

Prelude

At about the same time Carol Santa began her efforts in Kalispell, a team from the University of Illinois and Illinois State University led by Robert Tierney and David Tucker also began using and studying the teacher as researcher model while working with volunteer teachers at Metcalf Laboratory School on the ISU campus. Over a period of several years, what has evolved at Metcalf is a true teacher-researcher collaboration in the best sense of that term. The participants in this collaborative effort have managed to develop a program that, as of this writing, has permitted teachers to take full control of their own learning and research activities. This chapter has as much of a message for university staff as it does for teachers. It reminds us that university experts should not take all the responsibility for planning and presenting staff development sessions. The approach in this chapter is very much in the mutual adaptation tradition; it is grass roots continuing education in its most basic form.

Robert J. Tierney
David L. Tucker
Margaret C. Gallagher
Avon Crismore
P. David Pearson

10

The Metcalf Project: A teacher-researcher collaboration

The word *remote* might be used to describe the usual relationship between researchers and teachers, between theory and practice, and between teaching and learning. Researchers seem content to suggest principles of effective teaching, espouse new methods, or delineate the implications of theory for teaching and learning, while remaining separate from the everyday forces in operation in real classrooms. Researchers seem to prefer advising teachers from a distance. Teachers tend to display similar predilections. They seem content to keep researchers at bay and sometimes even maintain a distance between themselves and their own students. For example, teachers are likely to expend their energies negotiating with a set of curriculum objectives in a teacher's guide rather than refining their student watching skills or adjusting their instruction to meet the idiosyncratic needs of students.

The Metcalf Project was initiated to explore a different type of relationship; to unite disparate factions involved in teaching reading and writing; and to establish a collaboration between theory and practice, between teaching and learning, and between researchers and teachers.

The Metcalf Project originated in Spring 1982 with a series of discussions among staff at the Center for the Study of Reading at

the University of Illinois at Urbana-Champaign (CSR), Illinois State University (ISU), and the Metcalf Laboratory School at ISU. David Tucker at ISU expressed interest in developing with CSR a working relationship that would complement his role in staff and curriculum development at the Metcalf Laboratory School. He suggested that the CSR staff might use Metcalf as a site for applying some of their recent research findings. Metcalf staff members were interested in becoming more actively involved with the research community, in keeping with Metcalf's mission as a laboratory school.

The prospect of developing a working relationship with the Metcalf-ISU staff was appealing to the CSR staff. We were interested in working in a situation where there might be give and take between teachers and researchers. Rather than asking teachers to implement certain practices or taking over their classrooms to conduct a laboratory like instructional study, we wanted Metcalf to be a site for a project on teacher change based on teacher-researcher collaboration.

We decided to invite teachers to explore reading comprehension and composition in their classrooms in a manner that supported teacher decision making and initiative. Researchers would share ideas, but instead of mandating change, they would help teachers observe what they were doing, consider alternatives, and examine the potential of changes in practice. Teachers would develop an instructional repertoire based on assessment of the effectiveness of different instructional practices; moreover, they would develop an appreciation for teaching and learning.

In other words, we wanted to establish a partnership between researchers and practitioners. Teachers would make decisions based on what they had gleaned from observations of their teaching and from their discussions with researchers. Researchers would expose teachers to new theory and research in reading comprehension and writing, but were expected to avoid offering direct advice. Their role was to help support and refine teacher decision making. The logical extension of this support role was the expectation that eventually the researchers would be displaced by the teachers. As teachers became better problem solvers, they would generate their own momentum for change and would, in turn, become support personnel for other teachers.

A description of the Metcalf Project

Since its inception, the Metcalf Project's goals have not changed, but its form has. From year to year, the project has pursued different activities to meet the changing needs and expanding skills of the teachers. The first year, teachers reviewed and reacted to new ideas and adopted variations of them in their classrooms. The project was restricted to teachers and students in grades four, five, and six who volunteered to participate in the project. By the end of the second year, teachers had explored several projects, developed particular interests, cultivated attitudes of genuine curiosity, and acquired considerable independence. In the third year, the project expanded to include volunteer teachers at other grade levels. Throughout this time, the advisory team included four CSR staff members, the school principal, the director of the laboratory schools at ISU, and staff from ISU's college of education. What follows is a more detailed description of activities pursued each year.

