Action Research: Asking and Answering Questions About Practice

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Essential Question:
How Do Questions Teach?

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The concept of action research, or teacher inquiry, is sometimes intimidating and often a mystery. However, many teachers have undertaken projects that involve the elements of action research, including finding a focus, generating questions, collecting data, and making sense of what the data reveal. Although their work may have fit the definition of action research, perhaps it wasn't labeled as such. This chapter demystifies action research and provides a picture of what the process looks like, starting with the question that is asked most often.

What Is Action Research?

The word *research* conjures up a process that many educators don't want to embrace. But as Glenda Bissex points out in *Seeing for Ourselves*, "a teacher researcher doesn't have to study hundreds of students, establish control groups, and perform complex statistical analysis" (Bissex & Bullock, 1987, p. 3). She defines a teacher researcher as "an observer, a questioner, a learner and a more complete teacher" (p. 4). Teachers need to recognize that being a teacher researcher, or doing action research, fits naturally with what they already do in the course of their day, week, and year.

Action research is a process of asking important questions and looking for answers in a methodical way. The questions are meaningful; that is, the researcher wants or needs to know the answers to the questions, and the questions are closely connected to the teacher's work. Action research, in this sense, is very practical and grounded in the day-to day work of the researcher. One way that it is different from traditional or scientific research is that the researcher is not removed from what is

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being studied, but rather is a part of it. Teacher researchers are researching their own problems or new practices. The research is modest, manageable, and, again, directly related to daily work. Also, the work is often part of an inservice course or district-sponsored teacher study group. These characteristics explain why action research can be so meaningful and empowering for teachers.

What Does the Action Research Process Look Like?

Action research is very much a recursive process, not unlike writing and thinking. Researchers must go through three stages: planning, implementation, and analysis and reflection. However, researchers often leap back and forth between the stages. Each stage involves researchers in specific actions and behaviors:

Stage 1—Planning
- describing actions
- articulating a rationale for the actions
- drafting research questions
- reading related literature
- planning for implementation
- deciding on data collection strategies
- creating a time line

Stage 2—Implementation
- taking action
- documenting actions taken
- observing and collecting data about the results
- reading related literature

Stage 3—Analysis and Reflection
- analyzing data
- reflecting on results and process
- articulating answers to research questions
- asking new questions

A problem, challenge, or the desire to try something new is the impetus for educators to design an action research project. In the *planning stage*, researchers draft questions, revise questions, draft plans, and revise plans. Planning is informed by reading related literature and by past experiences. At this point researchers may or may not have ideas or hunches about the answers to these questions.

As the *implementation stage* begins and researchers carry out the new actions, they also begin to collect data. They must track what they do and the results of what they do. Even as the researchers work, they sometimes revise their plans and revise their questions. Their work is informed by the work of others as they continue reading in the area of their research. Sometimes answers begin to emerge as data are collected, but more often they emerge later, in the analysis and reflection stage.

During the *analysis and reflection stage*, researchers look closely at the data collected, analyze it, and reflect on what it means in relation to the questions asked. This final stage is when the real learning comes. As researchers work to make sense of the information they have collected and articulate the answers to their questions, they make meaning from their work.

The action research process, like writing, can be satisfying, confusing, unpredictable, hard, easy—or all of these. But because it is grounded in a practitioner's work and is meaningful, it is worth sticking with. It is exciting to see answers to questions emerge—even if the answers are a surprise and if answers emerge to questions the researcher never posed.

How Can an Educator Plan a Meaningful Action Research Project?

To get started on the planning stage of an action research project, educators can follow these five steps:

1. Identify the topics or ideas that the research may be related to.
2. Describe the actions that will be taken and studied and articulate a rationale.
3. Write action research questions related to the actions.
4. Create a plan for data collection.
5. Create a timetable to guide the research.

