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Practitioner Inquiry: Exploring Quality in Beginning Teacher Researchers' Work

During the past twenty years of the teacher research movement, authors have substantiated the potential for teacher research to support teachers as reflective practitioners and improve teaching and student learning (Dana & Silva, 2003; Falk & Blumenreich, 2005; Hendricks, 2009; Hubbard & Power, 2003). Using well established research protocols, teachers identify a concern, develop a research question around that concern, and plan and implement a change designed to address the concern (Lattimer, 2012, p. 2). Teachers often complete a review of the relevant literature before collecting and analyzing data, and then write findings, conclusions, and implications. In most conceptualizations of the teacher research model, data analysis to understand the impact of the change results in a cyclical process of planning, implementation, observation, analysis, and reflection (Stanulis & Jeffers, 1995). Sagor (2009) contends that these sequential actions or “habits of mind” are the core of the teacher research cycle and “the daily routine of the reflective practitioner” (p.10).

For the purpose of this article, teacher research is defined as “the systematic and intentional inquiries of K-12 teachers and prospective teachers about their own schools and classrooms” (Fries & Cochran-Smith, 2006, p. 950). Teacher research is “a type of inquiry that aims at discovering, developing, or monitoring changes in classroom practice through interrogating one’s own and others’ practices and assumptions” (Atay, 2008, pp. 139-140). Though teacher research is usually conducted by individual classroom teachers, according to Fries and Cochran-Smith (2006), “Collaboration is a key feature, and the role of community is critical because this is the context in which knowledge is constructed and used, as well as the context in which knowledge is opened to the scrutiny of others” (p. 950). When teacher researchers publish or present

knowledge of teaching and learning they have personally constructed, they make their voices heard, and this knowledge is accessible to other members of the profession (Smith & Sela, 2005, p. 295).

The reflective and collaborative nature of teacher research makes this form of classroom inquiry a powerful tool for teachers to improve their work and students' work (Breidenstein, 2002; Levin & Rock, 2003). Teachers have "significant, first-hand insights about education life, as well as well-developed, tacit knowledge about classrooms, schools, communities, and the children in their care" (Crawford & Cornett, 200, p. 40). However, Massey et al. (2009) pose, "Can all teachers become researchers? Should all teachers conduct research?" (p. 57) raising questions for those involved in supporting teacher researchers. In writing about the "deep issues" within the practitioner research movement, Cochran-Smith and Lytle (2009) ask, "Does the movement need to be more discriminating and vigilant about the quality of the work, and if so, how does that happen?" (p.35)

In thinking about these questions as they relate to our graduate teacher research course and our role as teacher educators, we began to debate

- our expectations for the quality of our teachers' classroom inquiry projects;
- the prescriptive or open nature of the course in facilitating quality research; and
- the type and amount of influence we should exert in teachers' work.

These ideas have been the focus of our research and teaching during the last year as we explored the question: "In what ways can we, as teacher educators, influence and enhance the quality of teacher inquiry while preserving the individual teacher's voice and role as beginning researcher?"

Context

Applied Studies in Teaching and Learning is a Master's of Education degree offered by the Department of Early and Middle Grades Education at West Chester University of Pennsylvania. To apply to the M.Ed. program, students need to be certified (elementary, secondary, special education, etc.) and have completed one year of full time teaching. The program includes seven required courses and an individually selected area of focused inquiry. Each of the seven required courses embeds research oriented perspectives and skills, helping teachers develop the habit of questioning their practice in systematic and intentional ways. The capstone experience for the program includes a classroom inquiry project conducted during the final course, *Teachers as Classroom Researchers*. Students begin to develop a research question and review relevant literature in the fall semester prior to the course. During the spring semester, using their classrooms as sites for inquiry, practicing teachers complete classroom research based on real questions related to teacher and student learning. This is the teachers' first comprehensive teacher research project, and most report very positive learning experiences.

