

PART II

Developing a Research Project

Part Opener: Moving From Reflective Practitioner to Teacher Researcher

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Even though Alexis had approached her first day as an English language arts teacher with excitement, by the end of the first semester Alexis feels exhausted and overwhelmed. She vents to Belinda, her mentor, about her students' negative attitudes about literature and reading.

Belinda sets about helping her find a solution to her frustration. But when Belinda uses the term *teacher research*, Alexis balks. "I'm a language arts teacher. I can't do research!" Belinda persists, leading Alexis to an understanding of teacher research as a systematic form of reflection, which Alexis values.

Alexis hesitantly begins to develop a research question. With Belinda's guidance, she begins to refine her question, making it researchable, and she considers how it could lead to an appropriate instructional action. Belinda gathers books and journals relevant to Alexis's concern. Alexis is thankful, thinking that Belinda is providing specific techniques to help her students better appreciate literature! However, Belinda explains that the materials only provide background and that an essential reason to conduct teacher research is the unique and contextualized complexity of individual classrooms and teachers. "If one person could develop a recipe for all other teachers to follow and get the same results, teaching would be easy!"

Thus, Alexis follows Belinda's instructions to use the materials as a source for ideas for her research. She has taken a step toward a critical goal of teacher research—empowerment—as she takes charge of her professional knowledge. Belinda also outlines next steps for Alexis: deciding what data will give Alexis the information she needs about each of her students, analyzing the data, and reflecting on what it tells her about the effectiveness of her intervention. Alexis finds that she may have to modify the intervention, collect additional data, and maybe even reframe her question. (To read the complete case study, go to this book's link

on the IRA website at www.XXX and click on Case Study #2: Moving From Reflective Practitioner to Teacher Researcher.)

As you read on in part II, you, like Alexis, will learn how to develop a research project from framing a substantive and researchable question in chapter 3 and learning about research designs in chapter 4, to the process of designing an effective plan in chapter 5.

Focusing the Study: Framing a Researchable Question

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KEY TERMS

Data sources
Framing the study
Learning outcomes
Researchability
Research focus
Teacher knowledge
Teaching strategies

BEFORE-READING QUESTIONS

- What is researchable and what is not researchable?
- How do you frame a research study?
- How do you identify research questions from a research focus?

Jackie, a preservice teacher, is meeting with her university liaison about her teacher research project. Jackie explains to her professor that she is uncertain about her choice for the topic of her project but she thinks she might want to do something with visual organizers. Her professor prompts her to think about a pressing learning issue in her classroom and then about how visual organizers might be one of several teaching strategies used to address this learning issue. Jackie talks about how the first 90 minutes of the school day is spent on reading, and that her host teacher says that the students can't remember the story. Jackie's professor suggests that some of that reading time could be spent having students make personal connections with the story through talking about it or creating pictures. The professor urges Jackie to read about what influences reading comprehension and to talk with her teacher about this idea. Jackie seems interested and encouraged by this topic and says that her teacher has told her that she's interested to see what she comes up with. The professor suggests that Jackie discuss with her teacher the possibility of conducting the research together.

Introduction

Many teacher education students are at a loss as to how to identify a focus for a teacher research study. Despite many hours of observation or teaching, they are unsure of an appropriate topic for teacher research. Research is increasingly becoming a part of the school-day conversation. Teacher research is viewed by some schools and states as a means to help teachers document and reflect on student learning. However, no agreement exists on what **teacher knowledge** is and how it develops. Researchers have characterized teacher knowledge and provided organizing frameworks in a number of ways (for a review see Cochran-Smith & Lytle, 1999; Munby, Russell, & Martin, 2001). These perspectives frequently differ based on the role of researchers and teachers in “who is asking?” and “who is being asked?” (Magliaro & Shambaugh, 2005).

