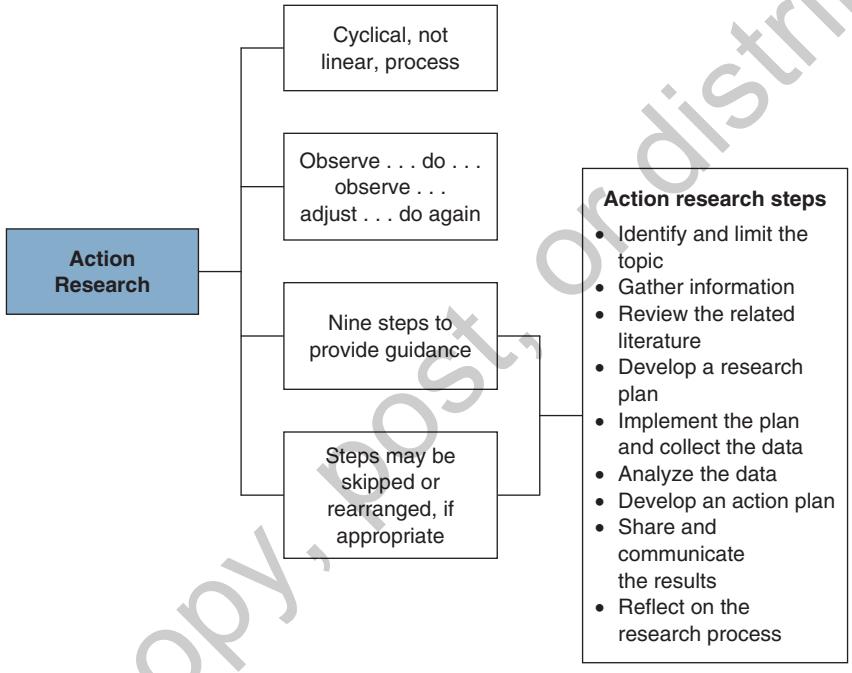
2 OVERVIEW OF THE ACTION RESEARCH PROCESS

CHAPTER 2 ■ Organizer



ACTION RESEARCH CASE STUDY 1

EFFECTIVE SMALL-GROUP INSTRUCTION DURING THE PANDEMIC … AND BEYOND

Outlining the Action Research Process

The next day, Camilla sat down to plan out just how she would alter her virtual instruction via an action research approach. It was now late March 2020. Since the pandemic had only continued to worsen over the course of its first month, she was fairly confident that virtual instruction would remain through the end of the current school year, although she was unsure if it would continue into the next school year. At this point, she had to assume that it might still be in place come August. Camilla felt that she could adequately conduct a cycle of action research with the remaining time in the current school year, but knew that it must be a relatively short cycle, perhaps spanning no more than 6 weeks or so. At this point, she also knew that she needed to try to find some sort of alternative strategy to implement to keep her middle school English/Language Arts students engaged and on task during their videoconference class sessions.

Since she had tried several large-group activities that proved unsuccessful, Camilla felt that she needed to try to find appropriate small-group activities that might provide her with opportunities for greater control over her instruction and her students. She also knew that she needed to engage in some reflection and reconnaissance to determine how best to proceed. She decided that if she could reflect on her own practices and find other possible instructional strategies through an online search for existing research within the next 2 weeks, that would give her ample time to implement a new strategy and collect data, at a minimum. If she was unable to get to the point in the process of analyzing data and developing an action plan until after the school year ended, that was okay because she would have collected data from the students before they left for summer vacation. She also felt that the 2-week window would give her opportunities to consult with colleagues—some of whom taught English/Language Arts and others who taught other subjects in her school—to see if they were encountering similar problems and how they might have gone about changing their instruction to accommodate virtual learning. She felt she had a good plan and timeline in place, but she knew she needed to get started as soon as possible.

Questions to Think About

- Does the time frame of the educator's initial action research planning seem reasonable, especially considering the timing associated with the disruption caused by the pandemic?
- What additional things (consideration of required resources, time commitment, etc.) might facilitate her early planning?
- What barriers to implementation do you think she might encounter?

In Chapter 1, the general process of conducting action research was briefly introduced as a four-stage procedure. To reiterate, these four stages are as follows:

