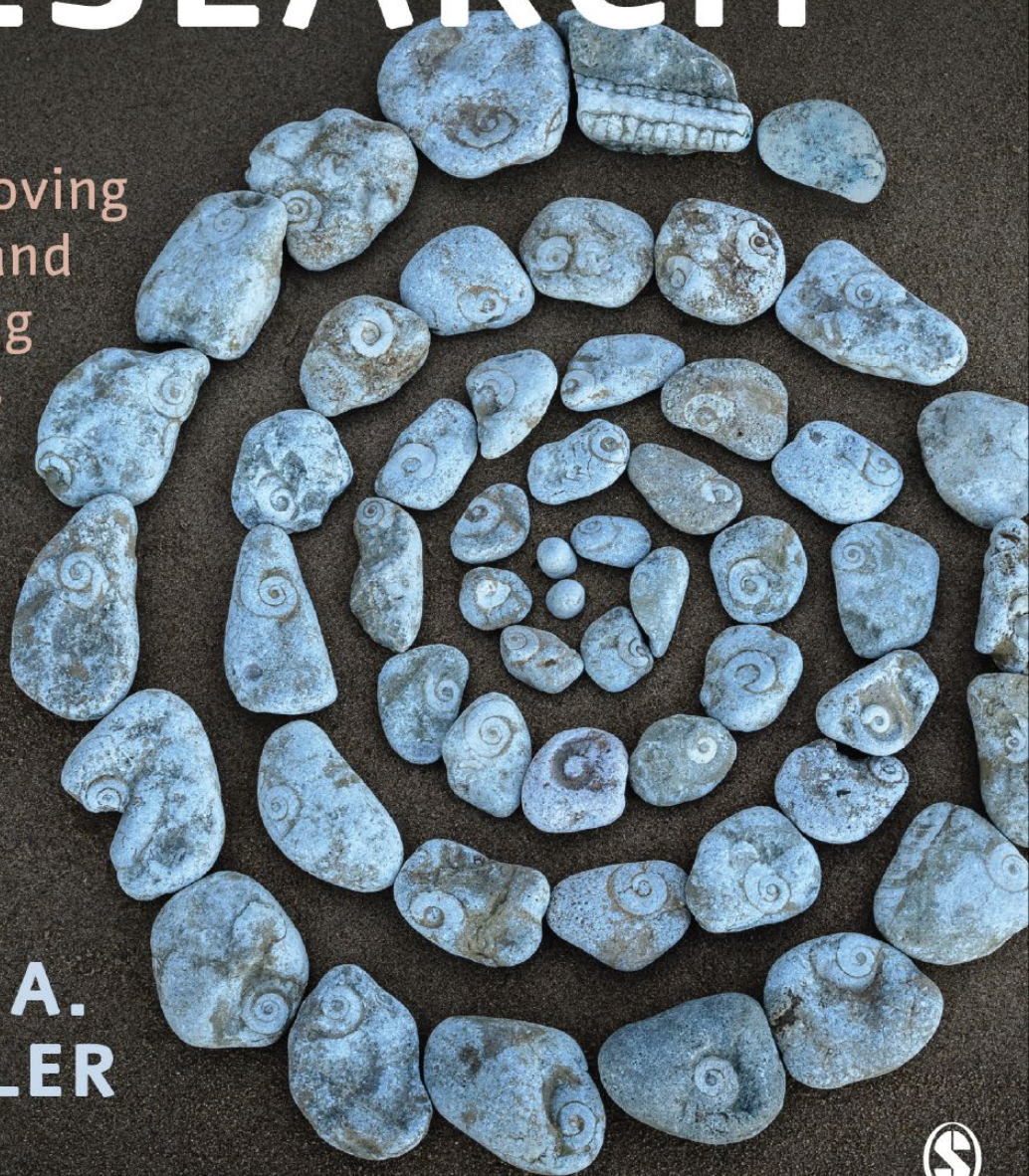


ACTION RESEARCH

Improving
Schools and
Empowering
Educators

**SIXTH
EDITION**

**CRAIG A.
MERTLER**



Action Research

Sixth Edition

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Action Research

Improving Schools and
Empowering Educators

Sixth Edition

Craig A. Mertler

Arizona State University



Los Angeles | London | New Delhi
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PREFACE

PURPOSE OF THE TEXT

Most, if not all, graduate students in education—and, in particular, in-service teachers seeking graduate degrees—are required to complete a course in educational research methods. The majority of these courses provide a broad overview of educational research methods, designs, and techniques. However, I would argue that graduate-level research methods courses taught to in-service teachers could be more suitable if the appropriate instructional materials were available to instructors and students, such that they focus on a classroom-based approach to research. Most research methods courses—and, therefore, their appropriate textbooks—follow the description that I offer above, in that they are “survey” courses (i.e., those that provide an overview of a variety of research methods). There are numerous texts that meet this description.

In contrast, relatively few books focus specifically on action research as a methodology, and even fewer do so with the target audience of practicing educators in mind. The purpose of this book is to introduce educators to the process of conducting their own classroom-based or school-based action research. Detailed but practical information describing each step of the cyclical, iterative process is presented in a sequential manner. Educators are provided with an overview of traditional educational research prior to examining action research as a mechanism for designing and conducting their own applied research projects. The focus is not on the theoretical aspects of educational research but rather on the practical facets of conducting applied classroom and/or school research. As presented in this textbook, action research is not simply a means of conducting applied research. It is also a mechanism for engaging educators in reflective practice and customizing professional development opportunities in order to capitalize on the unique interests of individual educators or teams of educators.

The reason behind my desire to write a textbook on this topic is fairly straightforward. I have taught educational research methods for well over 20 years. The vast majority of my students are in-service teachers seeking master’s degrees in various fields, including curriculum, teaching, administration, and counseling. The course is intended to serve as an overview of methods, primarily quantitative methods, used to conduct research in the broad field of education. The focus is on very formal approaches, such as descriptive, correlational, causal-comparative, experimental, and quasiexperimental research methods. Students in such courses—especially K–12 educators—typically struggle to see how they can apply these formal methodological approaches in their educational settings. Most of them believe that they do not really need to understand the application of these approaches to conducting

research, since they will likely never design or conduct such formal methodological procedures. It is my belief that this is the case for many graduate programs in education across the country.

On the other hand, when we reach the topic of *action research*, the discussion typically piques student interest. The students can actually see how *this* methodological approach could be used in their schools, in their classrooms, with their students, and so on. Since action research is conducted by practitioners—yet still incorporates a good degree of rigor—students begin to see themselves designing and carrying out action research studies. By focusing our attention on a broad overview of research methods, we are doing these practicing educators an injustice. We are not providing them with the tools necessary to design and conduct research studies that provide meaningful and immediate solutions to local-level problems. In other words, we are not adequately preparing them to investigate problems and seek solutions in their local settings and in a professional manner.

The *practical* nature of the book stems from the fact that it focuses on research methods and procedures that teachers, administrators, counselors, intervention specialists, and so forth, can use in conjunction with their everyday instructional practices and activities in schools and classrooms. Educators are shown how to design and conduct school-based research in order to make their instructional practices more effective. The examples—many of which come from published action research studies—of the principles, procedures, and techniques discussed in the narrative make it easy for students to understand the material in this book. Theoretical aspects of research as well as highly technical concepts and procedures, which are unlikely to be used by practicing educators, are de-emphasized—producing a textbook that provides comprehensive coverage of action research methods for practicing educational professionals without being too technical; that is, it is a practical book for educators. This book provides them with the knowledge and skills necessary to design research studies that seek solutions to local-level problems, conduct those studies, and communicate the results to local stakeholders and other interested parties. Although it is based on the research literature, the book takes a very practical approach, never losing sight of its intended audience—the practicing educator.

TEXT TARGETS GRADUATE STUDENTS, EDUCATORS

This book was written mostly for graduate students. Its target audience includes K–12 classroom teachers, administrators, counselors, special educators, and intervention specialists. This book may be used as the primary text for a graduate course in action research, although it could also serve as a supplemental text for other graduate-level courses not focusing on research methods (e.g., courses in curriculum, supervision). The book is appropriate for educators in all areas of education (e.g., elementary and secondary mathematics, science, social studies, languages, music, art, physical education, special education, administration, counseling, and special education); examples as well as sample articles throughout the book come from a variety of settings and situations.

TEXT ORGANIZED SEQUENTIALLY, LIKE AN ACTION RESEARCH STUDY

The main topics covered in the book pertain most closely to designing and conducting classroom-based applied research. These general topic areas—and the chapters that address them—include the following:

- An overview of educational research (Chapter 1)
- An overview of action research (Chapter 1)
- The characteristics of action research (Chapter 1)
- The action research process (Chapter 2)
- Identifying an area of focus for action research (Chapter 3)
- Reviewing related literature (Chapter 3)
- Designing an action research study (Chapter 4)
- Collecting and analyzing data (Chapters 5 and 6)
- Developing an action plan (Chapter 7)
- Writing an action research report (Chapter 8)
- Sharing the results of an action research study (Chapter 9)
- Reflecting on the process of action research (Chapter 9)

The book is arranged in this manner because it presents, in sequential order, the process of designing and conducting an action research study—beginning with the development of the topic to be investigated, reviewing related research, designing the study, actually carrying out the procedures, developing an action plan, and ultimately sharing the results and reflecting on the process. It is, however, important to note that action research proceeds through this process in a cyclical manner.

