Owning professional development: The power of teacher research

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Owning professional development: The power of teacher research

by

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A dissertation submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Major: Education

Program of Study Committee:
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Corey Drake, Co-major Professor
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Iowa State University
Ames, Iowa

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DEDICATION

To my parents
Donald and Charlotte Miller
Who were my first teachers

My brothers and sisters
Bill, Ted, Karen, David, and Jennifer
Who were my first students

My children
Lauren Adams and Michael & Krista Adams
Who brought joyful diversions

And to my husband
Sherwood Adams
Who encouraged me, supported me,
And ran next to me each mile of this marathon

My love and gratitude.
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Typically teachers experience professional development as something that is presented with minimal opportunity for teacher choice and decision-making. Yet when teachers have the opportunity to go beyond the conventional discussion of “what works” and instead pursue questions about their classroom practices and the factors that shape it, teachers experience a new source of motivation and transform the way in which they view themselves and their work.

This qualitative research study explores teacher research as a meaningful form of professional development. It is centered on eight middle school mathematics teachers who reflect about their participation in a mathematical discourse project and their individual efforts of conducting teacher research. Two broad questions frame this study: Why do teachers choose to come together for professional development? What does it mean to do teacher research as professional development? In order to pursue this dissertation topic, I used focus-group and individual interviews to gather data.

Three significant findings are related to reflective practice, collaborative learning, and teacher identity. This study shows that when teachers reflect within a supportive community on their beliefs and on their practices as revealed by videotape, the comparison can serve as a catalyst for classroom research. The teacher-research experience provided a means by which the teachers reimagined themselves as knowers and interpreters of their classroom practices. This study has implications for administrators, mathematics supervisors, and teachers who are interested in understanding issues related to teacher research and professional development.
CHAPTER 1: INTRODUCTION

For me, personally and professionally, this has been the best thing I’ve been a part of for four years. The bonds that have been developed are irreplaceable because you don’t have this kind of experience in your own school building. You know, what brought us together was we all chose to volunteer because all of us wanted to improve teaching. And, you know, so we have all of our different, diverse backgrounds but here we have this common goal, and we’re using this as a vehicle through which we can improve our teaching, essentially. I’ve grown exponentially in what I can think about and what I do in the classroom. (Mike)

Mike (pseudonym), a teacher respondent, describes the benefits of a four-year professional development study for secondary mathematics teachers related to learning about and changing one’s classroom discourse practices. For Mike, along with the additional seven teachers in the project, teaching is not just about instructional methods, it is an intellectual activity. Yet often school and district-based professional development programs for mathematics teachers are limited in deep, mathematical content, superficial regarding the reflection of one’s own teaching practices, and insufficient in the development of supportive relationships among faculty.

Theoretical Framework

Over the course of this century, our idea of teaching has changed from an industrial model of educators replicating a specific set of instructional methods to a complex, intellectual activity. There are numerous reasons for this shift in education including growing social inequities, changes in traditional family and community structures, growth in global communication and information, and the evolution of the workplace (Senge et al., 2000).
Traditionally, good teaching implies knowledge of what to teach and the skills of how to teach it. But teaching is more than a set of technically learned skills. Teaching is “given meaning by teachers’ evolving selves, within the realistic contexts and contingencies of their work environments” (Guskey, 2002, p. 381). Teachers, then, must view their work through the lens of change, a perspective of constant reflection, evaluation, and innovation.

Professional development opportunities can help teachers enhance their knowledge and develop new instructional practices. I will return to this discussion of professional growth through self-reflection in chapter 3.

_Protessional Development: Problems and Promises_

More than 25 years ago, policymakers declared us to be a “nation at risk” as evidenced by the quality of learning and instruction in our country’s public schools (National Commission on Excellence in Education, 1983). In response to public concern, numerous reform programs have been developed around the country. The new vision of practice on which most of these reform programs have been built requires teachers to construct new ideas of student and teacher roles in the classroom (Darling-Hammond & McLaughlin, 1995).

Teachers have been charged with the difficult task of teaching students in ways that teachers themselves likely were not taught in schools and may not have learned in their teacher education programs. In addition, in the climate of school accountability, their success at this task has taken on increasingly higher stakes, especially in urban areas where schools are sanctioned for lack of adequate yearly progress in student achievement gains ("No Child Left Behind Act", 2001). This has led to a demand for professional development
opportunities for teachers that will help them enhance their knowledge and develop new instructional practices.

Teacher training as fixing a deficit

Despite recognition of the importance of professional development, it is widely acknowledged that what is currently available to most teachers is inadequate for supporting the improvement of classroom practice (Cohen, McLauglin, & Talbert, 1993; Lieberman, 1995). Each year districts spend millions of dollars on in-service seminars and other forms of professional development that are fragmented, intellectually superficial, and unrelated to what we know about how teachers learn (D. Ball & Cohen, 1999). In addition, these traditional forms of professional development are not linked to what teachers need to learn in order to support their understanding of what students are expected to know, understand, and be able to do (Hawley & Valli, 1999). Visit any school district on a designated professional development day, and you will find teachers who openly regard the prescribed activities as meaningless and a waste of time. They contest that traditional forms of professional development overlook and undermine their work by promoting one way of thinking about instruction and by attempting to “fix” teachers who lack a set of identified skills.