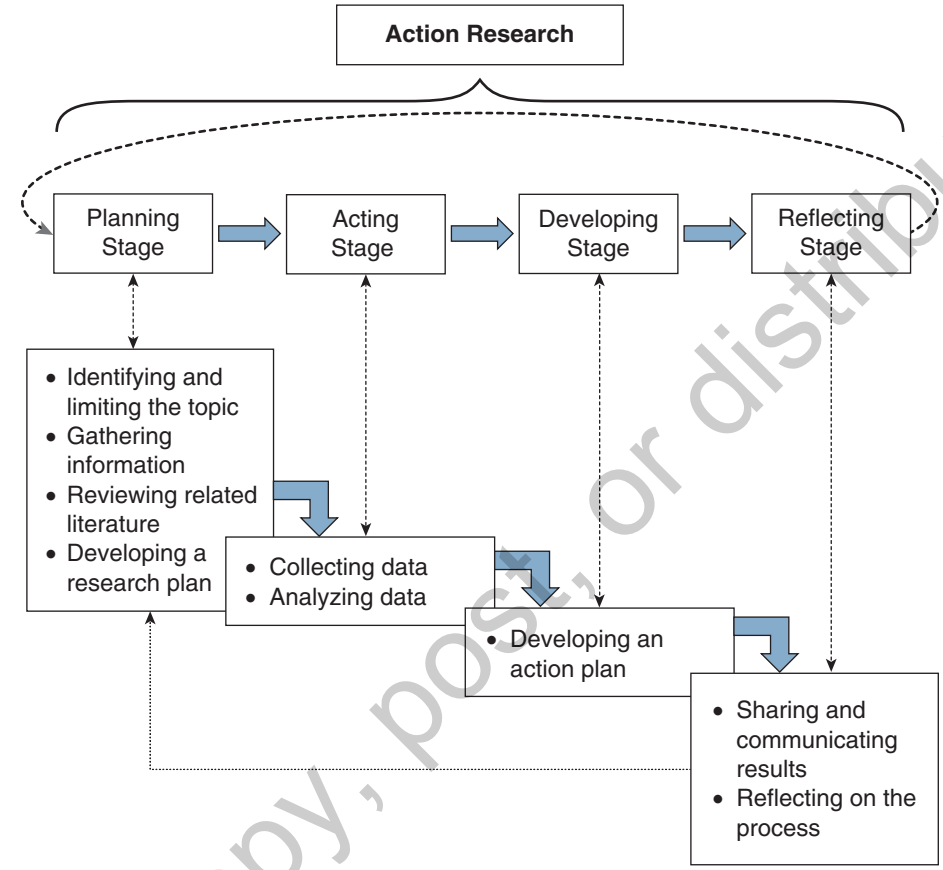
1. The *planning* stage
2. The *acting* stage
3. The *developing* stage
4. The *reflecting* stage

However, it is critical at this time that we begin to examine the *specific* steps of conducting an action research study. The purpose of this chapter is to introduce the nine steps that compose the process of action research. These steps will then be detailed in Chapters 3 through 9. The nine steps (followed parenthetically by the chapters where they are addressed in this book) are as follows:

1. Identifying and limiting the topic (Chapter 3)
2. Gathering information (Chapter 3)
3. Reviewing the related literature (Chapter 3)
4. Developing a research plan (Chapter 4)
5. Implementing the plan and collecting data (Chapter 5)
6. Analyzing the data (Chapter 6)
7. Developing an action plan (Chapter 7)
8. Sharing and communicating the results (Chapters 8 and 9)
9. Reflecting on the process (Chapter 9)

Upon comparing the general four-stage procedure with the nine specific steps, you probably will not find it too difficult to see how the two fit together (see Figure 2.1). Stage 1 (the **planning stage**) is composed of Steps 1, 2, 3, and 4, since these are planning activities done prior to the implementation of the project. Stage 2 (the **acting stage**) is composed of Steps 5 and 6, where the action researcher implements the plan and then collects and analyzes the data. Step 7 is, in essence, its own stage, namely Stage 3 (the **developing stage**). This is the step where the revisions, changes, or improvements arise, and future actions (known as an "action plan") are developed. Finally, Stage 4 (the **reflecting stage**) is composed of Steps 8 and 9; the action researcher summarizes the results of the study, creates a strategy for sharing the results, and reflects on the entire process. It is important to mention that you will see variations of Figure 2.1, highlighting the specific step or steps being addressed, in Chapters 3 through 9.

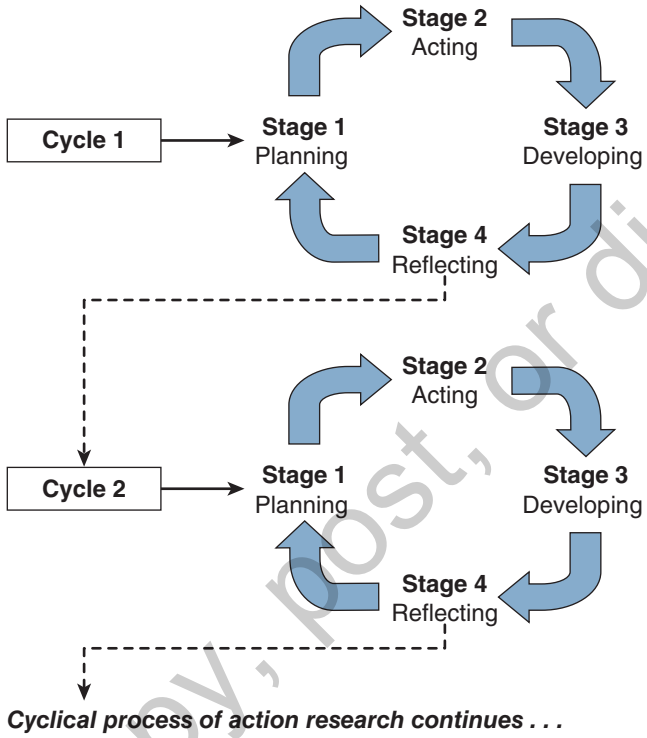
FIGURE 2.1 ■ Integration of Two Organizational Schemes for the Step-by-Step Process of Action Research