Year one

The first semester was used for planning. While we had defined the goals of the project, we had not determined how they might be achieved. Our first problems were to specify a process for change and to define the framework within which change could occur.

We wanted teachers to ask themselves what they wanted to teach, how they wanted to teach, and how they might judge their own effectiveness. This meant teachers had to develop the confidence, willingness, and knowledge to explore and evaluate pedagogical alternatives. To describe this view of teaching, we began to use the phrase "teaching as a continuing experiment."

In Fall 1982, we invited all six teachers of grades four, five, and six to participate in the project. We described our plan and stressed that, while we would be discussing specific instructional strategies in reading and writing, our goal was not to have teachers adopt these strategies, replacing current ones. Rather, we hoped to explore how teachers examine pedagogical alternatives. They themselves, their thinking, and their practice would be under observation. Specifically, the observation would involve interviews,

questionnaires, and videotaping of ongoing instruction at regular intervals.

Rich Schuler, director of the laboratory schools and acting principal of Metcalf School, relieved participating teachers of some of their routine committee work and provided a substitute teacher so teachers could meet with project staff during the school day. Five of the six teachers agreed to participate in the project.

The project began formally in January 1983. For two weeks we conducted interviews with teachers, administered questionnaires, and made videotapes of one reading lesson and one content area lesson (science or social studies) for each teacher. After two weeks of collecting baseline data, we embarked on the project proper.

Each month for a period of three months the group (teachers and ISU and CSR staff) studied one of three topics: background knowledge, reading-writing relationships, and the role of discussion in reading classrooms. These three topics were chosen for a number of reasons. Background knowledge was selected since it is an area for which there is a great deal of research support and obvious classroom applications. Reading-writing relationships and discussion were identified as important areas despite a dearth of research in these areas. Furthermore, the teachers were obviously interested in both topics.

Each month consisted of the following circle of activities:

Week 1. Researchers presented an overview of the topic.

Week 2. The group considered classroom implications stemming from the overview, readings dealing with the topic, and observations of their videotapes. They generated questions and guidelines (called focus sheets) to help focus their thinking.

Week 3. In advisory sessions, each teacher met with one of the researchers who acted as an advisor. Each teacher decided on a particular question to explore. These meetings were followed by a group meeting during which teachers and advisors shared their plans for a trial run.

Week 4. In advisory sessions, we reviewed what had hap-

pened during the trial run and discussed adjustments or modifications to the original plan. Brief meetings of the entire group allowed teacher/advisor pairs to present their progress to date.

At the completion of the cycle for each topic, the entire group convened to share reactions, observations, and preliminary findings and to identify unresolved issues and new questions. Each advisor/teacher team wrote a summary report of its project, then new teams formed for a new topic.

To illustrate more fully what teachers did during this initial phase, we include some examples of the material developed. Figure 1 contains focus sheets listing the guidelines generated by the group in response to our presentation on background knowledge. Figure 2 contains guidelines for reading-writing relationships.

Figure 1
Focus sheets for background knowledge

Topic: Background knowledge

1. Researching what students know

- Pick out key words in a selection. Discuss with students how these might be related to something familiar that students may have read about or seen.
 - Look at pictures. Based on the pictures, make predictions about the characters or the story.
 - Draw out experiences students may have had that would be relevant to the topic.
 - Use maps to learn more about a location specified in the selection.
 - Suggest or have available supplementary reading on related topics.
 - Select some key words; ask students to free associate; record responses on board.
 - Discuss with students a concept or situation you feel will be analogous (for them) to the one they will be reading about.
 - Have some students serve as experts on particular topics.
 - Simulate some part of the experience in the selection in the classroom. This will give students some first hand experience.
 - Preread a selected passage; have students predict what will be forthcoming.
- In all of the above activities, the teacher must:
- Analyze the knowledge domain required. What does the child need to know and think about in order to understand?