This deficit view of professional development positions teachers as objects rather than as subjects; as empty, cracked vessels waiting to be filled and fixed instead of as people who grow and develop when exposed to new ideas and meaningful experiences. Additionally, the deficit viewpoint does little to provide support for teachers as individuals. When one is focused on what is not instead of what is, the end result becomes a description
of what is lacking. I address this concern further in chapter 3 where I discuss structures that intensify teacher isolation and serve to deskill the work of teachers.

Some researchers contend that we cannot totally discredit the deficit model. Borko and Putnam (1995) point out that the lack of teachers’ subject-matter knowledge, especially in the area of mathematics, is related to lesser content mastery, which results in lower student performance. They explain that it is especially evident when teachers do not have the kind of knowledge to support the teaching needed to address current reform efforts.

Similarly, Tillema and Inments (1995) suggest that teachers are often not aware of needed areas of improvement that have a direct effect on student learning. However, the focus on teacher deficits does little to describe the teacher knowledge upon which professional developers might build new understanding. As Simon (1999) points out, deficit studies may indicate important areas for teacher development, but they do not indicate how that development might proceed.

**Professional development as fostering growth**

Converse to the deficit model of professional development is the growth model. The perspective of teacher growth offers a variety of structures that place the teacher’s needs at the center of professional development. This teacher-centered approach allows for multiple entry points through continuous inquiry into student learning and one’s own instructional practice.

As a way to bring about transformation of classroom practice, many educators are creating alternative professional learning contexts that involve collaborative study. Such contexts value the idea of teachers working together to improve their practice and embedding
professional study within the everyday practice of teaching (D. Ball & Cohen, 1999; S. M. Wilson & Berne, 1999). A recent trend to transform schools into “professional learning communities” (Fullan, 2001) aims to establish a collaborative interaction among teachers, administrators, and community members. Yet some educators express concern for this idea of collaborative professional development, as it can be a mask for controlling of teachers by expecting implementation of a specific initiative (Grossman, Wineburg, & Woolworth, 2001). In chapter 4, I take up this issue by pointing to ways in which professional development can lead to the disempowerment of teachers or serve to transform them as professionals.

Professional development as teacher growth must involve teachers’ contributions to the work. Smyth (1995) describes the need for a genuine participation from teachers that goes beyond the conventional discussion of “what works” to the involvement and responsibility of pursuing questions about their work and the factors that shape it. Although many studies investigate the effectiveness of professional development efforts, little is written from the teacher’s perspective about how such experiences impact their thinking. Inquiry into one’s practice can portray that perspective while giving meaning and value to teacher development.

*Teacher Research*

A little more than ten years ago, the Research Advisory Committee of the National Council for Teachers of Mathematics (NCTM) sought to expand the traditional understanding of research to include practitioner research. The Research Advisory Committee brought pairs of practitioner-faculty teams who had produced research to a
Working Conference on Teacher Research in Mathematics Education in Albuquerque, NM in 2001. The goal was to generate a list of issues that should be considered in developing a framework for teacher research in mathematics education.

I was one of the classroom teachers who attended that conference. I remember feeling a sense of pride as Dr. Janet Sharp, my university partner, and I stood by photos of my fifth-grade students and explained what we learned about their mathematical thinking. But I also vividly recall feelings of inadequacy throughout the conference when group conversations turned to heated discussions about the degree to which classroom teachers could be producers of “good enough” research. Some of the university faculty seemed to have forgotten that practitioners were still sitting in the room.

Since that time, a growing body of literature supports the notion that research by teachers about their own classroom practices not only contributes to the knowledge base in education (Masingila, 2006), but can also function as a powerful means of professional development (DeMulder & Rigsby, 2003; Koutselini, 2008; Rathgen, 2006; Watkins, 2006). In this dichotomous era of high-stakes tests alongside project-based assessments, educators have pointed to the idea of the teacher as knower of student learning and classroom practice. Cochran-Smith and Lytle (1992) contend that research enables educators to “pose problems, identify discrepancies between their theories and their practice, challenge common routines, and attempt to make visible much of what is taken for granted about teaching and learning” (p. 302). They describe this process as the means of altering, not just adding to knowledge of, teaching.

Teacher-conducted research is known by many names and in multiple forms such as practitioner research, classroom research, and action research, but in this dissertation I draw
on Cochran-Smith and Lytle’s definition of teacher research as a systematic process of teachers working to pursue a research interest either individually, in inquiry teams, or with university researchers (1999). Teacher researchers might produce their own data or undertake a study of existing data on a question of interest. The defining factors of all forms of teacher-conducted research, however, are that teachers themselves formulate or contribute to the formulation of the research questions; they collect data to answer questions; they use a learning cycle of planning, action, observing, and reflecting; they work collaboratively when possible; and they document and share their research (Loucks-Horsley, Love, Stiles, Mundry, & Hewson, 2003). These steps align exactly with what the teachers who chose to participate in the Discourse Project experienced.