It is critical here to reiterate that action research, contrary to the way it is depicted in Figure 2.1, is not a linear process. The purpose of Figure 2.1 is merely to show the relationship between the two schemes (i.e., the four stages and the steps that make up each stage) and to summarize the action research process. Action research has historically been viewed as cyclical in nature (Mertler, 2022). Although action research has a clear beginning, it does not have a clearly defined end point. Ordinarily, practitioner-researchers design and implement a project, collect and analyze data to monitor and evaluate the project's effectiveness, and then make revisions and improvements to the project for future implementation. Usually, the project is then implemented again—perhaps with next semester's or next year's students—and the effectiveness of the revisions is monitored and evaluated, with new improvements developed for the next phase of implementation. A given project may never have a clear end—the teacher may continue to go through cycles of implementation, evaluation, and revision, spiraling from one semester or year

to the next (Mertler, 2022). Parsons and Brown (2002) describe the process as one of "observing-doing-observing-adjusting" and then doing it again (p. 8). The process of action research, with its cyclical and spiraling nature, is portrayed in Figure 2.2.

FIGURE 2.2 ■ The Process of Action Research



Source: Adapted from Mertler and Charles, 2011.

STAGES AND STEPS IN ACTION RESEARCH

As we begin to examine the four stages and the nine specific steps in greater detail, Johnson (2012) reminds us that these steps are meant to serve as guidelines in conducting action research projects. They must be adapted to a particular research problem or topic. Furthermore, the steps themselves should not be seen as cast in stone. Where appropriate, practitioner-researchers may skip steps, rearrange their order, or repeat some steps more than once (Johnson, 2012). Action research can take many forms, thus employing a wide range of methodologies. The key to worthwhile teacher-conducted action research lies in the questions addressed by the project and the extent to which the results are meaningful and important to *that* teacher (Parsons & Brown, 2002), not necessarily the means by which those results were realized.

THE PLANNING STAGE

The planning stage of the action research process involves several activities that are necessary prior to implementing the action research study or project. They include specifying the topic under study, gathering information and research literature related to the topic, and delineating a plan for implementing and conducting the actual action research study.

Step 1: Identifying and Limiting the Topic

The first step in any research study is to decide exactly *what* to study. Since personal and professional experiences are so central to teacher-initiated action research, topics for investigation can include anything about which you are curious, anything that piques your interest, or anything that intrigues you in any way. Essentially, you are looking to identify some topic that you would genuinely like to examine in depth (Johnson, 2012). Remember that the goal of any action research project is to make things better, improve some specific practice, or correct something that is not working as it should (Fraenkel & Wallen, 2003). These goals must be kept in mind when initially identifying and later narrowing the focus of the topic.

VIDEO CLIP 2

On the Student Study Site, view a clip of Professor Craig Mertler discussing the process of conducting action research.

In addition, to investigate a topic for action research, it must be manageable (Fraenkel & Wallen, 2003). With all due respect, large-scale, complex issues and research projects are probably better left to professional researchers. Action research studies designed and conducted by classroom teachers should take into consideration time requirements (or restrictions), the data collection and analysis skill levels of the individual(s) conducting the research, and any budgetary limitations. For these reasons, action research topics are generally narrow in focus (Fraenkel & Wallen, 2003).

Suggestions for identifying and narrowing the focus of action research topics are discussed more extensively in Chapter 3.

Step 2: Gathering Information

After you identify and limit the topic, the next step is to engage in preliminary information gathering, a process that Mills (2018) refers to as **reconnaissance**. Information gathering can be as simple as talking with other teachers, counselors, or administrators in your school or district

to gauge their perceptions of your proposed research problem and perhaps to ask them for ideas. You may skim teachers' manuals or other types of curricular guides, again looking for suggestions and ideas that may inform your topic.

More formally, doing reconnaissance involves taking time to reflect on your beliefs and to gain a better understanding of the nature and context of your research problem (Mills, 2018). Doing reconnaissance takes three forms: self-reflection, description, and explanation. These are discussed in detail in Chapter 3.