This chapter addresses the challenging stage of developing one or more research questions to guide teacher research. Many educators experience a challenge at this stage if they have not had practice writing research questions. To begin, it helps to be clear as to what teacher research is about. Although teacher research can embrace many aspects of schools, we perceive teacher research as inquiry into the practical problems that teachers face in their practice. We address the different concerns preservice and experienced teachers face. Next, we address the theoretical and practical issues of framing a study by asking three questions: What is researchable? How does one frame a study? How does one identify research questions? The chapter-opening vignette illuminates some of the theoretical issues facing the teacher researcher: What counts as research and what methodologies are appropriate? Who should be studied? What is doable?

What Counts as Teacher Research?

Teacher research constitutes focused inquiry by teachers with the overall intent being to improve their teaching in schools (McCutcheon & Jung, 1990). Teacher education programs incorporate research to develop new teachers’ reflective habits (Clark & Peterson, 1986) and the disposition to improve one’s teaching through systematic inquiry (Shulman, 1988). As higher education and public schools operate in what are different professional worlds, what “counts as research” varies in each (Paul & Marfo, 2001). Many teachers, administrators, families, and even students, view research as an activity outside of teaching rather than as something teachers do. With this in mind, then, we ask what criteria are involved in forming a teacher research topic?

Through our experience working with teacher researchers, we have learned that selecting a teacher research topic involves four criteria (Shambaugh & Webb-Dempsey, 2003). First, teacher research is about personal, professional practice and should, therefore, help to develop a teacher’s professional and reflective habits. We

have conducted teacher research for more than five years. While working together to prepare preservice teachers to conduct their action research projects we have conducted research on our own teaching. We have found the benefits of systematic reflection are evident when we see our students achieving learning outcomes with fewer struggles. Sometimes it is a small improvement in an assignment or the way we organize students to engage in an activity that has made the difference, while at other times it has led to major changes in the way we deliver instruction. Seeing our students reap these benefits makes the effort and energy we devote to this form of research worthwhile. However, it may well be the modeling aspect of our inquiry that is the most powerful outcome. In our experience, it is not uncommon for preservice teachers to be resistant and experienced teachers to be hesitant. This form of research is new and different from what they have been told is research. It seems unnecessary to their immediate concerns of learning to become a teacher or meeting the demands of their classrooms. If supervising teachers aren't doing research, how can the requirement be relevant for preservice teachers? And further, if as teacher educators we aren't doing teacher research how legitimate are we as advocates? This has led us to conduct research on our teaching in teacher research classes and professional development initiatives and to make that process transparent to students and colleagues. We have spent a considerable amount of time working to make the relationship between teacher research and teaching explicit. We explain that while this reflective process requires some additional habits, more so it demands an open mind to the possibilities of how research informs their teaching.

The second criterion is that teacher research should focus on improving teaching practice at the classroom level and taking action to make improvements. Teacher research for new teachers, then, is not about testing theory, improving the work environment of teachers, developing school policy, or revising a school curriculum. Rather, teacher research is focused on teaching practice at the classroom level for the primary purpose of improving student learning. In our experience, teacher research—with its focus on all students—is not about experimental treatments in which one group of students receives an innovation while another group does not. Thus, teacher research appears to be in direct opposition to what is viewed as accepted social science research. However, teacher research can and should be conducted systematically and with integrity.

Third, teacher research provides an ongoing process of problem identification, systematic data collection, reflection, analysis, data-driven action, and problem redefinition. The essential features of this cyclical process are the trying out of ideas in practice as a means of increasing knowledge about or improvement of curriculum, teaching, and learning (Kemmis & McTaggart, 1988). The process differs in terms of the different variations of teacher research, action research, or teacher inquiry. For instance, as described in chapter 1, the one feature that distinguishes action research, at least in terms of a process, is the explicit action tak-

en by the teacher based on the study conducted, action that is implemented in future teaching (Mills, 2007).

Finally, we have observed that teacher research frequently is derived collaboratively, involving preservice teachers, supervising teachers, university liaisons, and teacher peers in identifying an area of inquiry and the design of an investigation. Although it is often assumed that teacher research is “collaborative, supportive, democratic, and critical” (Hitchcock & Hughes, 1989, p. 29), in reality, such outcomes between teacher education faculty and university faculty may be problematic. (See chapter 7 for more on collaboration.)

