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Beginning Teachers Improve Classroom Practice Through Collaborative Inquiry

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"How can I get my students to pay attention to me?"
"What will motivate my reluctant readers to read more?"
"How can I get my students to work together in cooperative groups?"
"Would teaching social skills improve discipline in my classroom?"
"How can I get my students to stay on-task and become more productive?
"What can I do to get my at-risk students to produce quality work?"

These questions, and others like them, are asked by classroom teachers every year, especially beginning teachers who are encountering the challenges of the classroom for the first time. In recent years many teachers have discovered that action research is an effective method for seeking answers to questions that are relevant to their classrooms.

Action research, also referred to as "teacher research" or "classroom-based inquiries," has been defined by Cochran-Smith and Lytle (1993) as being "systematic, intentional inquiry by teachers" (p. 5). Similarly, Olson (1990) describes it as the "systematic involvement in the inquiry process in their [teacher's] own classrooms" (p. x). Grady (1998) provides the following definition: "Action research is reflective inquiry undertaken by educators in order to better understand the education environment and to improve practice" (p. 43).

During the past decade, an abundance of literature has been published about teachers conducting research in their own classrooms (Burnaford et al., 1996; Cochran-Smith & Lytle, 1993; Donahue, et al., 1996; Hinchey, et al., 1999; Hubbard & Power, 1998; Goswami & Stillman, 1987; Olson, 1990; Patterson, et al.,1993; Waters, 1999). Most of this literature deals with projects conducted by experienced teachers. Through action research, these teachers have discovered ways to energize their teaching and found strategies to help them develop more effective classroom practices. What about beginning teachers? Is it possible for them to become involved in the process of inquiry in the midst of learning how to teach? We believe they can, and should, learn how to do research in their classrooms in the formative years of teaching. We agree with van Zee (1998) who asserts:

... learning how to reflect upon one's practices is an essential component of learning to teach. I also believe that teachers possess unique knowledge that must be articulated and contributed to efforts to improve instruction in general. To know what happens during induction into teaching,

we must create opportunities for new teachers to tell us--not as anonymous subjects in university researchers' studies--but in their own voices from their own perspectives (p.252).

Like van Zee, Cochran-Smith and Lytle (1993) argue that inquiry should be an "integral part of teaching across the professional life span" (p. 65) and urge "we need social and organizational structures supportive of beginning and experienced teachers' learning and collaboration" (p. 65). Similarly, Sergiovanni contends "Inquiry from the beginning is not only a good idea, but a doable one" (Poetter,1997, p. x). More recently, Power and Hubbard (1999) claim "... the newest of teachers can be researchers, grappling with challenging research questions in sophisticated ways" (p. 36).

In this article, we will describe a unique school/university partnership, the Teacher Fellows Program, that fosters collaborative inquiry projects among beginning teachers, public school mentors and university-based professors. Through this partnership, action research takes on the qualities of collaborative inquiry for the purpose of achieving the goals of the program. In addition, we will (a) present an overview of the action research component of the program, (b) share summaries of two first-year teachers' classroom-based inquiries, and (c) discuss the benefits and challenges of incorporating action research into the induction experience.

The Teacher Fellows Program

The Teacher Fellows Program, a field-based graduate program established in 1993 at Southwest Texas Sate University (SWT), provides extensive induction support to new teachers and encourages collaborative action research between beginning teachers, mentors, and university faculty (Resta, 1996). Over the past five years, new teachers in this program have consistently demonstrated that they can, and should, become involved in action research from the very start of their teaching careers. A unique aspect of the program is that it provides intensive and continuous on-site support from university/public school mentors, in order that beginning teachers can learn first-hand the benefits of action research in the classroom. The program is described more fully in the next section.

Description of Program Model

The SWT Teacher Fellows Program is based on an exchange of resources through which the university gains additional teaching resources and school districts gain induction and full-time mentoring services for first-year teachers. Specifically, outstanding classroom teachers (mentors) are jointly selected and released from classroom duties by the school district for a period of one or two years to fulfill the following roles: (a) mentor first-year teachers (referred to as Teacher Fellows) in their district, (b) supervise student teachers in their district, (c) co-teach part-time in the newly restructured field-based preservice teacher preparation program, and (d) participate in on-going training in mentoring and induction of new teachers. In exchange, the university subcontracts three fully-certified first-year teachers, who are graduate students, to the participating districts for each mentor teacher released to the university. The mentors then provide guidance and support to the beginning teachers throughout their first year of teaching.

Action Research Project.