Step 3: Reviewing the Related Literature

"Related literature" can be loosely defined as any existing source of information that can shed light on the topic selected for investigation. As such, it might include professional books, research journals, complete websites or individual webpages, teacher resource manuals, school or district documents, and even discussions with colleagues (Creswell, 2011; Johnson, 2012). There really is no limit to what constitutes related literature, because the purpose of reviewing this information is to help the practitioner-researcher make informed decisions about the research focus and plan. This related information can help you define or limit the problem, develop an appropriate research design, or select legitimate instruments or techniques for collecting data (Parsons & Brown, 2002). Again, this activity provides an opportunity for the action research to connect existing theory and research to actual classroom practice (Johnson, 2012).

Much more guidance, including specific recommendations and techniques, on reviewing related literature is presented in Chapter 3.

Step 4: Developing a Research Plan

In a traditional educational research study, the development of a research design and plan for collecting data is known as the **research methodology**. Inherent in designing an action research study are several decisions that must be made during this step in the action research process. Once you have identified and focused the research problem or topic, it is appropriate to state one or more research questions and, possibly, to develop specific hypotheses (Parsons & Brown, 2002). As you will see in Chapter 4, a *research question* is the fundamental question inherent in the research problem; it is *the* question the action researcher seeks to answer through conducting the study. The research question provides the framework for the study. Every part of the action research study should be designed to facilitate finding an answer to the research question. This is largely the reason that it is important to specify the research question prior to making any other decisions about the methodology.

It is typically best to keep the study as simple as possible by stating only *one* research question. However, in some instances, it may be appropriate to state an additional question that may be subordinate to (i.e., important but not as important as) the main question. These questions are sometimes referred to as *subquestions* (Mertler & Charles, 2011). If the practitioner-researcher has enough previous experience with the topic at hand, it may be possible to state the

research question, as well as any subquestions, as research hypotheses. A *research hypothesis* is simply a specification of the expected answer—or a prediction, of sorts—to the research question. Although they are conventional in more traditional forms of research—especially quantitative research—hypotheses are seldom used in action research.

Research questions and hypotheses should specify the variables that will be central to the investigation. Recall from Chapter 1 that a *variable* is any characteristic that is central to the topic about which the researcher wishes to draw conclusions. Therefore, a variable is in essence the actual characteristic or behavior upon which data will be collected. For this reason, it is critical that variables be observable and measurable. For example, it is not possible to observe or measure "*understanding* of addition and subtraction facts," because actual understanding of these facts and skills occurs only in a student's brain. And since we cannot see into someone's brain, we cannot directly measure or observe how much the student understands. A more appropriate variable might be the "*accuracy* of applying addition and subtraction facts." Students could be given a set of addition and subtraction problems to complete. Their accuracy could then be measured by counting the number of problems each student answered correctly.

Closely related to decisions about which characteristics will be measured or observed are the procedures to be used to collect the data; these are the particular decisions related to the design of the research study. The action researcher needs to decide who can provide the data that are needed, how many participants are needed for the study, and how to gain access to those individuals (Creswell, 2011). Any of the methodologies briefly described in Chapter 1—whether they be quantitative, qualitative, or mixed methods in nature—can be used (although usually in somewhat simplified and less sophisticated form; Fraenkel & Wallen, 2003). Surveys, comparative studies, correlational studies, experiments, observations, interviews, analysis of existing records, and ethnographies are just some of the methodological designs that can be effectively used. Also, remember that action research is systematic; therefore, data collection must be focused, and decisions about the various elements of research design and data collection must be determined *before* the study is implemented (Johnson, 2012). Remember, also, that the data to be collected should relate directly to the research questions that are guiding the study.

Also important during the planning stage of action research studies is paying close attention to the issue of **research ethics**. Research ethics deal with the moral aspects of conducting research, especially research involving human beings. Consideration must be paid to participants' treatment, the level of honesty and openness that participants will be afforded, and the manner in which results will be reported. As Mills (2018) states, it basically involves "doing the right thing" from a research perspective (p. 29), including doing no harm—of any kind—to participants. At a minimum level, research ethics require a focus on honesty, caring, and fairness. Practitioner-researchers also need to determine the extent to which they must obtain permission to conduct their research from schools, districts, or other institutions and from the participants themselves. It is important to note that consideration of ethics is not limited to this step in the action research process—planning for the ethical treatment of research participants should be an integral component of *every* step. You will learn more about ethical considerations in Chapters 3, 4, 5, and 8.

Details regarding research questions and hypotheses, research designs, ethics, and other decisions related to the development of a research plan are discussed more thoroughly in Chapter 4.

It is very important to raise a key issue at this point in our overview of the action research process. One of the things that is critical for the action researcher to do is to ensure that there is alignment between the following components:

- research topics,
- research problems and problem statements,
- research questions,
- proposed data to be collected, and
- proposed data analysis strategies.