What Is Researchable and What Is Not Researchable?

Based on the criteria for selecting a teacher research project described in the previous section, several contextual issues determine whether what the teacher is interested in investigating is researchable. **Researchability** is the potential for a topic to be studied and for conclusions to be drawn from inquiry.

One issue related to researchability is the level of complexity, ranging from too broad (e.g., What is the best method for teaching math?) or too narrow (e.g., Why won't the boys in the back of the room pay attention to me?). In our experience, new teachers tend to identify a broad question. This provides a starting point but requires some focus in terms of research questions for new teachers to actually collect data to answer the questions. Sometimes, a topic for teacher research begins with discussions on what happened in the classroom that day. Student challenges with content and behavior then provide the context for a research focus.

Another issue of researchability is the nature of the phenomenon to be studied; in most cases, the phenomenon is the classroom. Classroom research requires the use of “why” and “how” questions. These are more difficult to answer than “what” questions, which can be answered using empirical data. This issue provides the source for additional tension in new teachers because they want to frame a study that addresses “what” questions. The notion of “what works and what doesn't” is very pervasive in teachers, and particularly with new teachers. Teacher research helps new teachers experience the reality that not just one strategy produces results.

One contextual issue is the pressure that teachers are facing in terms of accountability from family expectations and from high-stakes testing requirements in schools. Embedded in this accountability issue is the tension between content-based standards—what others think students should know—and the education of the whole child—what practicing teachers have always viewed as important for children. What counts as teacher research may be dictated by “what counts” as content to be learned in that school. For example, when Jaci provided professional development for new principals who were required to lead and support an

action-research project in their schools as part of their orientation, it was apparent that they and their teachers were initially solely concerned with standardized test results as they considered possibilities. It required substantial discussion with experienced teacher researchers and higher education faculty supporting these school-based teams and among new principals and teachers to negotiate the tensions around “what counts.”

These perceptions become obvious to new teachers who have to negotiate a topic choice. In his mentoring of teacher research by new teachers, Neal has had to mediate between what supervising teachers see as research and the strategies preservice teachers want to try out. The new teacher hears one suggestion from a supervising teacher and quite a different suggestion from teacher education professors. In our experience in coordinating teacher research, we have to spend considerable time and energy on educating new teachers, experienced teachers, and teaching educators on the nature of teacher research.

A second contextual issue is internal to the school and classroom and involves what is in the teacher’s control. Issues of schoolwide behavior, family involvement, and curricular change may be outside the control of the new teacher. These broad topics of concern are frequently studied by groups of experienced teachers who are motivated by social justice, diversity, and teacher voice. New teachers have limited experience in making accurate judgments on how teacher research components, such as data collection, can be accomplished during the school day. Mentoring from other teachers and university faculty is usually needed to assist the new teacher in setting adequate boundaries on what can be studied and what is reasonable given the teacher’s experience and scope of work.

A third contextual issue to consider is deciding whether to conduct teacher research solo or collaborate with peers in one’s school or across schools. For experienced teachers, peer collaboration usually triggers such studies. We have found that negotiating a topic across different schools can be problematic from the viewpoint of supervising teachers. Any comparisons across schools should be done carefully, and the contexts and realities of different schools must be described in the methodology and be addressed in the results. The predominant concern of new teachers is working with people they trust in terms of sharing the work and the logistics of working across different schedules and physical locations. Another reality is that the context for one collaborator may change in ways different from the other collaborators, and the whole focus of the research may need to be revised. The concern of experienced teachers is often political. Comparisons should focus on relevant characteristics of students and learning needs.

Given these contextual issues, how does one choose a teacher research topic? The next step is to identify a direction for teacher research, a direction we label as a research focus.

Identifying a Research Focus

We define a **research focus** as a statement that identifies a specific direction to an initial topic idea. A research focus refines the view of the topic so issues of students, teaching and assessment, and context can be discussed in a substantive manner. A research focus should be based on two factors: (1) student learning needs and (2) teacher interests. New teachers frequently pick research topics that involve creative activities or innovative teaching techniques. However, new teachers should be observing students as well as talking with their coordinating teachers on student behavior and performance.