PEDAGOGICAL FEATURES AND BENEFITS TO STUDENTS (AS WELL AS INSTRUCTORS)

When compared with other action research books currently on the market, this book provides similar coverage of content. It does, however, have several distinctive aspects:

- On the first page of each chapter is a visual organizer for the main contents of that chapter.
- Since the book takes an extremely applied approach, it includes numerous examples—not simple discussions or descriptions—of such things as data

collection instruments (e.g., checklists, attitude surveys, interview protocols, and journal prompts) and presentation of research results (e.g., tables and graphs resulting from the analysis of quantitative data; summary tables resulting from the analysis of qualitative data; actual reports of action research).

- In addition to the various narrative examples that appear throughout the book, three detailed scenarios of action research, called “Action Research Case Studies,” are developed in Chapter 1 and are extended in each subsequent chapter. In each chapter, the case study discussions continue from the previous chapter, highlighting the application of content from the particular chapter as integrated into three practically based action research studies, the first of which is conducted by a team of educators—both general and special educators (at the elementary level)—the second by an individual teacher (at the elementary level), and the third by a pair of teachers (at the high school level). In addition, a fourth “Action Research Case Study” appears on the book’s accompanying website (edge.sagepub.com/mertler6e). The first Case Study which begins each chapter also includes several “Questions to Think About” when reading through each chapter.
- Each chapter includes a bulleted “Summary” of the main points included in the chapter.
- Each chapter also includes a final section titled “Questions and Activities” that can be used to extend student knowledge, understanding, and application.
- The text also includes a complete glossary of terms related to action research, a list of references used to compile the book, and a comprehensive subject and author index.
- A new section, called “Conducting Action Research,” has been added to the end of each chapter. This section includes the following features:
 - “Action Research Case Studies 2 and 3”
 - Sections titled “Writing Up Action Research” are included in Chapters 3 through 7 and Chapter 9, providing annotated excerpts from published or otherwise disseminated action research reports, highlighting specific concepts presented in each particular chapter
 - “Action Research Checklists,” also highlighting various features found in each chapter
- Three appendices follow Chapter 9. The first two include complete written reports of teacher-conducted action research projects. Additional complete written reports of teacher-conducted action research projects are available on the website (edge.sagepub.com/mertler6e). The third appendix contains developmental templates to guide the novice action researcher. These templates are also on the website.

NEW FEATURES IN THE SIXTH EDITION

There are several new features in the sixth edition of *Action Research: Improving Schools and Empowering Educators*:

- A third Action Research Case Study has been added to each chapter. This new case study appears at the beginning of each chapter.
- A brief history of action research has been added to Chapter 1.
- Brief discussions regarding different forms of action research (i.e., participatory action research and practical action research) have been added to Chapter 1.
- A presentation and discussion of the nature of “problems of practice” has been included in Chapter 1.
- The stages and steps of action research have been better integrated in order to provide a more coherent presentation of the process in Chapter 2.
- Discussions of additional searchable databases have been added to Chapter 3.
- An example of an organizational table for ensuring alignment between research questions and data sources has been included in Chapter 5.
- Additional journals in the field of action research have been added to the list presented in Chapter 9.

ANCILLARY MATERIAL ON THE WEB

Open-Access Student Study Site: edge.sagepub.com/mertler6e

This web-based Student Study Site provides resources to enhance students’ understanding of the book and take their learning one step further. The site includes the following:

- **Interactive PDF Action Research Developmental Templates** assist and guide the novice action researcher through many of the steps and decisions in the process of designing and conducting original action research.
- **Video vignettes** feature the author and several practitioner-researchers discussing various aspects of conducting action research. These vignettes are integrated with specific chapter content throughout the book.
- **Quizzes** allow students to independently assess their progress in learning course material.
- **eFlashcards** reinforce students’ understanding and learning of key terms and concepts.
- **Sample Action Research Reports** provide valuable, real examples to reference.
- A link to the author’s **Action Research Mentor app** for more action research tools.

In addition to the above, the instructor site features:

- Editable, chapter-specific **PowerPoint® slides** that offer complete flexibility for creating a multimedia presentation for your course.
- **Chapter outlines** summarizing key points from each chapter that can be used as lecture notes or in-class handouts.

- Chapter-specific **discussion questions** that help launch classroom interaction and reinforce learning of important chapter topics.

A NOTE ABOUT ACTION RESEARCH PROJECTS

One concern that both instructors and students face is how to fit into one semester both the content coverage of the book and the completion of a student-conducted action research project. My advice is first to reinforce with students who are just learning about action research that the important aspect of an action research project as a course assignment is to become familiar with the process of designing and conducting action research and that they should worry less about the final product of their study. If they can become familiar and comfortable with the process as a whole, they will later be able to design and conduct larger-scale research projects that may require more time.

For a typical 15-week academic term, I might suggest the following week-by-week activities, for both content coverage of the book and the associated action research project:

Week	Content	Project Activity
1	Introduction to the course and to action research	
2	Chapter 1: Introduction to research	Brainstorm research topics
3	Chapter 1: Continued Chapter 2: Overview of action research	Continue brainstorming, discussing possible topics with instructor
4	Chapter 3: Topic refinement	Begin process of narrowing topic
5	Chapter 3: Reviewing related literature	Begin search for related literature
6	Chapter 4: Developing a research plan	Continue reviewing related literature; develop preliminary research design
7	Chapter 5: Data collection	Draft instrumentation, interview guides, etc.
8	Chapter 5: Continued	Revise instrumentation, interview guides with instructor
9	Chapter 6: Data analysis	Begin data collection
10	Chapter 6: Continued	Data collection continues
11	Chapter 7: Developing action plans	Data collection continues; begin data analysis
12	Chapter 8: Writing an action research report	Data analysis continues; draft action plan
13	Chapter 9: Sharing and reflecting	Finalize action plan; begin writing final paper
14	Informal presentations of projects and results	Complete written report
15	Submit final written report	

For a typical 10-week academic term, I might suggest the following week-by-week activities:

Week	Content	Project Activity
1	Introduction to the course and to action research	
2	Chapter 1: Introduction to research	Brainstorm research topics
3	Chapter 2: Overview of action research	Continue brainstorming, discussing possible topics with instructor
4	Chapter 3: Topic refinement and reviewing related literature Chapter 4: Developing a research plan	Begin process of narrowing topic; search for related literature; develop preliminary research design
5	Chapter 5: Data collection	Continue reviewing related literature; draft and revise instrumentation, interview guides, etc.
6	Chapter 6: Data analysis Chapter 7: Developing action plans	Data collection; begin data analysis
7	Chapter 8: Writing an action research report	Draft action plan
8	Chapter 9: Sharing and reflecting	Finalize action plan; begin writing final paper
9	Informal presentations of projects and results	Complete written report
10	Submit final written report	

A FINAL NOTE FOR STUDENTS OF ACTION RESEARCH

I enjoy and value classroom-based/school-based action research because it has the potential to empower educators, to engage them directly in the process of educational improvement, and to provide a mechanism for customizing professional development. I will not mislead you into thinking that this is an easy road to travel. Learning how to conduct action research studies that will enhance your professional practice takes time and practice. However, by gaining familiarity and experience with designing and conducting action research projects, you will, I trust, realize the substantial and positive professional, reflective outcomes of action research discussed throughout this book. I sincerely wish you the best of luck in your action research endeavors!

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Dr. Craig A. Mutler

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chapters, 22 refereed journal articles, two instructors' manuals, and numerous other articles and manuscripts. He has also presented more than 40 research papers around the country as well as internationally. He conducts workshops for in-service educational professionals (at all levels) on classroom-based action research and on the broad topic of classroom assessment. His primary research and consulting interests include classroom-based action research, data-driven educational decision making, professional learning communities, and classroom teachers' assessment literacy. Before teaching and researching at the university level, he taught high school biology and earth science and also coached track and volleyball. In his leisure time, he enjoys traveling with his family and playing golf. Dr. Mertler can be reached at craig.mertler@gmail.com for consulting, professional development, and speaking engagements.

WHAT IS ACTION RESEARCH?

Chapter 1. Introduction to Action Research

Chapter 2. Overview of the Action Research Process

Part I of this book introduces and provides an overview of action research. In Chapter 1, you will learn what action research is (and what it is not), how it compares with traditional forms of educational research, why it is important for teachers to become involved in action research, and some examples of its applications. You will also see several models of the process of conducting action research. In Chapter 2, you will learn more about the various steps in the action research cycle and see how it can be conducted within a contextualized example.

INTRODUCTION TO ACTION RESEARCH

Chapter 1 Organizer



Action Research Case Study 1: Motivation and Engagement for Students Receiving Special Services

What Is Action Research?

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- Overview of Action Research
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Motivation and Engagement for Students Receiving Special Services

The first-grade teachers at Sunset Pointe Elementary, a rural PK–6 school, had been a highly effective team for more than five years. Krista, Kim, and Jim had worked well together and collaborated on numerous occasions during their time together at the school. Each of the teachers held a graduate degree in early childhood education. Their team also included Jody, the special services teacher, and Sarah, a special services aide, both of whom provided instructional support services to students in kindergarten through third grade who were on individualized education programs (IEPs). Each of the first-grade classes at Sunset Pointe routinely had two or three students who were on IEPs and who received special instructional services from Jody and Sarah. During 30-minute sessions two to three times every week, each student had a scheduled time to leave the classroom and go down the hall to see Jody and Sarah. During these sessions, Jody and Sarah worked with individual students on developing and reinforcing math, reading, and/or social skills. For several years, this model had worked very well in terms of providing the additional instructional needs for students, with the team focused on their success as learners.