This is a fact that I have begun to stress to novice action researchers more and more in recent years. If you have one or more of these components that are not aligned with the others, you will encounter problems somewhere during the implementation of an action research study.

A quick (but simple . . . and likely oversimplified) example is warranted here. Imagine that you wanted to determine if a new instructional strategy would improve reading comprehension scores differently for girls versus boys. Your research question would then need to parallel this topic, something like this: What, if any, differences exist between girls and boys on reading comprehension scores after exposure to a new instructional strategy? To answer this research question, you must implement a new strategy targeting reading comprehension, and then collect data in the form of an assessment of reading comprehension. If you were to collect scores from a math text, you would have a problem with alignment, because those data would not enable you to answer the research question about reading comprehension. Additionally, since you need to compare girls' scores to boys' scores, you would need to use an appropriate statistical test, such as an independent-samples *t* test. If you were to calculate a correlation coefficient, for example, that would answer an altogether different research question and would not tell you if girls performed better, worse, or the same as boys.

This process of ensuring the alignment of key aspects of an action research study is something that I refer to as T-P-Q-D-A—which stands for *topic–problem–questions–data–analysis*. I have developed a mnemonic device to help you remember these key components: **T**ommy's **P**et **Q**uickly **D**evoured **A**pples.

Simple . . . but it works! For those of you who might be interested in hearing a bit more about this issue of alignment of research components (as well as seeing another example), I have recorded a brief explanatory video available on YouTube that you can find at https://tinyurl.com/mertler-tpqda.

THE ACTING STAGE

The acting stage of the action research process is the one in which the actual research activities take place. Included in this stage are implementing the previously specified research plan, collecting data on the effectiveness of the new or innovative strategy being implemented, and ultimately analyzing those data.

Step 5: Implementing the Plan and Collecting Data

The next step in the process of conducting action research is to determine the specific data to be collected and how to *actually* collect them. In other words, decisions must be made about the instruments or other data collection techniques that will be used in the study. Fraenkel and Wallen (2003) suggest three main data collection techniques. First, teachers can *observe* participants involved in the educational process. These participants might include students, other teachers, parents, and administrators. Whenever observations are made by teachers, it is a good idea to record as much as possible of what is observed. **Field notes** or journals are typically used to describe in detail what is seen and heard.

Second, teachers can collect data from students or other individuals by way of **interviews**. When we think of interviews, we typically think of an oral question-and-answer exchange between two or more individuals. However, interviews can also be conducted in written form, through **questionnaires** or **surveys**. Often, data collected from observations can lead quite nicely to additional data collected through interviews or surveys (Fraenkel & Wallen, 2003).

Fraenkel and Wallen's (2003) third category of data collection techniques involves the examination and analysis of **existing documents or records**. Analysis of existing records is often the least time-consuming of the three, since the data have already been collected; it is the job of the action researcher to make some sense of what is already there. Examples of this type of data are attendance records, minutes of faculty meetings, school newspapers, lesson plans, policy manuals, seating charts, and student portfolios—the list is potentially endless.

I would like to add a fourth category to the earlier list provided by Fraenkel and Wallen (2003). This fourth category is composed of quantitative measures, such as **checklists**, **rating scales**, **tests**, and other formal assessments that are routinely used in schools. Checklists and rating scales are often used in classrooms by teachers, usually in the form of scoring rubrics. In that sense, they may be considered existing records. However, they may also be specifically designed to collect data as part of an action research study. Tests, whether standardized or teacher developed, as well as other types of formal assessment techniques, are also existing forms of data that can be used quite efficiently for action research purposes.

Action research allows for the use of all types of data, collected through the use of a wide variety of techniques. As both Fraenkel and Wallen (2003) and Johnson (2012) point out, it is important to collect multiple measures on the variables of interest in a given study. This allows—and, in fact, *encourages*—the practitioner-researcher to *polyangulate* the data. Recall from Chapter 1 that **polyangulation** is the process of relating or integrating two or more sources of data to establish their quality and accuracy. For example, by comparing one form of data to another, student comments about group dynamics made during interviews could be used to substantiate behaviors observed when those same students were videotaped during a small-group exercise.

Much more information, including examples of various data collection instruments and techniques, is provided in Chapter 5. Both qualitative (e.g., observations, interviews, journals) and quantitative (e.g., surveys, checklists, rating scales, tests) techniques are presented.

Step 6: Analyzing the Data

Analysis of data occurs primarily at two points during a research study. In *traditional quantitative* research studies, analysis typically occurs after all the data have been collected. In *traditional qualitative* research studies, data analysis typically begins during data collection, continues throughout the remainder of the process of collecting data, and is completed following data collection. Action research combines these two approaches. Johnson (2012) suggests, "[A]s you collect your data, analyze them by looking for themes, categories, or patterns that emerge. This analysis will influence further data collection [and analysis] by helping you to know what to look for" (p. 63). He continues by stating that there should also be a final stage of data analysis once everything has been collected.