Appendix E includes a module to guide action researchers through each of these steps. The module is a refinement of work done by author Stephen Kemmis. The sections that follow here further explain the steps and describe the action research plans of three educators: Lisa Boerum, a special educator in the Sag Harbor School District in Long Island, New York; Sue Cox, director of curriculum and technology for the Penn-Harris-Madison School Corporation in Mishawaka, Indiana; and Patrick Kruchten, a multiage classroom teacher in the Hilton Central School District in Hilton, New York.

Step 1: Identify the Topics or Ideas

Many educators begin action research because they have a problem or challenge. Others begin a project because they want to try something new or modify existing practice in some way. Either place is a good starting point.

Example 1: Lisa Boerum. Lisa's jumping-off point for this action research project is a challenge that she knows she will face in the coming school year, namely helping students monitor, assess, and assume responsibility for their own learning.

> I am anticipating students who are more at risk than those I had last year. Several incoming 6th graders have demonstrated apathy toward learning, difficulty in persisting through the process to complete tasks, and have demonstrated a marked weakness in reading and writing which has affected them in all academic areas. The specific problems include apathetic student learning, low self-expectation, low performance level, and lack of ownership.

Example 2: Sue Cox. Sue has designed an action research project around two challenges related to a major initiative in her district.

> For several years the role of computers, access to the Internet, and the use of technology has been a top priority of our district's strategic plan to prepare students for the future. Millions of dollars have been spent to acquire hardware, software, local and area networks, and Internet access in all of our schools.
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> Problems:
>
> 1. Now that our schools have this technology, school board members and members of the community are asking, "Does the technology have an impact on teaching and learning?" While we have collected some data regarding teachers' and students' technology use, we have not been able to capture a picture of what happens when technology is integrated into classrooms. As director of technology, I need to be able to answer this question.
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> 2. Some teachers in our schools have not attained the level of technology integration that is desirable. They do not know how to integrate the use of technology with the cur-

riculum and learning opportunities in their classrooms.

Example 3: Patrick Kruchten. Patrick has been using portfolios with his students for years. His research grows out of his observations about why students struggle with the goal-setting process as it occurs in his classroom and from his desire to refine the current portfolio system to improve its effectiveness and to get students more involved in the process.

> I believe that students have goals, both academic and personal, that need to be met. Students have told me that we set "good goals," but that many times it's hard for them to work on a particular goal because I have set different priorities. I think that this places a lesser importance on student goals, and thus, I find it harder to have students work on them in school. By directly connecting student goals to our portfolios and our curriculum, I am hoping to help students be more motivated to act on the goals set.

Once teachers decide on a topic or general idea, they often read related literature, such as current articles in education journals or a recent study on a topic, and begin to formulate ideas about what actions to take. This reading often continues during the implementation and analysis stages.

Step 2: Describe the Actions and Articulate a Rationale

The researcher needs to decide on the specific actions to take and to study. This step in the process asks educators to clearly describe (1) the specific action(s) they will take; (2) a rationale for the action(s), including a discussion of the intended effects; (3) the people involved or affected by the actions; (4) the necessary resources needed to make the changes; and (5) any foreseeable problems or roadblocks that may come up, including confidentiality issues.

Example 1: Lisa Boerum. Lisa lists a series of actions that she plans on taking to tackle the challenges she will face. Her actions all relate to her goal of helping students to become observers of themselves, or researchers of their own learning. In addition to clearly describing her actions, she articulates a rationale for her plan.

> ACTIONS
> I will take the following actions with all of my 6th graders this year:
>
> 1. I will state my expectations for the year as follows: "Student will become a scientist/observer of self."
> 2. I will guide students in brainstorming qualities of learning. We will categorize and identify examples for these qualities.
> 3. I will guide students in picking areas to work on and help them to set goals.
> 4. Over the course of the year, during workshop days, I will include the following activities:
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> - regular reflection
> - baseline reading/writing pieces
> - create/complete/collect work samples from homework and classwork
> - self-assessment using checklists to guide goal setting
> - goals, evidence, reflection, self/teacher assessments to be compiled quarterly for IEP (individualized education plan) portfolio
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> RATIONALE
> One of the most important goals I have in working with my students is to make them more independent learners. In order to be independent, they need to develop an understanding of their strengths and weaknesses and of their disabilities. This self-knowledge is necessary if they are to set realistic and attainable goals for themselves. It is also necessary if they are to advocate for

themselves as they move from the middle school into the high school.