However, all three teachers had, in the past few years, struggled with encouraging success for students receiving special services in their classrooms. The overwhelming problem that all three teachers had noticed was that the students did not want to leave their classrooms for their scheduled individualized support sessions with Jody and Sarah. As they had come to discover, the students did not want to leave the

classroom for fear of missing out on fun things that might happen in the classroom with their friends. They “conveniently” seemed to forget their routine time to see the special services team, which necessitated a call from Sarah over the classroom phone system, reminding the students to go to the support room. This regularly disrupted activities occurring within each of the three first-grade classrooms. Even when Krista, Kim, and Jim reminded the students that it was time to go, they refused, saying that they were having fun and that they wanted to stay. Once they did make their way to the special services room, the students typically were not prepared to learn—they were simply too focused on what they thought they were missing. The students had even begun telling their parents that they did not want to leave their classmates, and the teachers were now beginning to receive pressure from parents, who were hesitant to force their children to leave their classrooms for fear of being left out of fun activities with their classmates.

At the end of last school year, all five educators met to discuss a possible plan or other alternative approach to help their first-grade students who received special services to feel more comfortable leaving their classrooms. Krista, Kim, and Jim all had studied the action research process as part of their graduate school program. During the discussion, they decided that, if they could find an alternative structure that would help support student motivation and engagement during their instructional support sessions, they could use the action research process to examine the effectiveness of a self-identified proposed alternative strategy, designed to facilitate student success.

What was the nature of the problem that these educators were facing?

In what way(s) was it a problem?

Could traditional research methods be used to address their problem?

For what reasons could action research be the most appropriate process for the educators to use?

In what ways would an action research investigation of their problem align with various applications of action research?

Research—think about it for a few moments. What images come to mind when you hear the word *research*? For many people, the word evokes images of scientists in white laboratory coats coaxing mice through a maze, observing their every move, action, and reaction. They closely monitor stopwatches, recording the amount of time that passes as the mice reach each stage of the maze. The word may further evoke images of chemists (yes, also wearing white lab coats!) with beakers, flasks, and Bunsen burners, mixing chemicals in order to make new solutions or to determine the properties of those solutions. Or images of medical researchers who work with animals or directly with human “subjects” to investigate cures for diseases. Other people may, upon hearing the word, envision the type of research that is a regular aspect of college or university professors’ work.

For quite some time, research has been conducted primarily by professionals whose principal education included training in the conduct of research studies. Admittedly, much research continues to be conducted by professionals, such as those in the examples above. However, more and more research is being conducted by *practitioners*—people whose primary education and training is *not* in research methodology. The specific procedures for conducting this type of research are somewhat different from those that serve as the foundation for more formal types of research, but the guiding principles are the same. It is this type of practitioner-based research—known as *action research*—upon which we focus in this book.

WHAT IS ACTION RESEARCH?

Over the last decade, action research has begun to capture the attention of teachers, administrators, and policymakers around the country (Mills, 2011). Educators at a variety of levels have embraced it as something that makes conducting research a more “manageable” task and that brings about results that are more informative and have immediate and direct application. But just what *is* action research? What does it look like? What does it purport to accomplish?

Action research is defined as any systematic inquiry conducted by teachers, administrators, counselors, or others with a vested interest in the teaching and learning process or environment for the purpose of gathering information about how their particular schools operate, how they teach, and how their students learn (Mills, 2011).

More important, action research is characterized as research that is done by teachers for themselves. It is truly a systematic inquiry into one's own practice (Johnson, 2008). Action research allows teachers to study their own classrooms—for example, their own instructional methods, their own students, and their own assessments—in order to better understand them and to be able to improve their quality or effectiveness. It focuses specifically on the unique characteristics of the population with whom a practice is employed or with whom some action must be taken. This, in turn, results in increased utility and effectiveness for the practitioner (Parsons & Brown, 2002). The basic process of conducting action research consists of four steps:

1. Identifying an area of focus
2. Collecting data
3. Analyzing and interpreting the data
4. Developing a plan of action (Mills, 2011)

You will learn much more about the process of action research later in this chapter and in Chapter 2.

Introduction to Educational Research

For classroom teachers—who are the ultimate, or at least the most likely, consumers of educational research—it is essential to have a basic understanding of some key terms and concepts related to the notion of research. Research is simply one of many means by which human beings seek answers to questions. Questions arise constantly throughout a day, whether they be personal or professional in nature. As an example of a personal question in need of an answer, imagine a coworker who asks if you would like to go to lunch this afternoon. You will need to give that person a yes or no answer, but you must factor in some information first—for example, do you already have plans for lunch? Can you afford to give up the time to go to lunch today? Do you have enough money for lunch?

Answers to questions of a professional nature often require much more information; however, human nature prompts us to try to find answers to those questions as quickly as possible. Consider the following scenario: You have a student, Arthur, whom you informally classify as an “unmotivated reader.” You approach a colleague and ask about ideas for intervention strategies for motivating Arthur. She provides several strategies that she says have worked for other students, but you are not sure if they will work for Arthur. In addition, you know that there are undoubtedly many more strategies out there, but you need an answer now—the school year is off and running, and you do not want to lose any more valuable time by not encouraging Arthur to read more. But where do you go to find the answers you are looking for?

Mertler and Charles (2011) suggest that we usually consult sources for answers that are most convenient to us and with which we are most comfortable; however, these sources have the potential to be fraught with problems. These sources of information include tradition, authority, and common sense. **Tradition** refers to ways in which we

have behaved in the past. Interventions that have worked in the past may in fact still work today, but there is no guarantee. In addition, there may now be newer interventions that will work better than our old standby. **Authority** refers to the use of the opinions of experts, who we assume will know what will work best. However, simply finding someone who has a strong opinion about a given intervention or instructional strategy does not necessarily support the use of that strategy. In fact, it is typically safe to assume that as soon as you find an expert who supports any given technique, you will quickly find another who is willing to denounce it as being inferior. Finally, **common sense** refers to the use of human reasoning as a basis for answering questions. While human reasoning has gotten our global culture far throughout history, it is most reliant on dependable information. If information that we collect in order to help us make commonsense decisions is of substandard quality or accuracy, our commonsense decisions will reflect those various deficiencies.

The main problem with these familiar sources of information is that they have a tendency to provide unreliable information. This is largely because answers based on tradition, authority, and common sense use information that is biased to some degree. This bias occurs primarily because the information was collected in an unsystematic and subjective manner. In order for the answers we seek to be accurate and of high quality, we must obtain information that is both valid and reliable. This is best accomplished by using the scientific method. The **scientific method** is a specific strategy used to answer questions and resolve problems. You may recall the scientific method from a junior or senior high school science course when you may have been required to complete some sort of science fair project. What makes the scientific method such a useful strategy is that it is a very systematic, step-by-step set of procedures. In 1938, American philosopher and educator John Dewey described the scientific method as a procedure for thinking more objectively (Mertler & Charles, 2011). He presented the procedure as a series of the following steps:

1. Clarify the main question inherent in the problem.
2. State a hypothesis (a possible answer to the question).
3. Collect, analyze, and interpret information related to the question, such that it will permit you to answer the question.
4. Form conclusions derived from your analyses.
5. Use the conclusions to verify or reject the hypothesis.

It would be misleading to assume that all researchers—and therefore all research studies—follow these steps exactly. For example, in some studies it may not be necessary to formally state a hypothesis. Although not all research studies conduct the procedure exactly as described above, they do have one important thing in common. Collecting, analyzing, and interpreting information (Step 3) is always done in research. It is the result of this step that provides the necessary impetus that allows us to answer our initial questions.

How, then, is the scientific method related to research in the broad field of education? There is a great deal of similarity between the two. Simply put, **educational research** involves the application of the scientific method to educational topics, phenomena, or questions in search of answers. Educational research is typically carried out in the following manner:

1. Specify the topic about which a concern exists.
2. Clarify the specific problem on which the research will focus.
3. Formulate research questions and/or hypotheses concerning the main problem.
4. Carry out procedures by which data (a more appropriate term for “information”) are collected, analyzed, and interpreted.
5. State the findings determined as a result of the data analysis.
6. Draw conclusions related to the original research questions and/or hypotheses. (Mertler & Charles, 2011)

Note the similarities between Dewey’s list of steps in the scientific method and those used to conduct educational research. The major components are common to both lists. In either case, it is important to remember that in practice these steps do not always occur as neatly as presented here, nor do they always follow the sequence listed.

Johnson (2008) also reminds us that, as consumers of research as well as potential researchers, we must be aware of the differences between science and pseudoscience. Science—the use of the scientific method for inquiry—uses perceived reality (typically in the form of collected data) to determine beliefs. In other words, data are collected and analyzed in order to determine what is believed:

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graph LR; A[perceptions (data)] --> B[determine]; B --> C[beliefs]
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An example of scientific inquiry is the Trends in International Mathematics and Science Study (or TIMSS). TIMSS resulted from the American educational community’s need for reliable and timely data on the mathematics and science achievement of our students compared with that of students in other countries. Since 1995, TIMSS has provided trend data on students’ mathematics and science achievement from an international perspective. TIMSS uses standardized achievement tests, administered and scored in identical fashion, as the means of collecting student data. The tests are similar in content, form, and length in order to allow for comparisons. What makes this study “science” is the standardization and objectivity incorporated into the research design.