When we talk with new teachers, we discuss what learning challenges their students face. We talk about why these challenges should be considered as the focus for teacher research. Learning challenges can be related to behavior, content knowledge, understanding, skills development, as well as the development of affective improvements in motivating, valuing, and internalizing change. Out of this discussion can emerge a focus for teacher research. Commonly, these discussions involve a back-and-forth consideration of student learning outcomes and teaching strategies as displayed in the chapter-opening vignette. Here, we refer to **learning outcomes** as an overarching term that may include broad learning goals or specific objectives. Meanwhile, **teaching strategies** refer to those instructional decisions that teachers make on how to assist students in their learning. Teaching strategies can include research-based teaching models (e.g., cooperative learning, direct instruction) to content-specific strategies (e.g., Readers Theatre, word walls), and general strategies (e.g., review, learning stations). To identify priorities for teacher research, we

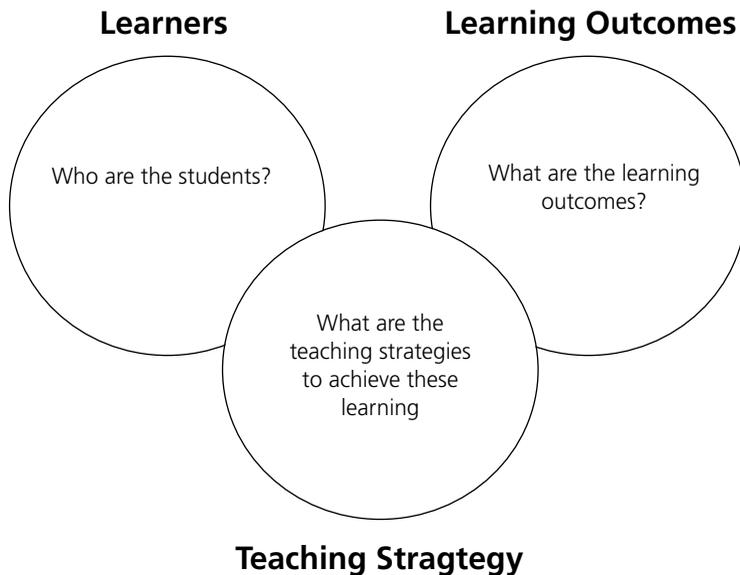
1. List several high-priority student-learning challenges
2. Organize by type (i.e., content area, themes, topics)
3. Prioritize the top three student-learning challenges.

Once three options have been identified for teacher research, we think through the following three questions that comprise a research focus:

1. Who are the students to benefit from the study?
2. What are the learning outcomes?
3. What are the teaching strategies to achieve these learning outcomes?

These components can be visualized as interconnected decisions (Figure 3.1). We use these decisions to develop a research focus statement. Typically, the initial statement is too broad, but it serves as a pointer to developing specific research questions from which **data sources** can be identified, sources that serve to answer each research question.