Example 2: Sue Cox. Sue chooses one specific action to tackle both problems she faces. She identifies her action, the formation of a collegial study group, and provides a rationale for her choice.

ACTION
I will establish a study group for teachers organized around the collaborative study of the question, "How can technology enhance learning?" I will study the changes in these teachers' use of technology and classroom practice as they engage in their own inquiry.

RATIONALE
Based on my own research, research by experts, seminars and symposiums, and my experience as a teacher and administrator, I believe a study group investigation of the impact of technology on teaching and learning will help teachers learn to choose technology effectively, focus on student learning, become reflective practitioners, and find time and support for their own professional growth. Further, I've learned that school-based activities are more likely to result in teachers' integrating of technology into the curriculum and instruction in their classrooms. I believe that active involvement, choice, and a learner-centered approach are important elements of learning for teachers as well as students. I also believe that active involvement in a technology-enhanced, learner-centered environment will prepare them to design this type of learning experience for students. Finally, I recognize the benefit of learning and working with a group of colleagues to improve my own practice and believe that participation in a collegial study group is a very powerful model of staff development.

Example 3: Patrick Kruchten. Patrick describes his actions related to improving his portfolio system and provides his rationale.

ACTIONS
I want to redesign my portfolio system so that it fully involves students in the process of setting goals and collecting artifacts to demonstrate progress on these goals on a regular basis. I will allow students to set goals for themselves, instead of the teacher and parent setting the goals, and directly connect their goals to the portfolios. I will change some of the use of time to allow for prioritizing of weekly goals, as well as searching for artifacts. I will also need to model how to set realistic goals, and the whole process of searching out specific artifacts that demonstrate specific learning. This will involve my current class of 27 students, 17 sixth graders and 10 fifth graders.

RATIONALE
I think that students will become much more invested in working on goals if they originate from them and they are responsible for collecting artifacts to prove progress. I also believe that students will be on task more, especially when they know that the work being completed could be an artifact to show goal progress. I also believe that goal setting and artifact collection will be a less arduous task when goals are directly related to portfolios and curriculum.

Step 3: Write Questions Related to the Actions

Action research questions are a vital part of planning. The questions(s) guide both the data collection and the analysis and reflection that will be done later. A specific research question (or questions) phrased so that the action is embedded will more effectively keep a researcher focused on studying his or her actions. In addition, research questions should not be yes/no questions. The phrasing should allow for analysis and reflection.

Example 1: Lisa Boerum. Lisa has a series of action research questions. Her first question is her "umbrella" question, the most important one. More specific questions under it relate to specific actions she is taking. Because the scope of her actions is wide, she has many questions that she can ask and pursue.

> In what ways will "personal investigation of learning" result in increased student self-expectations and performance levels?
>
> - How will goal setting increase student ownership of learning?
> - How will using a research framework with students clarify their sense of personal direction in learning?
> - How will reflection and self-assessments impact on students' ability to set self expectations, refine goals and actions, and communicate an understanding of their strengths and weaknesses more effectively?
> - How does the use of assessment checklists enable the student and teacher to refine and individualize the IEP and portfolio?

Example 2: Sue Cox. The teachers in Sue's study group are tackling the question, "How can technology enhance learning?" While they do so, Sue studies the impact of participation in the collegial study group.

