# Action Research

## A Guide for the Teacher Researcher

Sixth Edition

Geoffrey E. Mills

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Pearson

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*For Ernie Mills, Audrey Mills, Dr. Milton H. Brown, and Catherine S. Brown—*
*Your love, support, and spirit live with me always.*

# about the author


Geoffrey Mills

A native of Australia, Geoff moved to the United States in 1986 to undertake doctoral studies at the University of Oregon. After completing his PhD in 1988, Geoff accepted his first teaching position at Southern Oregon State College (now Southern Oregon University). After 12 years of teaching, Geoff moved into university administration where he served as dean and professor of education in the School of Education at Southern Oregon University. Most recently, Geoff has returned to the faculty in the School of Education as a professor of education.

Geoff has traveled extensively and given invited action research presentations in Australia, New Zealand, Greenland, United Kingdom, Canada, Guam, Saipan, Palau, Marshall Islands, American Samoa, U.S. Virgin Islands, and many states in the United States. In addition to *Action Research: A Guide for the Teacher Researcher*, Sixth Edition, Geoff is also the only active author of *Educational Research: Competencies for Analysis and Applications* (2016; with L. R. Gay), now in its eleventh edition.

# preface

## New to This Edition

The sixth edition of *Action Research* has been revised in response to expert reviewer feedback.

The sixth edition includes the following:

- **"Voices from the Field" sections** For the sixth edition, there are new narrative sections that throughout the text and scaffold the content of each chapter.
- **Expanded Coverage of Mixed-Methods Data Collection and Analysis Techniques** Additional coverage of mixed-methods research has been added throughout the text and reflects six new mixed-methods research designs: explanatory sequential, exploratory sequential, convergent parallel, experimental, social justice, and multistage evaluation.
- **Expanded Coverage of Single-Subject Research Designs** In response to reviewers' comments, single-subject research designs have been expanded for the sixth edition.
- **Expanded Coverage of Digital Research Tools for the Twenty-First Century** Additional coverage of digital research tools that can be used by action researchers through each phase of the action research process.
- **Expanded Coverage of Reviewing the Literature** Additional coverage of using technology to search literature databases that takes advantage of university library consortium agreements as well as the power of technology tools to track references and build bibliographies can be found in this updated stand-alone chapter.

## The Role of Action Research in Effecting Educational Change

Action research has the potential to be a powerful agent of educational change. Action research helps to develop teachers and administrators with professional attitudes who embrace action, progress, and reform rather than stability and mediocrity. In addition, the action research process fosters a democratic approach to decision making while, at the same time, empowering individual teachers through participation in a collaborative, socially responsive research activity.

Commitment to action research positions teachers and administrators as learners rather than experts. Those committed to action research will willingly undertake continued professional development because they believe that there is a gap between the real world of their daily teaching practices and their vision of an ideal one.

Incorporating action research into preservice teacher education programs and professional development programs for in-service teachers will help make action research an ongoing component of a professional teacher's practice. Such action will ultimately help teachers incorporate action research alongside other critical components of teaching, such as curriculum development, authentic assessment strategies, classroom management strategies, teaching strategies, and caring for children. Such actions will encourage teachers to embrace change.

It is my hope that this text will, in some small part, help us keep moving forward, even in difficult times. Action research is an invitation to learn, a means to tackle tough questions that face us individually and collectively as teachers, and a method for questioning our daily taken-for-granted assumptions as a way to find hope for the future.

## Conceptual Framework and Organization of the Text

This text has evolved over 25 years based on my experience of doing and teaching action research. During this time, I have had the opportunity to work with some outstanding university faculty, classroom teachers, and principals who were committed to looking systematically at the effects of their programs on children's lives. This text's organization has grown out of these experiences and has been field tested by numerous students and colleagues.

Each chapter opens with an action research vignette that illustrates the content that will follow. These vignettes, most of which have been written by teachers and principals with whom I have worked, show readers what action research looks like in practice and who does it. The order of these chapters roughly matches the action research process, an approach that I have found successful when teaching action research.

## Contents of This New Edition

Chapter 1, "Understanding Action Research," defines action research and provides historical and theoretical contexts for the rest of the text. The chapter also reviews various models of action research and concludes with the four-step process (identifying an area of focus, collecting data, analyzing and interpreting data, and developing an action plan) and the dialectic model on which this text is based. The remaining chapters mirror these steps.

Chapter 2, "Ethics," provides an expanded discussion of the American Educational Research Association's ethical guidelines and poses an ethical dilemma vignette to spark teacher researchers' thinking about how best to resolve ethical dilemmas if and when they arise. This chapter also provides guidance for seeking and obtaining Institutional Review Board approval.

Chapter 3, "Deciding on an Area of Focus," provides guidelines for selecting an area of focus. The chapter culminates with an action research plan that provides a practical guide for moving teacher researchers through the action research process.

Chapter 4, "Review of Related Literature," offers step-by-step directions for how to do a literature review using many online resources as well as traditional university library resources. The chapter provides an expanded discussion of how to write a literature review.

Chapter 5, "Data Collection Techniques," offers a comprehensive discussion of qualitative data collection that covers the "3 Es" of qualitative data collection: experiencing, enquiring, and examining. It also provides a comprehensive discussion of quantitative data collection techniques that covers collecting data from teacher-made tests, standardized tests, and attitude scales. A section on triangulation covers how to work with multiple sources of data.

Chapter 6, "Data Collection Considerations: Validity, Reliability, and Generalizibility," addresses important data collection considerations to ensure that the data collected will be "trustworthy."

Chapter 7, "Data Analysis and Interpretation," describes selected techniques of data analysis and data interpretation and distinguishes between the goals of the two processes. Included in this chapter is an expanded discussion of data analysis and interpretation with examples of each for qualitative and quantitative data sources.

Chapter 8, "Action Planning for Educational Change," helps teacher researchers take action using a helpful Steps to Action Chart. The chapter also discusses potential obstacles to change and suggests strategies for overcoming these obstacles.

Chapter 9, "Writing Up Action Research," provides practical guidelines for writing up action research and ways that teacher researchers can "get the word out." A reprinted action research article with marginal notations gives researchers an example of the general structure and components of written action research. A self-evaluation rubric helps teacher researchers make sure their write-up is ready for publication. There is also a discussion of using the sixth edition of *Publication Manual of the American Psychological Association* during the writing process.

Finally, Chapter 10, "Evaluating Action Research," is new to this edition and focuses on analyzing and evaluating action research studies. Included in this edition is a new article from an online journal that is analyzed using the new criteria for evaluating action research publications.

Appendix A, "Action Research in Action," contains an extended example of action research through a case study of Curtis Elementary. This case study follows

the process described throughout the text and includes an evaluation of the project on the basis of criteria for evaluating action research presented in Chapter 10. Appendix B, "Standard Deviation and Action Research," contains a brief discussion of standard deviation and how it can be applied to the analysis and interpretation of teacher research. Appendix C, "Displaying Data Visually," presents a variety of examples of visual displays of data—bar graphs, tables, and a concept map—from action research projects. Using these display techniques helps teachers "see" data for better analysis and more effective communication of their findings.

## Instructor Resources

### Online PowerPoint® Slides

To enhance class lectures, Online PowerPoint® slides are available. To access the Online PowerPoint® slides, go to **www.pearsonhighered.com/educator**. Enter the author, title, or ISBN, and click on this text. The PowerPoint® slides are available for download under the "Resources" tab.

## Acknowledgments

I would like to thank the reviewers, who invested a great deal of time and provided critical feedback during the development of this text. These reviewers include: Bill Blubaugh, University of Northern Colorado; Susan D. Flynn, Coastal Carolina University; Catherine Kurkjian, Central Connecticut State University; Hector M. Rios, Rowan University; and Yer Jeff Thao, Portland State University. I would also like to acknowledge the staff at Pearson, without whose guidance (and patience!) this text would not have become a reality. In particular, I thank Kevin Davis, Director & Portfolio Manager, for working with me on a sixth edition of the text so as to build on what we achieved with the previous editions. Kevin has been my friend and mentor since he offered my first textbook contract in 1997, and I am indebted to him for his encouragement and support of my writing. Kevin worked diligently to ensure a quality, user-friendly, academically coherent text and patiently kept me on track in order to meet publication deadlines. His feedback on chapter drafts was insightful and important to the development of this sixth edition. As I approach the end of my tenure at Southern Oregon University (Emeritus Professor is in my not-too-distant future) and at the risk of embarrassing Kevin, I can state with confidence that the past 20 years of my professorial career exceeded all of my expectations because of the opportunities Kevin has given me. Thank you.

I would also like to extend my gratitude to the hundreds of students at Southern Oregon University who responded to various drafts of previous editions of this

text and also endured my ramblings about the importance of being reflective practitioners and self-renewing professionals. Their insights into what makes a text user friendly have been greatly appreciated and are reflected in the text. Similarly, I have had the pleasure of working with hundreds of teachers throughout Oregon who taught me what needed to be included in a "helpful" text.

This edition has also benefited greatly from interactions and feedback from colleagues who have used the book for many years and who invite me to "google hangout" with their classes. Specifically, I would like to thank Dr. Andrew Hostetler (Vanderbilt University) and Dr. Todd Hawley (Kent State University) for their feedback on previous editions of the book.

Unanticipated consequences of writing textbooks are the invitations to work with groups of educators from around the world. *Action Research* has taken me to many different parts of the world where I have had the honor of working with teachers and principals who are committed to studying the impact of what they do and how it can improve students' lives. For example, during the shelf life of the fifth edition, I have worked in Greenland (with the University of Greenland and Ministry of Education), Guam, Saipan, Palau, American Samoa, and the U.S. Virgin Islands (with McREL). These experiences working with teachers and principals in different (often challenging) contexts continue to push my thinking about how action research can provide a framework to support important school improvement efforts.