FIGURE 3.1
Research Focus Organizer

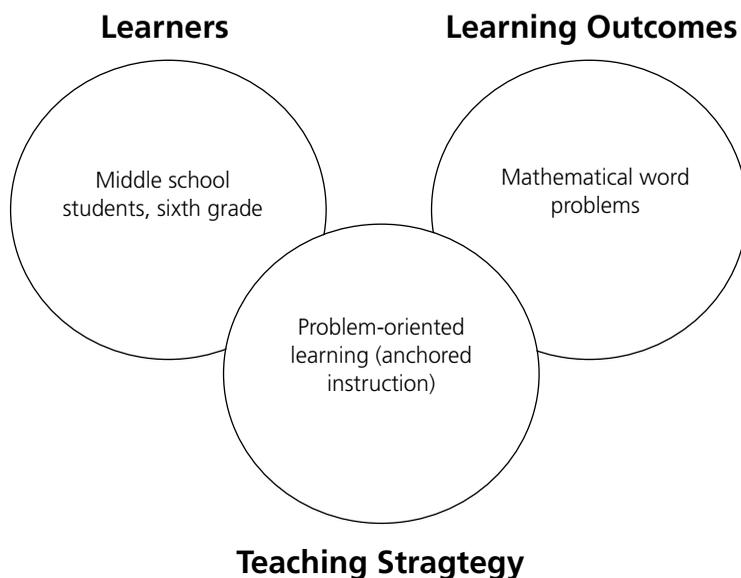


As an example, consider the dreaded word problems that students face in mathematics. A broad research question could be formulated that asks the following: How might a problem-oriented learning approach help sixth graders in X-school learn to solve word problems? An initial choice for the teaching might have been more practice or contextually related practice. A discussion with other teachers and reading of the mathematics literature might prompt consideration of problem-oriented learning (Bransford, Franks, Vye, & Sherwood, 1989). Students tend to rely on facts, formulae, clues, or words that reveal which operation to use. Rather than providing a traditional word problem in which these clues are embedded, Bransford and colleagues recommend providing students with a problem-solving context for students to negotiate. Over time, students become involved in real situations of increasing complexity and authenticity. This problem-oriented context provides an anchor for future learning (anchored instruction). A revised definition of the problem might record the decisions as seen in Figure 3.2.

The general form of a teacher research focus question that centers on student learning typically has the following structure: How does X-strategy help Y-students learn Z-content? Some examples include the following:

- How does a blend of direct instruction and cooperative work groups (strategy) help fifth-grade students (students) learn algebra concepts (content)?

FIGURE 3.2
Completed Research Focus Organizer



- In what ways do graphic organizers (strategy) help tenth-grade students (students) represent their understanding of ecological principles (content)?

Teacher research can take a broad inquiry into teaching. The learners can involve both students and the teacher. For example, consider the following research focus questions:

- How will my experiences in a special-education internship influence my identity as a teacher?
- How do the different teacher strategies used in the county's middle schools help eighth graders understand the uses of mathematics in job settings?

The challenge of identifying a research focus requires that one first know the challenges students are facing in their courses and then identify a teaching strategy. The choice of this research focus should be something that is in the teacher's scope of influence and control.

New teachers may find it difficult to self-assess problems of practice and barriers to student learning because of their inexperience. For experienced teachers, the improvement may be broader than specific learning outcomes. For example, experienced teachers may be looking at a curriculum change, external mandate, peer collaboration, or professional development.

How Do You Frame a Research Study?

Framing the study is the process by which a teacher researcher identifies students' learning challenges and potential teaching options. Several issues should be considered to help frame or bound the study. One framing issue is that the choice of a focus for teacher research should be based on what students need, usually identified and prioritized from experiences with teaching content area topics, concepts, and skills. The inquiry should not be driven by a choice of an innovative teaching strategy that appears interesting. This is a solution looking for a problem. Frequently, the choice of a new approach is based on an understanding of student needs, but a discussion of student challenges is not clearly articulated. The choice of a teaching strategy should not be the focus here, although experienced teachers frequently begin a study selection process by saying they want to learn more about X-strategy. The discussion should return to student learning and how this teaching strategy assists learners.

A second framing issue is thinking that the inquiry is about proving the new strategy better than the old, or setting one strategy against another. One could attribute student performance to that strategy; however, such a claim is difficult given the complexity of learning settings, student characteristics, and limited teaching time. Teacher research may identify approaches that help particular learners while another strategy assists others. New teachers are often motivated by new innovations that supplant traditional strategies. However, be wary of setting up an adversarial study in which the teaching of one teacher is set up against a new strategy. With a vested interest by both teachers, negotiation may yield to trying out the new strategy or possibly blending one or more strategies, as daily teaching always taps multiple strategies. The research focus may be worded to reflect this, such as this example: How does a mix of role play and direct instruction help eighth-grade social studies students appreciate and understand how a state government works?

How Do You Identify Research Questions?