Decisions about which type of data analysis to use are based initially on whether the data are qualitative or quantitative. Moreover, it is imperative to remember that the analysis of data must "match" the research question(s) being addressed—and, it is hoped, answered—by the study. Most qualitative data are appropriately analyzed by means of an inductive process, where the action researcher examines all data for patterns and similarities. Quantitative data may be analyzed through the use of either descriptive statistics or inferential statistics. In most cases, descriptive statistics will suffice; however, inferential statistics may be required if it is necessary to compare groups or measure relationships between variables (Creswell, 2011).

At this point, you might want to consider this advice: Try not to become overwhelmed at the thought of analyzing your data, especially if you have experienced stress, frustration, and confusion while trying to make sense of published research studies. The analysis of action research data is typically much less complex and detailed than in other more formal research studies (Fraenkel & Wallen, 2003). In addition, know that it is not required that *you* personally analyze the data; you are free to enlist the help of other teachers, administrators, or data analysts (Creswell, 2011). Information about analytical techniques—both qualitative and quantitative—is presented in Chapter 6.

THE DEVELOPING STAGE

The developing stage of the action research process is where the changes or improvements resulting from the implementation of the innovative strategy, data collection, and data analyses arise. This is also the stage where future actions—for both practice and the next cycle of action research—are specified.

Step 7: Developing an Action Plan

Once the data have been analyzed and the results of the analysis interpreted, the next step in the action research process is to develop an action plan. This is really the ultimate goal of any action research study—it is the "action" part of action research. The important outcome of the development of an action plan is a specific and tangible approach to solving the original problem (Creswell, 2011). The action plan is essentially a proposed strategy for implementing the results of your action research project. As the action plan is implemented, its effectiveness

must continually be monitored, evaluated, and revised, thus perpetuating the cyclical nature of action research.

The action plan may be proposed for an individual teacher or classroom, collaboratively among a group of teachers, or on a schoolwide or even a districtwide basis. In some situations, it may be necessary to prepare a formal document outlining the action plan; often, clearly delineated guidelines for implementing possible solutions may suffice. There must be enough documented information about the plan; action researchers should never rely on their collective memories for future implementation of solutions.

Further information about the nature of an action plan and the various types of plans appears in Chapter 7.

THE REFLECTING STAGE

The reflecting stage of the action research process is where plans for disseminating or otherwise sharing the results of the project are specified. In addition, engaging in reflection on the entire action research process is a critical step in this stage.

Step 8: Sharing and Communicating the Results

An important part of any research study is reporting or sharing results with others in the educational community at large. Action research should be no different. Simply because you have undertaken this project to help you solve a problem that is local and perhaps personal in nature does not mean that no one else will be interested in the results that you have obtained. The vast majority of educators are constantly looking for ways to improve their practice—as we have discussed previously, it is the nature of the profession.

The presentation of results can take a variety of forms. For example, Johnson (2012) explains that the most appreciative audience for presentations of action research results is often your own colleagues. Results can be shared with this type of audience in an informal manner, perhaps taking the form of a brief presentation at a regularly scheduled faculty meeting or teacher inservice session (Johnson, 2012). Even an individual dialogue with a colleague may be an appropriate setting to share results. Presentations—which can sometimes include written summaries of results—can also be made to school boards, principals, other administrators, students, and parents.

On a more professional level, the results of action research studies can also be disseminated to larger educational audiences, typically in more formal settings. Results can be formally presented at professional conferences or other types of teachers' conventions, whether at the regional, state, or national level (Johnson, 2012). Academic or professional journals are wonderful mechanisms for disseminating your results to a geographically broader audience. Journals that focus on a specific level of education—that is, elementary, middle, or high school—or on particular subject areas—for example, mathematics, science, social studies, language arts—are often quite appropriate for articles that report the results of action research. This, however, would require you to prepare a much more formal written version of your study and its results.

Detailed suggestions for sharing and communicating the results of your action research, both orally and in writing, are provided in Chapters 8 and 9.

Step 9: Reflecting on the Process

Action research is primarily about critical examination of one's own practice. For teachers to critically examine their practice, they must engage in systematic reflection on that practice. Reflection, as it pertains to action research, is something that must be done at the end of each cycle. It is a crucial step that practitioner-researchers review what has been done, determine its effectiveness, and make decisions about possible revisions for future implementations of the project (which, in all likelihood, will comprise future action research cycles).