Finally, I appreciate the support and encouragement of my wife, colleague, and best friend, Dr. Donna Mills (Emeritus Professor, Southern Oregon University), who endured my weird travel schedules and writing commitments throughout this lengthy process. And I thank my son Jonathan for pushing my thinking about mixed-methods research and how it might be applied to the National Basketball Association! During the writing of this edition, Jonathan engaged in his own research as part of his honors program at the University of Oregon. His thesis focused on decision making in the National Basketball Association and specifically on the interaction of advanced analytics and traditional evaluation methods. It was fun to watch my son struggle with the challenges of being a neophyte researcher and was a good reminder to me of my audience! My sincere thanks to Donna and Jonathan for their love, patience, and support, which are always appreciated and never taken for granted.

—Geoff Mills

# brief contents

# contents

# 1

# Understanding Action Research

**After reading this chapter you should be able to:**

- **1.1** Describe the goal of educational research and the different approaches researchers use.
- **1.2** Define action research.
- **1.3** Describe the origins of action research.
- **1.4** Identify the similarities and differences between critical and practical theories of action research.
- **1.5** Describe the goals of and rationale for action research.
- **1.6** Describe the justifications for action research and steps you can take to make it part of your daily teaching practice.
- **1.7** Describe the four steps of the action research process.

This chapter introduces action research by providing an example of an action research project from a real teacher researcher, an exploration of the historical and theoretical foundations of action research, a discussion of the goals and justification for action research, and an explanation of the action research process.

## What Motivates Unmotivated Students?

### Deborah South

***Deborah South, a teacher in a rural Oregon high school, was a participant in an action research class. She shares the challenges she faced when, owing to a last-minute teaching assignment, she found herself working with a group of "unmotivated" students. Deborah's story illustrates the wide variety of factors that can influence students' learning and a teacher's willingness to critically examine her teaching methods and how they affected the children in her classroom. Although Deborah's interpretation of the results of her study did not validate her practice, it did provide data that Deborah and the school's principal could use to make changes to the existing curriculum for unmotivated students.***

*Teaching students who are unmotivated and apathetic can be a difficult challenge for any teacher to overcome. These students typically can be disruptive and negative and often require an extraordinary amount of teacher time to manage their behavior. My concern with teaching unmotivated students has existed almost since I began teaching 5 years ago. As an educator, one tries all kinds of possible strategies to encourage students to be successful. However, these strategies do not work with unmotivated students who are apathetic and exhibit unacceptable behavior. Eventually the patience runs out and, as ashamed as I am to admit it, I stop trying to find ways to reach these particular students. It soon becomes enough that they stay in their seats, be quiet, and do not disturb anyone.*

*However, last term my attitude was forced to change. I was given a study skills group of 20 of the lowest achieving eighth graders in the school. This new class consisted of 16 boys and 4 girls. My task was to somehow take these students and miraculously make them motivated, achieving students. I was trained in a study skills program before the term started and I thought that I was prepared: I had the students, I had the curriculum, and I had the help of an outstanding aide.*

*Within a week, I sensed we were in trouble. My 20 students often showed up with no supplies. Their behavior was atrocious. They called each other names, threw various items around the room, and walked around the classroom when they felt like it. Their attitudes toward me were negative. I became concerned about teaching these students. In part, I felt bad that they were so disillusioned with school and their future; I also felt bad because the thought of teaching in this environment every day for another 14 weeks made me wish summer vacation were here.*

*Given this situation, I decided to do some reading about how other teachers motivate unmotivated students and to formulate some ideas about the variables that contribute to a student's success in school. Variables I investigated included adult approval, peer influence, and success in such subjects as math, science, language arts, and social studies, as well as self-esteem and students' views of their academic abilities.*

*I collected the majority of the data through surveys, interviews, and report card/attendance records in an effort to answer the following questions:*

- *How does attendance affect student performance?*
- *How are students influenced by their friends in completing schoolwork?*
- *How do adults (parents, teachers) affect the success of students?*
- *What levels of self-esteem do these students have?*

*As a result of this investigation, I learned many things. For example, for this group of students attendance does not appear to be a factor—with the exception of one student, school attendance was regular. Not surprisingly, peer groups did affect student performance. Seventy-three percent of my students reported that their friends never encouraged doing homework or putting any effort into homework.*

*Another surprising result was the lack of impact of a teacher's approval on student achievement. Ninety-four percent of my students indicated that they never or*

*seldom do their homework to receive teacher approval. Alternatively, 57 percent indicated that they often or always do their homework so that their families will be proud of them.*

*One of the most interesting findings of this study was the realization that most of my students misbehave out of frustration at their own lack of abilities. They are being obnoxious not to gain attention, but to divert attention from the fact that they do not know how to complete the assigned work.*

*When I looked at report cards and compared grades over three quarters, I noticed a trend. Between the first and second quarters, student performance had increased. That is, most students were doing better than they had during the first quarter. Between the second and third quarters, however, grades dropped dramatically. I tried to determine why that drop occurred, and the only experience these 20 students shared was that they had been moved into my class at the beginning of the third quarter.*

*When I presented my project to the action research class during our end-of-term "celebration," I was convinced that the "cause" of the students' unmotivated behavior was my teaching. I had concluded through my data analysis and interpretation that the one experience these 20 children had in common was participation in my study skills class. This conclusion, however, was not readily accepted by my critical friends and colleagues in the action research class, who urged me to consider other interpretations of the data. For example, perhaps the critical mass of negativity present in one classroom provided the children with a catalyst to act out against the teacher. After all, this was the only class shared exclusively by these 20 students. Afterward, I shared the findings of my study with my school principal. As a result,she decided not to group these students together homogeneously for a study skills class the following year.*

*As you can see, action research is a "wonderfully uncomfortable" (Lytle, 1997) place to be—once we start our journey of investigation, we have no way of knowing in advance where we will end up. Action research, like any other problem-solving process, is an ongoing creative activity that exposes us to surprises along the way. What appears to matter in the planning stages of an action research investigation may provide us with only a hint, a scratching of the surface, of what is really the focus for our investigations. How we deal with the uncertainty of the journey positions us as learners of our own craft, an attitude that is critical to our success. This text attempts to foster an openness in the spirit of inquiry guided by action research.*

## A Brief Overview of Educational Research

When you hear the phrase *scientific research*, you probably think of a scientist in a white lab coat (usually a balding, middle-age man with a pocket full of pens!) mixing chemicals or doing experiments involving white mice. Traditional scientists, like the one pictured in this rather trite image, proceed with their research under

the assumption that "all behaviors and events are orderly" and that all events "have discoverable causes" (Mills & Gay, 2016, p. 5). This traditional belief that natural phenomena can be explained in an orderly way using empirical sciences is sometimes called **positivism**.

Human beings, however, are very complicated organisms, and compared with chemicals—and mice, for that matter—their behavior can be disorderly and fairly unpredictable. This presents a challenge to educational researchers, who are concerned with gaining insight into human behavior in educational environments such as schools and classrooms.

The goal of traditional educational research is "to explain, predict, and/or control educational phenomena" (Mills & Gay, 2016, p. 5). To do this, researchers try to manipulate and control certain **variables** (the factors that might affect the outcomes of a particular study) to test a **hypothesis** (a statement the researcher makes that predicts what will happen or explains what the outcome of the study will be). Educational researchers focus on the manipulation of an **independent variable** and its impact on the **dependent variable**. An independent variable is a behavior or characteristic under the control of the researcher and believed to influence some other behavior or characteristic. A dependent variable is the change or difference in a behavior or characteristic that occurs as a result of the independent variable. The word *control* is not used here in a negative sense; rather, it describes one of the characteristics of traditional, quantitatively oriented research, in which the researcher must control the environment to be able to draw cause-effect relationship conclusions. This cannot occur unless the researcher is able to control the variables in the study that might affect a causal relationship.

For example, researchers might be interested in studying the effects of a certain phonics program (the independent variable) on the rate at which children learn to read (the dependent variable). The researchers may hypothesize that using this phonics program will shorten the time it takes for students to learn to read. To confirm or reject this hypothesis, they might study the reading progress of one group of children who were taught using the phonics program (the **experimental group**) and compare it with the reading progress of another group of children (the **control group**) who were taught reading without the phonics program. Children would be randomly assigned to either the experimental or the control group as a way to reduce the differences that might exist in naturally occurring groups. At the end of the experiment, the researchers would compare the progress of each group and decide whether the hypothesis could be accepted or rejected with a predetermined level of **statistical significance** (e.g., that the difference between the mean for the control group and the mean for the experimental group is large, compared with the standard error). Finally, the researchers would present the findings of the study at a conference and perhaps publish the results.

This process may sound very straightforward. In classroom and school settings, however, controlling all the factors that affect the outcomes of our teaching without disrupting the natural classroom environment can be difficult. For example,

how do we know that the phonics program is the only variable affecting the rate at which students learn to read? Perhaps some students are read to at home by their parents; perhaps one teacher is more effective than another; perhaps one group of students gets to read more exciting books than the other; perhaps one group of children has difficulty concentrating on their reading because they all skipped breakfast!

Action researchers acknowledge and embrace these complications as a natural part of classroom life and typically use research approaches that do not require them to randomly assign students in their classes to control and experimental groups. Teacher researchers studying their own practices also differ from traditional educational researchers (studying something other than their own practices) because they are committed to *taking action* and *effecting positive educational change* in their own classrooms and schools based on their findings. Traditional educational researchers may not be able to impact the subjects of their studies because they are outside of their locus of control. That is, traditional educational researchers can share the conclusions of their studies, but it is up to the subjects to determine whether they will take action on the findings. Another difference is that whereas educational research has historically been done by university professors, scholars, and graduate students on children, teachers, and principals, action researchers are often the schoolteachers and principals who were formerly the subjects of educational research. As such, they participate in their own inquiries, acting as both teacher and researcher at the same time. We should note, however, that traditional educational researchers can also collaborate with teacher researchers in **collaborative action research** efforts. As Hendricks (2017) states, "The goal of this type of research is to utilize the expertise of the collaborators and to foster sustained dialogue among educational stakeholders in different settings" (p. 7).

