

CHAPTER 3

Approaches to Action Research

As educators, teachers, administrators, and school support personnel, we all want to improve how we work with our students and advance the way education is practiced in our classrooms and schools. Research and data-driven decisions are often offered as the way to achieve these goals. However, in the middle of the demanding, ever-changing, and, at times, chaotic environments of schools, we are required to make constant and important decisions, and sometimes research is far removed from our thinking. If you consider the word *research*, you realize that it means searching again and again to answer our questions or to find solutions to our problems.

In this chapter, we highlight three research perspectives—qualitative, quantitative, and mixed methods—and provide a brief overview of the elements that distinguish each approach: (1) assumptions about school reality, (2) research purpose, (3) the researcher role, (4) research process, and (5) common research methods. We end the chapter with helpful suggestions for how to choose your own research approach.

EDUCATIONAL RESEARCH APPROACHES

Action research draws from a wide range of educational research approaches and is implemented in a variety of forms. Underlying the different approaches are alternative assumptions and sets of beliefs about knowledge, school reality, and the

purpose of the research. In turn, these assumptions shape the choices that are made by practitioners about the questions that they pose, the way they collect and analyze their data, and the type of conclusions derived from the data. Kuhn (1996) defined these alternative sets of assumptions and perspectives, or worldviews, as “paradigms.”

Since you, as an action researcher, are becoming a generator of knowledge, it is important that you understand the differences between the three paradigms that have informed and helped shape contemporary action research. Clarifying the different assumptions that underlie each perspective and the practical implications associated with each one will assist you in developing your own inquiry. Based on this understanding, you will be able to make your own choices about the types of questions you want to ask and about the strategies and techniques for collecting and analyzing the data to answer your questions.

QUALITATIVE EDUCATIONAL RESEARCH

Qualitative research is designed to study school situations and events as they unfold naturally. The focus of the investigation is on the meanings of these experiences for the individuals and groups in these settings. (See Bogdan & Biklen, 2011; Glesne, 2015; Marshall & Rossman, 2016; Merriam, 2015, for examples of books on qualitative research.)

Assumptions about School Reality

Schools are complex, socially constructed institutions that comprise multiple realities. The meaning assigned to school experience is varied, shaped by individuals’ subjective interpretations, and influenced by their personal, cultural, and historical background. Actions, behaviors, expectations, norms, and beliefs are strongly influenced by the uniqueness of each context and perceived differently by each individual. Thus, qualitative research results cannot be generalized across time and locations.

Research Purpose

Meaningful school change and the improvement of school experiences for students should emerge from the perspective of those who are involved in each setting. Therefore, the purpose of qualitative research is to gain insight into and

understanding of how students, teachers, parents, and administrators make sense of their educational experience. The knowledge and insight serve as a base for bringing about needed change.

Researcher Role

Researchers often become immersed in the educational site where their studies take place. Interactions with those under study enable researchers to acquire familiarity with the situation and gain the trust of participants. Researchers must acknowledge their own personal values and how these values shape their perceptions and interpretations.

Research Process

The study emerges from broad open-ended questions. Researchers spend extended time at the educational settings, observing and interviewing people through the daily school routine. Researchers describe through rich narrative and visual media, such as pictures and videos, the subjective meanings that individuals in the schools ascribe to their actions and experiences. The focus is on a holistic understanding of the complex interdependencies that distinguish the educational, social, and cultural environments that are being examined. The data collected are analyzed and organized into categories, trends, and patterns.

Common Qualitative Methods

Case Study

Case study research aims to understand a particular phenomenon (such as a program, process, event, organization, or concept) by selecting a particular example of that phenomenon as the focus of the study. To shed light on the larger phenomenon, the researcher explores in depth the selected entity, actions, and the reasons for these actions. Although case study research usually focuses on a single entity (e.g., an individual, a class, or a program), at times, two or more cases are selected for comparison purposes. For example, in order to understand the realities of including high-functioning children with autism in mainstream classrooms, the researcher describes the social, emotional, and learning experiences of one high-functioning middle school student with autism and tries to provide explanations for the student's actions and interactions with peers and teachers. In a *multiple*

case study, the researcher replicates the same study with different high-functioning middle school students with autism so he or she can compare and contrast the findings. (See George & Bennett, 2005; Hancock & Algozzine, 2017; Merriam, 2007; Stake, 1995; Yin, 2017, for examples of books on case study research.)

