WHAT IS ACTION RESEARCH?

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.
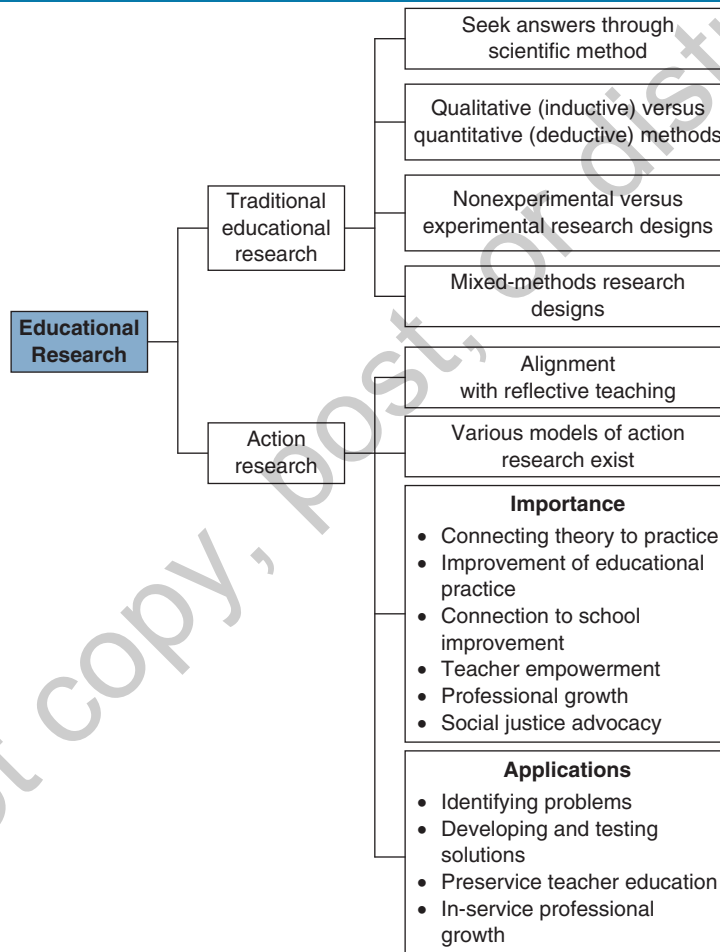
1 INTRODUCTION TO ACTION RESEARCH

CHAPTER 1 ■ Organizer

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ACTION RESEARCH CASE STUDY 1: EFFECTIVE SMALL-GROUP INSTRUCTION DURING THE PANDEMIC … AND BEYOND

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ACTION RESEARCH CASE STUDY 1
EFFECTIVE SMALL-GROUP INSTRUCTION DURING THE PANDEMIC ... AND BEYOND

Keeping Students Actively Engaged During Virtual Instruction

Camilla was a middle school teacher of sixth- and seventh-grade English/Language Arts who was in the middle of her eighth year of teaching when the COVID-19 pandemic hit. During the 2019–2020 school year, she taught several classes, ranging in size from 20 to 24 students. In the early spring of 2020, all instruction moved to an online format. Most everyone in the world—but certainly almost all students and teachers in her school district—arguably struggled with those very early days of virtual instruction. Camilla had very frank discussions with her students about the extent to which everyone needed to be patient with one another, not only because of the severity of the pandemic, but also because they were now being forced into a very different type of instructional situation. Neither the teachers, nor the students in her school had ever been exposed to an online teaching and learning environment.

In the early weeks of the pandemic, things started off okay. Camilla attributed this to the fact that all of this was so new that she seemed to exhibit extra patience with the students, while the students were very well-behaved during their remote class sessions. For example, they were respectful of one another when interacting with classmates or answering questions that Camilla posed to them. She was actually very impressed with how maturely her sixth and seventh graders were acting while on camera, engaging in videoconference class meetings. However, and not really to her surprise, Camilla soon found herself being challenged to keep all of her students actively engaged and on task in their virtual classroom environment. Trying to manage anywhere from 20 to 24 participants—who also happened to be young teenagers—in a virtual video meeting proved to be quite an onerous task and not one that she had been prepared to handle. She tried a couple of large-group activities with her entire classes, but they still were not working.