Research is also categorized by the methods the researchers use. Simply put, different research problems require different research designs. These designs to educational research are often classified as either quantitative or qualitative research. **Quantitative research** is the collection and analysis of numerical data to describe, explain, predict, or control phenomena of interest. However, a quantitative research approach entails more than just the use of numerical data. At the outset of a study, quantitative researchers state the hypotheses to be examined and specify the research procedures that will be used to carry out the study. They also maintain control over contextual factors that may interfere with the data collection and identify a sample of participants large enough to provide statistically meaningful data. Many quantitative researchers have little personal interaction with the participants they study because they frequently collect data using paper-and-pencil, noninteractive instruments. Underlying quantitative research methods is the philosophical belief or assumption that we inhabit a relatively stable, uniform, and coherent world that we can measure, understand, and generalize about. This view, adopted from the natural sciences, implies that the world and the laws that govern it are somewhat predictable and can be understood by scientific research and examination. In

**table 1–1 ■ Overview of Qualitative and Quantitative Research Characteristics**

| | Quantitative Research | Qualitative Research |
|---|---|---|
| **Type of data collected** | Numerical data | Nonnumerical narrative and visual data |
| **Research problem** | Hypothesis and research procedures stated before beginning the study | Research problems and methods evolve as understanding of topic deepens |
| **Manipulation of context** | Yes | No |
| **Sample size** | Larger | Smaller |
| **Research procedures** | Relies on statistical procedures | Relies on categorizing and organizing data into patterns to produce a descriptive, narrative synthesis |
| **Participant interaction** | Little interaction | Extensive interaction |
| **Underlying belief** | We live in a stable and predictable world that we can measure, understand, and generalize about. | Meaning is situated in a particular perspective or context that is different for people and groups; therefore, the world has many meanings. |

Source: Gay, Lorraine R., Mills, Geoffrey E.; Airasian, Peter W., *Educational Research: Competencies for analysis and applications,* loose-leaf version, 10th Ed., © 2012. Reprinted and electronically reproduced by permission of Pearson Education, Inc., New York, NY.

this quantitative perspective, claims about the world are not considered meaningful unless they can be verified through direct observation. By comparison, **qualitative research** uses narrative, descriptive approaches to data collection to understand the way things are and what the research means from the perspectives of the participants in the study. Qualitative approaches might include, for example, conducting face-to-face interviews, making observations, and video recording interactions.

Table 1–1 provides an overview of quantitative and qualitative research characteristics. Despite the differences between quantitative and qualitative research, you should not consider them to be oppositional. Taken together, they represent the full range of educational research methods.

Although quantitative and qualitative research designs need not be considered mutually exclusive, a study might incorporate both quantitative *and* qualitative techniques. Studies that combine the collection of quantitative and qualitative data in a single study are called **mixed-methods research designs**. Mixed-methods research designs combine quantitative and qualitative approaches by including both quantitative and qualitative data in a single study. The purpose of mixed-methods

research is to build on the synergy and strength that exist between quantitative and qualitative research methods to understand a phenomenon more fully than is possible using either method alone. Although this approach to research may appear obvious (i.e., of course we want a complete understanding of any phenomenon worthy of investigation), it requires a thorough understanding of both quantitative and qualitative research. Table 1–2 provides a summary of the key characteristics of mixed-methods research and an example of how it might be applied to an action research study.

**table 1–2 ■ Mixed-Methods Research Summary**

| | |
|---|---|
| Definition | *Mixed-methods research* combines quantitative and qualitative approaches by including both quantitative and qualitative data in a single study. The purpose of mixed-methods research is to build on the synergy and strength that exist between quantitative and qualitative research methods to understand a phenomenon more fully than is possible using either quantitative or qualitative methods alone. |
| Design(s) | There are three common, basic types of mixed-methods research design:<br>■ Explanatory sequential (also known as the QUAN–>qual) design<br>■ Exploratory sequential (also known as the QUAL–>quan) design<br>■ Convergent parallel (also known as the QUAN+QUAL) design<br>The method in uppercase letters is weighted more heavily than that in lowercase, and when both methods are in uppercase, they are in balance. Three advanced types of mixed-methods research designs are also frequently used:<br>■ Experimental design<br>■ Social justice design<br>■ Multistage evaluation design |
| Types of appropriate research questions | Questions that involve quantitative and qualitative approaches in order to better understand the phenomenon under investigation. |
| Key characteristics | The differences among the basic designs are related to the priority given to the following areas:<br>■ The weight given to the type of data collected (i.e., qualitative and quantitative data are of equal weight, or one type of data has greater weight than the other)<br>■ The sequence of data collection (i.e., both types of data are collected during the same time period, or one type of data is collected in each sequential phase of the project)<br>■ The analysis techniques (i.e., either an analysis that combines the data or one that keeps the two types of data separate) |

(*Continued*)

**table 1–2 ■ (*Continued*)**

| | |
|---|---|
| Steps in the process | 1. Identify the purpose of the research.<br>2. State research questions that require both quantitative and qualitative data collection strategies.<br>3. Determine the priority to be given to the type of data collected.<br>4. Determine the sequence of data collection (and hence the appropriate mixed-methods design).<br>5. Data collection.<br>6. Conduct data analysis that combines both kinds of data.<br>7. Write a report that is balanced in terms of qualitative and quantitative approaches. |
| Potential challenges | ■ Few researchers possess all the knowledge and skills to master the full range of research techniques encompassed in quantitative and qualitative research approaches.<br>■ Researchers who undertake a mixed-methods study must have the considerable time and resources needed to implement such a comprehensive approach to research.<br>■ Analyzing quantitative and qualitative data sources concurrently or in sequence and attempting to find points of intersection as well as discrepancies requires a high level of skill. |
| Example | Nguyen (2007) investigated the factors that support Black male students' achievement in the Madison Metropolitan School District (MMSD). Nguyen's study used MMSD databases for information about the success rates of high school Black males and discovered interesting patterns about minority student achievement. Based on these quantitative patterns, Nguyen followed up with interviews of a sample of young Black men whose standardized test scores indicated potential for academic success. Nguyen's mixed-methods action research resulted in the identification of strategies teachers can use to be more intentional in their efforts to connect with their Black male students. |

Source: Mills, Geoffrey E.; Gay, Lorraine R., *Educational Research: Competencies for Analysis and Applications,* Loose-Leaf Version, 11th Ed., © 2016. Reprinted and electronically reproduced by permission of Pearson Education, Inc., New York, NY.

Quantitative research designs also include; survey research, correlational research, causal-comparative research, experimental research, and single-subject experimental research (Mills & Gay, 2016). In the field of special education, it is common for action researchers to utilize a **single-subject experimental research design**. Single-subject experimental research designs (also referred to as single-case experimental designs) are designs that can be applied when the sample size is one or when a number of individuals are considered as one group. These designs are typically used to study the behavior change an individual exhibits as a result of some treatment. In single-subject designs, each participant serves as his or her own control.

In general, the participant is exposed to a nontreatment and a treatment phase, and performance is measured during each phase. The nontreatment phase is symbolized as A, and the treatment phase is symbolized as B. For example, if we (1) observed and recorded a student's out-of-seat behavior on five occasions, (2) applied a behavior modification procedure and observed behavior on five more occasions, and (3) stopped the behavior modification procedure and observed behavior five more times, our design would be symbolized as A-B-A. Although single-subject designs have their roots in clinical psychology and psychiatry, they are useful in many educational settings, particularly those involving studies of students with disabilities. Table 1–3 provides a summary of the key characteristics of single-subject experimental research designs and an example of how it might be applied to an action research study.

**table 1–3 ■ Single-Subject Experimental Research Summary**

| | |
|---|---|
| Definition | *Single-subject experimental research designs are designs* that can be applied when the sample size is one or when a number of individuals are considered as one group. |
| Design(s) | Single-subject designs are classified into three major categories: A-B-A withdrawal, multiple-baseline, and alternating treatment designs. |
| Types of appropriate research questions | These designs are typically used to study the behavior change an individual exhibits as a result of some treatment. Although single-subject designs have their roots in clinical psychology and psychiatry, they are useful in many educational settings, particularly those involving studies of students with disabilities. |
| Key characteristics | ■ Study includes a sample size of one, or the study considers a number of individuals as one group.<br>■ In single-subject designs, each participant serves as his or her own control.<br>■ In general, the participant is exposed to a nontreatment and treatment phase, and performance is measured during each phase.<br>■ Single-subject designs are applied most frequently in clinical settings where the primary emphasis is on therapeutic impact, not contribution to a research base. |
| Steps in the process | **1.** Select and define a problem.<br>**2.** Select participants and measuring instruments.<br>**3.** Prepare a research plan, including selection of the appropriate single-subject research design (A-B-A withdrawal, multiple-baseline, and alternating treatment).<br>**4.** Execute procedures.<br>**5.** Analyze the data.<br>**6.** Formulate conclusions. |

(*Continued*)

**table 1–3 ■ (*Continued*)**

| | |
|---|---|
| Potential challenges | A major criticism of single-subject research studies is that they suffer from low external validity; in other words, results cannot be generalized to a population of interest. |
| Example | What is the impact of a functional mobility curriculum on five elementary-age students with severe, multiple disabilities? |

Source: Mills, Geoffrey E.; Gay, Lorraine R., *Educational Research: Competencies for Analysis and Applications,* Loose-Leaf Version, 11th Ed., © 2016. Reprinted and electronically reproduced by permission of Pearson Education, Inc., New York, NY.

It is important to note that the area of focus or research question identified by the action researcher will determine the most appropriate research design (quantitative and/or qualitative) to use. While most published action research studies use narrative, descriptive methods, some studies are more quantitatively oriented and use survey and quasi-experimental research designs, mixed-methods research designs, and single-subject experimental research designs. Therefore, while this text emphasizes the use of qualitative research designs, data collection, and data analysis, it also includes quantitative research designs, data collection, and analysis (using descriptive statistics).