We have co-taught *Teachers as Classroom Researchers* since 2007. The course has been revised each year in response to faculty review, examination of student work, and student feedback. In spring 2010, we developed an internet-based framework for the project which replaced a traditional paper submission. The internet-based template includes the typical stages of teacher research: identifying a problem or question, reviewing the relevant literature, revising one's research question and sub-questions, determining appropriate methodology for data collection and analysis, analyzing data, drawing conclusions, and suggesting implications from emergent themes or research findings. The internet-based framework was developed using the MERLOT website, supported by the Carnegie Foundation (MERLOT.org). The website replaced three-ring

binders, paper reflections, and PowerPoint or poster presentations for sharing teachers' final work.

During our six years of co-teaching, we have observed that most teacher research projects were thorough, clearly written and explained. However, we found that some projects were less focused or showed less teacher understanding of the research process, reinforcing concerns raised by Massey et al. (2009) and Cochran-Smith and Lytle (2009). There is a range in the quality of our students' work, and as suggested by Mitchell (2003), teacher research

allows for a range of variations. At one end of a continuum, are teachers whose projects are well connected to relevant academic literature and whose research design and reporting are strongly influenced by concerns of academic rigor...The other end of the continuum could be labeled highly reflective practice" (p. 200)

This mirrors our observations of variations in teacher research quality within our own small sample of one hundred fourteen teachers. While we struggle with categorizing teacher research in degrees of quality, it is important that we engage our teachers in conversations about quality and rigor in teacher research, including "a thorough grounding in the nature of action research and the knowledge of appropriate research methods" as expressed by Capobianco and Feldman (2006, p. 508). During the past two years, we have focused our attention on the quality of our students' research efforts and their final products, as we explored the question, "In what ways can we, as teacher educators, influence and enhance the quality of teacher inquiry while preserving the individual teacher's voice and role as beginning researcher?"

Methodology

During the spring semesters of 2010 and 2011, fifty-eight students completed teacher research projects as a requirement of their *Teachers as Classroom Researchers* course. Throughout the semester, periodic semi-structured reflections, exit questionnaires, and anecdotal records of small group discussions with course instructors were collected. Completed teacher research projects developed and posted on the MERLOT.org website were also used as a source of data. The spring 2010 class served as a pilot for the use of the interactive website technology and data from this semester were analyzed and used to inform our teaching of the course and our research in spring 2011.

We began the spring 2011 semester by sharing our research question with our students and explaining the evolution of our focus on quality. We adapted the course to include additional critical checkpoints where students reflected on their research, learned from and critiqued each others' work, and received feedback and suggestions from their peers and instructors. We required a more structured reflection to be written after completion of each phase of the research: research question, research context, review of literature, data collection methodology, data analysis methodology, findings, conclusions, and implications, guiding these reflections toward considering quality in one's work. The following prompt, was inspired by the work of Cochran-Smith and Lytle, as well as others in the field of teacher research was provided for students, as they completed their semi-structured reflections throughout the course:

One way to reflect on your research is to ask critical questions about the quality, integrity and purpose of your work. Sometimes the questions that must be posed are those that make your work problematic, disconcerting and make you feel uncomfortable. It is these questions that can help maintain the quality and integrity of your work and help keep students at the center of your research.

By requiring a response to this prompt, we hoped to focus teacher researchers' reflections on their work in ways that enhance the conversations about and quality of teacher inquiry.

For this article, we used our spring 2011 students' semi-structured reflections and exit questionnaires as primary sources of data, providing rich insight into students' quality of work and their understanding of and beliefs about teacher research.

Participants included 22 M.Ed. students, teaching in various public or private school settings, pre-kindergarten through high school. Table 1 includes selected examples of teachers' research questions or topics and sources of data used for each teacher's inquiry. Of the 22 students, 19 completed regular reflections on their work and all participants completed exit questionnaires. Other data included observations of teacher researchers' work, small group interactions, one on one conferences, and reviews of final projects.