Figure 1
Focus sheets for background knowledge (continued)

- Introduce child centered rather than teacher or text centered knowledge.
 - Provide more than a definitional experience for children. The teacher should be concerned with relational ties between old and new information.
2. Mobilizing what students know
- Ask, "Have you ever felt that way?" Invite students to identify with characters.
 - Predict how the story will end; ask students what makes them think so.
 - Ask the same question three or four times; if students change their answers, ask them why.
 - Have students generate questions.
 - Ask students to adopt a point of view about something in the story. Ask one student to adopt one point of view and another the opposite point of view.
 - Have students take a position about what they have read; ask them to justify it.
 - Ask students what they know about a topic.
 - Ask students to recollect something you consider relevant and that you are sure they know.
 - Get students to visualize something by drawing a quick sketch.
 - Ask students to make comparisons—to draw analogies between the new information they are encountering and old, more familiar information (e.g., Canada and U.S., states and provinces).
 - Display information in chart form.
 - Encourage students to become engaged with the text by asking them to read knowing they later will be asked to perform a skit or initiate a character or story activity.
 - Have students dramatize parts of a selection; ask them to act as tour guides.
3. Seeing what students know and helping them watch their knowledge grow and change
- Help children see how the pieces fit together and form a whole.
 - Encourage children to bring to school information they consider relevant (maps, books).
 - After students have free associated, organize that information on the board or on an overhead projector.
 - Have students compare what they already know (prereading knowledge) with the information they have gained from reading their text (perhaps by filling in empty slots on a chart).
 - Ask experts in class to prepare a test. Ask others to help evaluate the aptness of the questions for the text read.

Figure 2
Focus sheets for reading-writing relationships

Checklists for providing reading and writing opportunities

Are students being given opportunities for full writing and reading experiences?

- Planning**
- In writing, are you providing time for self-initiated planning?
 - In reading, are you providing for self-initiated planning?
 - In writing, are you encouraging students to immerse themselves in the characters and events they describe? (first person, third person, using dialogue, vivid descriptions)
- Aligning**
- In reading, are you encouraging students to immerse themselves in characters and events?
 - In writing, are you providing opportunities to talk through ideas? Do rough drafts? Override concern for low level problems? Experiences?
- Drafting**
- In reading, are you providing opportunities to reread? Jot down ideas? Override low level problems?
 - In writing, are students encouraged to share what they have written? To talk about what they are trying to do? How well?
- Revise/Conference**
- In writing, are students encouraged to revise, edit, and publish?
 - In reading, are students encouraged to share what they have read? Their goals? How well?
 - In reading, are students encouraged to revise and edit?

Are you providing students with writing opportunities during reading?

Do you give opportunities for writing

- Prior to reading?
- During reading?
- After reading?

Are you discussing how writers use what they learn from their reading in their writing? Followup?

Are you providing students with reading opportunities during writing?

Do you give opportunities for reading

- Prior to writing (e.g., for researching ideas, learning about techniques)?
- After drafts (e.g., checking for accuracy, richness, techniques, impact)?
- Self-checking en route to revision?
- For purposes of editing?

Are you discussing how readers might use what they learn from their writing in their reading?

Figure 2
Focus sheets for reading-writing relationships (continued)

Are you providing students with opportunities to talk about how they read and write and to hear other people (including yourself) talk about how they read and write?

Are you encouraging students to have full and independent reading and writing experiences?

Helping students plan for writing

Planning involves providing opportunities to

- | | |
|---------------------------|---|
| Research | <ul style="list-style-type: none"> • Brainstorm • Add facts, bearing in mind genre and context • Organize ideas • Tap other sources (reference material, books, interviews) • Explore senses |
| Adopt a stance or purpose | <ul style="list-style-type: none"> • Narrow or broad focus. What is my main point? (Who? What? Why?) What is the significance? |
| Arrange | <ul style="list-style-type: none"> • Choose storyteller • Order events, ideas • Highlight, set priorities |
| Anticipate effects | <ul style="list-style-type: none"> • Scare, amuse, suspend my reader • Learn outcomes |
| Share plans | <ul style="list-style-type: none"> • Discuss with peer or teacher (intentions) |

Checklist for planning

Are students

- brainstorming?
- generating ideas for all the slots (who, what, where, why)?
- adding facts based on context (audience, publication)?
- tapping different resources (books, people)?
- exploring what they know about a topic through all their senses?
- clustering ideas?
- deciding what ideas are most important?
- thinking about the focus (broad, narrow)?
- considering order?
- considering storyteller?
- considering formalness?
- considering devices?
- considering effect on reader's thinking and senses?
- considering what they are trying to say?
- sharing plans?
- revising plans?