## Defining Action Research

Over the past decade, the typical "required" research course in many schools, colleges, and departments of teacher education has changed from a traditional survey class on research methods to a more practical research course that either focuses on or includes the topic of action research. But what is action research, and why has it captured the attention of teachers, administrators, and policymakers?

**Action research** is any systematic inquiry conducted by teacher researchers, principals, school counselors, or other stakeholders in the teaching/learning environment to gather information about how their particular schools operate, how they teach, and how well their students learn. This information is gathered with the goals of gaining insight, developing reflective practice, effecting positive changes in the school environment (and educational practices in general), and improving student outcomes and the lives of those involved.

Action research is research done *by* teachers *for* themselves; it is not imposed on them by someone else. Action research engages teachers in a four-step process:

1. Identify an area of focus.
2. Collect data.

## KEY CONCEPTS BOX 1–1

### A Summary of Action Research

| | |
|---|---|
| What? | Action research. |
| Who? | Conducted by teachers and principals on children in their care. |
| Where? | In schools and classrooms. |
| How? | Using a variety of research designs to match the study's area of focus, including qualitative methods to describe what is happening and to understand the effects of some educational intervention, quantitative methods to test hypotheses that rely on numerical analyses, and mixed-methods designs that combine quantitative and qualitative approaches to data collection in a single study. |
| Why? | To take action and effect positive educational change in the specific school environment that was studied. |

3. Analyze and interpret data.
4. Develop an action plan.

Before we elaborate on these four steps, however, we will explore the historical antecedents of action research and the theoretical foundations of current action research practices. As you read these descriptions, consider which philosophy best fits your beliefs about action research, teaching, and learning. Then consider how you might incorporate action research into your professional life. Key Concepts Box 1–1 provides a summary of action research.

## Origins of Action Research

The history of action research has been well documented and debated (cf. Adelman, 1993; Gunz, 1996; Kemmis, 1988; Noffke, 1994). Kurt Lewin (1890–1947) is often credited with coining the term *action research* around 1934. After a series of practical experiences in the early 1940s, he came to view action research as a process that "gives credence to the development of powers of reflective thought, discussion, decision and action by ordinary people participating in collective research on 'private troubles' that they have in common" (Adelman, 1993, p. 8).

The many "descendants" of early action researchers follow different schools of action research thought, including the American action research group, with its

roots in the progressive education movement, particularly in the work of John Dewey (Noffke, 1994); the efforts in the United Kingdom toward curriculum reform and greater professionalism in teaching (Elliott, 1991); and Australian efforts located within a broad-ranging movement toward collaborative curriculum planning (Kemmis, 1988).

As is evident, the geographical locations and sociopolitical contexts in which action research efforts continue to evolve vary greatly. The primary focus of all these efforts, however, regardless of the context, is on enhancing the lives of students. As Noffke (1994) reminds us, reading the accounts of action research written by people housed in universities does little to illuminate the classroom experiences of teachers and what they hope to gain from participating in action research activities. Therefore, this text focuses on teachers examining issues related to the education of children and on partnering with teachers, administrators, counselors, and parents in the action research process.

## Theoretical Foundations of Action Research

The theoretical perspectives and philosophies that inform the practices of today's teacher researchers are as varied as the historical roots for action research. The following sections briefly review the two main theories of action research: critical (or theory based) and practical.

### Critical Action Research

**Critical action research** is also known as *emancipatory action research* because of its goal of liberation through knowledge gathering. Critical action research derives its name from the body of critical theory on which it is based, not because this type of action research is critical, as in "faultfinding" or "important," although it may certainly be both! The rationale for critical action research is provided by critical theory in the social sciences and humanities and by theories of postmodernism.

Critical theory in action research shares several fundamental purposes with critical theory in the social sciences and humanities (Kemmis, 1988). These similar interests or "commonalities of intent" include the following:

1. A shared interest in processes for enlightenment.
2. A shared interest in liberating individuals from the dictates of tradition, habit, and bureaucracy.
3. A commitment to participatory democratic processes for reform.

In addition to its roots in the critical theory of the social sciences and humanities, critical action research also draws heavily from a body of theory called **postmodernism**, which challenges the notions of truth and objectivity on which the traditional

scientific method relies. Instead of claiming the incontrovertibility of fact, postmodernists argue that truth is relative, conditional, and situational and that knowledge is always an outgrowth of previous experience. For example, historically there has been little or no connection between research and practice in education—an apparent failure of research to affect teaching. This is not news for teachers! Research has been viewed as something done *on* them, not *for* them. According to Kennedy (1997), the lack of influence of research on practice has been attributed to the following qualities of educational research:

- It is not persuasive and has lacked the qualities of being compelling to teachers.
- It has not been relevant to teachers' daily practices—it has lacked practicality.
- It has not been expressed in ways that are accessible to teachers.

The postmodern perspective addresses many of these concerns by advocating for research that challenges the *taken-for-granted assumptions* of daily classroom life and presenting *truths* that are relative, conditional, situational, and based on previous experience. So, although research may provide insights into promising practices (from research conducted in *other* teachers' classrooms and schools), action research conducted in one's *own* classroom/school is more likely to be persuasive and relevant and to offer findings expressed in ways that are meaningful for teachers themselves.

Postmodern theory dissects and examines the mechanisms of knowledge production and questions many of the basic assumptions on which modern life is based. Thus, it inspires us "to examine the ordinary, everyday, taken-for-granted ways in which we organize and carry out our private, social, and professional activities" (Stringer, 1996, p. 156). Action research gives us a means by which we can undertake this examination and represent the classroom teachers' experiences that are contextually and politically constructed.

The values of critical action research dictate that all educational research should be socially responsive and exhibit other important characteristics:

1. Democratic—Enabling participation of people.
2. Participatory—Building a community of learners.
3. Empowering—Providing freedom from oppressive, debilitating conditions.
4. Life enhancing—Enabling the expression of people's full human potential. (Stringer, 2004, p. 31)

Although this critical theory-based approach has been criticized by some for lack of practical feasibility (Hammersley, 1993), it is nonetheless important to consider because it provides a helpful heuristic, or problem-solving, approach, for teachers committed to investigate through action research the taken-for-granted relationships and practices in their professional lives. Key Concepts Box 1–2 summarizes the most important components of a critical perspective of action research.

## KEY CONCEPTS BOX 1–2

### Components of a Critical Perspective of Action Research

| Key Concept | Example |
|---|---|
| Action research is participatory and democratic. | You have identified an area in your teaching that you believe can be improved (based on data from your students). You decide to investigate the impact of your intervention and to monitor whether it makes a difference. |
| Action research is socially responsive and takes place in context. | You are concerned that minority children (e.g., ESL [English as a Second Language] students) in your classroom are not being presented with curriculum and teaching strategies that are culturally sensitive. You decide to learn more about how best to teach ESL children and to implement some of these strategies. |
| Action research helps teacher researchers examine the everyday, taken-for-granted ways in which they carry out professional practice. | You have adopted a new mathematics problem-solving curriculum and decide to monitor its impact on student performance on open-ended problem-solving questions and students' attitudes toward mathematics in general. |
| Knowledge gained through action research can liberate students, teachers, and administrators and enhance learning, teaching, and policy making. | Your school has a high incidence of student absenteeism in spite of a newly adopted district-wide policy on absenteeism. You investigate the perceptions of colleagues, children, and parents toward absenteeism to more fully understand why the existing policy is not having the desired outcome. Based on what you learn, you implement a new policy and systematically monitor its impact on absenteeism levels and students' attitudes toward school. |

## Practical Action Research

**Practical action research** places more emphasis on the "how-to" approach to the processes of action research and has a less "philosophical" bent. It assumes, to some degree, that individual teachers or teams of teachers are autonomous and can determine the nature of the investigation to be undertaken. It also assumes that teacher researchers are committed to continued professional development and

## Voices from the Field

### Critical Action Research

In this video, we see a teacher researcher embrace many of the principles that underlie critical action research. For example, the teacher researcher is willing to challenge the taken-for-granted assumptions about the implementation of technology in her classroom and acknowledges that knowledge about the "best effective strategies" will be developed through her own action research focused on student growth. In this way, the teacher researcher is living a commitment to a participatory research process that provides "liberation" through knowledge creation that is relative, conditional, situational, and an outgrowth of previous experience in her classroom.

school improvement and that teacher researchers want to systematically reflect on their practices. Finally, the practical action research perspective assumes that as decision makers, teacher researchers will choose their own areas of focus, determine their data collection techniques, analyze and interpret their data, and develop action plans based on their findings. These beliefs are summarized in Key Concepts Box 1–3.

### KEY CONCEPTS BOX 1–3

## Components of a Practical Perspective of Action Research

| Key Concept | Example |
|---|---|
| Teacher researchers have decision-making authority. | Your school has adopted a school-based decision-making approach that provides teachers with the authority to make decisions that most directly impact teaching and learning. Given this decision-making authority, you decide as part of your continued professional development to investigate the effectiveness of a newly adopted science curriculum on students' process skills and attitudes. |

(*Continued*)

## KEY CONCEPTS BOX 1–3 (*Continued*)

### Components of a Practical Perspective of Action Research

| Key Concept | Example |
|---|---|
| Teacher researchers are committed to continued professional development and school improvement. | Based on the results of statewide assessment tests and classroom observations, the teachers and principal at your school determine that reading comprehension skills are weak. Collaboratively, the staff determines the focus for a school improvement effort and identifies the necessary professional development that will be offered to change the ways teachers teach reading. |
| Teacher researchers want to reflect on their practices. | You are a successful classroom teacher who regularly reflects on your daily teaching and what areas could be improved. You believe that part of being a professional teacher is the willingness to continually examine your teaching effectiveness. |
| Teacher researchers will use a systematic approach for reflecting on their practice. | Given a schoolwide reading comprehension focus, you have decided to monitor the effectiveness of a new reading curriculum and teaching strategies by video recording a reading lesson (once per month), administering reading comprehension "probes" (once per week), interviewing children in your classroom (once per term), and administering statewide assessment tests (at the end of the school year). |
| Teacher researchers will choose an area of focus, determine data collection techniques, analyze and interpret data, and develop action plans. | To continue the example presented earlier, you have focused on the effectiveness of a new reading curriculum and teaching strategies. You have decided to collect data using video recordings of lessons, regular "probes," interviews, and statewide assessment tests. During the year, you try to interpret the data you are collecting and decide what these data suggest about the effectiveness of the new curriculum and teaching strategies. When all of the data have been collected and analyzed, you decide what action needs to be taken to refine, improve, or maintain the reading comprehension curriculum and teaching strategies. |

## Goals and Rationale for Action Research

Although the critical and practical theories of action research draw on vastly different worldviews, these two distinctly different philosophies are united by common goals that go a long way toward bridging whatever philosophical, historical, social, and regional variations exist.