In contrast, pseudoscience uses beliefs to determine perceived reality. One begins with a strong belief and then looks for data to support that belief (Johnson, 2008):



Pseudoscience is often used as a marketing tool by companies to sell products or by groups or individuals in an attempt to demonstrate that their ideas, methods, or products are the best or most effective. Clearly, this approach is not systematic, nor is it objective; it does not utilize the scientific method. Therefore, it is not science, and it is not research.

Overview of Educational Research

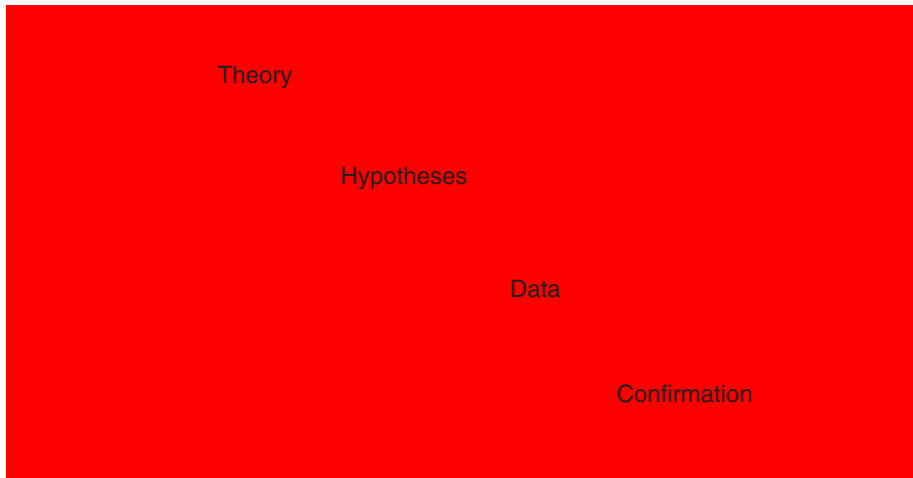
Traditional research in education is typically conducted by researchers who are somewhat removed from the environment they are studying. This is not to say that they are not committed to the research study and truly interested in the ultimate results but rather to say that they are studying people, settings, or programs with which they are seldom personally involved (Schmuck, 1997). They may in fact be removed from the actual research site, in many instances. Furthermore, traditional researchers often seek explanations for existing phenomena and try to do so in an objective manner. The primary goal of traditional educational research is “to explain or help understand educational issues, questions, and processes” (Gay & Airasian, 2000, p. 24). In traditional research, different research methods—the specific procedures used to collect and analyze data—provide different views of a given reality. These various research methods tend to be put into two broad categories—quantitative approaches and qualitative approaches—based on different assumptions about how to best understand what is true or what constitutes reality (McMillan, 2004). Generally speaking, quantitative research methodologies require the collection and analysis of numerical data (e.g., test scores, opinion ratings, attitude scales); qualitative research methodologies necessitate the collection and analysis of narrative data (e.g., observation notes, interview transcripts, journal entries).

Quantitative research methodologies utilize a deductive approach to reasoning when attempting to find answers to research questions. **Deductive reasoning** works from the more general to the more specific, in a “top-down” manner (Trochim, 2002a). As depicted in Figure 1.1, the quantitative researcher might begin by thinking up a theory about a given topic of interest.

That topic would then be narrowed down to more specific hypotheses that could be tested. This process of narrowing down goes even further when data are collected in order to address the hypotheses. Finally, the data are analyzed, and conclusions about the hypotheses are drawn—this allows for a confirmation (or not) of the original theory.

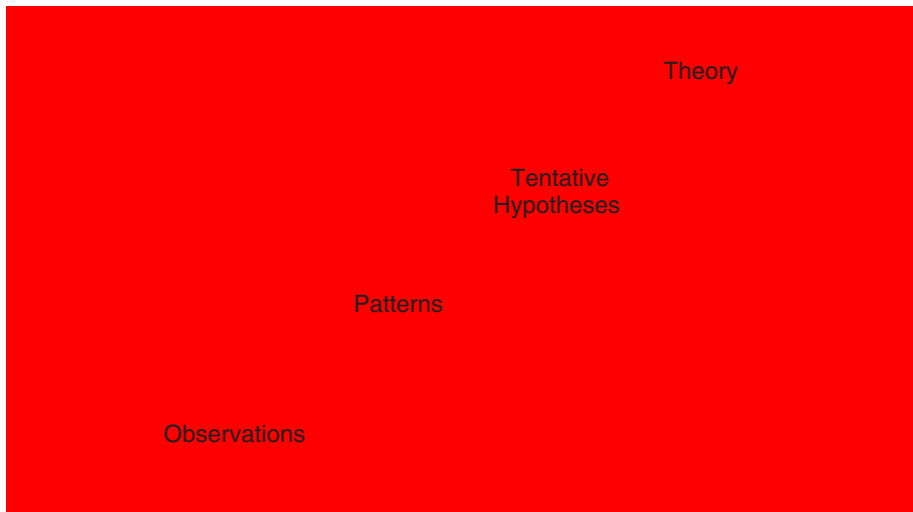
On the other hand, qualitative research methods typically use an inductive approach to reasoning. **Inductive reasoning** works in the exact opposite direction when compared with deductive reasoning. Using a “bottom-up” approach (see Figure 1.2), inductive reasoning begins with specific observations and concludes with broader generalizations and theories (Trochim, 2002a). One begins with specific observations (data), notes any patterns in those data, formulates one or more tentative hypotheses, and finally develops general conclusions and theories. It is important to note that, in some cases, the purpose

Figure 1.1 The Process of Deductive Reasoning as Applied to Research



Source: Trochim (2002a).

Figure 1.2 The Process of Inductive Reasoning as Applied to Research



Source: Trochim (2002a).

of qualitative research is not to analyze data in order to form hypotheses or theories. Rather, in these cases, the purpose may simply be to provide a “thick description” of what is going on in the particular setting being studied. You will read more about deductive and inductive reasoning, as they relate to data analysis, in Chapter 6.

Both quantitative and qualitative approaches to conducting educational research are guided by several sets of philosophical assumptions. These philosophical assumptions are composed primarily of several basic underlying beliefs about the world itself and how best to discover or uncover its true reality. The underlying beliefs held by quantitative researchers differ substantially from those held by qualitative researchers. An understanding of these beliefs is not requisite to understanding or being able to successfully conduct an action research study. This is largely because action research, as we will view it throughout this text, typifies a grassroots effort to find answers to important questions or to foster change. It is entirely practical—and not necessarily philosophical—in its application. Mills (2011) refers to this as “practical action research” (p. 7), which he contrasts with the more philosophically based critical action research. The focus of this particular textbook is on the former; in-depth discussions of more philosophically based forms of action research are beyond the scope of this book. If you are interested in learning more about these various underlying philosophical assumptions and their connection to action research, several excellent resources include Johnson (2008), McMillan (2004), and Mills (2011).

Recall that the goal of quantitative research is to describe or otherwise understand educational phenomena. To accomplish this, researchers collect data by measuring **variables** (factors that may affect the outcome of a study or characteristics that are central to the topic about which the researcher wishes to draw conclusions) and then analyze those data in order to test **hypotheses** (predicted outcomes of the study) or to answer **research questions**. For example, a quantitative research study might involve collecting data on elementary school discipline referrals and absenteeism (numerical variables) in order to answer this question: Are there differences in the rates of disciplinary problems and absenteeism in schools with a K–8 span versus those with other grade-span configurations (e.g., K–5, K–6)?

The type of **research design** employed by the researcher refers to the plan that will be used to carry out the study. Research designs may be either nonexperimental or experimental. In **nonexperimental research**, the researcher has no direct control over any variable in the study, either because it has already occurred or because it is not possible for it to be influenced. In other words, in nonexperimental research, variables cannot be controlled or manipulated by the researcher. The previous illustration of a study of school discipline and absenteeism problems is an example of a nonexperimental study, as the type of grade configuration, the number of discipline referrals, and the number of absences cannot be controlled or influenced by the researcher. The fact that variables cannot be controlled in nonexperimental studies is an important distinction between nonexperimental research and experimental research, especially when it comes to drawing conclusions at the end of a study. This usually means that conclusions to nonexperimental studies can describe only variables or relationships between variables. Examples of nonexperimental research designs include *descriptive*, *comparative*, *correlational*, and *causal-comparative* research (McMillan, 2004). *Descriptive* studies simply report information about the frequency or amount of something (e.g., What percentage of the time do teachers use performance-based assessments in their classrooms?). *Comparative* studies characteristically build on descriptive studies by comparing two or more groups on that which is measured (e.g., Is there a significant difference between elementary

and secondary teachers' use of performance-based assessments?). *Correlational* studies measure the degree to which a relationship exists between two or more variables (e.g., What is the relationship between years of teaching experience and use of performance-based assessments?). Finally, *causal-comparative* studies (also sometimes referred to as *ex post facto* studies) compare groups—where group membership is determined by something that occurred in the past—on subsequent data on another variable in such a way that allows researchers to deduce causal relationships between the two variables (e.g., Do teachers who completed a stand-alone preservice course in classroom assessment use performance-based assessment more than teachers who did not complete such a course?). Notice that based on the sample research questions provided it is quite possible to use any of the various types of nonexperimental research designs to study a given topic—in this case, classroom teachers' use of performance-based assessments.