Figure 2
Focus sheets for reading-writing relationships (continued)

A tentative agenda

- | | |
|-----------|---|
| Day one | • Writing experiences with no planning |
| Day two | • Writing experiences with planning (10 to 15 minutes) |
| Day three | <ul style="list-style-type: none"> • Generic plan for planning (checklist emerges with class discovery or teachers discuss given plan) • Writing experience with planning |
| Day four | • Discuss planning |

Throughout the semester, teachers generated the equivalent of fifteen miniresearch projects ranging from the effects of different modes of discussion on pupil involvement and the quality of their arguments to the effects of visualization experiences on the reading of selected students in the low reading group. To present a clearer picture of these minitryouts, we describe in detail two projects initiated in fourth grade classrooms.

A study of background knowledge

Charlene Behrends decided to focus on the topic of background knowledge. After analyzing a videotape of her teaching, she questioned whether she was introducing so many concepts prior to reading a selection that the concepts were treated superficially. The students did not seem to be absorbed in what they read, and were not able to proceed independently. Behrends set two objectives for herself. First, to get the students more involved with text selections and topics, she would help them use their own ideas to complete a map of their prior knowledge of a topic. Second, to integrate old and new information, she would provide directives and questions to ensure that students would relate what they knew about the topic to the selection itself. Furthermore, rather than deal with so many concepts, she would select a few and tie them together.

The second week, an excerpt about loneliness from *Charlotte's Web* was the story in the basal reader. Behrends led the reading group in a discussion of loneliness, asking students to predict

what the story could be about. Then she worked with the children to develop a list of animals on a farm, telling how as pets they would be different from farm animals. This led to a discussion of how pets might feel lonely and how friendship combats loneliness. In analyzing the tape of the second lesson, Behrends noted that the lesson appeared to tie together better, the children were more absorbed in it, and they seemed better able to read independently.

Behrends kept two questions in mind as she presented and evaluated further lessons. Am I giving students chances to research what they know about a topic? How am I helping students assume the role of expert?

Behrends completed the last two weeks by transferring what she had learned about the role of background knowledge to lessons in other reading groups and also to social studies. As a result of the month's work, two main changes occurred in her teaching. She developed the expert notion by having students generate lists of what they knew about a topic before they read. Second, she dealt with fewer concepts, but dealt with them in greater depth.

A study of revision and planning

Wanda Bradford was in her first year of teaching and had been assigned to a fourth grade self-contained classroom. Prior to our discussion of reading-writing relationships, her students did very little writing. In fact, she doubted whether the students were capable of doing much writing. With this in mind, she approached the topic of reading-writing relationships with two questions. To what extent were students capable of generating extended written responses to a topic they were reading in social studies? What influence might planning have on student writing? The first question stemmed from our discussion of reading-writing relationships and her assumption that students lacked the skills needed to write. The second question was an extension of her interest in the role of planning and background knowledge. She did the following things to explore these two questions.

1. After students read and discussed a section in the social studies text, Bradford asked them to portray and to interview characters in the chapter. Half the class was in-

structed to conduct an interview and to portray a character without any previous planning. The other half was allowed time to plan their interview questions and read about the character they were to portray. While Group 1 members were interviewing one another, Group 2 members were planning and preparing their interviews.

2. The next day, students in Group 1, who had not used pre-planning, were asked to write their interviews in story form. Students in Group 2, who planned for their interviews, proceeded to interview one another. Then the class discussed briefly the differences between the groups and generated a list of advantages to planning.
3. On the third day, Group 1 students revised their summaries. Group 2 wrote about their interviews. Both groups were told to make their summaries as interesting as they could.
4. The entire class was divided into four groups on the basis of the person they had interviewed. In the groups, students presented their summaries to one another and selected a representative to summarize for the whole class. The whole class presentation was conducted as if the people were being interviewed on television. After these presentations, the students discussed the interviews and how planning contributed to their interviews.

Bradford's project answered some questions and suggested others. First, she discovered that she had underestimated her students' capabilities as writers. Second, she found that writing was useful for extending reading activities and for followup reading of social studies material. Third, she and her pupils recognized that planning contributed significantly to how efficient and successful students were as writers and interviewers. An independent rating of the stories suggested that essays produced by students who planned were better, when judged holistically, than those produced by other students. A fourth finding took Bradford by surprise: The revisions were not an improvement over the first drafts. She explored this issue in year two.

By June 1983 we could see changes. Teachers and researchers were asking more questions about reading, writing, teaching, learning, and change than when we began the project. In terms of our goals, we felt the teachers were becoming objective observers of their own teaching. Furthermore, instructional initiatives teachers had explored crept into their teaching at other times.