Action research carried out according to both philosophies creates opportunities for all involved to improve the lives of children and to learn about the craft of teaching. All action researchers, regardless of their particular school of thought or theoretical position, are committed to a critical examination of classroom teaching principles and the effects that teachers' actions have on the children in their care. The reality of classroom life is that teachers are constantly confronted with practical and critical challenges, and it is up to the individual action researcher to seek out approaches that provide both practical solutions and empowerment to address the critical social and cultural issues of classrooms today.

By now it should be evident that educational change that *enhances the lives of children* is a main goal of action research. But action research can also *enhance the lives of professionals*.

Osterman and Kottkamp (1993) provide a wonderful rationale for action research as a professional growth opportunity in their "credo for reflective practice":

1. Everyone needs professional growth opportunities.
2. All professionals want to improve.
3. All professionals can learn.
4. All professionals are capable of assuming responsibility for their own professional growth and development.
5. People need and want information about their own performance.
6. Collaboration enriches professional development. (p. 46)

Action research is largely about developing the *professional disposition* of teachers, that is, encouraging teachers to be continuous learners—in their classrooms and in their practice. Although action research is not a universal panacea for the intractability of educational reform, it is an important component of the professional disposition of teachers because it provides teachers with the opportunity to model for their students how knowledge is created.

Action research is also about incorporating into the daily teaching routine a *reflective stance*—the willingness to critically examine one's teaching in order to improve or enhance it. It is about a commitment to the principle that as a teacher one is always far from the ideal but is striving toward it anyway—it's the very nature of education! Action research significantly contributes to the professional stance that teachers adopt because it encourages them to examine the dynamics of their classrooms, ponder the actions and interactions of students,

validate and challenge existing practices, and take risks in the process. When teachers gain new understandings about both their own and their students' behaviors through action research, they are empowered to improve teaching in several ways:

- Make informed decisions about what to change and what not to change.
- Link prior knowledge to new information.
- Learn from experience (even failures).
- Ask questions and systematically find answers. (Fueyo & Koorland, 1997)

The goal of teachers and principals to be professional problem solvers committed to improving both their own practice and student outcomes provides a powerful reason to practice action research.

## Justifying Action Research: The Impact of Action Research on Practice

At the beginning of a course on action research, I often ask teachers to reflect on what they do in their schools and classrooms; that is, what are the assumptions they take for granted in their schools and what are the origins of those practices? Often the responses include the following:

> In elementary grades, it is important to do the "skill" subjects in the morning and the "social" subjects in the afternoon because that is when young children can concentrate better and learn more.
>
> The best way to do whole-group instruction with young children (grades K–3) is to have them sit on the "mat" in a circle. That way, they are close to the teacher and pay more attention to what is being said.
>
> In high schools, the optimal time for a learning period is 43 minutes. Anything longer than that, and the students get restless and lose concentration. Therefore, I think that the proposal for "block scheduling" is just an attempt to make us more like elementary school teachers.
>
> If you simply share scoring guides with children, they will automatically do better on the test. There's no need to change instructional approaches.
>
> In a science laboratory, if children spend less time collecting data, they will develop a deeper understanding of the science concepts being taught.

Although these are real examples of just a few of the naïve theories about teaching and learning that I have heard, they also indicate the gap that has existed between research and practice in the field of education. To what extent has teaching practice been informed by research? Is teaching informed by folklore? Do teachers acquire the culture of teaching through years of participation and observation, first as students and then as neophyte teachers? How did teachers get to be the way they

are? Are some of the derogatory Hollywood portrayals of teachers and teaching (as characterized, e.g., in *Ferris Bueller's Day Off* or *Mr. Holland's Opus*) really warranted? What is it about research that makes teachers, in general, snicker at the thought that it can in some way improve practice? What is the potential for this discussion to put action into action research efforts?

According to Kennedy (1997), studies of the connection between research and practice and the apparent failure of research to affect teaching has provided the following insights:

- Teachers do not find research persuasive or authoritative.
- Research has not been relevant to practice and has not addressed teachers' questions.
- Research findings have not been expressed in ways that are comprehensible to teachers.
- The education system itself is unable to change, or, conversely, it is inherently unstable and susceptible to fads.

Many teacher researchers may consider Kennedy's hypotheses to be statements of the obvious; however, these statements provide yet another rationale for why many teachers have chosen to be reflective practitioners: to address the intractability of the educational system. These hypotheses also speak to the desire to put action into ongoing action research efforts.

## Action Research Is Persuasive and Authoritative

Research done by teachers for teachers involves collection of persuasive data. These data are persuasive because teachers are invested in the legitimacy of the data collection; that is, they have identified data sources that provide persuasive insights into the impact of an intervention on student outcomes. Similarly, the findings of action research and the actions recommended by these findings are authoritative for teacher researchers. In doing action research, teacher researchers have developed solutions to their own problems. Teachers—not outside "experts"—are the authorities on what works in their classrooms.

## Action Research Is Relevant

The relevance of published research to the real world of teachers is perhaps the most common concern raised by teachers when asked about the practical applications of educational research—either the problems investigated by researchers are not the problems teachers really have or the schools or classrooms in which the research was conducted are vastly different from their own school environment. In reviewing the past two decades of research on schools and teaching, however, Kennedy (1997) cites the seminal works of Jackson's (1968) *Life in Classrooms* and Lortie's (1975) *Schoolteacher* as ways to illustrate the relevance of the findings of these

studies. Kennedy's review found that classroom life was characterized by crowds, power, praise, and uncertainty:

> Crowds—Students are always grouped with 20 or 30 others, which means that they must wait in line, wait to be called on, and wait for help.
>
> Power—Teachers control most actions and events and decide what the group will do.
>
> Praise—Teachers give and withhold praise, so students know which of their classmates are favored by the teacher.
>
> Uncertainty—The presence of 20 to 30 children in a single classroom means there are many possibilities for an interruption in one's work.

Kennedy (1997) argues that one of the aims of research is to increase certainty by creating predictability within the classroom because "routines increase predictability and decrease anxiety for both teachers and students" (p. 6).

One of the outcomes of action research is that it satisfies the desire of all teachers to increase the predictability of what happens in their classrooms—in particular, to increase the likelihood that a given curriculum, instructional strategy, or use of technology will positively affect student outcomes. And although these desirable outcomes come at the initial expense of predictability—that is, they have emerged from the implementation of a *new* intervention or innovation—the findings of your action research inquiries will, over time, contribute to the predictability of your teaching environments.

## Voices from the Field

### Action Research Is Relevant

In this video, the teacher researcher talks about the important role action research plays in keeping her focused on making sure that the students in her classroom are learning. Using an action research process, the teacher is able to satisfy her desire for predictability in her classroom knowing that when issues arise in her teaching related to the implementation of curriculum and instructional strategies, she is able to have confidence in her research findings. This knowledge is relevant to her classroom setting and contributes to her understanding of "best practices" in her classroom and their positive impact on student outcomes.

## Action Research Allows Teachers Access to Research Findings

Kennedy (1997) also hypothesizes that the apparent lack of connection between research and practice is due to teachers' poor access to research findings. This apparent lack of impact of research on teaching is, in part, credited to teachers' prior beliefs and values and the realization that teachers' practices cannot be changed simply by informing them of the results of a study. After all, if we reflect on how we currently teach and what we hold to be sacred teaching practices, we are likely to find that our beliefs and values stem from how we were taught as children ("It worked for me and I'm successful. I'm a teacher.") and how we have had teaching modeled for us through our teaching apprenticeships (student teaching).

Simply informing teachers about research is unlikely to bring about change. Therein lies the beauty, power, and potential of action research to positively affect practice. As a teacher researcher, you challenge your taken-for-granted assumptions about teaching and learning. Your research findings are meaningful to you because *you* have identified the area of focus. *You* have been willing to challenge the conventional craft culture. In short, *your* willingness to reflect on and change your thinking about your teaching practices has led you to become a successful and productive member of the professional community.

## Action Research Challenges the Intractability of Reform of the Educational System

Kennedy's final hypothesis is that the lack of connection between research and practice can be attributed to the educational system itself, not the research. Kennedy (1997) characterizes the American educational system as follows:

- It has no consensus on goals and guiding principles.
- It has no central authority to settle disputes.
- It is continually bombarded with new fads and fancies.
- It provides limited evidence to support or refute any particular idea.
- It encourages reforms that run at cross-purposes to each other.
- It gives teachers less time than most other countries do to develop curricula and daily lessons.

Given this characterization, it is little wonder that the more things change, the more they stay the same! Again, action research gives teacher researchers the opportunity to embrace a problem-solving philosophy and practice as an integral part of the culture of their schools and their professional disposition and to challenge the intractability of educational reform by making action research a part of the system rather than just another fad.