A research focus question that considers students, learning outcomes, and a teaching strategy provides a direction to identifying one or more research questions. A research question identifies a specific aspect of the research focus to be studied. An adequately worded research question, as suggested earlier, specifies students, learning outcomes, and teaching strategy. Initial questions may be adequately worded to point to data sources, which are used to answer the questions. Sometimes it helps to determine one or more specific subquestions. These questions may be broken down by skill or concepts or different teaching strategies. For example, consider the following research focus: How does a blend of Direct Instruction (DI) and Cooperative Work Groups (CWG) help fifth-grade students

learn algebra skills? Specific questions that look at two algebra skills might include the following:

- How does DI and CWG help fifth-grade students solve linear equations?
- How does DI and CWG help fifth-grade students graph data?

Given that cooperative work groups are part of the teaching strategy, a second set of research questions could be considered that address higher levels of learning, such as problem solving and working together.

- How do CWG help fifth-grade students solve problems in teams?
- How do CWG develop team-building skills in fifth-grade students?

Such questions prompt the teacher to develop activities that help students achieve these outcomes. Studying outside sources can also expand the choice of teaching strategy beyond your immediate experience.

Part of whether a question is researchable involves being able to collect information that will answer the question. Once the study is framed, we can identify the specific data sources. New teachers frequently attempt to identify data sources before they have framed their study. Experienced teachers, meanwhile, are more flexible and less uneasy about modifying their studies as the realities of practice unfold. The research focus question frequently points a teacher researcher to identify specific research questions, which, in turn, suggest possible data sources (see, for example, Figure 3.3). The data sources are selected based on their potential to answer each of the research questions. In many cases, data sources, such as a reflective journal, may contain notes that answer one or more questions.

The Visualizing Key Decisions in Framing Your Study Chart in Figure 3.3 summarizes the flow of thinking that leads a teacher researcher from a research focus to specific research questions. (A reproducible version of this chart appears in Appendix B.) Specific data sources can be identified that enable the teacher researcher to answer each question. These data sources are likely existing activities already used by the teacher to assess student learning. However, at this stage the teacher researcher may realize that existing data provides insufficient evidence to answer one or more questions. Student work may need to be collected or a summary of students' needs assessments may need to be recorded. These additional research procedures actually provide you with information about where students are in their learning and where you need to be as a teacher.

Synthesis and Concluding Thoughts

Teacher research is a fascinating process to observe in others as well as for those who take the risks of experiencing becoming a teacher researcher. This chapter

FIGURE 3.3
Sample Visualizing Key Decisions in Framing Your Study Chart

Research Focus

In what ways do graphic organizers and concept maps help tenth-grade students represent their understanding of ecological principles?

<i>Research Question(s)</i>	<i>Data Sources</i>
Q1-How do students represent ecological principles?	Lesson plans, reflective journal, student journals
Q2-What conceptual challenges do students have?	Reflective journal, student journals
Q3-How do students transfer their understanding of ecological principles to solve ecological problems?	Ecological project

Description of Data Sources

Lesson plans: records teaching

Reflective journal: records implementation and reflection or revision, action steps

Student journals: records students' visual organizers and concept maps

Ecological project: records student performance

presents some interesting dilemmas that reinforce this notion of teacher research as fascinating and rewarding.

The first dilemma is that we recommend a prescriptive approach to generating a research focus, to provide direction—one that is focused on student learning—then to formulate a set of research questions that provide further direction for the study. In particular, identifying students, learning outcomes, and teaching strategies provide a means to “unpacking” an initial idea. The actual implementation of the research necessitates that a new set of research procedures (e.g., ongoing data collection, analysis, action steps) be incorporated into teaching procedures. Research activity thus becomes embedded into teaching activity. The implementation details of teacher research will vary to adjust for changing class-

room conditions. The research questions themselves may change as a result. Some questions may be deleted while others are broken out into their own research questions. Although we suggest a prescriptive approach to frame the study, we do so to keep student learning in the forefront and to help the teacher researcher understand the purposes of the research and provide direction for the study. An emergent frame of mind, however, is necessary to account for the realities of the classroom and subsequent adjustments in the research.