One morning, while Camilla was sitting at her kitchen table having a cup of coffee and prepping for her classes later that day, she really began to stress out about how she could more effectively manage virtual instruction for her middle school students. One of the main reasons she was beginning to feel overwhelmed by the thought of maintaining an effective learning environment was simply that no one had any idea how long schools would be practicing remote learning. Camilla told herself that it could be a couple of more weeks or it could be another year. She paused, put her cup on the table, and thought, "I can't just wait to see how long the pandemic and all of this video teaching lasts. I have to find a way to make this better, both for the students and for myself." At that moment, she suddenly recalled that she had been exposed to the action research process as part of her undergraduate teacher preparation program. She even had to conduct an action research project during her internship. As she poured herself a second cup of coffee, she thought, "Action research may be the way for me to approach this problem that I'm having. Maybe I could use action research to investigate the effectiveness of some alternative strategies . . . and become a pretty good virtual pandemic educator!"

Questions to Think About

● What was the nature of the problem that this educator was facing?
● In what way(s) was it a problem?

- Could traditional research methods be used to address this problem?
- For what reasons could action research be the most appropriate process for her to use?
- In what ways would an action research investigation of this 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 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?

For many years, educators ranging from prekindergarten to high school teachers (and even college professors) have embraced action research—sometimes also referred as *practitioner research* or *practitioner inquiry*—as a process 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, 2018). 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, 2012). Action research allows teachers to study their own classrooms—for example, their own instructional methods, their own students, and their own assessments—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, 2018)

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 the information we collect 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 (2012) 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 to determine what is believed:

perceptions (data) ⟶ determine ⟶ beliefs

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 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, 2012):

beliefs ⟶ determine ⟶ perceptions

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 use 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, 2006). 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 best to understand what is true or what constitutes reality (McMillan, 2022). 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 use 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.

FIGURE 1.1 ■ The Process of Deductive Reasoning as Applied to Research
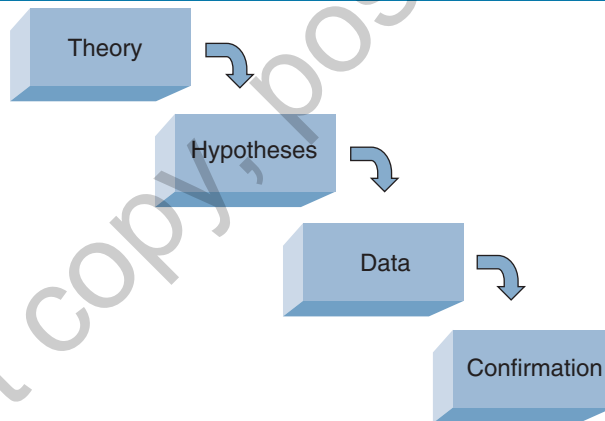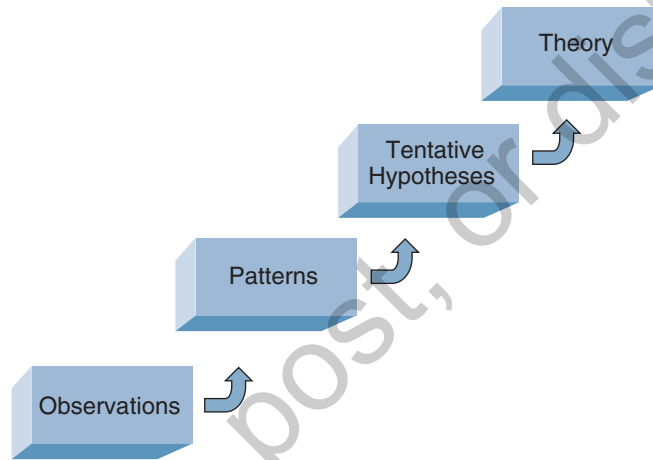

Source: Trochim, 2002a.