However, it is important to reflect not only at the end of a given cycle; effective teachers also reflect on and critically examine their practice continuously *during* the process of teaching. When teachers plan an innovative lesson, they might reflect on planning of that lesson immediately after developing but prior to delivering the lesson, again after teaching the lesson, and perhaps once again after assessing students on the content of the lesson. This allows them to make revisions *during* instruction. Similarly, practitioner-researchers should engage in reflective practice *throughout* the entire action research project. Reflection following each step in the process permits practitioner-researchers to continuously monitor the progress of the project. This allows teachers to make decisions and, more appropriately, *revisions* to the process throughout its implementation. By doing this, practitioner-researchers are not confined to decisions made at the outset of a project; they can adapt their procedures if the situation warrants. In this manner, reflection is not really a final step but is integrated throughout the action research cycle.

Reflecting on the overall process of conducting action research is discussed in Chapter 9.

A BRIEF EXAMPLE

Now that we have taken a concise look at each of the nine steps in an action research study, let us consider the following example of an action research study. Our example begins with the department chair of a high school social studies department who, for some time, has been disappointed in the performance of students in the school's U.S. history course. The course has always been taught in a traditional manner—with the content coverage beginning prior to the American Revolution and ending with events more recent. The department chair, who teaches multiple sections of the course along with another teacher, believes that there may be some merit in examining a "backward" approach to teaching history (i.e., beginning with current events and proceeding back through time to end at the American Revolution). The chair asks the other history teacher for assistance with this potential action research project, and she agrees.

Step 1: Identifying and Limiting the Topic

The two teachers meet on a couple of occasions over the summer to identify the topic they hope to address through the examination and trial of this alternative instructional

approach. They determine that they believe their students struggle most in making connections between seemingly unrelated historical events. The department chair argues that perhaps this backward approach (i.e., beginning with more recent historical events with which their students will be more familiar) will have a positive impact on how well they are able to make these types of connections. The teachers decide to focus their attention on any differences that the two instructional approaches have on students' abilities to make these connections.

Step 2: Gathering Information

The teachers decide to talk with the other social studies teachers as well as teachers in other subject areas in their building. They want to know what other teachers think about their assumption that students struggle to make connections between historical events that occurred decades apart. They ask the others for their initial perceptions about the backward approach to teaching their content. Additionally, the two teachers spend time, independently, over the course of a few days, to consider *why* they believe that this is the cause of the struggles their students seem to experience. In other words, they carefully consider any "evidence" that may have led them to feel this way. They also strongly consider other possible solutions to this dilemma. At their next meeting together, they share what they reflected on and decide that the backward approach continues to be worth investigating.

Step 3: Reviewing the Related Literature

The teachers decide to collect more formal information—that based on research, in addition to what they had already obtained anecdotally from other teachers of history—about the effectiveness of backward approaches to teaching historical, chronological events; whether other history teachers have implemented this type of instruction; and, if so, how they did it and any problems they encountered. They decide to split the tasks, with the department chair identifying and reviewing published research studies on the topic and the other teacher contacting history teachers through their professional organizations.

Step 4: Developing a Research Plan

In their review of published literature and discussions with teachers from other schools and districts that have implemented this type of instruction, the teachers find enough evidence to support the focus of their proposed study (i.e., the backward approach to instruction is effective), although they also find some contradictory evidence (i.e., this approach is less or at least no more effective than the forward approach). The teachers decide on the following researchable question: Is there a difference in instructional effectiveness between a backward approach and a forward approach to teaching U.S. history? Furthermore, based on their review of related literature and other information, the teachers state the following predicted hypothesis: Students who are exposed to the backward approach will experience higher academic achievement, as evidenced by their abilities to make connections between historical events, than those exposed to the more traditional forward approach.

Since their hypothesis implies a comparison study, the teachers decide to randomly split the eight sections of U.S. history for the coming school year. Each teacher will teach four sections of U.S. history—for each teacher, two sections will be taught using the forward approach and two sections will incorporate the backward approach. Achievement data, as well as other teacher-developed assessment data, will be collected from all students enrolled in the U.S. history course for this academic year.

Step 5: Implementing the Plan and Collecting Data

Throughout the school year, the two history teachers design performance-based assessments, which examine the extent to which students were able to connect historical events. In addition, students take a U.S. history achievement test in the spring, a portion of which focuses on critical thinking skills as they apply to historical events.

Step 6: Analyzing the Data

Immediately following the end of the school year, the two history teachers begin their data analysis. They statistically compare test scores resulting from the administration of the standardized achievement tests for the two groups (i.e., the backward group and the forward group). They determine that the test scores of the students who were taught using the backward instructional approach are significantly higher than those of the students taught in the more traditional manner. In other words, the original research hypothesis is supported.

In addition, scores resulting from the various administrations of classroom-based performance assessments support the results of the standardized achievement tests. Again, the research hypothesis is supported.