In **experimental research**, the researcher has control over one or more of the variables included in the study that may somehow influence (or cause) the participants' behavior. The variables over which the researcher has control are known as the **independent variables**; these are the variables that are manipulated by the researcher, meaning that the researcher determines which subjects will receive which condition. For example, if the effectiveness of a new math program was being investigated, those students exposed to the new program would constitute the **experimental** or **treatment group**; their performance would be compared with that of a **control group** that received the standard math instruction. The ultimate variable of interest (i.e., the "behavior" variable mentioned above, perhaps "math achievement" in our example) is referred to as the **dependent variable** (since its value depends on the value, or group membership, of the independent variable).

There are a wide variety of experimental research designs, the discussion of which is beyond the scope of this book. However, an illustration of experimental research is likely in order. Suppose a history teacher wants to determine whether students perform better when taught U.S. history using the more traditional forward (i.e., past to present) approach versus a backward (i.e., present to past) approach. So, she randomly assigns half of her classes to be taught using the forward approach and the other half to be taught using the backward approach. The independent variable for her study is the type of instruction. There are two levels to this variable that "define" the two groups—the experimental group receives the innovative backward approach to instruction; the control group receives the more traditional forward approach. Finally, the academic performance (dependent variable) of all students is measured using the same instrument (e.g., a final exam) for both groups. The aspect that makes this study experimental in nature is that the teacher herself determines which group will receive which version of the treatment (i.e., instruction); in other words, she is manipulating or controlling the independent variable.

Data collected as part of quantitative research studies are numerical and therefore naturally analyzed statistically. Analyses may include descriptive statistics, inferential statistics, or both. **Descriptive statistics** allow researchers to summarize, organize, and simplify data. Specific techniques include such statistics as the mean, median, mode, range, standard deviation, correlations, and standardized scores. **Inferential statistics** are more complex and permit researchers to test the statistical significance of the

difference between two or more groups or to test the degree of correlation between two variables. **Statistical significance** refers to a decision made from the results of statistical procedures that enables researchers to conclude that the findings of a given study (e.g., the size of the difference between two groups or the strength of the relationship between two variables) are large enough in the sample studied in order to represent a meaningful difference or relationship in the **population** from which the sample was drawn.

Whereas quantitative research studies focus on a relatively small number of variables, qualitative research studies utilize a much broader, more holistic approach to data collection. Qualitative research designs use systematic observation in order to gain knowledge, reach understanding, and answer research questions. There is no attempt to control or manipulate any variable in a qualitative study; researchers simply take the world as it exists and as they find it (Johnson, 2008). Qualitative research tends to emphasize the importance of multiple measures and observations (Trochim, 2002b). Therefore, guiding research questions tend to be more broad and open-ended. This allows the researcher to collect a wide variety of data for the purpose of getting a more holistic picture of the phenomenon under investigation. This also permits the researcher to engage in triangulation. **Triangulation** is a process of relating multiple sources of data in order to establish their trustworthiness or verification of the consistency of the facts while trying to account for their inherent biases (Bogdan & Biklen, 2007; Glesne, 2006). It is important to note that “triangulation” does not necessarily mean that the researcher is using three (as in *tri-*) sources of data; it simply means that there is more than one source of data—perhaps, a more appropriate term would be “*polyangulation*” (since the prefix *poly-* is defined as “more than one or many”). Ultimately, this enables the researcher to try to get a better handle on what is happening in reality and to have greater confidence in his or her findings (Glesne, 2006). For example, in a qualitative study, one might collect data through firsthand observations, videotaped observations, and interviews. Triangulating these sources of data would involve examination in order to determine, for example, whether participants’ comments were consistent with their behaviors, regardless of the type of data representing them. In other words, did a person act the same way he said he acted, or did he verbally portray his behavior differently from his actual behavior?

Similar to quantitative research, there are a variety of qualitative research designs. These include *phenomenology*, *ethnography*, *grounded theory*, and *case studies* (McMillan, 2004). **Phenomenological studies** engage the researcher in a long process of individual interviews in an attempt to fully understand a phenomenon (e.g., What characteristics of teachers are needed in order for them to be viewed as compassionate by their students?). **Ethnographic studies** attempt to describe social interactions between people in group settings (e.g., What meaning does the teachers’ lounge have for the staff at Main Street Elementary School?). **Grounded theory** research studies attempt to discover a theory that relates to a particular environment (e.g., What types of personal and school characteristics serve to motivate teachers?). Finally, **case studies** are in-depth studies of individual programs, activities, people, or groups (e.g., What is the nature of the school culture at Washington Middle School?).

Data collected during a qualitative research study may be quite diverse. Recall that qualitative data are typically narrative and consist primarily of observations, interviews,

and existing documents and reports (McMillan, 2004). Resulting qualitative data are analyzed by means of a process known as **logico-inductive analysis**, a thought process that uses logic to make sense of patterns and trends in the data (Mertler & Charles, 2011).

Although quantitative and qualitative approaches to conducting research are quite different on many levels, they need not be considered mutually exclusive. Some studies employ both types of research data. These types of studies are often referred to as **mixed-methods research designs**. The combination of quantitative and qualitative data tends to provide a better understanding of a research problem than either type of data could on its own. In other words, these types of studies capitalize on the relative strengths of both quantitative and qualitative data. Creswell (2005) considers action research studies to be most similar to mixed-methods designs, since they often utilize both quantitative and qualitative data. The only real difference between the two is the underlying purpose for the research. The main goal of mixed-methods studies is more traditional (i.e., to better understand and explain a research problem); the main goal of action research is to address local-level problems with the anticipation of finding immediate solutions.

Overview of Action Research

For decades, there has been pressure from both public and governmental sources for improvement in our schools. The public, fueled by the mass media, has criticized schools for low levels of achievement in math, science, reading, writing, and history (Schmuck, 1997). Business leaders fault schools for not preparing students for the workforce. Although teachers are on the receiving end of the brunt of this criticism, it is my firm belief that teachers in the United States have been doing—and continue to do—an outstanding job in the classroom. However, that being said, true school improvement must begin from within the proverbial “four walls of the classroom.” Teachers must be able and willing to critically examine their own practice as well as how students (both collectively and individually) learn best.

Often, school improvement leaders look toward the enormous body of educational research literature as a means of guiding their improvement efforts. However, many practitioners do not find that either formal or applied academic research is very helpful (Anderson, 2002). This is largely due to the fact that traditional educational researchers have a tendency to impose abstract research findings on schools and teachers with little or no attention to local variation (i.e., not all schools are the same) and required adaptations (i.e., the extent to which research findings generalize across entire populations; Metz & Page, 2002). I believe that, because of this continued imposition of more traditional research findings, there is a real need for the increased practice of teacher-initiated, classroom-based action research.

Schmuck (1997) defines action research as an attempt to “study a real school situation with a view to improve the quality of actions and results within it” (p. 28). Its purpose is also to improve one’s own professional judgment and to give insight into better, more effective means of achieving desirable educational outcomes. McMillan (2004) describes action research as being focused on solving a specific classroom or school problem, improving practice, or helping make a decision at a single local site. Action research

offers a process by which current practice can be changed toward better practice. *The main goal of action research is to address local-level problems of practice with the anticipation of finding immediate answers to questions or solutions to those problems* (Mertler, 2018).

At this point, it is important to clarify what we mean by “problems of practice.” There is a tendency for educators to mistakenly equate educational *problems* with *problems of practice*. As we all know, problems are extremely abundant in educational settings. However, problems—in and of themselves—are not directly “solvable.” For example, in speaking with a classroom teacher, you might become aware of the following problem in a classroom or school: “*my students do not perform well in math.*” By definition, this is not a problem of practice. Henriksen, Richardson, and Mehta (2017) have described a “problem of practice” as follows:

The term ‘problem of practice’ is common in education, but it has no single, common scholarly definition (City, Elmore, Fiarman, & Teitel, 2009). We suggest that a problem of practice is: *a complex and sizeable, yet still actionable, problem which exists within a professional’s sphere of work*. Such problems connect with broad or common educational issues, but are also personal and uniquely tied to an educational context and its variables; thus, they must be navigated by knowledgeable practitioners (Lampert, 1985). (p. 142)

A simple transition to a problem of practice from the problem of students not performing well in math might be

The students in my class do not perform well in math. What might I be able to do differently with my instruction that could facilitate improvement in my students’ math skills and performance?

In other words, a problem of practice must be situated within a professional educator’s scope of work and must be specific to the particular setting, students, and context (Mertler, 2018). This is essentially what distinguishes a *problem*, which could potentially occur anywhere in the world—such as students not performing well in math—from a problem of practice, which consists of the problem, situated within a particular context, and includes specific strategies for solving the problem, or otherwise addressing the issue, where the concern is essentially localized (Mertler, 2018).

Because action research is largely about examining one’s own practice (McLean, 1995), reflection is an integral part of the action research process. **Reflection** can be defined as the act of critically exploring what you are doing, why you decided to do it, and what its effects have been. In order for teachers to be effective, they must become active participants in their classrooms as well as active observers of the learning process; they must analyze and interpret classroom information—that has been collected in a systematic manner—and then use that information as a basis for future planning and decision making (Parsons & Brown, 2002). **Reflective teaching** is a process of developing lessons or assessing student learning with thoughtful consideration of educational theory, existing research, and practical experience, along with analysis of the effect on student learning (Parsons & Brown, 2002). This process of systematically collecting

information followed by active reflection—all with the goal of improving the teaching process—is at the core of action research.

Accordingly, action research is also largely about developing the professional disposition of teachers and the teaching profession (Mills, 2011). Through action research, teachers are encouraged to become continuous, lifelong learners in their classrooms with respect to their practice. This notion is central to the very nature of education—action research encourages teachers to examine the dynamics of their classrooms, critically think about the actions and interactions of students, confirm and/or challenge existing ideas or practices, and take risks (Mills, 2011). A goal of every classroom teacher should be to improve her or his professional practice as well as student outcomes. Action research is an effective means by which this can be accomplished.