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 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 of qualitative research is not to analyze data 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.

FIGURE 1.2 ■ The Process of Inductive Reasoning as Applied to Research

Source: Trochim, 2002a.

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 (2018) 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 (2012), McMillan (2022), and Mills (2018).

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 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) 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, 2022). *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 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 use a much broader, more holistic approach to data collection. Qualitative research designs use systematic observation 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, 2012). Qualitative research tends to emphasize the importance of multiple measures and observations (Trochim, 2002b). Therefore, guiding research questions tend to be broader and more 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 to establish their trustworthiness or verification of the consistency of the facts while trying to account for their inherent biases (Bogdan & Biklen, 2007; Glesne, 2016).

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 researchers to try to get a better handle on what is happening in reality and to have greater confidence in their findings (Glesne, 2016). 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 to determine, for example, whether participants' comments were consistent with their behaviors, regardless of the type of data representing them. In other words, did people act the way they said they acted, or did they verbally portray their behavior differently from their actual behavior?
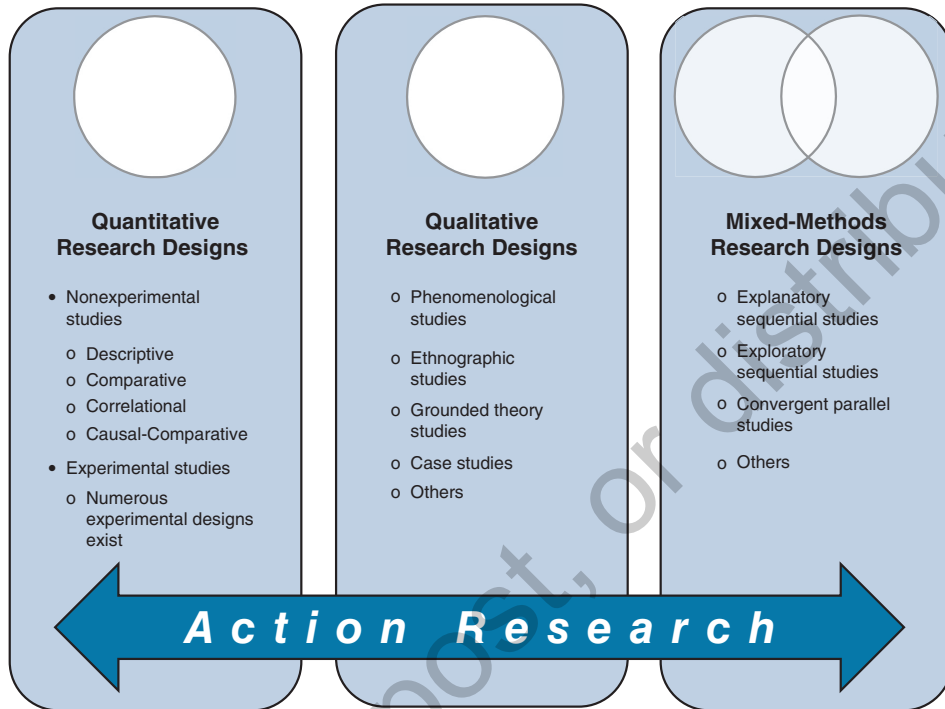
Similar to quantitative research, there are a variety of qualitative research designs. These include phenomenology, ethnography, grounded theory, and case studies (McMillan, 2022). **Phenomenological studies** engage the researcher in a long process of individual interviews in an attempt to fully understand a phenomenon (e.g., What characteristics of teachers are needed 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 meanings 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, 2022). 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 (2011) considers action research studies to be most similar to mixed-methods designs, since they often use both quantitative and qualitative data. The only real difference between the two is the underlying purpose of 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.

These various research designs used in educational research studies are succinctly summarized in Figure 1.3. It is important to note at the bottom of this graphic the indication that action research can span any, or all, of the various designs used in conducting research. Action research studies can be purely quantitative, entirely qualitative, or can use mixed-methods designs.