Ethnographic Research

Ethnographic research is focused on the cultural and social life of schools, classrooms, and communities. The researcher immerses him- or herself in the group that is the subject of the study, exploring their lived experiences and identifying their shared values and beliefs. For example, through many interactions and discussions with high school dropouts, their families, and their peers, the researcher tries to understand how students who dropped out view education and its role in shaping their economic future. (See Denzin, 1997; Eisenhart, 2001; LeCompte & Schensul, 2010; Madison, 2012; O'Reilly, 2012, for examples of books on ethnographic research.)

Narrative Research

Narrative research presents stories of life experiences told by individuals in their own words, accompanied by reflections on the meaning of these stories within a broader educational context. The use of narrative complements the desire to recapture past experiences and to describe the teacher's professional and personal self within the context of his or her practice. As an example, a researcher may ask teachers to use storytelling narratives to share their experiences or memories. The teachers then analyze how these past experiences have contributed to informing their moral world, values, and beliefs. (See Andrew, Squire, & Tamboukou, 2013; Clandinin, 2016; Clandinin & Caine, 2018; Jeong-Hee, 2015, for examples of books on narrative research.)

Critical Research

Critical research centers on a social justice agenda. The purpose of the study is to expose repression, domination, and inequities, and bring about social change. To raise the consciousness of those who are marginalized in society and seek a change in these inequities, researchers often invite them to be involved in the inquiry. For example, the researcher invites new immigrant parents to participate in a discussion of school district testing policy to find out whether this policy puts students

with limited English knowledge at a disadvantage. (See Anyon et al., 2009; Carr & Kemmis, 2009; Cooper & Meltzoff, 2017; Fine, 2017; Steinberg & Cannella, 2012, for examples of books on critical research.)

QUANTITATIVE EDUCATIONAL RESEARCH

Quantitative research is designed to gather numerical data from individuals or groups using statistical tests to analyze the data collected (Slavin, 2007). Cause-and-effect relationships can be studied best in experimental studies (Mertler & Charles, 2011). In nonexperimental quantitative studies, researchers study relationships between variables as they exist, without any attempt to change them (Slavin, 2007). Statistical data can also be used in nonexperimental studies to describe information related to occurrences of phenomena and to measure the degree of association between phenomena. (See Gall et al., 2014; Gay, Mills, & Airasian, 2011; Hoy & Adams, 2016, for examples of books on quantitative research.)

Assumptions about School Reality

The social reality of school operates according to stable, fixed, and verifiable rules and laws that are relatively constant across time and settings. This reality is objective and is separated from, and independent of, school participants' feelings, perceptions, and beliefs. Objective researchers can, through scientific methods, discover and measure these universal rules. This information can then be applied to describe, explain, and predict behavior with a calculated degree of certainty.

Research Purpose

The goal of quantitative educational research is to produce an effective and efficient educational system designed to improve the academic achievements of all students. This goal can be achieved by discovering universal, scientifically based rules or methods that are proven to enhance the quality of the teaching and learning process.

Researcher Role

Educational researchers take a neutral, objective, and dispassionate position, trying to minimize their engagement with the study's participants. Appropriate

procedures are employed to prevent researchers' personal biases from influencing or affecting the investigation process in order to ensure scientifically accurate findings.

Research Process

The process usually starts with research questions about a limited number of clearly defined variables. In *experimental* research, researchers focus on answering questions related to cause-and-effect relationships. The questions are followed by hypotheses that make a prediction about the outcomes of the study. A research study is then designed to test hypotheses by controlling the impact of all variables: those being studied as well as outside variables that might influence the study's outcomes. In *nonexperimental* (sometimes called *descriptive*) research, the purpose is to measure or numerically describe existing groups, settings, or phenomena; compare two or more groups; or statistically describe the strength of the association between two or more variables. In both types of quantitative studies, researchers systematically choose the research participants and develop a set of procedures and strategies for gathering, analyzing, and interpreting numerical data.