For the university team, the process of working collaboratively with teachers to help them think about instructional problems and goals was radically different from the usual experience of delivering a prepackaged set of instructions for implementing procedures. Just as the teachers' practices were being subjected to close scrutiny and change, so too were many of our ideas about change, effective instructional procedures, and ways to communicate those ideas.

Year two

At the close of the school year, the administration of Metcalf School changed. The new director, Dennis Kelly, continued to extend support to the project, as did Al Jurenas, the new principal.

Year two preparations began in the summer. For three days the project group met to evaluate the first year of the project and to plan for the second. Decisions ranged from what topics should be the focus of year two to the suggestion of changes in the organizational framework for achieving the goals of the project.

An important feature of this meeting was the sense of community that had developed during the first year. This was heralded by what may seem a trivial development. The teachers chose to change the title of the researchers from advisors to partners. As year two began, we knew teachers had to become integrally involved as decision makers in all aspects of the project. If this project was to endure after the researchers left, teacher control had to be established. During year one, we felt as if most decisions were being made by the researchers. Indeed, there was a tendency for the teachers to expect us to make decisions for them. In year two, everybody in the project was involved in making decisions.

In year one we explored three topic areas and changed the teacher/researcher pairing for each topic; in year two, each teacher chose to explore a single topic in depth. In addition, each teacher worked with the same partner (or rather the same team) for the entire year and did not receive released time.

Consistent with the goals of the project, we adopted a problem solving framework that we used for all projects in year two. This involved five steps.

1. *Selecting a general area of interest.* Each teacher chose a general area on which to concentrate during the year. Given the common interests of the teachers, we formed two subgroups: background knowledge and discussion and reading-writing relationships. Within each subgroup there were pairs of teacher/researcher collaborators.
2. *Defining the problem.* Teachers were expected to observe their own teaching and their students' performance and to think about what goals might be set. At the same time, researchers provided some input on the topic. Using this input, teachers and partners defined the focus of the projects and shared objectives with their respective subgroups.
3. *Securing baseline data and planning projects.* Team members collected some baseline information and discussed the students' abilities. We analyzed videotapes and we examined students' responses to checklists, tests, and day to day teaching. This cycle of planning and gathering data was repeated throughout the project.
4. *Implementing the project and securing feedback on progress.* Feedback and revision were integral parts of implementation. Plans were revised as the need for changes became evident. On a weekly basis, teachers and partners (or the entire team) discussed what had occurred, viewed videotapes, and discussed implementation. Throughout the project, teachers and partners examined developments, noted improvements in student performance, and discussed other signs of progress.

5. *Sharing the project.* Periodically, teachers and partners shared their projects with their topic team or with the entire project group. This provided additional opportunities for revision. At the end of the project, each teacher/partner pair prepared a written report of what had transpired.

Two teachers selected discussion as their general area of interest. This interest stemmed from a desire to explore some of the issues touched on in the previous year. One teacher explored explicit standards and strategies for discussion; another chose to explore how discussions of background knowledge influenced comprehension and learning in social studies. Three teachers had developed an interest in reading-writing relationships and were concerned about their students' weaknesses in revision and critical reading of their own written work. One teacher examined whether instruction in sentence and paragraph structure transfers to informative reading and writing. The other two teachers pursued reading-writing relationships in conjunction with trying to improve their students' critical reading abilities and revision strategies.

Helping students learn to revise

Mary Kay Fairfield, a fifth grade teacher, focused on reading-writing relationships—in particular, how she might integrate these to help her students learn to revise. Some baseline data collected in October suggested that students had a limited sense of revision. To them, revision involved correcting spelling and tidying pages.

As Fairfield and her partner discussed this problem, certain principles and objectives emerged to guide planning for a project. For example, they determined that it was important for students to understand what revision involved and how to revise. They reasoned that if students could distance themselves from their own work, they would be capable of effective revision. Fairfield speculated that peers might help achieve this distance by reading aloud one another's work and providing advice. With these tenets in mind, she developed the following plan:

1. Students discussed the revisions E.B. White made when he wrote *Charlotte's Web*.
2. Students wrote on a topic assigned by the teacher.
3. Students brainstormed about what was involved in revision in order to define the steps involved, then discussed reasons for doing revision.
4. As a group, students examined and discussed possible revision of written work the teacher had saved from previous years.
5. Each student was assigned a peer for input. The peer's job was to offer suggestions to the student for revisions of the composition and to read the composition aloud so the writer could hear it from a distance.