Table 1

Teachers' Research Questions or Titles and Sources of Data, Spring 2011

Research Question or Title	Types of Data Collected
Implementing student-directed inquiry in a grade 1 classroom	student reports, field notes from observation of student work, post-report questionnaire, student work samples/new facts learned, exit questionnaire
Writing as a process: redefining the writing curriculum in 2nd grade	student writing samples, teacher graded rubrics, student graded rubrics, student reflections, observations, student interviews, student survey, pre-write and post-write
Exploring a reward system in a 2nd grade classroom	student surveys, interviews, parent interviews, observations, researcher journal
Literature circles in 3rd grade reading: Structured and unstructured talk in a 3 rd grade classroom	student interviews, observation field notes, video/audio recordings of student groups, participation charts, student surveys
What are the effects of integrating an interactive whiteboard in a 4th grade math classroom?	participation checklist (observations completed by math coach), exit tickets, researcher journal, student interviews
Using Words Their Way with struggling 5 th grade writers	Ganske Spelling Inventory, student writing (formal, district writing assessments, student

and spellers	writing, informal journal writing), student interviews
How can I gain the respect of my students and more effectively manage 4th and 7th grade classrooms as a per-diem substitute teacher?	student survey, researcher daily summaries classroom artifacts (map of classroom, lesson plans, daily instructions from teacher)
Kinesthetic learning in a 6th grade earth science classroom	traditional assessments (pre and post tests, quizzes), post-unit student survey, observations and field notes, exit slips, student interviews, photo and video recordings of student work
Response to Intervention for struggling algebra students in 8th grade	pretests, mid-chapter quizzes, chapter tests, student exit slips, observation field notes
Preparing the middle school student for proficiency in high school technology	teacher interviews, teacher surveys, middle school technology curriculum
Using Multiple Intelligences in a high school special education classroom	Multiple Intelligence survey, researcher journal, student interview, student work samples

Note: Organized by grade level, primary through high school

Major Findings

An analysis of student reflections and exit questionnaires revealed that beginning researchers identified three areas related to the quality of their work: 1. Concerns about quality of the research process and product, 2. Concerns about classroom, school, district and course constraints influencing the quality of the research, and 3. Influence of instructor and peer feedback on quality.

Research Process and Product

Participants expressed concerns about the quality of their work throughout the teacher research experience, however, their comments in two areas, data collection and the review of the literature, were most significant. The first area of concern to teachers was related to the quality of the data they collected. One student wrote, "During the data collection phase, I was very concerned with the quality of my study. I was not sure whether the data I chose to collect would actually be helpful in answering my research

question.” Another teacher expressed a similar concern. “It’s difficult to know if I am collecting useful information that will give me what I am looking for . . . I wonder if I am missing something or could have asked more questions to be more accurate.”

Because this is the first time teachers have conducted comprehensive research in their classrooms, questioning their methodology is reasonable and expected. These beginning researchers expressed their intentions to seek out meaningful data sources that address their research questions.

In addition to the quality of their data, students were concerned about the quantity of the data - the amount of data that could be collected “within a relatively short time period.” One teacher asked, “Will I be able to collect enough valid sources of data?” A substitute teacher exploring students’ perceptions of substitutes, expressed, “My main concern was that I was only able to survey fourth and seventh graders. I was hoping to survey a broader range of grades to get a more comprehensive view of how students perceive substitute teachers.” The teacher continued, “I worry that I will not be able to survey enough students.”

Another issue for some teachers, related to the data collection process, focused on concerns about the integrity of their sources. A first grade teacher asked, “Am I being honest when collecting data?” A seventh grade science teacher wrote, “. . . I wanted the data to be as accurate as possible. I did not want an outcome that fit into what I had projected.” During the semester, we discuss the problem of bringing preconceived conclusions to the data collection and analysis processes in whole and small group discussions. Students read various texts to support their work and understanding of the teacher research process; however, these beginning researchers clearly struggle with the integrity of their data, as well as the quality and quantity of data collected.

Beginning teacher researchers also expressed concern about completing their literature reviews. Reflections from the spring 2011 semester indicated that for some students the literature review was difficult for two reasons: problems finding enough sources on their topics that were relevant, credible, and similar (Hendricks, 2006, p.51) or problems selecting from a myriad of sources. One teacher wrote, “Writing my literature review was one of the more challenging pieces of this entire project. I had a very difficult time finding articles pertaining to my topic.” A technology teacher shared, “Did I perform a thorough literature review? When do I stop finding and using resources in a literature review?” While we address both of these dilemmas in our large group sessions, the data reflect that teachers are aware of potential issues of quality in the review of the literature and data collection steps.