Common Quantitative Methods

Experimental Research

Experimental research is designed to measure cause-and-effect relationships (Fraenkel, Wallen, & Hyun, 2015). It is conducted to test the effect of planned interventions, called the *independent variables*, on groups or individuals. The effect of the independent variable is assessed by gathering data on the outcome measure, called the *dependent variable*. For example, you may want to test the efficacy of cooperative learning group work (the independent variable) on the reading scores (the outcome, or dependent variable) of your students who have learning challenges.

Causal–Comparative (Ex Post Facto) Research

Causal–comparative (ex post facto) research is used to investigate causal relationships between something that happened in the past and subsequent responses (McMillan, 2011). There is no planned intervention because the independent variables have either occurred prior to the start of the study, or are variables that cannot be manipulated. For example, a researcher may want to compare the social

skills (outcome variable) of college freshmen who were homeschooled with those of similar students who attended public or private high schools. The independent variable in this study—type of schooling—has already occurred by the time the study is conducted.

Correlational Research

Correlational research investigates the degree of relationship between two or more variables in a given situation. The relationship can be quantified and its direction (positive or negative) and strength (high, moderate, or low) can be assessed. For example, a study may be carried out to measure the relationship between students' performance on state- and district-administered math tests. Keep in mind, though, that even when we find a correlation between variables, this does not show that one variable caused the other (Mertler & Charles, 2011).

Descriptive Research

Descriptive research represents the current conditions of the topic under investigation without trying to change or manipulate them. These studies summarize existing phenomena by using numbers to describe groups or individuals (McMillan & Schumacher, 2014). The most well-known large-scale descriptive study conducted in the United States is the one administered by the U.S. Census Bureau (Dane, 2018). An example in education and public policy may be a study that is done in a large metropolitan area to document the number of students who drop out of high school before graduating.

MIXED-METHODS RESEARCH

For years, a schism between qualitative and quantitative approaches dominated the field of educational research. The debate emphasized the differences between the two worldviews or paradigms. In the last few decades, mixed-methods research has been gaining influence as a third, alternative approach. The mixed-methods approach proposes to cross boundaries between worldviews and blend (or combine) qualitative and quantitative research methods and techniques into a single study. (See Creswell & Plano Clark, 2018; Hesse-Biber, 2010; Tashakkori & Teddlie, 2010; Teddlie & Tashakkori, 2009, for examples of books on mixed-methods research.)

Assumptions about School Reality

Solutions to the problems that school presents are at the center of this pragmatic mixed-methods approach, rather than philosophical discussions about school reality. All approaches that contribute to understanding and solving school problems are embraced and their value is judged by the consequences. The emphasis is on finding out “what works” and acting upon it. From this perspective, the research problem, rather than philosophical and ideological assumptions, should always guide the study.

Research Purpose

The goal of mixed-methods research is to draw on the strength of both quantitative and qualitative research to enhance school improvement. Combining both techniques in a single study enables the researcher to use multiple methods to explore different aspects of the same question.

Researcher Role

The two paradigms, quantitative and qualitative, can live peacefully together in one study. The researcher can assume an objective or subjective stance, or attitude, depending on the question under investigation.

Research Process

The researcher employs both quantitative and qualitative data collection strategies, methods, and analyses, either simultaneously or sequentially. Thus, the different data tools that are used complement one another by highlighting different aspects of the same question. The workability of the methods and the usefulness of the results are the most important factor in planning the study.

Common Mixed Methods

Embedded-Design Research

Embedded-design research is used in studies in which both methods of data collection, quantitative and qualitative, are included, but one paradigm dominates the study. One approach is nested within the larger method of data collection. Either the nested or the dominating approach may be qualitative or quantitative. For

example, in an experimental districtwide study designed to assess the effects of an innovative reading circle on students' reading-understanding skills, a qualitative interview with gifted students is embedded within the larger pretest–posttest experimental study.