Fairfield encountered several surprises. She had been uncertain of how students would react to discussing E.B. White's revisions and the topic of revision in general, but they loved it. Not only did all the students become actively involved, they shared ideas reflecting their knowledge of the difference between revision (of ideas) and editing (for style and mechanics), and they even demonstrated some feeling for how and when each might be pursued.

However, while the children could talk about revision, they had difficulty actually changing their own work, even with the support of their peers. Students were reluctant to change their texts, and peers tended to offer general praise rather than specific criticisms or suggestions. Fairfield and her research partner (indeed the entire research team) were forced to reexamine their own thinking about revision and to modify the project plan.

Over the next three months, Fairfield continued to work with revision, and she began to see changes. Not only did students begin to revise; their writing in general began to improve. So, too, did their interactions with their peers. And she noticed some carryover to students' reading comprehension. At the end of the year, Fairfield and her partner wrote an article about teaching revision. To appreciate her problem solving initiative, you should be aware that in year one Fairfield had preferred that the researchers tell her what to do. During year two, she assumed the role of initiator and scientist.

The concept of story

Rita Fisher, a sixth grade teacher, was interested in developing her students' understanding of how authors write and revise stories. She had noted that students had limited revision strategies. Her students had no sense of what changes to make, and they tended to have difficulty focusing their attention on specific problem areas. Fisher initiated the following plan.

1. Students discussed key elements that make up a story and how the quality of these features distinguish good stories from mediocre ones.
2. Students created a checklist to apply to a story they had read and to their own stories.
3. Students selected one story feature they felt needed improvement and grouped themselves with other students who were planning to focus on the same feature. The students read several published stories and discussed how those authors developed the feature in question.
4. Students then applied these criteria to one of their own stories and then revised it, paying particular attention to that same feature.

Fisher's hypotheses about the importance of focusing attention and having opinions were confirmed. Students became authorities on how they might improve certain features of their stories and revised their stories accordingly. Furthermore, there was considerable carryover to reading. Students began to read other stories with an eye to how writers craft stories.

Discussion and reading comprehension

Mary Rozum, a fifth grade teacher, was interested in a followup of some of her work in discussion. She was particularly interested in whether students' awareness of the purposes of discussion could influence their subsequent reading comprehension. She designed a project with two specific questions in mind: Will the introduction of activities designed to help students realize the value of discussion result in changes in their perceptions of the role of discussion in learning? If so, will there be any change in the degree of their understanding of the texts they read?

Before introducing the planned activities, Rozum developed and administered a questionnaire designed to assess students' current attitudes toward discussion. After completing the questionnaire, the students held an open discussion about the value of discussion, generating a list of ways discussion contributes to learning.

Working in groups, students developed checklists for how to read and discuss a story and steps for reading and discussing an expository selection. Later, students used these guidelines when discussing their assigned reading.

Rozum readministered the questionnaire to determine whether there were any changes in students' attitudes. She found that students tended to be more positive about the value of discussion. She assessed students' independent reading comprehension through short answer tests on two selected passages. Rozum found that she could document growth in her students' comprehension as well as an improvement in their attitudes toward learning activities.

There were other developments in year two. The most time consuming was the introduction of systematic procedures for monitoring changes in student performance. Project staff members agreed that the commercially available standardized tests being used at Metcalf were inadequate for what we wanted to measure. To collect data that matched the goals of the project, we selected several instruments from scales developed by members of the project staff for use in other studies. Other measures were developed solely for use in the Metcalf Project. At the beginning and end of year two, students involved in the project were administered the following tests:

1. *Reading comprehension assessment.* Three passages were selected for students to respond to: a story from a basal, a social studies selection from a content area text, and a science selection from an encyclopedia. Students read each selection, then wrote a summary, selected questions from a list they deemed most important, and wrote responses to a prepared set of questions.
2. *Writing assessment.* Students were asked to write three compositions and then to revise them. The three writing

prompts were "If I could be anything I wanted to be..." "Describe the Bloomington-Normal area to someone who has never been here," and "Write a story about anything you want to write about."