A Brief History of Action Research

The origins of action research can be traced back to Kurt Lewin, who is credited with coining the term *action research* around 1934. His early research focused on workplace studies that compared the effectiveness of various methods of training factory workers (Hendricks, 2013). Lewin believed strongly that research conducted specifically *within* the context in which a problem existed was the key to arriving at a solution to that problem, or to institute some degree of change, and that more traditional forms of research could not accomplish this:

The research needed for social practice can best be characterized as research for social management or social engineering. It is a type of *action-research* [emphasis added], a comparative research on the conditions and effects of various forms of social action, and research leading to social action. Research that produces nothing but books will not suffice. (Lewin, 1946, p. 35)

Lewin viewed action research as a spiraling process of reflection, inquiry, and action taken by stakeholders for the ultimate purposes of improving work environments and addressing social problems (Hendricks, 2013):

Rational social management, therefore, proceeds in a spiral of steps each of which is composed of a circle of planning, action, and fact-finding about the result of the action. (Lewin, 1946, p. 38)

Lewin's inclusion of the concept that democratic workplaces increase both worker motivation and productivity became a hallmark of his eventual theory of action research. A logical connection between Lewin's ideas and the progressive education movement fostered the notion that schools could become a driving force for democratic change within a community (Hendricks, 2013).

Models of Action Research

Numerous authors have proposed models for the action research process. Some of these models are simple, while others are relatively complex. Some appear cyclical in nature;

others depict a spiraling process; still others portray a “flow” diagram. Yet each model begins with a central problem or topic. Each involves some observation or monitoring of current practice, followed by the collection and synthesis of information and data. Finally, in each model, some sort of action is taken, which then serves as the basis for the next stage of action research (Mills, 2011). In other words, all models of action research share a non-linear structure that emphasizes a recursive research process. See the following examples:

- Stringer (2007), in his action research interacting spiral, describes action research as a “simple, yet powerful framework” consisting of a “look, think, and act” routine (p. 8). During each stage, participants observe, reflect, and then take some sort of action. This action leads them into the next stage.
- Kurt Lewin (Smith, 2001) also depicts an action research spiral, which includes fact finding, planning, taking action, evaluating, and amending the plan before moving into a second action step.
- Bachman’s (2001) action research spiral continues this notion of the cyclical nature of action research. His downward spiral suggests that participants gather information, plan actions, observe and evaluate those actions, and then reflect and plan for a new cycle of the spiral, based on the insights that were gained in the previous cycle.
- Riel’s (2007) progressive problem solving through action research model takes the participant through four steps in each cycle: planning, taking action, collecting evidence, and reflecting.

Which model should you follow? Personally, I do not think it really matters, as I see them essentially as variations on the same theme (as evidenced by their shared elements).

Generally speaking, my version of the action research process is composed of a four-stage procedure (Mertler & Charles, 2011), which will be expanded in more detail in the next chapter. For the time being, these four stages are as follows:

1. The planning stage
2. The acting stage
3. The developing stage
4. The reflecting stage

Within this framework—and as you read earlier in the various models presented—action research is a recursive, cyclical process that typically does not proceed in a linear fashion (Johnson, 2008). Practitioner-researchers engaged in action research often find themselves repeating some of the steps several times or perhaps doing them in a different order.

Depending on the nature of a given action research project, there may never be a clear end to the study—teachers may continue to go through subsequent cycles of planning, acting and observing, developing a new plan, and reflecting, which seemingly spiral from one year into the next (Mertler & Charles, 2011). You will learn more about the specific steps in conducting action research in Chapter 2.

Characteristics of Action Research: What It Is and What It Is Not

Although action research can be a fairly straightforward process, it is sometimes misunderstood by educational practitioners (Mertler & Charles, 2011). There are many aspects of this methodology that characterize its uniqueness as an approach to conducting educational research. It is imperative for educators to have a sound, foundational understanding of just what action research is and is not. The following list, compiled from several sources (Johnson, 2008; Mertler & Charles, 2011; Mills, 2011; Schmuck, 1997), is an attempt to describe what action research is:

- Action research is a process that improves education, in general, by incorporating change.
- Action research is a process involving educators working together to improve their own practices.
- Action research is persuasive and authoritative, since it is done by teachers for teachers.
- Action research is collaborative; that is, it is composed of educators talking and working with other educators in empowering relationships.
- Action research is participative, since educators are integral members—not disinterested outsiders—of the research process.
- Action research is practical and relevant to classroom teachers, since it allows them direct access to research findings.
- Action research is developing critical reflection about one's teaching.
- Action research is a planned, systematic approach to understanding the learning process.
- Action research is a process that requires us to “test” our ideas about education.
- Action research is open-minded.
- Action research is a critical analysis of educational places of work.
- Action research is a cyclical process of planning, acting, developing, and reflecting.
- Action research is a justification of one's teaching practices.

Of equal importance is that educators understand what action research is not (Johnson, 2008; Mertler & Charles, 2011; Mills, 2011; Schmuck, 1997):

- Action research is not the usual thing that teachers do when thinking about teaching; it is more systematic and more collaborative.
- Action research is not simply problem solving; it involves the specification of a problem, the development of something new (in most cases), and critical reflection on its effectiveness.
- Action research is not done “to” or “by” other people; it is research done by particular educators, on their own work, with students and colleagues.
- Action research is not the simple implementation of predetermined answers to educational questions; it explores, discovers, and works to find creative solutions to educational problems.
- Action research is not conclusive; the results of action research are neither right nor wrong but rather tentative solutions that are based on observations and other data collection and that require monitoring and evaluation in order to identify strengths and limitations.
- Action research is not a fad; good teaching has always involved the systematic examination of the instructional process and its effects on student learning. Teachers are always looking for ways to improve instructional practice, and although teachers seldom have referred to this process of observation, revision, and reflection as research, that is exactly what it is.



Video Clip 1.1
View a clip of Dr. Mertler discussing the importance of action research.

Types of Action Research

There are two general approaches to conducting action research—*participatory action research* and *practical action research*. The purpose of **participatory action research** is to improve the quality of the lives of individuals who make up organizations, communities, and families. Its focus is on empowering individuals and groups to improve their lives and to bring about social change, on some level (Fraenkel, Wallen, & Hyun, 2012). Within the literature, this type of action research may also be referred to as *community-based inquiry*, *collaborative action research*, *youth participatory action research*, *emancipatory action research*, or *critical action research* (Creswell, 2005; Fraenkel et al., 2012; Gay, Mills, & Airasian, 2009).

In contrast, **practical action research** focuses on addressing a specific problem or need in a classroom, school, or similar community (Fraenkel et al., 2012). It is much more about the “how-to” of conducting action research, as opposed to the philosophical approach of participatory action research (Gay et al., 2009). Gay et al. (2009) list three guiding assumptions for the implementation of practical action research:

- Individual educators or teams of educators are able to determine the nature of an action research investigation to be undertaken.

- Action researchers are committed to continuous professional development and school improvement through a process of critical reflection.
- Action researchers are capable of choosing their own areas of focus, determining plans for conducting the research, and developing action plans based on their findings.

For purposes of this book, our coverage of action research as a methodological approach focuses on practical action research.

THE IMPORTANCE OF ACTION RESEARCH

At this point, you may find yourself asking a basic—albeit legitimate—question: Why should I become involved in an action research project, especially with all the demands and responsibilities placed on me as an educator already? Mertler and Charles (2011) have provided at least some partial answers to this question:

[First,] action research deals with your problems, not someone else's. Second, action research is very timely; it can start now—or whenever you are ready—and provides immediate results. Third, action research provides educators with opportunities to better understand, and therefore improve, their educational practices. Fourth, as a process, action research can also promote the building of stronger relationships among colleagues with whom we work. Finally, and possibly most importantly, action research provides educators with alternative ways of viewing and approaching educational questions and problems and with new ways of examining our own educational practices. (pp. 339–340)

Unfortunately, the answers to the initial question may have prompted another query in your mind: If the benefits are so substantial, why doesn't everyone do action research? Again, Mertler and Charles (2011) suggest answers to this question:

First, although its popularity has increased over the past decade, action research is still relatively unknown when compared to more traditional forms of conducting research. Second, although it may not seem the case, action research is more difficult to conduct than traditional approaches to research. Educators themselves are responsible for implementing the resultant changes but also for conducting the research. Third, action research does not conform with many of the requirements of conventional research with which teachers may be familiar—it is therefore less structured and more difficult to conduct. Finally, because of the lack of fit between standard research requirements and the process of conducting action research, teachers may find it more difficult to write up their results. (p. 340)

These sets of responses to our hypothetical (or perhaps very realistic) questions provide compelling reasons for both conducting and not conducting action research projects. The following is a discussion of six broad but vitally important ways in which action research can be used successfully in educational settings to effectively connect theory to practice, to improve educational practice, to connect to larger school improvement efforts, and to empower teachers, as a means of promoting professional growth and as a mechanism for social justice advocacy.

Connecting Theory to Practice

Research is often used to develop theories that eventually help determine best practices in education (Johnson, 2008). These best practices are then used to help teachers develop effective learning experiences for their students. Johnson (2008) describes how this unidirectional flow of information—in the specific form of research findings, from researchers to practitioners—often breaks down. Frequently, a gap exists between what is learned by researchers, who conduct and report their research on educational topics, and practicing classroom teachers. This apparent gap may be described this way: Research occurs in the ivory towers, whereas practice takes place in the trenches (Parsons & Brown, 2002). What goes on in public school classrooms often does not reflect research findings related to instructional practices and student learning (Johnson, 2008).