Two-Phase Research

Two-phase research addresses different questions within the research problem in a two-phase study. The qualitative and quantitative methods are employed separately, simultaneously, or sequentially, without much mixing, to investigate each of these questions. An example might be the impact of early diagnosis and treatment on the development of children with attention-deficit/hyperactivity disorder (ADHD). The researcher assesses the social skills of these students through qualitative observations, and uses quantitative procedures to evaluate the students' school performance using standardized assessment tools.

Integrated Research

Integrated research combines quantitative and qualitative methods throughout the research process to answer the same question. The methods are employed concurrently with equal weight. For example, in a study to assess the impact of inclusion on relationships among students, two data collection tools are used, each yielding numerical and narrative data: (1) a survey that contains numerical and open-ended questions and (2) an observation protocol that includes unstructured observations and a checklist.

A summary of the characteristics that distinguish among qualitative, quantitative, and mixed-methods approaches is presented in Table 3.1.

CHOOSING AN APPROACH FOR YOUR RESEARCH PROJECT

The three paradigms—quantitative, qualitative, and mixed methods—present strikingly different ways of viewing school reality and, consequently, different methods and strategies for inquiry. Action research draws upon each of these educational research paradigms. No approach is right or wrong, none is considered “the best,” and each has contributed to practitioner knowledge and understanding.

However, these approaches differ in several ways. Each perspective (1) offers different kinds of questions or problems, (2) seeks different types of findings, (3) calls for different strategies, and (4) is assessed by different criteria.

Prior to launching your own project, you should decide which of the three approaches will best serve as a model for your study. As you ponder your choices, we suggest you consider the action research framework, your personal worldview, and your research question(s).

	Qualitative	Quantitative	Mixed methods
Assumptions about school reality	There are multiple school realities and their meanings are shaped by individuals' historical and cultural backgrounds.	School reality operates according to stable, fixed rules relatively constant across settings that can be objectively discovered.	Solutions to problems that school presents are at the center rather than philosophical discussions about school reality.
Research purpose	Understand school experience from the perspective of those involved to improve schools.	Discover universal rules and methods to improve education and the quality of teaching and learning.	Draw on the strength of both quantitative and qualitative approaches to enhance school improvement.
Researcher role	The researcher interacts extensively with individuals at the study's setting. The researcher acknowledges his or her own subjectivity and biases.	The researcher maintains a neutral and objective stance to ensure scientifically accurate findings.	The researcher assumes both objective and subjective stances, depending on the question under investigation.
Research process	The researcher is immersed in the setting and describes the subjective meanings that individuals place upon their actions and experiences.	The researcher investigates relationships among a limited number of variables that are measured, quantified, and generalized.	The researcher employs both quantitative and qualitative data collection methods and analysis, either simultaneously or sequentially.
Common methods	Case study research Ethnographic research Narrative research Critical research	Experimental research Correlational research Descriptive research	Embedded research Two-phase research Integrated research

Action Research Framework

The inherent nature of action research affects the methods you choose for your investigation. As mentioned before, action researchers study their work, and the study's findings contribute directly and immediately to their practices. Thus, the purposes of the study they undertake, as well as the methods they choose for their investigations, are influenced by the possibilities and limitations of conducting research in their own classrooms and schools. For example, conducting experimental research is possible and at times desirable. However, generalization of the findings to other settings cannot be done with a high degree of confidence because of the small size of most action research projects, the limitations in selecting a representative sample of participants, and the tenuous control practitioners have over the variables in the study. Still, for action researchers, the focus is most likely not on whether the inquiry's findings can be generalized to other settings but rather on whether the findings can be useful for improving their own practice. Similarly, action researchers may choose to conduct critical research because of their desire to be advocates for marginalized students in society at large and to bring about social justice and equity. In reality, though, the likelihood of change is greater when the focus is on the local community. Action researchers are therefore advised to conduct studies to explore and seek change within their local settings, classrooms, schools, and communities.