A second dilemma revisits our discussion about “what counts” as teacher research (Paul & Marfo, 2001). The wording, “what counts,” acts as a metaphor for this dilemma. “What counts” is frequently thought of in terms of numbers. The numbers cannot fully characterize or explain what occurs in the classroom. All results from teacher research, no matter how they are expressed as words or categories, must be qualified by the context of the school setting. As teacher research is not conducted in a laboratory but in a classroom, the principles governing laboratory research do not apply fully to the wonderfully rich settings of schools and classrooms, and students and educators.

A third dilemma addresses how teacher research can be added to the knowledge base of the individual teacher and the collective wisdom of the school. Although “best practices” is the term used to denote this knowledge, how best practices are actually used in the context of specific classrooms still remains in the teacher’s head. Specific results of teacher research cannot be “counted” upon to transfer to other settings, as the conditions of one third-grade classroom differ substantially from other third-grade classrooms. What does transfer is the benefit of educators in examining issues of student learning and systematically discovering what works, what doesn’t, and why. Teacher research helps to illuminate the complexities of teaching that go beyond what works. Much of teacher knowledge is archived in the heads of individual teachers; as such, unique experiences have eluded efforts to record this knowledge so that others might benefit from it. However, localized forms of knowledge, such as those that can be found in individual schools, can become shared and distributed among educators (Salomon, 1993), in the school and with educators in other schools. Teachers, principals, and state officials who manage to find a way to coordinate their mutual priorities serve the needs of students in the long run. Chapters 12 and 13 provide information that encourages you to share your teacher research findings with others through publication and presentation.

PROBLEM-SOLVING VIGNETTE FOR DISCUSSION

Following is a discussion that took place among a team of fourth-grade teachers. How would you use the process described in this chapter to determine what questions the teachers should consider to frame their research?

Sarah: You know, I think having our students use all the technology skills we've worked on so far to put together multimedia presentations in all of our classes is a great way for them to demonstrate those skills. We know the students love using technology, but are we sure it is worth the investment of time and energy?

Amy: I agree. I still believe that technology is just a set of tools—beyond teaching students to use particular pieces of hardware or software, what's the meaningful learning? Maybe we should think about how using the technology and tapping into students' engagement with it can create other learning opportunities.

Rob: You know, we've been focusing on integrating reading comprehension and process writing because those are still areas of weakness for a large number of our students, and we know students have to use those literacy skills to create their presentations. I'm wondering if we should look beyond just checking off the technology skills and start to assess the impact of creating the presentations on their use of reading and process writing?

Sarah: That's a great idea! If we can make sure the assignment requires them to use those literacy skills and we can figure out a way to assess how the students use them and what effect that has, it would help us think about how to strengthen all our technology assignments.

Amy: Yes, then we can really focus on how using technology can be an opportunity for improving the reading and writing skills of our fourth graders!

TIPS FOR TEACHER RESEARCHERS

The following guidelines and caveats are provided for each of the three questions that organize this chapter.

Question 1: What is researchable and what is not researchable?

Determine the following:

- What student or teacher learning is to be studied?
- What inquiry is in the teacher's control?
- Does the teacher work alone or with others?

Question 2: How do you frame a research study?

Consider the following:

- Student need takes priority over teaching strategy.
- Avoid trying to prove that one strategy is better than another. Instead, consider how a blend of teaching strategies produces performance improvements.

Question 3: How do you identify research questions from a research focus?

- Research questions may differ by skill, concepts, or teaching strategies.
- Research questions may be developed that looks at incidental learning, such as social learning, and may not have originally been an explicit learning outcome.
- Teaching choices can be informed by personal experience and what research or practice has been conducted using this strategy.
- Specific research questions usually point to data sources.

QUESTIONS FOR REFLECTION

- What are some of the teacher research topics that will help your students?
- What are some of the ethical issues that might arise as you frame your research question?
- What are some of your concerns in actually implementing your study?
- How can you make this research useful to educators outside of your classroom?

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