FIGURE 1.3 ■ Summary of Various Research Designs Used in Education Research Studies

Quantitative Research Designs

- Nonexperimental studies
  - o Descriptive
  - o Comparative
  - o Correlational
  - o Causal-Comparative
- Experimental studies
  - o Numerous experimental designs exist

Qualitative Research Designs

- o Phenomenological studies
- o Ethnographic studies
- o Grounded theory studies
- o Case studies
- o Others

Mixed-Methods Research Designs

- o Explanatory sequential studies
- o Exploratory sequential studies
- o Convergent parallel studies
- o Others

A c t i o n   R e s e a r c h

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, 2006). 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 (2006) 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 (2022) 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. In my opinion, 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 et al. (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 (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. 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, 2018). 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, think critically about the actions and interactions of students, confirm and/or challenge existing ideas or practices, and take risks (Mills, 2018). All classroom teachers should strive to improve their 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, 2017). 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, 2017):

> 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, 2017).

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, 2018). In other words, all models of action research share a nonlinear structure that emphasizes a recursive research process. See the following examples:

- Stringer and Aragón (2020), in their action research interacting spiral, describe 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, 2012). 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, 2012; Mertler & Charles, 2011; Mills, 2018; Schmuck, 2006), is an attempt to describe what action research is:

- Action research is a process that results in the improvement of education, in general, by incorporating change.

- Action research is a process involving educators working together to improve their own practices.

- Action research is done *by* educators *for* themselves and their benefit.

- 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 reflective, 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 since decisions are based on the implementation of new strategies and the collection of data as evidence of their effectiveness.

Of equal importance is that educators understand what action research is not (Johnson, 2012; Mertler & Charles, 2011; Mills, 2018; Schmuck, 2006):

- 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 or trial-and-error approaches; 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 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 refer to this process of observation, revision, and reflection as research, that is exactly what it is.

VIDEO CLIP 1

On the Student Study Site, view a clip of Professor Craig 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 et al., 2022). 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, 2011; Fraenkel et al., 2022; Mills & Gay, 2019).

In contrast, **practical action research** focuses on addressing a specific problem or need in a classroom, school, or similar community (Fraenkel et al., 2022). It is much more about the "how-to" of conducting action research, as opposed to the philosophical approach of

participatory action research (Mills & Gay, 2019). Mills and Gay 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 the 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, 2012). These best practices are then used to help teachers develop effective learning experiences for their students. Johnson (2012) 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, 2012).

Johnson (2012) 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.

Davies (2016) also weighed in on this conversation regarding the one-way flow of information from researcher to practitioner. He agrees with Johnson (2012) in that education research is not written by or for practicing educators. However, Davies states some specific reasons for this. He discusses the fact that there is essentially a lack of open access to research. Most published research is available online, but through institutional memberships, typically affiliated with a university's library. Unless practicing educators are enrolled in graduate programs, they do not have access to this research. Secondly, Davies states that education papers are too long and poorly written. I do agree with the fact that many education papers are way too long—especially to be used by practitioners. However, I disagree that they are poorly written. I think they are well written, but clearly written for the wrong audience. They are written for other researchers, and not for practitioners. Finally, Davies states that practitioners simply lack expertise and

experience in conducting education research. Therefore, they tend to shy away from it and continue to rely on researchers to provide them with this information. The fundamental problem is that there is a roadblock, of sorts, with respect to a potential two-way flow of research information. Researchers tend to be disappointed that practicing educators do not use the results of their work. At the same time, practicing educators are disillusioned that research often does not apply to them or to their context, nor does it typically take into consideration the daily activities related to their work (Mertler, 2023b).

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, 2012). 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).

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 their 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 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**, as opposed to "individual action research" (Clauset et al., 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" (Clauset 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 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, 2012).

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, 2012).

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 (2012) characterizes traditional teacher inservices 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, 2006). 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).