The first-year teachers inform their teaching practice by engaging in long-term reflective, proactive, problem-solving strategies, and action research with their mentor. Cognitive coaching strategies are used to promote reflective thinking through which mentors and first-year teachers develop their capacity to engage in critical reflection. In addition, the process of thinking reflectively leads to the design and implementation of classroom-based research.

The major objectives of the three-semester action research component of the Teacher Fellows Program include helping first-year teachers to (a) develop research skills that they can use to improve teaching and learning in their classrooms, (b) build a research knowledge base including use of a variety of electronic resources, and (c) become proactive problem solvers with a disposition toward action research. In addition, action research is incorporated into the program to model the use of authentic project work (e.g., constructivist learning theory (Brooks & Brooks, 1993) and alternative assessment strategies (Marzano, 1993)).

The action research projects are focused on improving an aspect of the classroom identified by the first-year teachers. They collect data using naturalistic and qualitative methods (see figure 1). The mentor teachers provide on-site assistance and work intensively with the new teachers in the design, implementation of intervention, data collection and analysis of the project. Participating in the action research process benefits the mentors as well as the first-year teachers. For example, Mary Ann, a mentor, described working with her three first-year teachers on their action research projects as an "invaluable opportunity for professional growth." "As a result of learning this process [action research], I have begun my own action research project," she added.

Figure 1. Examples of Teacher Fellows' Action Research Projects

Teacher Fellow	Inquiry Topic	Participants	Purpose of Study	Kinds of Data
Karen Miller	Immersing Prekindergartners in a Print-rich Environment	Prekindergarten students	To determine the influence of conducting shared reading and writing on prekindergartners' literacy development	Concepts About Print, Journals, Anecdotal Records
Amanda Knox	Motivating Reluctant Readers	Third grade students	To determine what motivates reluctant readers to read more	Survey, Interviews, Inventory

Keitha Fortman	Writing in Mathematics	Third grade students	To determine if writing in math helps students become better independent problem solvers	Journals, Checklists, Field Notes, Attitude Chart
Keitha Simpson	Classroom Praise	Second grade students	To determine the effects of appropriate praise on student motivation and behavior	Surveys, Student Reflection Sheets, Frequency Charts
Melissa Homann	Teaching Social Skills	Kindergarten students	To determine if a social skills curriculum positively influences a kindergarten classroom	Field Notes, Frequency Chart, Sociogram, Survey
Kolony Petty	Self-Regulation Skills and Goal Setting	Fifth grade students	To determine if teaching self-regulation skills and goal setting improves student behavior	Survey, Journals, Frequency Chart
Vicky Davis	Cooperative Learning Group Roles	Third grade students	To determine the influence of group roles on cooperative learning	Survey, Sociogram, Journals

Writing Workshop Course

In the final semester of the Teacher Fellows program, the first-year teachers participate in a writing workshop course which helps them formulate and refine manuscripts based on their action research projects. When asked to reflect on how they felt about writing up their research at the beginning of the semester, the novice teachers used terms such as "nervous," "overwhelmed," "clueless," and "anxious." Loni wrote, "At the beginning of the semester, I was overwhelmed. I had stacks of data, both complete and incomplete. I had graphs to show the analysis of my data. But, I had no clue as to how to begin writing it all up so that it was interesting to the readers."

Like Loni, Cynthia wrote, "I felt extremely overwhelmed. I wasn't quite sure where to begin. There was so much for me to write about, but I had trouble getting it down on paper."

Participating in the writing workshop course, however, helped the beginning teachers develop their confidence as writers. Using the writing process and collaborating with their peers helped them to make sense of the data they had collected and to create a written product. Holly echoed the feelings of many when she wrote in her end-of-course reflection, "I struggled through and persevered and my end product is a very nice manuscript of which I am very proud." In fact, several of the beginning teachers' manuscripts have been published (Brinkerhoff, et al., 1999; Davis, et al., 1998; Havens, in press) while others have been presented at local school board meetings and educational conferences. In the next section, we provide summaries of two first-year teachers' written reports of their action research projects.

Examples of Action Research Projects

Example #1: Increasing the early literacy experiences of children from at-risk environments

After completing the beginning-of-year visits to each of her 18 preschoolers' homes, Karen Miller, a first-year teacher, realized she had a challenging year ahead of her. Most of the four year olds in her class were entering school with few literacy experiences. The majority of the students came from economically disadvantaged, single parent homes; all of them qualified for the free or reduced lunch program. Thus, Karen's entire class was considered to be from "at-risk" environments.