Classroom, School, District and Course Constraints

Participant responses on reflections and exit questionnaires revealed that beginning teacher researchers face a variety of constraints resulting from their teaching contexts or from the structure of the university course schedule. Classroom constraints, school or district imposed expectations, and university and course schedules affected the amount of time researchers could spend on each stage of the research. The data reflected teachers’ awareness of the various ways that these time constraints affected the quality of their research and influenced their choices as researchers. In reflections and exit data, teachers identified specific constraints that influence their research: their daily schedules, unanticipated classroom occurrences, and school or district wide responsibilities.

Classroom constraints. Teacher researchers noted constraints in their specific classrooms that limited their time to complete research. Several researchers found data collection difficult because of teaching responsibilities and adapted their research

methodology appropriately. One researcher reflected, “The hardest part was keeping my research journal. There were days that were especially hectic, and I would forget to write in my journal until I got home.” The teacher added, “There were also some days that I didn’t find anything relevant to write about.” This teacher’s comment demonstrates awareness of the importance of data integrity, showing that while her primary focus is on the classroom, she is aware of effects on her role as researcher. A third grade teacher referenced the difference between her study and others reported in the literature. “I was not able to investigate total class peer tutoring, as mentioned in my literature review, because during my research, my classroom tutor needed to take extensive time off for personal reasons.” Another teacher commented about the time available to focus her intervention and inquiry on the entire class: “I had the hardest time narrowing my participants. I knew the entire class would benefit from learning the 4-square writing method, so the students that I didn’t choose for my focus group [selected research participants] still received the same instruction.”

Several teachers commented on the decisions they made regarding their study participants. For example, teachers made deliberate changes to their selected participants in response to absenteeism during data collection. One teacher commented, “One of the things that might compromise the integrity of my data is absences—excessive absences or classes missed periodically due to instrument lessons and illness.” A fifth grade teacher reflected, “I removed a student from my focus group because he was missing too much school, and added a different student.” She continued, “In the end, I am so glad that things worked out the way they did because I was able to closely monitor the newer student’s growth as an essay writer.” These comments reflect teachers’ understanding of how classroom constraints impact teacher research.

School or district constraints. Beyond time constraints within the classroom, teacher researchers repeatedly identified school or district expectations that limited classroom teaching and therefore research time. Several students noted how the expectations for teachers to “cover” the necessary curriculum affected their research. Nearly one third of our participants noted that they were constrained by district expectations related to implementation of and preparation for state standardized testing. For example, one teacher remarked, “Testing also made it difficult to move forward in the curriculum; I couldn’t collect as much data as I had initially planned... It lengthened the data collection schedule and reduced time for data analysis within the scope of the semester.” A third grade teacher commented, “Throughout my research, time was the only problem I encountered. State standardized tests were right in the middle of my research, which made it hard for me to find time to work with my small group.” These reflections suggest teacher awareness of constraints posed by school or district schedules and obligations.

Course constraints. Data from semi-structured reflections, observations of teachers’ work, and exit questionnaires also reflected teachers’ concerns about completing their research within the scope of a 15 week semester. Three teachers commented on their limited time for data collection. The first stated, “One issue that may have affected the integrity of my data is the lack of adequate time for collection. My data may have been more valid if I waited eight or more weeks to draw conclusions.” She acknowledged, “This study took place over seven weeks.” Another teacher stated, “I had to conduct my research in a smaller time frame than I had planned,” and a third teacher remarked, “There were time constraints of the university semester along with instruction in algebra....More data could easily be collected and analyzed during [the full] school year.”

Others shared that after they collected data for eight weeks, as planned in the course, there was little time left in the semester for data analysis. One student commented, “I collected data for the whole class and became very frustrated and overwhelmed when I could not analyze it all. I had to remind myself that it was o.k. to focus my inquiry on five participants.” The teacher reflects an important concession, “although not all students’ data were analyzed in depth, I still gave all of them equal attention in class.” These comments demonstrate teachers’ awareness of the course and semester dates that frame their work as teacher researchers and M.Ed. students.