### Action Research Is Not a Fad

One insight that Kennedy does not address when discussing the apparent failure of research to affect teachers' practices is the belief of many classroom teachers that researchers tend to investigate trendy fads and are interested only in the curricular approach or instructional method *du jour*. Therefore, it is not surprising to hear critics of action research say, "Why bother? This is just another fad that, like other fads in education, will eventually pass if I can wait it out!" But action research is decidedly not a fad for one simple reason: *Good teachers have always systematically looked at the effects of their teaching on student learning*. They may not have called this practice action research, and they may not have thought their reflection was formal enough to be labeled research, but action research it was!

## Making Action Research a Part of Daily Teaching Practices

The first step in making action research a part of daily teaching practices is to become familiar with the process and recognize how much action research is already a part of your daily life as a classroom teacher. Consider this analogy that reveals how similar the act of teaching is to the act of doing action research. In any individual lesson, you plan, implement, and evaluate your teaching, just as a teacher researcher does when undertaking action research. You develop a list of objectives (a focus area), implement the lesson, reflect on whether the children achieved the objectives through summative evaluation statements (data collection), spend time at the end of a lesson reflecting on what happened (data analysis and interpretation), and spend time at the end of the day considering how today's lesson will affect tomorrow's lesson (action planning). Like action research, the act of teaching is largely an intuitive process carried out idiosyncratically by both experienced and novice teachers.

I was recently reminded by a teacher enrolled in one of my action research classes that in my fervor and enthusiasm to illustrate data analysis and interpretation in practice (based on some of my own research), I had unwittingly made her feel that research was something that could realistically be done only by a full-time researcher who did not have a "real" job to contend with—namely, teaching 28 very lively first graders! The teacher felt that action research was so difficult and time consuming that it was unreasonable to expect a mere mortal to undertake the activity. She felt as if she needed "Super Teacher" to burst into the classroom and take over business! Not so. If the process of action research cannot be done without adversely affecting the fundamental work of teaching, then it ought not to be done at all.

Throughout this text, we will explore practical, realistic ways in which action research can become a normative part of the teaching-learning process. There will be an initial commitment of time and energy as one learns the process, but that time is

an investment in enriching the education of students. To realistically incorporate the process of action research into daily teaching practices, a few things need to happen:

- *Try the process and be convinced that the investment of time and energy is worth the outcomes*. First, undertake an action research project that is meaningful to you and addresses the needs of your students. Once the project is completed, you will see the contribution that your new understanding of the subject will make to your teaching or your students' learning (or, ideally, both!). Only then will you be fully confident that action research is a worthwhile investment of your time and energy. Your beliefs and attitudes about action research will be changed after you have tried it for yourself.
- *Know that action research is a process that can be undertaken without having a negative impact on your personal and professional life*. For example, action research, as it is described in this text, is not intended to be just "one more thing" for you to do. Teachers already have too much to do and not enough time in which to do it! The action research process advocated in this text is intended to provide you with a systematic framework that can be applied to your daily teaching routines. The investment of time as you learn how to do action research will be worth the outcomes. The process may also produce unexpected positive outcomes by providing opportunities for collaborative efforts with colleagues who share a common area of focus. This text provides strategies you can use to develop your *reflective practice* utilizing many of the existing data sources in your classroom and school. It will provide you with a model that can be shared with like-minded colleagues who also are committed to improving the teaching-learning process in their classrooms.
- *Ask your professional colleagues for support with implementation*. Although such strategies as studying theory, observing demonstrations, and practicing with feedback enable most teachers to develop their skills to the point that they can use a model fluidly, skills development by itself does not ensure that skills transfer. Relatively few persons who learn new approaches to teaching will integrate their skills into regular practice unless they receive coaching (Joyce, Hersh, & McKibben, 1983). That is why seeking support and guidance from other teacher researchers is critical to your success as an action researcher. These suggestions are summarized in Research in Action Checklist 1–1.

## The Process of Action Research

Now that we have defined action research, described its historical and theoretical foundations, and explained why teachers do it, let's explore the process of action research. Many guidelines and models have been provided over the years for teacher researchers to follow:

- Kurt Lewin (1952) described a "spiraling" cyclical process that included planning, execution, and reconnaissance.
- Stephen Kemmis (1988) created a well-known representation of the action research "spiral" that includes the essential characteristics of Lewin's model. Kemmis's model includes reconnaissance, planning, first action step, monitoring, reflecting, rethinking, and evaluation.
- Emily Calhoun (1994) described an Action Research Cycle that includes selecting an area or problem of collective interest, collecting data, organizing data, analyzing and interpreting data, and taking action.
- Gordon Wells (1994) described what he calls an Idealized Model of the Action Research Cycle, that includes observing, interpreting, planning change, acting, and "the practitioner's personal theory" (p. 27), which informs and is informed by the action research cycle.
- Ernest Stringer (2004) described an Action Research Helix that includes looking, thinking, and acting as "phases of the research [are] repeated over time" (p. 10).
- John Creswell (2015) described action research as a dynamic, flexible process that involves the following steps: determining if action research is the best design to use, identifying a problem to study, locating resources to help address the problem, identifying necessary information, implementing the data collection, analyzing the data, developing a plan for action, and implementing the plan and reflecting on whether it makes a difference.
- Richard Sagor (2005) described a four-step process that includes clarifying vision, articulating theories, implementing action and collecting data, and reflecting and planning informed action.
- Cher Hendricks (2017) described an action research process that follows the principle of "systematic inquiry based on ongoing reflection" (p. 2), that is heavily influenced by the work of Lawrence Stenhouse (1981) from the Center for Applied Research in Education at the University of East Anglia in England.

## RESEARCH IN ACTION CHECKLIST 1–1

### Making Action Research a Part of Your Daily Teaching Practice

_____Actually *try* the process to convince yourself that the investments of time and energy are worth the outcomes.

_____Recognize that action research is a process that can be undertaken without negatively affecting your personal and professional life.

_____Seek support from your professional colleagues.

## Voices from the Field

### Making Action Research a Part of Daily Teaching Practices

This teacher researcher states a strong case for embedding action research as a natural part of the teaching and learning process. In particular, she links action research (and teaching) to a clear focus (parallel to a learning objective) and the ongoing data collection that occurs as part of teaching: keeping records, daily charts, student observations, teacher-made checklists, and so on. And in the same way that teachers "monitor and adjust" their teaching, action researchers sometimes experience the need for a new area of focus based on their data collection, analysis, and interpretation. This vignette makes it clear that action research can be embedded in daily teaching practices, especially given a clear focus and with the support of like-minded colleagues.

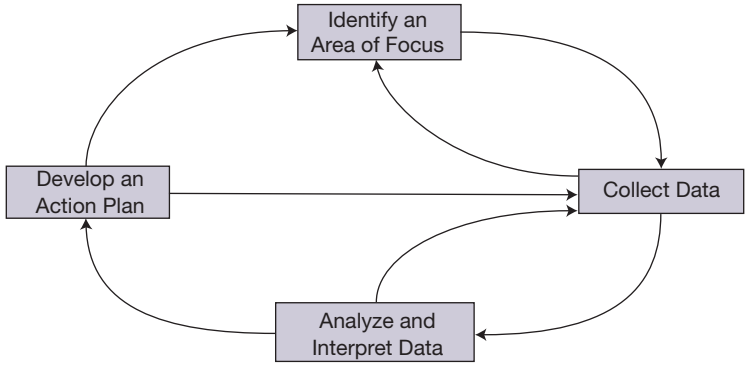
All these models have enjoyed varying degrees of popularity, depending on the context in which they have been applied. For example, these action research models have been applied to agriculture, health care, social work, factory work, and community development in isolated areas.

Clearly, these action research models share some common elements: a sense of purpose based on a "problem" or "area of focus" (identification of an area of focus), observation or monitoring of practice (collection of data), synthesis of information gathered (analysis and interpretation of data), and some form of "action" that invariably "spirals" the researcher back into the process repeatedly (development of an action plan).

These shared elements are what we will focus on in this text. The following chapters will address in detail how to proceed with an action research process that includes the four elements just mentioned: **identifying an area of focus**, **collecting data**, **analyzing and interpreting data**, and **developing an action plan**.

Key Concepts Box 1–4 illustrates the action research process used by Deborah South, described at the beginning of this chapter .

**figure 1–1 ■ The Dialectic Action Research Spiral**




This four-step process, which I have termed the **Dialectic Action Research Spiral**, is illustrated in Figure 1–1. It provides teacher researchers with a practical guide and illustrates how to proceed with inquiries. It is a model for research done *by* teachers and *for* teachers and students, not research done *on* them, and as such is a dynamic and responsive model that can be adapted to different contexts and purposes. It was designed to provide teacher researchers with "provocative and constructive ways" of thinking about their work (Wolcott, 1989, p. 137).

## Voices from the Field

### The Process of Action Research

This teacher researcher provides a clear illustration of the action research process: developing an area of focus, collecting data, analyzing and interpreting data, and action planning through his discussion of studying student interests and engagement. The teacher researcher asserts that most teachers are already doing action research as a part of their normal teaching practice given their commitment to implementing and monitoring best practices. "Meticulous data collection" speaks to the teacher's need to understand what works and what doesn't work with different groups of students and, based on implementing the cyclical action research process, to better understand the best practices for his own classroom setting.