Impact of the COVID-19 Pandemic on Action Research

If becoming immersed in the global COVID-19 pandemic has taught us nothing else—at least from an educational perspective—we have learned just how *professional* teachers can be (Vaughan & Mertler, 2020). Through professional as well as personal experiences, we have seen teachers who never received training in how to deliver instruction virtually, let alone offer emotional and social support to students and families in their charge. However, they willingly took on the challenge of changing the way we have traditionally taught our students for more than 200 years. Certainly, there were naysayers, but most teachers around the world stepped up when they knew they needed to do so (Vaughan & Mertler, 2020). Virtually all of them were trying new things, experimenting with activities, and implementing new ways of trying to keep first graders, teenagers, and young adults engaged in the teaching and learning process. Although many of them were likely unaware of it at the time, it could be argued that a vast majority of them were engaging in the process of teacher inquiry without realizing it (Mertler, 2021). They were trying to solve problems that were being thrown at them. They were constantly assessing how well those strategies worked and then how to proceed moving forward. It is very likely that many of them created strategies that they might very well continue to use once schooling returned to normal and students were once again in their classroom seats.

My sincere hope for the educational community is that the process of being immersed in a global pandemic created meaning and value for professional educators everywhere. (In fact, I believe so strongly in this fact that I created a new case study for this edition of the book that is situated within the pandemic.) Exposure to and involvement in the process of conducting contextualized action research is something that will likely have a lasting impact on their collective professional practice (Mertler, 2021). While it is incredibly unfortunate that it took a global

pandemic for many professional educators to realize their potential when it comes to action research and the process of solving their own problems of practice, there is a silver lining associated with it. Professional educators can now continue to move their practice forward in incredibly meaningful and insightful ways by engaging in the process of teacher inquiry, either individually or collaboratively in teams. Doing so will undoubtedly help them grow as professional educators, provide opportunities to experience levels of professional empowerment that they may not have experienced up to this point in their careers, and provide for themselves a data-informed "voice at the table" when it comes to research-based educational decision making (Mertler, 2021).

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 inservice 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, 2012). 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, 2012). 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, 2012)? 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), you can use problem-solving strategies to arrive at possible solutions (Johnson, 2012). For example, creative problem solving (Johnson, 2012) 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, 2012). 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 to determine their effectiveness (Johnson, 2012). Every new idea must be tested 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 inservice teacher (Johnson, 2012). 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, 2012). 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 inservice 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, inservice 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, inservice 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, 2012).

Inservice 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 (2012) 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 inservice classroom teachers to grow professionally and ultimately to realize growth in student learning, thus making their professional development much more meaningful.

IS THIS *REALLY* RESEARCH? 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 & Aragón, 2020). Historically, one of the "weaknesses" of action research—as well as arguments against its use and value from more "traditional" educational researchers—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 and Aragón (2020) tell of the 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—just as it is for *anyone* conducting *any* type of research in educational settings. 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 & Aragón, 2020).

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 & Aragón, 2020).

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 (2018), and Stringer and Aragón (2020):

- *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. 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*—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 & Aragón, 2020, 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, 2018; Stringer & Aragón, 2020). 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, 2018; Stringer & Aragón, 2020). This permits the action researcher to cross-check the accuracy of data (Mills, 2018) and to clarify meanings or misconceptions held by participants (Stringer & Aragón, 2020). 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, 2018; Stringer & Aragón, 2020). 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, 2018; Stringer & Aragón, 2020). 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 & Aragón, 2020).

- *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*. Communication—both during and following a study—should be grounded in the language of the participants to ensure their understanding (Stringer & Aragón, 2020).

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.

SUMMARY

- Educational research involves applying the scientific method to educational problems.
  - When you are seeking answers to questions about educational problems, know that common sources of knowledge, such as tradition, authority, and common sense, may be biased.
  - The scientific method is a more systematic, objective procedure for finding answers to questions.
  - Traditional research is often conducted by individuals who are somewhat removed from the environment they are studying.