Instructor and Peer Feedback

Reflections and exit questionnaires suggested that feedback from course instructors improved the quality of the teacher research projects in various ways. Teachers remarked on the direct influence of their conversations, primarily with us as course instructors, but also with peers, on the quality of their work. For instance, two students reviewed the literature more “deeply” or “broadly” after conversations with us. Similarly, several students noted that “direction from instructors” helped to focus or broaden the research questions that they had constructed. Four students remarked that feedback from instructors and peers influenced their “data collection or data analysis plans” and “improved their research.” A seventh grade teacher remarked, “The more I looked at the data, and talked to professors and classmates about it, the more I began to discover [analysis].” Others noted that “changes they made to their research design” following conversations with instructors or peers, were “beneficial” to their work and to the “completion of a meaningful project.”

Discussion

Our findings indicate that teachers were concerned about the quality of their work and were able to identify areas of their research that needed careful attention to

quality. Teachers also identified ways in which their work was influenced by classroom, school and university constraints and by instructor and peer feedback.

Research Process and Product

When reflecting on the research process, teachers voiced concerns specifically about data they collected and the reviews of literature they conducted. As instructors, we require teachers to post their literature reviews to their MERLOT websites within the first few weeks of the semester, before they develop a plan for data collection. This schedule has worked for us in the past for two reasons: we can read the reviews and help students use what they learn from the literature to inform their data collection plans, and the teachers finish one important and time intensive part of the project early in the semester. They can then concentrate on the remaining steps in the research process and allow more time for data collection and analysis. Over the past six years, we considered the literature review one of the less challenging aspects of their work because, by design, they have completed literature reviews throughout their M.Ed. program. Data suggest that students still struggle with this task and that they are concerned about the quality of their work. Hendricks (2006) suggests that this struggle is not unusual for beginning researchers.

Teachers also voiced concerns about data collection. As with the literature review stage, teachers are required to post their initial data collection plans to their websites within the first few weeks of the semester. They include their research question, sources of data that they will be using through their inquiry and how these data will provide necessary information for their research. Teachers receive peer and instructor feedback on their plans for data collection and throughout the data collection phase. With these various supports in place, and an intentional focus on quality, students pose questions and raise concerns about their data collection decisions. We feel

that it is important that teachers are focused on the quality of their data, asking questions about and considering limitations on the research process.

Constraints

Critical reflections on the quality of their work elicited teacher comments about time limitations, and classroom, school or university constraints. In our university classroom, discussions of ethical practices as researchers remind our teachers that their research is secondary to their responsibilities as classroom teachers. Still, teachers expressed concerns about the influence of limited time on their work as researchers.

We feel, however, that the classroom, school, and university constraints teachers identified present opportunities for them to focus on the quality of their research, make decisions in the best interests of their students and acknowledge limitations on their work as researchers. As teacher educators, we support decisions that prioritize our graduate students' responsibilities as teachers and feel that it is important that our students understand that constraints result in limitations on their research. We find these complexities and dilemmas can result in critical conversations about research methodology and teaching responsibilities.

Classroom and school constraints. In our work as teacher educators, we know that daily teaching responsibilities and district obligations, while necessary, illustrate the changing roles of teachers in public schools in our state and nation. Teachers regularly discuss the impact of these pressures on student learning and their teaching, as part of regular graduate course conversations. State standardized testing and preparation for tests delayed or limited time available for implementation of interventions or data collection, and teachers were concerned about the quality of their research as it related to these areas. We have observed changes in the types of research our teachers are able to pursue during the past six years, as external pressures and responsibilities shape

teachers' work in classrooms. As a result, it is clear that the nature of accountability in schools today influences teaching and learning, as well as the types of inquiry possible for teachers and the methodology behind those inquiries.

University course constraints. Teachers noted the university schedule as limiting their time for data collection, and while we believe that the framework of the course is both reasonable and effective, researchers realize that a 15 week semester poses challenges. In anticipation of these challenges, we adjust the course schedule to best suit our students, disregarding as needed, semester start or end dates, and university breaks. However, the reality of the university calendar is that it determines the time teachers spend on their research.