3. *Attitude measures.* Students responded to parallel reading and writing measures.
4. *Behavioral questionnaires.* Students responded to parallel questionnaires probing reading and writing behaviors students use when reading and writing different texts.

These tests allowed us to monitor student progress systematically, and we also monitored teacher change. Attitudinal changes, teacher initiative, and changes in theoretical perspectives were monitored by transcripts of structured teacher interviews conducted at the beginning and end of each year and notes and transcripts of individual and group meetings held at different times during the course of the project. Changes in the frequency of input from the different parties involved in the project and the nature of comments, complaints, observations, and problem solving tendencies were some of the variables monitored.

Behavioral changes or instructional practices were monitored with the aid of our notes, teacher self-reports, and detailed analyses of videotapes. Beginning in year one, teachers were videotaped on a regular basis twice every week during one reading and one content area lesson. During year two, videotaping occurred less frequently but was systematic in terms of a reading lesson and a content area lesson. Videotapes enabled us to analyze how teacher-student interactions changed during the course of the project and in specific projects.

Year three

In year one, teachers were unsure about their reading and writing instruction. They were interested in having "experts" tell them how to teach. Basically, they were interested in prescription. By the end of year two, reading and writing instruction had become a problem solving experience. The alleged experts had become teachers' partners, and together they were students; that is, they

were learning what was occurring as well as what might occur in reading and writing classrooms. The teachers had not only become critical consumers of relevant theory and research; they approached teaching as an ongoing experiment. They were more aware of the ramifications of what they were doing, the rationale underlying their choice of activities, and how and why students were responding as they were.

Our goal for year three was to have the teachers become totally self-initiating. By the end of the year, teachers were to be able to dispense with researchers without any loss of the project's momentum. With this as a goal, the project embarked on a new initiative. All teachers involved in the project agreed to serve as research partners to new recruits. The objective was to have the experienced teacher researchers help other teachers become teacher researchers.

In year three, the partners from years one and two continued working together. In addition to exploring new projects, they developed a plan for working with the new recruits.

Their plan extended the project throughout the school and, possibly, to other schools. It provided a way to extend the collaborations between teachers in the school. Based on the thesis that independent learning arises when learning transfers to teaching, teachers involved in the project continued to grow and change. Finally, the plan supported school based initiatives so that teachers and staff could assume responsibility for maintaining the project and for launching other projects.

Some reflections on the project

At a time when there is pessimism about the quality of teachers and teacher education, it is heartening to be involved in a project that confronts the issue of teacher change. We have studied the constraints on teacher growth, pupil learning, and the possible implications of current thinking about reading and writing. We have studied what it takes to implement curriculum change as well as some of the prerequisites of teacher change. This has resulted from voluntary commitment and collaboration, not from administrative mandates for change. We have been given the privilege of sharing teacher de-

cision making. Our problem solving framework guarantees that we don't abuse that privilege.

Neither the project nor our view of change is short term. Change takes time. Although the change continues, we have some products to show for our time at Metcalf. We have developed some guidelines and instructional products for teaching reading comprehension and writing, and some interesting instructional procedures for observing change in student performance and teacher behavior. Teachers have expanded their thinking about reading and writing and have taken advantage of this thinking in their classrooms. They have incorporated into their teaching a variety of strategies they have tried out themselves or adopted from one another's projects. The project has been shared with other schools that are considering similar projects.

More important to the project's goals is what we have learned about change using this model. We believe we have a useful model for nurturing teacher change as well as translating reading and writing research into practice. We have learned that models of change must be sensitive to the fact that change is a human endeavor. Change requires individual effort, problem solving, negotiation, and a willingness to consider alternatives. New ideas were not embraced overnight; they became part of the teachers' thinking and teaching only with effort, problem solving, negotiation, discussion, and grappling with the ideas. Fortunately, the project capitalized on the idiosyncratic learning tendencies of individuals as they achieved ownership of such ideas.

From our perspective, it was wonderful to be in a situation where we could be participant observers of these changes and be part of the problem solving process. We realize that this process of adopting a problem solving attitude was more important than any educational products. Again, the avoidance of prescription was a major force in helping to develop this attitude.

Finally, the success of the project hinges upon communication. Administrators, researchers, and teacher educators are all talking and sharing. Roles may differ on some dimensions, but we are all teachers, all learners, and all problem solvers interested in improving reading and writing in the classroom.