During her undergraduate studies, Karen had learned about the important connection between early literacy experiences and later success in reading. She had read the literature, for instance, that states how children from literacy rich environments enter school "with an incredible foundation upon which . . . instruction can easily build" (Cunningham, 1995, p. 7). She was aware of what Stanovich (1986) calls the "Matthew effect:" Children who engage in playful reading and writing experiences are likely to come to school with some basic understandings of literacy and are eager to learn more, while those who do not, may not. Karen wondered, "How can I make a difference in the literacy development of these children?"

Thus, her action research question became, "What influence does a print-rich environment have on preschoolers literacy development?" More specifically, she wanted to examine the (a) influence of shared reading and shared writing on her students' development of concepts about print and (b) the effect of adding print material to themed play centers. With the help of her mentor teacher and university professors, she designed the proposal for her project during the fall semester.

Karen's study was conducted in her preschool classroom at WidÇn Elementary School, a Title 1 year-round school, in Austin, Texas. WidÇn is a large (1,100 students) prekindergarten through fifth grade campus with an ethnically-diverse population (66% Hispanic, 24% African-American and 10% Anglo/Other). Eighty-nine percent of the students come from economically disadvantaged homes.

Karen began the implementation phase of her project during the spring semester. Throughout the ten-week study, she met with small groups (4-6) of heterogeneously-mixed children for ten to fifteen minutes three times a week during "workjobs" time. Procedures for the small group sessions included (a) introducing a new Big Book, (b) reading the story aloud, and (c) conducting a shared writing based on the text. In addition, throughout the project she set up several themed play centers (e.g., shoe store, veterinarian office, and post office) that contained print-related materials.

Data collection included anecdotal records, pre- and post-assessments using a modified form of the Concepts About Print (CAP) survey (Clay, 1993), and writing samples taken from student journals. While data was collected on every child in the classroom, Karen targeted six students to observe more closely during the project. The data analysis revealed that the targeted students' average scores on the post-assessment of the CAP survey were considerably higher than the pre-assessment scores. Moreover, an analysis of the six students' writing samples showed that they had all progressed from the preconventional stage to the developing stage of writing development (Hill & Ruptic, 1994).

Anecdotal records also documented evidence of the children's growth as readers and writers. The following excerpt is from Karen's final written report:

As we continued to explore print in meaningful and playful contexts, the children began to write all kinds of letters. They began writing the letters in their classmates' names. For example, as I began to write the name Jack during a shared writing session, Amy (author's note: all children's names have been changed) volunteered to write the J saying, 'I know that letter. It's like in Jeremy's name.' ... They became more interested in our ABC Word Wall which had all of their names on it. During centers they began to pull the removable name cards off the word wall and copy them. They used the names to write letters to their friends. 'Kid writing' showed up all over my classroom. Children were going to the writing station during free choice time. I also noticed that children were spending more time in our classroom library, as well as at the Big Book stand.

One day, I observed Valerie and David playing school at the Big Book stand. As I stopped to listen, Valerie told me she was helping David learn to read. 'I'm a good reader and I know this book. He still needs a little help with the words,' she stated very matter of factly. I moved on so that Valerie could continue her 'teaching.'

Over the weeks, I could see exciting changes in my class. My students began to see themselves as 'readers' and 'writers.' My goal had not been to teach reading but to provide opportunities for these students to engage in meaningful and playful experiences with print. Towards the end of the project, however, I observed that four of the children were ready to begin blending letters and sounds to make words. For example, one day while a small group of children were writing their names in shaving cream on a table, Amy announced 'I can spell cat' and proceeded to write c-a-t. Then Valerie blurted out, 'I can spell dog.' Saying each letter slowly and deliberately, she wrote d-o-g in the gooey, white cream. To my surprise, I had four preschoolers who were reading simple, decodable text by the end of the year."

Karen concluded that immersing her "at-risk" students in meaningful and playful experiences with print had, indeed, increased their literacy development. Her action research benefited her as well. It increased her level of confidence as a teacher. At the conclusion of her study, she stated "I believe that I can make a difference in these children's lives." Moreover, Karen's project enabled her to connect the theory she had learned in her undergraduate studies to actual practice in a real classroom.

At the beginning of her second year of teaching, Karen implemented the literacy strategies she had found successful during her action research project. Moreover, as a follow-up to her project, the CAP survey was readministered to the six targeted students during October of their kindergarten year. The results showed that students had maintained the growth from the previous year.

Example #2: Journal Writing in Mathematics

Why do the students perform so well during whole group instruction but bomb the independent work? Where and why are they missing the steps involved in finding the correct answer when working on their own?