Adjustments we make include: facilitating teachers' formulation of their initial research question and review of the literature prior to the start of the semester, meeting during campus breaks, synchronizing regular and additional class sessions with local school calendars as a priority, extending completion dates for course work, and meeting with students outside of the regularly scheduled class time. Still, it is a reality that the completion of the research in a single semester will shape the extent of their research. In addition to these adaptations, we allow students to extend their research beyond the 15 week semester. Teachers have not opted for this extension, suggesting to us that the university schedule is realistic. While many programs across the state and nation use a year-long research course, and others construct proposals early in the M.Ed. program finishing with a semester or year-long research course, we believe that it is in our students' best interest to immerse themselves in semester long inquiries, as the capstone of their M.Ed. program. We do not feel that a year-long course would eliminate constraints or improve the quality of the research or experience of beginning teacher researchers.

Instructor and Peer Feedback

Teacher researcher reflections, exit questionnaires, focus group discussions and our observations of teachers during small group work sessions suggest that teachers benefit from peer feedback and from instructor feedback throughout the course. We struggle with the type, amount and frequency of feedback that will best support our students without overly influencing their research and regularly contemplate our roles as teacher educators facilitating teachers' research. Are we to allow beginning researchers to learn from experience and make decisions that could negatively affect their research or limit their time spent on necessary steps? Or, are we to influence their work more significantly, removing the opportunity for them to make decisions about their own research? After our initial study on quality, we are encouraged to look more deeply at the possibilities of using critical feedback to deliberately influence teacher researchers' decisions and work.

During spring 2011, the feedback and direction we gave students was more decisive and influential than in semesters past, where we focused more deliberately on the preservation of the teacher's role in and understanding of the process of teacher research than on the quality of the product. Based on six years of formal and informal student feedback, we know teachers benefit from small group and instructor support and provide both, intentionally and frequently. Spring 2011 was our first semester investigating how our more direct and critical feedback on the product and quality of the work would affect teachers and their research.

From analysis of questionnaires and reflections we can conclude that guided reflections that focus teacher researchers' thinking on the quality of their research, allows a common language and framework for critical reflection on the quality of their work. Guided reflections move teacher researchers from reflection that is general and

experiential to that which is more critical and purposeful. Prior to spring 2011, we required various reflections throughout the semester. These reflections asked teachers to respond to general prompts about their work at critical points in the process. While helpful for modifying and adjusting the course and meeting teachers' needs, the reflections were more focused on the technical steps of teacher research and not on quality. As we deliberately focused our research and teaching on our students' perceptions of quality, we found student reflections became more critical and purposeful.

Implications for Work with Teacher Researchers

Our findings suggest that when teachers are encouraged to consider the quality of their research, they convey an understanding of both expectations for and limitations on their research. Teachers noted their concerns about the quality of their reviews of the literature and data collection, identified classroom or university constraints that influence the quality of their research, and reported that instructor feedback and peer feedback were helpful in their thinking about research quality. From these findings, we are able to draw several implications for our teaching and work with beginning teacher researchers which will inform our work in future semesters.

Literature Review and Data Collection

Because teachers identified concerns about the quality of the review of the literature and data collection stages, we will continue to initiate teachers' identification of research questions in the semester preceding their research, so that they may begin to work on the review of the literature early. We plan to seek out and share outstanding examples of complete reviews of the literature, beyond examples of our past students' work and to offer extended schedules to researchers as the need emerges to lengthen data collection or intervention time.

Because teachers have voiced concerns about data collection, and as we review the final research projects, we still struggle with the question of how much to influence our teachers' work. We value their learning from mistakes, and we value teachers' voice in the research decisions. However, in an attempt to raise quality of teacher research, we may begin to pose more critical questions about the data teachers collect. We may choose to structure several of the course reflections around critical questions about the literature review and data collection. For teachers whose time limitations may detract from their data collection period, we may urge those teachers to extend the data collection period, knowing that teachers feel the constraints of the university calendar but are unwilling to extend their semester on their own.