> Question 1: How do teachers participating in this study group change the way they use technology in their classrooms?
> A. How do the study group teachers perceive the changes in their classrooms? How do they explain these changes?
> B. How does participation in the study group affect teachers' proficiency with technology?
> C. What impact does participation in the study group have on teachers' motivation to use technology?
> D. Does teachers' participation in the study group support teachers' willingness to risk investigating new technology uses and exploring ways to integrate them into curriculum and instruction? If so, what specific activities or aspects of the study group were most beneficial?
>
> Question 2: How has participation in the project affected teachers' classroom practice?
> A. Does the use of reflection in the study group affect these teachers' use of reflection in their classrooms?
> B. How does participation in a learner-centered study group affect the control of learning in their classrooms (teacher-centered or student-centered)?

Example 3: Patrick Kruchten. Patrick has two action research questions. The first is more broad and focuses on student learning, whereas the second is focused on using portfolios.

> 1. What impact is there on student learning when children are given ownership of portfolio design items such as goal setting, prioritization of learning, and artifact collection to demonstrate learning?
> 2. How will goal setting and collection of artifacts be affected when portfolio design is aligned with yearly goals?

Step 4: Plan for Data Collection

As the researcher begins to implement the actions decided upon, data collection also begins. The researcher needs to keep track of the specific actions taken, how they are taken, when, and how often. These are data related to the *actions*. The researcher also needs to collect data related to *results* of the actions. What happened that was expected? What happened that was unexpected?

Teachers may use a variety of strategies for data collection, including the following:

- anecdotal records
- audio-recordings/transcriptions
- checklists

- documents
- field notes
- journals/logs/diaries
- interviews
- photographs
- portfolios
- questionnaires/surveys
- schedules
- student work samples
- teacher work samples
- video-recordings

Example 1: Lisa Boerum. Here is how Lisa plans to collect data:

- Keep student portfolios with IEP plans.
- Keep monthly student reflections on goals and projects.
- Keep student assessment checklists.
- Save lesson plans related to goal setting, reflection, and use of checklists.

Example 2: Sue Cox. Here is how Sue plans to collect data:

- Take notes during and after study group meetings.
- Audio-tape each meeting and transcribe the tapes.
- Collect copies of individual teachers' research investigations and samples of their students' work.

Example 3: Patrick Kruchten. Here is how Patrick planned to collect data:

- Target a sample group of students to monitor closely.
- Keep copies of their portfolios, reflections, and goal setting.
- Keep a reflective journal/log to record observations and thoughts related to conferences, students, and portfolio work.
- Track my lessons related to goal setting and artifact collection.

Step 5: Create a Timetable

A timetable can be a helpful tool to guide action research. Sometimes educators resist taking the time to create one, but in the midst of teaching, caught up in the day-to-day crisis management of 27 1st graders or 140 high school juniors, a specific timetable can remind the researcher of the pieces of research that need attention.

Action researchers should be realistic and expect that they may need to modify the timetable as the project unfolds. The timetable should allow time for implementation, analysis and reflection, and revision of writing.

Example 1: Lisa Boerum. Lisa decides to collect data during the school year and save data analysis for the summer workshop days.

October–May	• Implement portfolios, monthly student reflection and goal setting, assessment checklists. • Collect data every month by duplicating students' reflections, goals, assessment checklists. • Keep lesson plans and notes related to lessons on portfolios, reflections, goals in binder.
June	• Duplicate portfolios from 12 students in 6th and 7th grade.
July–August	• Choose a subset of students. • Analyze data and draft response to research questions. • Prepare presentation to action researcher in the Center for the Study of Expertise in Teaching and Learning.

Example 2: Sue Cox. Sue decides to collect data and analyze it as she works. This makes sense given the nature of the study group and the fact that Sue is guiding the teachers through action research of their own.

September	• Send invitation to 20 teachers explaining purpose of study group and inviting them to join.
October–May	• Convene study group, tape meetings, take notes, collect samples of teacher and student work.
January–July	• Conduct ongoing data analysis.
July Institute	• Continue data analysis and draft response to research questions for professional portfolio.
September	• Send preliminary report to cohort 1 action researchers.