Step 7: Developing an Action Plan

With their findings in hand, the teachers decide to approach their principal and district curriculum coordinator about temporarily revising the U.S. history curriculum to capitalize on the apparent effectiveness of the backward instructional approach. They agree that it will be imperative to continue to study the effectiveness of this approach in subsequent academic years. Similar findings in the coming years would provide a strong case for permanently changing the approach to teaching U.S. history.

Step 8: Sharing and Communicating the Results

The principal and the curriculum coordinator are quite impressed with the results of this action research study. They suggest to the department chair that the two teachers make a presentation to the school board and to the entire school faculty at a regularly scheduled meeting at the beginning of the next school year. The two teachers develop and make an effective presentation at the subsequent month's board meeting. A teacher attending the board meeting later suggests that this study might make an interesting contribution at an upcoming statewide conference on instructional innovations and best practices.

Step 9: Reflecting on the Process

Over the summer, the two teachers meet to debrief and decide on any adjustments to the process that might be beneficial for next year. They consider several questions, including these:

- How well did the process work?
- Are we sure that the data we collected were the most appropriate to answer our research question?
- Were there additional types of data that could or should have been included in the data collection?

Their answers to these questions will help guide next year's implementation of the backward approach to teaching U.S. history.

SUMMARY

- The cyclical and iterative action research process comprises four stages: planning, acting, developing, and reflecting.
- The *planning stage* consists of four steps:
  - Identifying and limiting the topic
  - Gathering information
  - Reviewing the related literature
  - Developing a research plan
- The *acting stage* consists of two steps:
  - Implementing the plan and collecting data
  - Analyzing the data
- The *developing stage* consists of developing an action plan.
- The *reflecting stage* consists of two steps:
  - Sharing and communicating the results
  - Reflecting on the process

QUESTIONS AND ACTIVITIES

1. Which of the nine steps in the action research process do you believe would be most difficult to carry out? Explain your answer.
2. Considering the process of action research as presented in the chapter, do you think it would be more feasible to conduct action research individually or in small groups? Develop a list of advantages and a list of disadvantages for doing it either way.

3. Discuss what you see as possible benefits of communicating the results of action research studies with various educational audiences.
4. Suppose that students in your school are not achieving at the desired level in the area of mathematics. Using the four-stage procedure for action research as presented in this chapter, briefly describe how you might *systematically* examine this problem.
5. Again supposing that students in your school are not achieving at the desired level in the area of mathematics, outline a specific action research study you might conduct conforming to the nine-step process as presented in the chapter.

KEY TERMS

acting stage
checklists
developing stage
existing documents or records
field notes
interviews
planning stage
polyangulation
questionnaires
rating scales
reconnaissance
reflecting stage
research ethics
research methodology
surveys
tests

Review → Practice → Improve

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

CONDUCTING ACTION RESEARCH

ACTION RESEARCH CASE STUDY 2

MOTIVATION AND ENGAGEMENT FOR STUDENTS RECEIVING SPECIAL SERVICES

Outlining the Action Research Process

Over the course of a couple of meetings and discussions, Krista, Kim, and Jim—along with Jody and Sarah—decided that they needed to address the fundamental issue of changing the learning environment to motivate the first-grade students who received special services. They were not sure yet how they might do that, or what the changes might look like, but they

knew that if they could decide on something over the summer, they could implement it at the very beginning of the school year, which they all believed to be an important part of this process. They did not want to introduce a new set of expectations and procedures a couple of months into the school year. Additionally, they felt that whatever the new system looked like, it would likely be important to implement it with every first-grade student who received special services.

The five educators felt that, if they could meet a couple of times over the summer to specify the innovation they planned to implement, they could have it ready by August. Their initial plan was to do just that—implement the plan beginning in August and gather data throughout the first half of the school year. If their plan was promising, they could then "tweak" their procedures (if necessary) and continue with its implementation throughout the remainder of the school year.

ACTION RESEARCH CASE STUDY 3

CONCEPTUAL UNDERSTANDING OF MITOSIS AND MEIOSIS

Outlining the Action Research Process

Sadie and Tom had together decided that they wanted to work on improving their students' conceptual understanding of various biological processes—that is, numerous and varied topics in biology that their students struggled with year in and year out. Knowing that their students tended to struggle more with topics taught during the second semester (e.g., cell biology, photosynthesis, plant life cycles), Sadie and Tom wanted to take some time during the first half of the school year to identify a specific topic and then to explore alternative ways of teaching and assessing that topic. Therefore, they decided that they would use the first half of the year to reflect, engage in reconnaissance, and determine how they would conduct their action research project to take place during the second semester.

ACTION RESEARCH CHECKLIST 2

THE ACTION RESEARCH PROCESS

- Identify specific sources or types of information you could use during reconnaissance.
- Obtain several published research articles related to your topic.
- List what you see as advantages and limitations of various data collection techniques.
- Identify potential audiences with whom you can share the results of your action research.