- Two broad types of research methods are (1) quantitative and (2) qualitative.
  - Quantitative research methodologies require the collection of numerical data and use a deductive approach to reasoning; they include both nonexperimental (e.g., descriptive, correlational, causal-comparative research) and experimental designs.
  - Qualitative research methodologies require the collection of narrative data and use an inductive approach to reasoning; they include phenomenology, ethnography, grounded theory, and case studies.
  - Mixed-methods research designs combine quantitative and qualitative types of data.

- Action research is any systematic inquiry conducted by educators for the purpose of gathering information about how their particular schools operate, how they teach, and how their students learn.
  - Action research is done *by* teachers *for* teachers, working with students and colleagues.
  - Teacher reflection is an integral part of action research.
  - The basic process of action research consists of four stages: planning, acting, developing, and reflecting.
  - Most action research studies are cyclical and iterative.
  - Action research can be used to bridge the gap between theory and practice, to improve educational practice, to empower teachers, to provide professional growth opportunities for teachers, to advocate for social justice, to identify educational problems, to develop and test solutions, and to expand the knowledge base of preservice teachers.

QUESTIONS AND ACTIVITIES

1. List or describe at least five things (e.g., problems, things you would like to improve) within your classroom or school that interest you and that you might want to pursue further. Do you think that any of these things might be appropriate for an action research study?

2. Describe a situation where someone else made a decision that affected your classroom practice. If it had been up to you, would you have made the same decision? If not, what would your decision have been, and why do you suppose there was a difference?

3. Think about your own views of research and what you have learned in this chapter. In the chart below, develop a list of advantages and limitations for both traditional research and action research.

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

5. 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		

KEY TERMS

action research

authority

case studies

collaborative action research

common sense

control group

critical action research

deductive reasoning

dependent variable

descriptive statistics

educational research

ethnographic studies

experimental or treatment group

experimental research

formative evaluation

grounded theory

hypotheses

independent variables

inductive reasoning

inferential statistics

logico-inductive analysis

mixed-methods research designs

nonexperimental research

participatory action research

phenomenological studies

population

practical action research

reflection

reflective teaching

research design

research questions

rigor

scientific method

statistical significance

summative evaluation

teacher empowerment

tradition

triangulation

variables

Review → Practice → Improve

Get the tools you need to sharpen your study skills. Access the videos listed in the margins of this chapter, practice quizzes, eFlashcards, and more at **edge.sagepub.com/mertler7e**.

<div align="center">**CONDUCTING ACTION RESEARCH**</div>

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.

ACTION RESEARCH CASE STUDY 2
MOTIVATION AND ENGAGEMENT FOR STUDENTS RECEIVING SPECIAL SERVICES

Focusing on Student Success

The first-grade teachers at Sunset Pointe Elementary, a rural prekindergarten–6 school, had been a highly effective team for more than 5 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 classroom 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 the 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 had all studied the action research process as part of their graduate school programs. 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.

ACTION RESEARCH CASE STUDY 3
CONCEPTUAL UNDERSTANDING OF MITOSIS AND MEIOSIS

Collaborating for the Improvement of Educational Practice

Sadie and Tom both taught biology at the same inner-city high school. Sadie had been teaching for 3 years, and Tom, for 12 years. After attending a science education conference over the summer, featuring a highly informative session on classroom-based action research, they decided to collaborate on some action research projects during the following school year. They believed that if they pooled their resources, ideas, and efforts, they could develop ways to improve their performance as biology teachers. Following several reflective—and professionally open and honest—conversations with each other, the two teachers decided that they knew of specific areas in which they could improve. Their next task was to decide on possible areas of focus for their improvement.

ACTION RESEARCH CHECKLIST 1
ACTION RESEARCH AS A PART OF YOUR PROFESSIONAL PRACTICE

- Make a list of ways in which you believe that action research can help you connect theory to practice.
- Generate ideas for action research projects that could contribute to school improvement efforts.
- Develop specific ideas for action research projects that would contribute to your own professional growth and development.
- From any of the lists of potential projects you have generated, identify which ones could be collaborative action research projects.
- List ways in which you could make your action research more rigorous.