Johnson (2008) further offers two explanations for this noticeable breakdown. First, he cites the fact that research (i.e., that conducted by university and college professors and other researchers) is characteristically written and therefore published in a way that does not consider a teacher's typical day-to-day schedule. Research articles often are overly descriptive, contain an abundance of jargon, and use research methods that do not “fit” with the daily needs of and resources available to teachers. Many teachers who have taken my educational research methods course over the years have shared with me the fact that they believe most, if not all, education research is impractical and irrelevant to their needs. Second, Johnson suggests that this one-way flow of information from researcher to teacher creates an environment in which the researcher expects the practicing teacher to be a passive receiver of this information. Often, these research findings do not appreciate or even take into account teachers' points of view, the complexities of the teaching–learning process, or the practical challenges teachers must address in their classrooms on a daily basis.

Action research can help bridge this gap by creating a two-way flow of information. On one hand, educators can use research findings to inform best practices and to better understand what is happening in their classrooms. On the other hand, data collected and analyzed by practicing teachers in their own classrooms can be used to inform theories and research related to best practices (Johnson, 2008). Parsons and Brown (2002) effectively explain this two-way flow of information by stating that “teaching decisions are not only shaped by theory and research, but in turn help give shape and new directions to educational theory and research” (p. 7).



Video Clips 1.2 & 1.3 View clips of practitioner-researchers discussing the importance of action research.

Improvement of Educational Practice

As was discussed previously, a main focus of action research is the improvement of classroom practice. When teachers are reflective and critical of their own practice, they use the information they collect and phenomena they observe as a means of facilitating informed, practical decision making (Parsons & Brown, 2002). The clear strength of action research is that it is reflective and collaborative and that it can ultimately lead to improvements in educational practice (Parsons & Brown, 2002).

This sometimes requires a bit of a shift in the way we think about and approach our own classroom practice. Many teachers believe that they have mastered their profession and that they will be successful if they simply keep doing what they have been doing. Ironically, however, the truly successful teachers (i.e., those whom we call experts or “master teachers”) are those who constantly and systematically reflect on their actions and the consequences of those actions. This constant reflection results in the acquisition of new knowledge as it pertains to the teaching and learning process. It is important to remember that, as teachers, we work all day long with other human beings; each one is exceptional in her or his own special way. Each human being has different needs, desires, motivations, interests, learning styles, strengths, and weaknesses. Each student or group of students constantly provides us with unique challenges and opportunities, many of which require unique approaches (Parsons & Brown, 2002). Systematic reflection in the form of action research can provide the stimulus for changing and improving practice in order to make it appropriate for these unique individuals with whom we work.

Connection to School Improvement

The discussion in the previous section focused on the use of action research as a reflective means of improving individual classroom practice. Action research can also be organized and facilitated in such a way as to promote more systemic types of improvements. One way to accomplish this is to approach action research as a collaborative venture. One of the benefits of sharing the responsibilities of such a process is that it brings together different perspectives, ideas, experiences, and resources (Mertler, 2009). Collaboratively designed and implemented action research—a concept known as **collaborative action research** (or CAR), as opposed to “individual action research” (Clauzet, Lick, & Murphy, 2008, p. 2)—is an ideal mechanism for engaging teachers, administrators, and support personnel in systemic, self-initiated school improvement. This concept can even spread so far as to include *every* educator in a school; this concept is known as “schoolwide action research” (Clauzet et al., 2008, p. 2). By improving schools and empowering educators (as you will read in the next section), this process will lead to better instruction, better learning, and more productive students coming out of our classrooms.

Teacher Empowerment and Intellectual Engagement

Another important aspect of action research is that it advances the notion of **teacher empowerment**. Our educational climate is becoming more data-driven all the time. When teachers collect their own data in order to assist in making decisions about their own students and classrooms—which is essentially an action research model

of teaching—they become empowered. Teacher empowerment allows teachers to bring into their classrooms their own unique expertise, talents, and creativity so that they can implement instructional programs to best meet the needs of their students (Johnson, 2008).

Teachers are allowed—even encouraged—to take risks and make changes to their instructional practice whenever and wherever they believe it to be appropriate. This approach to school leadership and improvement is in complete opposition to the standard top-down, administrator-driven leadership. This is not meant to imply that the skills and abilities of building- and district-level administrators are not needed; the leadership skills of these individuals are quite necessary. They simply take on different roles (e.g., the roles of facilitator, supporter, and mentor). The locus of control is in essence returned to the classroom level, thereby enhancing the effectiveness of schools and promoting school improvement (Johnson, 2008).

As well as becoming more empowered, teachers become much more intellectually engaged with respect to what goes on in their own classrooms and schools. The skills that they learn and develop through engagement with the process of conducting action research—as well as what they actually learn about the teaching and learning process from the results of that research—are transferable to the daily activities of running a classroom effectively and efficiently. Teacher empowerment and intellectual engagement are important to enhancing and promoting the notion of teacher leadership in schools.

Professional Growth

Johnson (2008) characterizes traditional teacher in-services as gatherings of teachers, usually after a long day of teaching or on a jam-packed workshop day, who sit and listen to an expert describe a new methodology, a new approach, or new instructional material that may not seem to relate to their classroom situations or teaching styles. Teachers are not provided with enough time, content, or activities to effectively increase their knowledge or positively affect their practice. The approach historically used for professional development for classroom educators (i.e., a “one size fits all” model) is, quite simply, outdated. Even in our “on-demand” world, in which teachers can complete professional development modules online (and thus practically anywhere, at any time), their individualized professional development needs are not being appropriately or accurately met.

Action research has been shown to serve as a means of improving teachers’ problem-solving skills and their attitudes toward professional development and school change as well as increasing their confidence and professional self-esteem (Parsons & Brown, 2002). Furthermore, action research affirms the professionalism of teaching by giving teachers a real voice in their own professional development, as opposed to being told by someone else that a specific goal or topic is what is needed by every teacher in the building or district (Schmuck, 1997). Following the development of improvement goals, the process of action research can be used to customize a teacher’s professional development, allowing for a much more meaningful approach to professional growth. This approach permits teachers to investigate *their* own practice and to discover what will and will not work for *their* students in *their* classrooms.

Readers interested in the idea of action research as a means toward customizable professional growth and development may be interested in reading a journal article I wrote, titled “Classroom-Based Action Research: Revisiting the Process as Customizable and Meaningful Professional Development for Educators” (Mertler, 2013).

Social Justice Advocacy

In education, we often talk of providing equal and fair educational opportunities to all students, regardless of their upbringing, social class, gender identification, and so forth. Equal and fair educational opportunities are necessary for children to grow up and become the best members of society they can be. The provision of equitable opportunities may, at times, require us to challenge injustices and to value diversity—wherever, whenever, and however we may find it. Action research can serve as a wonderful mechanism for the advocacy of social justice within educational contexts. While this use of and approach to action research—commonly referred to as **critical action research**—are not, strictly speaking, the focus of this book, they are incredibly valuable tools in any fight against social injustices that exist in schools and other educational settings.

APPLICATIONS OF ACTION RESEARCH

There are several ways of applying the basic principles of action research. Four of the most essential—the identification of educational problems, the development and testing of possible solutions, preservice teacher education, and in-service teacher professional growth—are outlined here.

Identifying Problems

Action research can be an effective means of identifying problems in school settings. In fact, as you will see in the next chapter, the identification of a particular problem is the first major step in the process of conducting an action research study. If a goal of action research is to promote improvement and change, obviously the specific target of that improvement or change must first be identified (Johnson, 2008). The basic process of problem identification occurs when a situation is observed and there is recognition that something within that situation could probably be done better (Johnson, 2008). Identifying, defining, and limiting the problem involves its specification, followed by actively pursuing further understanding of the situation and then uncovering its possible causal factors. You are, in essence, trying to answer this question: Why are things as they are (Johnson, 2008)? Examples might include the following:

- Why are my students not retaining what they have been taught?
- Why do Adam, Betty, and Carlos seem to lack the motivation to read?
- What are the specific reasons behind Devin’s behavior problems?
- How can I use my instructional time more effectively?

Developing and Testing Solutions

You can also use action research to find solutions to problems you have identified and ultimately test their effectiveness. Once you have specified a problem (i.e., posed a question in need of an answer, as we did earlier), you can use problem-solving strategies to arrive at possible solutions (Johnson, 2008). For example, creative problem solving (Johnson, 2008) is a process that follows the identification of a problem with generating as many potential solutions as possible; selecting the one that seems best; refining and implementing it; and finally evaluating and revising it, focusing on reducing its limitations, for future use.

Action research—recall its systematic nature—allows teachers to be more flexible in their thinking, more receptive to new ideas, and more organized in their approach to problem solving (Johnson, 2008). All of these facets enable teachers to become better able to solve problems.

Once possible solutions have been developed, they must be tested or tried out in order to determine their effectiveness (Johnson, 2008). Every new idea must be tested in order to see if, or how well, it works. Often, during the initial implementation of a solution, procedures must be revised and adjusted. This requires some level of continuous monitoring. Action research allows for the integration of both formative and summative evaluation, a sort of “data-driven decision making.” **Formative evaluation** occurs during the implementation phase; **summative evaluation** occurs following the completion of the implementation phase. Both types of evaluative decisions are essential in determining the extent to which a solution has worked.