## KEY CONCEPTS BOX 1–4

### Steps in the Action Research Process Based on Deborah South's Example of "Unmotivated" Students

| Key Concept | Example |
|---|---|
| Identifying an area of focus | The purpose of this study was to describe the effects of a "study skills" curriculum on student outcomes. In particular, the study focused on the variables of student attendance, peer influence, adult influence, and students' self-esteem. |
| Collecting data | Data were collected through surveys, interviews, and report card/attendance records. |
| Analyzing and interpreting the data | Attendance did not appear to be an issue—children attended school regularly. Peer groups did affect performance. Students encouraged each other not to complete homework assignments. Teacher approval of student work appeared to have little effect on students' work habits, whereas about half the children indicated that they were motivated to complete their homework to receive parental approval. On average, student grades had dropped dramatically during the term in which they were enrolled in the study skills class. Interpretation: The study skills class was having a negative impact on student outcomes, behavior, and attitudes. |
| Developing an action plan | It was determined that students would not be homogeneously grouped for a study skills class the following year because of a "critical mass of negativity" that appeared to emerge from the students as they fed off each other's lack of motivation. The study skills curriculum would continue to be used and monitored with a heterogeneous grouping of students. |

# SUMMARY

## A Brief Overview of Educational Research

1. The goal of traditional educational research is "to explain, predict, and/or control educational phenomena" (Mills & Gay, 2016, p. 5). To do this, researchers try to manipulate and control certain variables (the factors that might affect the outcomes of a particular study) to test a hypothesis (a statement the researcher makes that predicts what will happen or explains what the outcome of the study will be).
2. Positivism is the belief that natural phenomena can be explained in an orderly way using empirical sciences.
3. At the end of an experiment, researchers would compare the progress of each group in the study and decide whether the hypothesis could be accepted or rejected with a predetermined level of statistical significance (e.g., that the difference between the mean for the control group and the mean for the experimental group is large, compared with the standard error).
4. Collaborative action research utilizes the expertise of the collaborators and fosters sustained dialogue among educational stakeholders in different settings (Hendricks, 2017, p. 7).
5. Quantitative research focuses on controlling a small number of variables to determine cause-effect relationships and/or the strength of those relationships. This type of research uses numbers to quantify the cause-effect relationship.
6. Qualitative research uses narrative, descriptive approaches to data collection to understand the way things are and what the research means from the perspectives of the participants in the study. Qualitative approaches might include, for example, conducting face-to-face interviews, making observations, and video recording interactions.
7. Studies that combine the collection of quantitative and qualitative data in a single study are called mixed-methods research designs. The purpose of mixed-methods research is to build on the synergy and strength that exists between quantitative and qualitative research methods to understand a phenomenon more fully than is possible using either method alone.
8. Single-subject experimental research designs (also referred to as single-case experimental designs) are designs that can be applied when the sample size is one or when a number of individuals are considered as one group. These designs are typically used to study the behavior change an individual exhibits as a result of some treatment. In single-subject designs, each participant serves as his or her own control. In general, the participant is exposed to a nontreatment and a treatment phase, and performance is measured during each phase.
9. The area of focus or research question identified by the action researcher will determine the most appropriate approach (quantitative and/or qualitative) to use.

## Defining Action Research

10. Action research is any systematic inquiry conducted by teacher researchers, principals, school counselors, or other stakeholders in the teaching/learning environment to gather information about how their particular schools operate, how they teach, and how well their students learn.
11. Action research engages teacher researchers in a four-step process (referred to in this text as the *Dialectic Action Research Spiral*):
    a. Identify an area of focus.
    b. Collect data.
    c. Analyze and interpret data.
    d. Develop an action plan.

## Origins of Action Research

12. Kurt Lewin (1890–1947) is often credited with coining the term *action research* around 1934.
13. The many "descendants" of early action researchers follow different schools of action research thought, including the American action research group with its roots in the progressive education movement, particularly the work of John Dewey (Noffke, 1994); the efforts in the United Kingdom toward curriculum reform and greater professionalism in teaching (Elliott, 1991); and Australian efforts located within a broad-ranging movement toward collaborative curriculum planning (Kemmis, 1988).

## Theoretical Foundations of Action Research

14. Critical action research is also known as *emancipatory action research* because of its goal of liberation through knowledge gathering. Critical action research derives its name from the body of critical theory on which it is based, not because this type of action research is critical, as in "faultfinding" or "important," although it may certainly be both!
15. Postmodernism challenges the notions of truth and objectivity on which the traditional scientific method relies. Instead of claiming the incontrovertibility of fact, postmodernists argue that truth is relative, conditional, and situational and that knowledge is always an outgrowth of previous experience.
16. The values of critical action research dictate that all educational research should be socially responsive and have the following characteristics:
    a. Democratic
    b. Participatory
    c. Empowering
    d. Life enhancing
17. Practical action research places more emphasis on the "how-to" approach to the processes of action research and has a less "philosophical" bent.
18. It assumes, to some degree, that individual teachers or teams of teachers are autonomous and can determine the nature of the investigation to be undertaken.

### Goals and Rationale for Action Research

19. Action research carried out according to both philosophies creates opportunities for all involved to improve the lives of children and to learn about the craft of teaching. All action researchers, regardless of their particular school of thought or theoretical position, are committed to a critical examination of classroom teaching principles and the effects teachers' actions have on the children in their care.
20. The goal of teachers to be professional problem solvers committed to improving both their own practice and student outcomes provides a powerful reason to practice action research.

### Justifying Action Research: The Impact of Action Research on Practice

21. Action research is persuasive and authoritative.
22. Action research is relevant.
23. Action research allows teachers access to research findings.
24. Action research challenges the intractability of reform of the educational system.
25. Action research is not a fad.

### Making Action Research a Part of Daily Teaching Practices

26. The first step in making action research a part of daily teaching practices is to become familiar with the process and recognize how much action research is already a part of your daily life as a classroom teacher.
27. Try the process and be convinced that the investment of time and energy is worth the outcomes.
28. Know that action research is a process that can be undertaken without having a negative impact on your personal and professional life.
29. Ask your professional colleagues for support with implementation.

### The Process of Action Research

30. The Dialectic Action Research Spiral includes the following four elements:
    a. Identifying an area of focus
    b. Collecting data
    c. Analyzing and interpreting data
    d. Developing an action plan

## TASKS

1. How would you describe the purpose(s) of action research?
2. How do the tenets of the critical perspective support the need for action research?

3. Suppose that the students in your class are not progressing in essay writing as you had hoped. Using the four steps in the action research process described in this chapter, sketch out briefly what you might do to systematically examine this issue.
4. Your school has received a large professional development grant focused on improving children's scores on a national reading test. You believe that your existing reading program is strong. What kind of action research study might you conduct to address the differences between your current reading program's outcomes and the concepts tested on the national test?

# 2

# Ethics

**After reading this chapter you should be able to:**

**2.1** Clarify ethical issues involved in conducting action research.
**2.2** Recognize the challenges and procedures for obtaining Institutional Review Board (IRB) approval.
**2.3** Recognize the ethical obligations that educational researchers have and describe the codes and procedures they follow to ensure they adhere to them.

This chapter describes the ethical issues that confront teacher researchers and suggests a series of ethical guidelines to help ensure that your research is conducted in an ethical manner.

## The Use of Technology to Enhance Mathematics Achievement

### Geoff Mills

*Children learn at an early age the concept of light refraction. Peering into fishbowls, children see that the fish, rocks, plants, and toys appear larger than life—their movement, shape, and size distorted by the refraction of light. We have all been puzzled at some time in our lives by this illusion and the contradiction between what we see and what we get as we attempt to reach in and touch the inhabitants of the fishbowl. Can the same be said for the use of technology in mathematics reform? Is what we see in classrooms really what we get? Are students and teachers developing a functional and appropriate use of the technology, or are they just playing at the computer? Are teachers and students making connections between the use of technology for presenting models and the concepts that the models represent? How is the use of technology to enhance curriculum and instruction in mathematics affecting student outcomes in mathematics? It is this final question that drove the schoolwide action research project at Billabong Elementary School.*

*Billabong elementary school is a large K–7 school that has embraced the use of technology as a key component of its mathematics curriculum reform efforts. Visitors to the school—and there are many—are given tours. The teachers at Billabong Elementary consider that they "teach in a fishbowl," constantly on display to the outside world. In many ways, the school looks different from traditional schools, and visitors to the school are invited to look into classrooms through the large windows that provide them with snapshots into the inner sanctum of our classrooms.*

*The principal of Billabong Elementary is described by his teachers as a "visionary leader," and the school has a large collection of computer hardware and software because of the principal's grant-writing efforts. One key component of the principal's vision has been the introduction of technology to the school. In large part, this technology has been made possible through school-business partnerships that he has forged. The principal is committed to the use of technology at Billabong because of what he sees as the gap between the "real world" and the "school world"; he thinks that one way to bridge this gap is to embrace technology in an effort to prepare children for the twenty-first century.*

*As a site council responsible for guiding staff development efforts in the school, we decided to focus on the impact of our extensive investment in technology on student achievement in mathematics. In particular, we wanted to know the following:*

1. *Whether our use of technology was successfully meeting the National Council of Teachers of Mathematics (NCTM) Standards*
2. *How those Standards were being interpreted into classroom practice and student outcomes*

*Our action research team decided that we would collect data by observing in each other's classrooms, interviewing teachers and children, analyzing mathematics test data, and comparing the mathematics curriculum taught in the school with the NCTM Standards. When we presented our project to the faculty, all of the teachers and the principal appeared to want to cooperate with the research team's requests for access to classrooms, curriculum materials, and so on. Our hope was to learn more about our technology intervention and how we might continue to evolve as a faculty in this area.*

*As you move through the halls at Billabong, there is a great deal to be seen—classrooms are open for the inquiring eye. Kindergarten through third-grade classrooms characteristically have six computers, as well as scanners, color printers, and networking with the school's library (thus having access to the extensive CD-ROM collection). The fourth- through seventh-grade classrooms have all of these resources and another six computers per classroom. In one class, all of the children are given an individual laptop computer to use for the year. Children can be seen using computers as part of their class assignments, busying themselves with creating HyperCard stacks for creative writing, "playing" math games, and so on. Math learning centers are evident, and each child is given varied opportunities to interact with a number of different math manipulatives: base 10 blocks, place value charts, construction materials, colored chips, tangrams, and geo-boards, to name a few.*

*What we saw from the inside of each other's classrooms, however, was distinctly different from what we had seen from the outside "looking in." For example, in many of the classrooms children could be seen busily engaged with the computers playing math mazes. For the most part, however, children were engaged in low-level activities, and the purpose of the tasks was lost. Many of the children were engaged in "drill-and-kill" activities that had little relevance to their math learning. The computers had taken on the role of an electronic work sheet to keep children busy once they had completed other assigned math tasks.*