These were the questions that Keitha Fortman sought to answer in her action research project. Encouraged by numerous articles that documented the benefits of writing in math journals, Keitha sought to investigate the use of journal writing in math in her own third-grade classroom. Specifically, her project sought to determine if writing in math would help students become better independent problem solvers.

Her research was conducted at Plum Creek Elementary, a third and fourth grade campus, in Lockhart, Texas. She collected data through parent and student surveys, student journals, frequency charts, and field notes. Like Karen, Keitha chose six students to target throughout the study. Results of her data analysis indicated that all six students benefited from writing about math. In her final written report she concluded:

These students used words, pictures, and/or numbers when problem solving and used the five steps we learned to help them find the correct answers. This checklist helped me to monitor the students' use of writing during math class.

The field notes that were taken during the research helped me to know when I needed to reteach or explain a concept in a different way. For example, one student wrote in her journal after a lesson on dividing with remainders 'The thing that was hard for me was doing the remainder. That was hard for me because I was not looking right and not counting right.' After reading this child's journal I knew she needed more help with remainders.

Overall, every student benefited from writing during math class. Some students chose to use the techniques we learned on the practice and actual TAAS (Texas Assessment of Academic Skills) and did amazingly well. I was surprised and excited to see that about half of the class used this method on the test. This made me feel like the research was time well spent.

Through this research, I learned how my students learn best and what math concepts I need to spend more time on. I learned when it is necessary to reteach and how to get students to reflect on their work. Next year, I will continue my research in math by exploring how my students can use journal writing in math centers.

In addition, this research has helped me to become a confident teacher. By the end of the school year, experienced teachers were coming to me for help and asking questions about what I do in my classroom. . . I believe other teachers did not see me as a first year teacher but as a knowledgeable and experienced teacher.

Based on the improved performance of her students on the state-mandated test, Keitha was asked to present her research to the local school board and share her strategies with other fourth-grade teachers in the district.

During her second year of teaching, Keitha "looped" with her third-grade class and served as their fourth-grade teacher. This enabled her to continue her research project with the same group of students.

Conclusions

We have found that incorporating action research as a major component of the induction experience can be a beneficial, yet challenging, endeavor for beginning teachers. Data collected during the past two years suggests some of the benefits and challenges.

Benefits

An analysis of responses from student interviews and surveys indicates that collaborative action research assists first-year teachers in several ways including the following: (a) It helps them in developing problem-solving abilities; (b) It assists them in becoming more systematic observers of their behavior and/or that of their students during instruction; (c) It fosters their professional growth as teachers; (d) It builds self-confidence in their teaching abilities; and (e) It helps them project goals for continued research.

The following unedited excerpts from beginning teachers' responses further illustrate the numerous ways in which they benefit from conducting the action research projects.

I feel the most important thing I learned was that through action research I can solve classroom problems.

I learned that I have the power to solve the problems in my own classroom. I also leaned how to seek out the answers to my questions or concern. It's important to see what others are doing and then try things in your classroom. We must keep searching to find what works best in our rooms, with our children, so that truly each and every child can be successful.

I learned that I am capable of addressing problems that occur in my classroom. I am, now, confident that I know how to implement something new into my classroom, and evaluate

whether or not it is truly performing the way I wanted it to. I also feel that I am more capable of finding the resources I will need throughout my teaching career. I hope this will help me remain current with new ideas that can help my students.

I am confident that I can successfully address any problem in my classroom. This experience [action research] taught me that I am capable of finding the solutions and making the changes necessary in my teaching to address the needs of my students.

Challenges

In addition to the benefits, beginning teachers also reported various challenges to conducting action research in their first year of teaching. Some of the major challenges they encountered were (a) finding the time to collect data, prepare materials, and/or implement procedures; (b) managing difficulties related to data collection (e.g., deciding what to collect and how to collect it); (c) analyzing the data; and (d) feeling frustrated when the project did not go as planned.

In spite of the challenges, however, beginning teachers in the SWT Teacher Fellows Program have persevered and, with the support and guidance of mentor teachers and university faculty, completed their action research projects. As one novice teacher put it, "Conducting action research in your first year of teaching is an overwhelming job, but when you've completed it and find out your results, it's an awesome feeling of achievement." Another compared it to exercising. She reflected, "During the process it's painful, sweaty, tiring, but when you're finished you feel exhilarated and healthier. In the end, you are glad you did it."

In conclusion, we hope that the examples shared from the SWT Teacher Fellows Program will encourage school/university partnerships to incorporate collaborative inquiry into the mentoring and induction experience. Such partnerships can provide beginning teachers with the tools needed to deal with the uncertainties and challenges facing educators in the 21st century.

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