Personal Worldview

We all bring distinct assumptions about school reality and the impact of research on our practices that ultimately influence how we design and conduct our studies. Our views are mostly unconscious and unarticulated. As an autonomous practitioner, you want to become aware of the tacit assumptions that undergird your perspectives on school reality and implicitly shape your decisions throughout the research process. Self-awareness is key to purposeful inquiry, in which the choices you make regarding the questions, methods, and strategies best reflect your values and professional needs.

Research Question

The final factor to consider in choosing the approach for your study is the research question you want to answer or problem that you want to solve. Certain questions

call for particular types of methodology; the research approach should match the question you ask as the problem drives the choice of methods. For example, if you want to evaluate the gains in students' learning as a result of a new strategy you have adopted, numerical test scores might be a good source of data. On the other hand, if your question focuses on understanding the attitudes and feelings of students toward this strategy and how it impacts their motivation, a qualitative, in-depth interview might be your best approach. If your research focuses on understanding students' perceptions of the new teaching strategy *and* how it impacts their academic achievement, a mixed-methods approach might be the way to go.

Another example that illustrates how action research approaches and methods are driven by the research question is a collaborative action research conducted by a team of middle school educators. In meetings, teachers kept complaining that the emphasis on standardized testing and accountability creates too much tension among the students. One of the consequences, the teachers believed, is increasing indifference among students and lack of emotional connection to their peers, the teachers, and the school. The teachers discussed the need to attend to the students' social–emotional development as part of the learning experience.

The teachers felt that an exclusive focus on academic instruction did not serve their students, many of whom demonstrated a lack of emotional competency and connection to the school and their peers. The teachers, the administration, and the support staff agreed to further explore the issue and found strong support in the literature in published research (such as Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011; Goleman, 2005; Riekie, Aldridrge, & Afari, 2016). Based on their reading and their own experience, the teachers decided to implement some strategies to enhance their students' social–emotional learning.

The collaborative action research team decided to implement two strategies with the help of three teachers who volunteered for the pilot testing:

1. *Implement regular democratic classroom meetings.* In the meetings, students select the issues to be discussed, take responsibility for establishing meeting ground rules, and gradually increase their role in leading the meetings.
2. *Implement cross-grade peer mentoring.* Implement a cross-age mentoring program where eighth-grade students take responsibility for helping their younger peers who are new to the school or who face social or academic difficulties.

The collaborative action research team debated whether to conduct qualitative, quantitative, or mixed-methods action research. They presented questions, each calling for a different methodology and data collection strategies. They came up with the following questions, the research method they will use, and the data collection strategies. (See Chapters 4 and 5 for a comprehensive discussion of data collection strategies.)

A Qualitative Action Research Study

1. *Question:* How do students' perceptions of their peers, teachers, and school change after they participate in democratic classroom meetings and peer mentoring?
2. *Method:* Ethnographic research.
3. *Data collection strategies:* Classroom observations, interviews of students and parents before and after the pilot programs, and student reflective journals.

A Quantitative Action Research Study

1. *Question:* Is there a statistically significant increase in students' positive attitudes toward school after they participate in democratic classroom meetings and peer mentoring?
2. *Method:* Experimental research.
3. *Data collection strategies:* Survey to measure students' attitudes administered before and after the pilot program, as well as a record of change in the number of students who participate in informal activities organized by the school.

A Mixed-Methods Action Research Study

1. *Question:* After participating in democratic classroom meetings and peer mentoring, is there (a) a change in students' perceptions of their peers, teachers, and school? and (b) a statistically significant increase in students' positive attitudes toward school?
2. *Method:* Integrated research.

3. *Data collection strategies:*

- a. *Qualitative:* Classroom observations, individual and group interviews of students before and after the pilot programs, and student reflections on their experiences and the impact on their academic work.
- b. *Quantitative:* Survey to measure students' attitudes administered before and after the pilot program, and a change in the number of students who participate in informal activities organized by the school.

Together, the collaborative action research team chose the mixed-methods approach and divided the research work among the members of the group. This team approach allowed the researchers to take advantage of their large group size and they were able to complete the project by the end of the second semester.