*Interviews with children were revealing. When we interviewed the children, we did so with a guarantee that their responses would be confidential and asked that they be honest with us—after all, our goal was to provide the best possible mathematics learning environment for them that we possibly could. Some children were brutally honest, telling in great detail the kinds of math activities some teachers used on the computers. Some activities were singled out by children as being a "waste of time," and others described some teachers as "not having a clue" about how the computers were really being used. Indeed, some of this information was confirmed by our own observations of classrooms where children had become proficient at "scribbling" on the computer screen using the mouse and a graphics program and quickly returning to the "drill-and-kill" screen when the teacher approached.*

*While the computers were being heavily used, the appropriateness of their use was questionable. This was nowhere more evident than in classrooms where the calculator function had been removed from the computers. As one teacher explained, "The children are unable to mentally compute, and their basic skills have deteriorated . . . so we can't have them using calculators until they master the basic skills!" There appeared to be consensus among the teachers that there was a direct relationship between providing children with access to computers and children's lack of ability to recall basic math facts.*

*The interviews with teachers revealed other problems. Many of the teachers knew very little about the NCTM Standards and continued to use their old "tried and proven" curriculum in spite of a new textbook adoption promoted by the principal. In fact, some teachers were very unhappy about the textbook adoption because no teachers had been consulted in the process—the textbook had been selected by the principal, who was a good friend of the author. In return for piloting the curriculum materials in the school, the principal secured free copies of the textbook.*

*Compared to other schools in the district, our children appeared to be doing below average on statewide assessments. This came as quite a surprise to some teachers who felt that their children were doing well in most math strands with the exception of open-ended problem-solving and algebraic relationships. In these teachers' views, the problem was with the appropriateness of the tests, not the use of technology to enhance teaching and learning.*

*The findings of our schoolwide action research effort raised some difficult ethical dilemmas for the action research team:*

1. *What do we do with the data that provided a negative picture of individual teachers in the school? Do we share data on an individual basis with teachers*

*who were singled out by students? What risks do we run in sharing this information? How can we promote professional development without hurting anyone?*

2. *What do we do with the data that indicated a great deal of dissatisfaction with how the principal had mandated the choice of curriculum? Do we risk alienating the teachers from the administration? Could some teachers be hurt professionally by action the principal might take?*
3. *How can we improve student achievement through the use of technology without hurting teachers (and the principal) in the process?*

*The action research team decided to adopt a "hold harmless" approach to dealing with the findings of the study. We shared the general findings of the study with teachers at a faculty meeting and invited teachers, on a voluntary basis, to meet with us to discuss the data for their classrooms. Similarly, we invited the principal to meet with us to discuss implications of the findings for future professional development opportunities.*

This vignette provides an excellent illustration of the unpredictable events that can occur during the conduct of educational research. It is intended not to frighten action researchers but rather to provide an example of the kinds of challenges teacher researchers can face in conducting research in their own classroom and school. This chapter will help action researchers develop their own list of ethical guidelines so that they will act appropriately if and when confronted with a difficult ethical question. The chapter will also provide guidelines to help action researchers obtain Institutional Review Board (IRB) approval.

## The Ethics of Research

All research studies involve ethical considerations. Therefore, all researchers must be aware of and attend to the ethical considerations related to their studies. In research, the ends do not justify the means, and researchers must not put their need to carry out their study above their responsibility to maintain the well-being of the study participants. Research studies are built on trust between the researcher and the participants, and researchers have a responsibility to maintain that trust, just as they expect participants to maintain it in the data they provide. Two overriding rules of ethics are that participants should not be harmed in any way—physically, mentally, or socially—and that researchers obtain participants' informed consent, as described in the following sections.

To remind researchers of their responsibilities, professional organizations have developed codes of ethical conduct for their members. The general principles from the Ethical Principles of Psychologists and Code of Conduct

adopted by the American Psychological Association (June 1, 2010) provide guidelines and contain specific ethical standards in 10 categories, which are not limited to research: (1) Resolving Ethical Issues, (2) Competence, (3) Human Relations, (4) Privacy and Confidentiality, (5) Advertising and Other Public Statements, (6) Record Keeping and Fees, (7) Education and Training, (8) Research and Publication, (9) Assessment, and (10) Therapy. You may read the full text online at the website for the American Psychological Association (http://www.apa.org).

The American Educational Research Association (AERA) approved a code of ethics in February 2011 (for a comprehensive discussion, see *Educational Researcher*, 40(3), 145–156). The code of ethics of AERA outlines a set of values on which educational researchers should build their research practices. Included in the code of ethics are five principles and 22 ethical standards. The principles are intended to serve as a guide for education researchers in determining ethical behavior in various contexts and include (a) Professional Competence, (b) Integrity, (c) Professional, Scientific, and Scholarly Responsibility, (d) Respect for People's Rights, Dignity, and Diversity, and (e) Social Responsibility. The 22 ethical standards set forth the rules for ethical conduct by education researchers and, while not intended to be an exhaustive list, aim to cover most situations encountered by education researchers. The list is as follows:

1. Scientific, Scholarly, and Professional Standards
2. Competence
3. Use and Misuse of Expertise
4. Fabrication, Falsification, and Plagiarism
5. Avoiding Harm
6. Nondiscrimination
7. Nonexploitation
8. Harassment
9. Employment Decisions
10. Conflicts of Interest
11. Public Communications
12. Confidentiality
13. Informed Consent
14. Research Planning, Implementation, and Dissemination
15. Authorship Credit
16. Publication Process
17. Responsibilities of Reviewers
18. Teaching, Training, and Administering Education Programs
19. Mentoring
20. Supervision
21. Contractual and Consulting Services
22. Adherence to the Ethical Standards of the American Educational Research Association

Of particular importance to action researchers is the ethical standard of informed consent, and AERA provides considerable guidance for how and when informed consent with children should be sought (cf. pp. 151–152). This will be discussed further in the section on ethical guidelines later in the chapter. Action researchers should consider membership of AERA and, in particular, membership of the Action Research Special Interest Group (SIG), that provides a forum for experienced and novice action researchers alike. Membership information and benefits can be found at aera.net.

In 1974, the U.S. Congress put the force of law behind codes of ethical research and passed the **National Research Act of 1974**, which authorized the creation of the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. This commission was charged with developing an ethical code and guidelines for researchers. The need for legal restrictions was graphically illustrated by a number of studies in which researchers lied to or put research participants in harm's way in order to carry out their studies. For example, in a study on the effects of group pressure (conducted some years ago), researchers lied to participants while they participated in and watched what they thought was actual electric shocking of other participants (Milgram, 1964). In another study, men known to be infected with syphilis were not treated for their illness because they were part of a control group in a comparative study (Jones, 1998). Incidents such as these prompted governmental regulations regarding research studies, and today, most universities, research centers, and medical centers adhere to ethical guidelines that prohibit such methods. Most universities have a review group, usually called the *Human Subjects Review Committee (HSRC)* or *IRB*.

## Institutional Review Boards and Action Researchers

Teacher researchers conducting action research as part of a university program of study face unique challenges associated with obtaining IRB approval and must meet standards that go beyond what most schools and school districts require as part of their own research protocols. IRBs are charged by universities to ensure the ethical conduct of research involving human subjects. The key issue for teacher researchers studying their own practices and, hence, collecting data based primarily on student outcomes relates to the fact that they are acting not only as researchers but also as the change agents who have the power and authority to bring about change in their classrooms. According to Nolen and Vander Putten (2007), "These potentially conflicting roles can confound the individual's primary objective in the classroom or school: student learning" (p. 402). Given this potential conflict, Nolen and Vander Putten raise a number of questions, the answers to which provide guidance for action researchers seeking to obtain IRB approval:

- At what point does teaching become research?
- Where does the accountability for this research lie?

- Are teachers properly trained to see the possible ethical pitfalls in such research?
- How are the rights and freedoms of the research participants (the students) protected?

Given the emancipatory nature of action research (and the definition of action research used in this text), it is clear that the answer to the first question is that teaching and research are intertwined. For action researchers studying their own practices and their impact on student outcomes, the inquiry lens of action research pervades the teaching process: Teacher researchers are the data collection instruments constantly monitoring what is going on in their classrooms.

The accountability for this research lies not only with the teacher researcher but also, in a university context, with the researcher's mentor/teacher, who must ensure that proposed action research studies are ethical in their conduct. As such, it is the responsibility of the university instructor to teach neophyte teacher researchers about the potential ethical pitfalls associated with classroom/school-based action research. It is the responsibility of the IRB to ensure that action researchers address potential ethical challenges in their written proposals and (when called for) in supplementary oral presentations.

In many ways, the most complex issue action researchers face is how to safeguard the rights and freedoms of the students in the classrooms. How do teachers negotiate informed consent with students (and their parents)? Are students really in a position to opt out of any research their classroom teachers are conducting? Similarly, this question raises concerns about the role of power and authority in a classroom environment and whether students can reasonably be expected to opt out of a study without being concerned about possible censure by the classroom teacher. It should be noted that these kinds of concerns are not new to action researchers or any other qualitatively oriented community-based researchers. IRBs (which are often populated by quantitatively oriented researchers) often struggle with social science research proposals that invariably focus on "insider" research, where the research process is inherently open ended and intimate. Teachers are active participant observers of their classrooms, continually monitoring and adjusting their teaching based on formal and informal observations of their students. Nevertheless, IRBs have been condoning this kind of research for many years, and action researchers should not be intimidated by the prospect of answering important ethical questions, even if the accompanying frustration of "these quantitative researchers really don't understand what we do" threatens to sideline the research.

Given this context, I offer the following recommendations for action researchers wishing to obtain IRB approval (adapted from Nolen and Vander Putten, 2007):

- Action researchers should provide IRBs with all the necessary university-based IRB requirements (which vary slightly from university to university).