Preservice Teacher Education

As we all know, teaching is an extremely complex professional undertaking. If we can say that, as experienced classroom teachers, imagine what those who are making the transition from student to beginning teacher must feel. The preservice teacher’s knowledge base and understanding of the complexities of the “typical” classroom environment is quite limited. Without this knowledge base and understanding, the everyday decision-making process takes substantially more time for the preservice teacher when compared with the in-service teacher (Johnson, 2008). Action research can add to this limited knowledge base by helping preservice teachers see things in the classroom that they would not normally notice (Johnson, 2008). This can help speed up the process of assimilating to a new classroom environment, thus allowing them to make better and quicker decisions. Along similar lines, there is also a good deal of terminology and conceptual understanding of the educational research process—as discussed earlier in this chapter—that will be very foreign to preservice teachers. Not only can engaging in action research add to their knowledge base, but so can discussing with them and otherwise helping them learn about educational research, in general.

Most in-service teachers will not have the occasion to change the nature of preservice teacher education. However, I offer this small piece of advice: If you are ever afforded the opportunity to take a preservice teacher under your tutelage, consider providing that person with a unique preprofessional development opportunity—his or

her own mini action research project, done collaboratively with you. Preservice teacher action research projects can focus on observations of students, observations of other classroom teachers (including you), or observations of their own practice. In all likelihood, they will be required to do some of this anyway but probably not using a systematic, action research approach. Action research can serve as a vehicle through which preservice teachers, in-service teachers, and university faculty can work together. Schools and teachers within those schools provide real-world experiences for university students and faculty; university students and faculty provide schools and teachers with access to current best practices. Through action research, preservice teachers, in-service teachers, and university faculty can work together toward the improvement of student learning. One cautionary note, however: Be sure to consider small-scale topics or problems—perhaps through the integration of performance-based assessments—so as not to overwhelm the preservice teacher, whose mind may already be spinning (Johnson, 2008).

In-Service Professional Growth

As has been previously discussed, action research is an effective means for teachers not only to develop and grow professionally but to truly customize their professional development. In fact, Johnson (2008) believes action research to be perhaps “the most efficient and effective way to address the professional development of teachers” (p. 44). Action research affords teachers opportunities to connect theory with practice, to become more reflective in their practice, and to become empowered risk takers. All of these opportunities enable in-service classroom teachers to grow professionally and ultimately to realize growth in student learning, thus making their professional development much more meaningful.

RIGOR IN ACTION RESEARCH

Research, of any kind, is a scientific endeavor. Quality research must meet standards of sound practice. The basis for establishing the quality of traditional (i.e., experimental) research lies in concepts of validity and reliability. Action research, because of its participatory nature, relies on a different set of criteria (Stringer, 2007). Historically, one of the “weaknesses” of action research has been its perceived low level of quality. People falsely believe that, since action research is conducted by teachers and not academicians or researchers, it must be inferior. Stringer (2007) tells of his experience of submitting a proposal, which was ultimately rejected, to present an action research paper at a national educational research conference. Accompanying the rejection notification was the feedback from one reviewer, who referred to the topic of the paper as “nonsense” (p. 191).

This idea that action research is of lesser quality is, of course, not true. However, it is critical for the action researcher to ensure that the research is sound. The extent to which it reaches a standard of quality is directly related to the usefulness of the research findings for its intended audience. This level of quality in action research can be referred to as its *rigor*. In general, **rigor** refers to the quality, validity, accuracy, and credibility of action research and its findings. Rigor is typically associated with *validity* and *reliability*

in quantitative studies—referring to the accuracy of instruments, data, and research findings—and with *accuracy*, *credibility*, and *dependability* in qualitative studies (Melrose, 2001). (These concepts are discussed more extensively in Chapter 5.)

Many action researchers use the term *rigor* in a much broader sense, making reference to the entire research process, not just to its aspects of data collection, data analysis, and findings (Melrose, 2001). Rigor in action research is typically based on procedures of checking to ensure that the results are not biased or that they do not reflect only the particular perspective of the researcher (Stringer, 2007).

As mentioned, the determination of rigor is often contingent on the intended audience for the sharing of action research results. Classroom-based action research can be disseminated to a wide variety of audiences (e.g., teachers, administrators, counselors, parents, school boards, professional organizations), and the usefulness of the results of action research often depends on their particular perceptions about rigor, since it can have different connotations depending on the particular audience (Melrose, 2001). For example, if the research is intended for sharing with members of the action research group or building staff, the necessary level of rigor is much different than if it is intended for presentation at a national research conference or publication in a journal. It is necessary for the broader dissemination to be concerned more with generalizability, meaning that the results of the study will extend beyond its scope to other settings and people.

However, action research intended for more local-level dissemination—and, as an aside, I believe that the majority of classroom-based action research falls into this category—has an altogether different focus. It is important to remember that participants in action research studies make mistakes and learn from them (Melrose, 2001); this is inherent in the action research process. The research questions and design are often emergent, changeable, and therefore unpredictable. Therefore, there may be no generalizable conclusions at all, as the findings are context-specific and unique to the particular participants and their settings and situations. What matters is typically the improvement of practice, as evidenced by the resulting, visible change, not the study's rigor (as defined by its generalizability). That being said, there is no substitute for the systematic and rigorous processes that exemplify good, quality research (Stringer, 2007).

There are numerous ways in which to provide rigor within the scope of teacher-led action research studies. The following list has been adapted from Melrose (2001), Mills (2011), and Stringer (2007):

- *Repetition of the cycle*—Action research is, by its very nature, cyclical. Most action researchers firmly believe that once through an action research cycle is simply not enough. In order to develop adequate rigor, it is critical to proceed through a number of cycles, using earlier cycles to help inform how to conduct later cycles (Melrose, 2001). In theory, with each subsequent cycle, more is learned and greater credibility is added to the findings.
- *Prolonged engagement and persistent observation*—In order to gather enough information to help participants fully understand the outcomes of an action research process, they must be provided “extended opportunities to explore and express their experience” (Stringer, 2007, p. 58) as it relates to the problem

being investigated. However, simply spending more time in the setting is not enough. For example, observations and interviews must be deliberately and carefully conducted (Mills, 2011; Stringer, 2007). These should not be indiscriminate research activities.

- *Experience with the process*—In many cases rigor and credibility will depend on the experience of the action researcher(s). If a teacher has (or other school personnel have) conducted previous studies or even previous cycles within the same study, this individual can perform confidently and will have greater credibility with audiences (Melrose, 2001). However, if the practitioner-researcher is a novice, the entire process may benefit from the use of an experienced facilitator.
- *Polyangulation of data*—Rigor can be enhanced during the action research process when multiple sources of data and other information are included (Mills, 2011; Stringer, 2007). This permits the action researcher to cross-check the accuracy of data (Mills, 2011) and to clarify meanings or misconceptions held by participants (Stringer, 2007). Accuracy of data and credibility of the study findings go hand in hand.
- *Member checking*—Participants should be provided with opportunities to review the raw data, analyses, and final reports resulting from the action research process (Mills, 2011; Stringer, 2007). This enhances the rigor of the research by allowing participants to verify that various aspects of the research process adequately and accurately represent their beliefs, perspectives, and experiences. It also gives them the opportunity to further explain or extend the information that they have already provided.
- *Participant debriefing*—Similar to member checking, debriefing is another opportunity for participants to provide insight. However, in this case, the focus is on their emotions and feelings, instead of the factual information they have offered (Mills, 2011; Stringer, 2007). They may address emotions that might have clouded their interpretations of events or inhibited their memories.
- *Diverse case analysis*—This simply means that researchers will enhance the credibility of their research by ensuring that multiple perspectives, representing all stakeholder groups, are included in a study (Stringer, 2007).
- *Referential adequacy*—All aspects of a given action research study should clearly be drawn from and be reflective of the experiences and perspectives of those inherently involved in the study's setting. This is essentially an issue of *contextualization*. Communications—both during and following a study—should be grounded in the language of the participants to ensure their understanding (Stringer, 2007).

Needless to say, rigor in action research is very important, albeit for reasons that are different from those in more traditional forms of educational research.

Do you think that traditional research can benefit you and your students? If so, how? If not, why do you believe that it cannot?

Do you think that action research can benefit you and your students? If so, how? If not, why do you believe that it cannot?

	Advantages	Limitations
Traditional Research		
Action Research		

action research 5
 authority 7
 case studies 13
 collaborative action research 22
 common sense 7
 control group 12
 critical action research 24
 deductive reasoning 9
 dependent variable 12
 descriptive statistics 12
 educational research 8
 ethnographic studies 13
 experimental or treatment group 12

experimental research 12
 formative evaluation 25
 grounded theory 13
 hypotheses 11
 independent variables 12
 inductive reasoning 9
 inferential statistics 12
 logico-inductive analysis 14
 mixed-methods research designs 14
 nonexperimental research 11
 participatory action research 19
 phenomenological studies 13
 population 13

practical action research 19
 reflection 15
 reflective teaching 15
 research design 11
 research questions 11
 rigor 26
 scientific method 7
 statistical significance 13
 summative evaluation 25
 teacher empowerment 22
 tradition 6
 triangulation 13
 variables 11



Review → Practice → Improve

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Note: Following are two additional action research case studies. Along with the case study from earlier, these will describe, in continuing fashion throughout

the book, three action research studies from beginning to end, highlighting the related aspect that is addressed in each chapter.