Reflections and Feedback

We believe that it is essential to continue to incorporate semi-structured responses requiring teachers to reflect on the quality of their work throughout the course. Rather than broad reflections on process serving as checkpoints, these reflections can be developed to serve as opportunities for critical analysis of one's work. We plan to continue to utilize these more directed reflections in future semesters, adapting the reflections to encourage more thinking about quality. This may include requiring teachers to complete the reflections in class first, rather than on their websites, so that each teacher is engaged in the critical process simultaneously. Similarly, we may tailor those reflections to address specific concerns teachers have raised about the literature review, data collection, and course, district and university constraints.

There is some indication that the public nature of the website may influence participants' accuracy in self-reporting. The opportunity for more private reflections may give teachers additional confidence to share their thinking (Hramiak, Boulton, & Irwin, 2009, p. 267). We may also follow in-class reflections with small group or

partner semi-structured conversations that further teachers' thinking about the quality and integrity of their work and not just the research process. To date, our conversations in class, while centered on both process and quality of the product, are less critical about individual teachers' work and more broadly descriptive of research expectations. Enhancing a culture of critical discussion may aid teachers in developing a more critical eye. Or, it may take the shape of responding to teachers' reflections on quality in a more formalized and concrete way. While we do this regularly through small group conversations, and one on one, in person or electronically, it may be helpful for students to have written feedback on their reflections about quality throughout the course. In order to understand how our increased focus on quality and our increased voice in students' products affect teachers' experiences and work, we will revise our final questionnaire to include a section on the influence of our critical and directive feedback. We believe these implications for our teaching and for our students' work as beginning teacher researchers will continue to strengthen their work and ours and make a meaningful contribution to the field of teacher research.

Conclusion

As teacher educators working with Pre-K-12 practitioners, we recognize the importance of quality in teacher research. We acknowledge that "issues of rigor and quality are often considered from academic norms" (Mitchell, 2003, p. 206) suggesting we often measure quality in the terms of qualitative or quantitative research traditions, or by impact on student learning. We feel it is essential to clarify that teacher research is a complex, dynamic process and requires quality to be measured more comprehensively. We continue to struggle with the type and amount of influence we should impose while preserving the individual teacher's voice and role as a beginning researcher, valuing teachers' choice and autonomy in the research process (MacLean,

2004, p.158). However, now that we have worked with beginning teacher researchers for a number of years and have seen the range in our students' work, we are better able to identify what teacher research should look like for our M.Ed. student population and raise our expectations for quality.

During the spring 2011 semester, we did not set out to define quality in teacher research or force a definition of quality on our students. We wanted to engage our teachers in thinking about issues of quality and standards for their own work. We agree with the idea that those who regularly conduct teacher research in their classrooms as a way to inform their practice should set the standards for this type of work (Bingham, Parker, Finney, Riley, & Rakes, 2006). Our goal was to keep the concept of quality in front of our students in *Teachers as Classroom Researchers* as they completed each phase of the research process. There are numerous "how-to" books and other resources that provide the necessary framework for teachers' development of needed skills for effective and quality research. However, we wanted to encourage deliberate conversations about quality as we believe teacher researchers need to work toward the "systematic and self-critical inquiry that teacher research entails" (Cochran-Smith & Lytle, 1993, p. 22).

Teacher research is important work and "needs to be taken as seriously as any other kind of inquiry and evaluated by those who would use it on the basis of both moral and educational criteria" (Hargreaves, 1996). Early in the teacher research movement, Cochran-Smith and Lytle (1990) predicted,

Just as academics have evolved a complex set of criteria about standards for judging the quality and contribution of research in the academic community, teachers over time will develop a similarly complex set of standards for evaluating the research generated in and for their community. (p.8)

Returning to our research question, “In what ways can we, as teacher educators, influence and enhance the quality of teacher inquiry while preserving the individual teacher’s voice and role as beginning researchers?” we have come to several conclusions for our practice. We intend to continue to incorporate guided reflections and provide additional opportunities for critical peer and instructor feedback on quality. We also intend to continue our inquiry into quality by reengaging the conversation in our university setting and with others involved in teacher research, with the goal to improve our students’ work as teachers and researchers.

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