Choosing Your Own Research Approach

As you choose your research approach, it is a good idea to brainstorm with a partner or in a small group. Reflect on the three considerations highlighted above (action research framework, personal worldview, and research question) and contemplate how they inform your choice of research method. The list of questions in Figure 3.1 may help you in reflecting on your choice of research approach.

Questions
1. What are my assumptions about the nature of school reality?
2. What are, from my perspective, the purposes for conducting action research?
3. How do I see my role as a researcher?
4. How will the action research framework affect my choice of a method?
5. How might my research question impact my choice of method for my study?
6. What research method is practical and doable within my situation?

FIGURE 3.1. Reflective questions to guide the choice of a research approach.

CHAPTER SUMMARY

1. Alternative assumptions and sets of beliefs about knowledge, school reality, and the purpose of the research underlie the different approaches to educational research.
2. Clarifying the different assumptions that underlie each perspective and the practical implications associated with each will assist you in developing your own inquiry and choosing the types of questions you want to ask and the strategies and techniques for collecting and analyzing the data to answer your questions.
3. There are three common worldviews (i.e., paradigms) that traditionally have shaped educational research. The three research paradigms are *quantitative*, *qualitative*, and *mixed methods*.
4. Each research paradigm is discussed in this chapter in terms of (a) assumptions about school reality, (b) research purpose, (c) the researcher role, (d) research process, and (e) common research method.
5. Common methods that are used in qualitative research are *case study*, *ethnographic*, *narrative*, and *critical* research.
6. Common methods that are used in quantitative research are *experimental*, *casual-comparative* (ex post facto), *correlational*, and *descriptive* research.
7. Common methods that are used in mixed-methods research are *embedded design*, *two-phase*, and *integrated* research.
8. Qualitative, quantitative, and mixed-methods approaches differ in several ways. Each perspective (a) offers different kinds of questions or problems, (b) seeks different types of findings, (c) calls for different strategies, and (d) is assessed by different criteria.
9. For action researchers, the focus is most likely not on the ability to generalize the inquiry's findings to other settings but rather on the usefulness of the findings for improving their own practice.
10. The research approach should match the questions being asked as the research questions drive the choice of particular research approach and the type of methodology.

CHAPTER EXERCISES AND ACTIVITIES

1. Clarify your own assumptions or deliberate with peers or colleagues about the following points.
 - a. The nature of school reality.
 - b. The purpose of conducting research.
 - c. The researcher role.
 - d. The research processes.
2. Reflect on the *qualitative*, *quantitative*, and *mixed-methods* research approaches discussed in the chapter.
 - a. Deliberate on the strengths and weaknesses of each of these approaches.
 - b. Consider the relations that these perspectives have to your personal experience as a teacher (or as a learner).
 - c. What research approach seems to be most feasible in your current or future educational settings and why?
3. As discussed in the chapter, each research approach—*qualitative*, *quantitative*, and *mixed methods*—offers several research methods (e.g., case study, experimental research, and integrated research). Depending on your choice of research approach, which method would be most appropriate for exploring your study's question(s)? Explain your choice.
4. Look for one or more published studies that discuss a topic relevant to your research project, and answer the following:
 - a. Identify which research approach was used in the study—*qualitative*, *quantitative*, or *mixed method*.
 - b. Which of the common research method(s) within the *qualitative*, *quantitative*, and *mixed-methods* approaches does each of the studies reflect?
 - c. How does the study question reflect the approach chosen by the writer(s) of each of the chosen studies?
5. A high school district with a diverse student population is developing a new curriculum in social studies that is based on culturally responsive pedagogy (CRP). Members of the committee tasked with this responsibility decided to conduct a preliminary study where they considered the following two questions. Review these questions and choose the research approach that is the most appropriate

for investigating each and suggest data collection method(s) that might be used to address them.

- a. From the perspectives of teachers and students in ethnically diverse schools, what are some of the most successful CRPs that were implemented in their social studies classes?
 - b. Was there a significant increase in social studies' test scores after implementing CRP in schools with ethnically diverse populations?
6. Revisit the research question(s) you have developed for your study. Consider whether the research approach matches your questions.

ADDITIONAL READINGS

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