Example 3: Patrick Kruchten. Patrick creates a tentative plan for the year, fully expecting it to change as he begins to implement it. He writes a very detailed plan of what students, parents, and he will do. An excerpt is included here:

November 1998
Students will—
1. Brainstorm how we collect evidence and how to find artifacts to show progress.
2. Collect artifacts to show goals progress.
3. Present portfolios to parents.
4. Reflect on process collection and presentation.
5. Write a weekly reflection on work related to goals.
Parents will—
1. Reflect on process collection and presentation.
Teacher will—
1. Write a general reflection on how process went in class.
2. Lead a whole-group share of what is going well, not going well, record student responses.

What Roles Do Reading, Reflection, Analysis, and Writing Play?

Good classroom research builds upon prior experience, prior knowledge, and the work of others. As a researcher thinks about challenges, problems, or new approaches and decides on new actions or strategies to implement, it is natural to reflect on current practice and on the practice of others. Most teacher researchers read professional articles and books related to the new approaches and innovations they are trying in their classrooms. Often the work and experiences of others inform the initial decision making and the implementation of an action research project. In this way, reflection begins even in the early stages of an action research project.

Reflection continues as an educator implements new actions, strategies, and approaches and begins to collect data. It is natural for educators to look closely at what happens with students. As they implement new actions, they automatically look to see what works, what doesn't work, what the results are, what conditions affect the results, what might change, what might work better, and so on. And so, reflection is happening before teachers or administrators are really "finished" with the work. For these reasons, it is a good idea for researchers to document their thinking as they proceed—to tape-record it or write it down so that when they come to the final stage of data analysis and reflection, they will have their earlier reflections to go back to.

The real learning in this entire process comes when a teacher or an administrator closely examines the data that has been collected to make sense of it. As researchers attempt to answer their questions, they learn about the efficacy of their actions, the limitations, the possibilities. Finally, the act of writing to communicate the learning forces them to think more clearly and therefore to really understand what their research is telling them.

What Are the Criteria for a Quality Plan?

As educators get ready to do action research, it is important that they take the time to carefully think through their plan. Appendix E contains a

Checklist for Quality and a Rubric for an Action Research Plan. These tools can help action researchers assess the quality of their plans before implementing a project. In particular, the checklist and the rubric can allow researchers to adjust and revise a plan so that it is more clear and specific.

What Does Data Analysis Look Like?

Some researchers plan action research so that they collect data for a period of time and then systematically review and analyze that data after implementation. Lisa Boerum's approach illustrates this. She chose to do data analysis after the school year was over simply because she didn't have time to do it during the school year, given the professional demands she faces. Others start the review and analysis while the implementation and collection are still going on. For Sue Cox, the ongoing analysis allowed her to better lead the collegial study group of teacher researchers and make thoughtful adjustments to the process.

Often teachers ask, "How do I begin to analyze data?" The answer relates directly back to the questions posed in the action research study. Some studies require more quantitative analysis and others require more qualitative analysis, but most require both. To conduct quantitative analysis, the researcher should be comfortable with numbers and statistics. The process of data analysis in a quantitative study is more numerical, clear, and straightforward. This kind of data analysis may be one of the reasons why some educators hesitate to consider action research. However, when several teachers work together, they can pool their skills. Sometimes a school district will pay a math teacher or university professor to help. Many action research studies do not require statistical analysis, or the analysis is relatively modest and easily managed by teachers with some background in mathematics.

The three examples in this chapter involve both qualitative and quantitative data analysis. This joint analysis requires much sifting, sorting, close reading, and decision making. Sometimes the researcher needs to look for patterns, emerging themes or questions, inconsistencies, or paradoxes in the data. Sometimes the data analysis involves categorizing responses and tallying types of responses. At other times it involves comparing pre- and post-measures or noting the frequency of a behavior or response.

The following example of data analysis by Patrick Kruchten shows how he went about analyzing student responses. This particular analysis required no extraordinary mathematical skills. Patrick simply had to categorize and tally types of responses for this part of his data analysis.

> As I read each student response, I made notes in the margins about what the response was about. I then grouped the responses into categories and tallied the number in each category. For question 1, I found the following information:
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> Question 1: What do you really like about portfolios?
> - 10 responses that they liked organization
> - 11 responses that they liked how their portfolio showed evidence of learning
> - 4 responses that their description of their artifacts were detailed
> - 1 response that he/she liked how the portfolio showed growth
> - 1 response that he/she liked how the portfolio compared old work to new work

Whether the analysis is qualitative or quantitative, the researcher needs to be systematic in cod-

ing and organizing the data. Otherwise, the researcher risks drawing conclusions based on impressions or perceptions. The more systematic the approach to data analysis, the less overwhelmed a researcher will become by the amount of data to sift through.

What Forums Allow Educators to Share Their Action Research?

When educators share their action research with others, they learn more from it, and they allow others to learn. The process of articulating research and letting others know what has been discovered helps researchers to make meaning from their work. Educators can use many forums to share their research. These include collegial groups, portfolios, newsletters, articles in professional journals, and presentations at professional conferences, symposiums, and district or department meetings.

Recommended Resources

Bissex, G. L., & Bullock, R. H. (Eds.). (1987). *Seeing for ourselves: Case study research by teachers of writing*. Portsmouth, NH: Heinemann.
This book is a collection of case studies by teachers of English and graduate students. These studies demonstrate the value of classroom-based research and argue that teacher research does not have to involved large numbers of subjects, control groups, and statistics to be valuable.

Burnaford, G., Fischer, J., & Hobsen, D. (1996). *Teachers doing research: Practical possibilities*. Mahwah, NJ: Lawrence Erlbaum Associates.
This collection of articles about teacher research has sections for beginners as well as for those already informed about teacher research. The focus is practical, and the book includes suggestions for how to do research and how to build a learning community of teachers supporting each other. The authors share a variety of teacher research projects.

Glanz, J. (1998). *Action research: An educational leader's guide to school improvement*. Norwood, MA: Christopher-Gordon Publishers.
This book provides the reader with background on educational research and discusses a variety of ways to use action research in an educational setting. The purpose of action research, as described, is to guide decision making and planning. The material is thorough and easy to read and includes helpful examples. The steps necessary for carrying out action research are reviewed in a user-friendly fashion. The book could serve as a text or study group resource. Exercises and prompts throughout help the reader reflect on the information and strategies and think about application of the models described. The program and evaluation chapter details steps to follow when implementing new programs or evaluating existing programs. The author discusses in detail the reality of day-to-day decisions, deadlines for decisions that come too quickly, and the need for a better model. 'Although the text would be helpful to individuals who want to use action research, it would be best used with a committee or a study group. The book's readability and its strategies for action research in a meaningful context make it a valuable resource and reference.

Kemmis, S., & Taggart, R. (Eds.). (1988). *The action research planner* (3rd ed.). Geelong, Victoria, Australia: Deakin University Press.
This book clearly describes stages of action research and offers guidelines for developing and implementing an action research project. Emphasis is placed on the recursive nature of the process and on the need for reflection.

Noffke, S. E., & Stevenson, R. B. (1995). *Educational action research: Becoming practically critical*. NY: Teachers College Press.
This collection of essays offers a multitude of perspectives on action research. Its detail and diversity, tapping into the experiences of teachers, student teachers, staff developers, principals, and others, makes for thought-provoking reading. The authors focus on the value of action research as part of school improvement. Divided into three main parts, "Action Research in Teacher Education," "Action Research in Schools," and "Supporting Action Research," this book invites readers to examine the potential, the problems, and the impact of action research in education.