Discourse Project

The Discourse Project is a collaborative research partnership between Midwestern State University and eight middle school mathematics teachers in surrounding districts. I first met Dr. Beth Herbel-Eisenmann (Beth Herbel-Eisenmann requested that I use her name throughout this dissertation), the university researcher and director of the Discourse Project, five years ago when she spoke to the entire district of middle school mathematics teachers at the beginning of the school year. Beth’s purpose was to recruit teachers who were interested in the study of mathematical discourse and who were eager to examine their own discourse practices in order to improve instruction. Four teachers from my school district were chosen to participate, two teachers from a rural school district came on board, and two teachers from a suburban district joined the group. Beth’s project plan was divided into four phases: 1) the initial stage of teacher recruitment and conceptual work; 2) the collection of baseline data
about the teachers’ classroom discourse through videotaped classroom observations, teacher
reflections, and lesson plans; 3) the study of professional readings about classroom discourse
and action research; and 4) the support of teachers in their execution of action research.
Throughout all four phases the teachers and project facilitator met on a monthly basis to
discuss the readings, watch videotapes of other teachers, present videotapes of their own
classrooms, and share their action research progress.

Beth selected the teachers for her discourse project to include a diverse group of
educators as represented by their gender, years of teaching experience, school district
demographics, and extent of involvement in professional development. As these teachers
were also my research respondents, I will introduce them further in chapter 2 when I discuss
my research methods.

*Teacher research experience*

While Beth’s research is about how teachers examined their own discourse practices,
I was interested in how teachers make meaning of their teacher research experience.
Thinking back to my own experiences as a classroom teacher conducting research and to my
current work as a mathematics curriculum coordinator, I was especially interested in teacher
research as a form of professional development.

How does undertaking classroom research impact teachers? In this study I describe
how teachers make meaning of their teacher research experience. I present an investigation of
a professional development experience for mathematics teachers about their classroom
discourse practices. One issue I explore is the purpose and design of professional
development for teachers. Typically teachers experience professional development as
something that is presented with minimal opportunity for teacher choice and decision-making, but I will show how the teachers in the Discourse Project were central to the focus of study and the method of investigation. Another issue I present is the degree of professional intimacy teachers develop with each other. I will explain ways in which the nature of teaching can lead to a privatization of practice and isolation from one’s peers; yet when given the opportunity to discuss beliefs about teaching and learning, mathematics teachers can relate to each other with understanding and acceptance. Because I oversee the mathematics program for an entire district, I frequently witness both the detriments of isolation and the benefits of collaboration.

**My Dual Role as Coordinator and Researcher**

In my role as a mathematics curriculum director for a large, urban school district, much of my work involves supporting teachers of kindergarten through high school in their articulation of mathematics curriculum, study of instructional methods, and implementation of assessments. My budget allows for the purchase of additional classroom materials and provides extended time for teachers to meet in the summer. Because of my district-level role and close contact with district administrators, however, teachers often misunderstand my position to be one of an evaluator. The perception that I directly influence teachers’ evaluations and career advancements sometimes creates a sense of guardedness among teachers. This is significant to note because four teachers who are respondents within this study are also mathematics teachers within my own school district. I will return to this issue in a later chapter.

I also come to this research as one who is interested in those who facilitate professional development and how they themselves develop as educators. One of the
respondents in my study, therefore, is the university researcher who facilitated the discourse project. In addition, the facilitator of the discourse project is a member of my dissertation committee. This relationship moved back and forth as we exchanged roles of knower and learner.

So it is as a teacher of teachers and as a researcher of professional development that I come to this study. In chapter 2 I explain what this dual role meant to me when discussing the research methods in more detail. Using this bilateral viewpoint as the lens through which I describe facilitator and teacher perceptions of a professional development experience, I now describe components of my professional career that guided my path towards this research.

Classroom Teacher

I come from a long line of teachers. My father was a university professor of mathematics, and my mother taught high school home economics before my older brother was born. This background instilled in our household an appreciation for and value of education. Not only did I come to know the joy of learning, but also to experience the reward of teaching others to learn. This was enhanced by my experiences as an elementary school student. I attended a school associated with the University of Nebraska. As a laboratory school, each classroom was equipped with state-of-the-art technology including a wall of one-way mirrors that allowed for observations by preservice teachers and their professors. Although I wasn’t aware of it at the time, this arrangement was likely valuable to the classroom teachers as a means of self-assessment. However, I was aware that the teachers were exemplary in their ability to teach for understanding. It is apparent that this approach to
education had significant value for students and teachers. It is unfortunate that many school 
budgets can no longer support this kind of specialized teacher development and research.

I should also mention at this point that my elementary school was diverse racially and 
economically, and this holds true throughout my K-12 education. The experience as part of a 
diverse student population allowed me to associate with many different groups of children 
and avoid the societal barriers that often keep students segregated. An example of this 
integration could be seen in athletics, extracurricular clubs, and social groups within my high 
school. Near the height of the civil rights movement, our student body elected a homecoming 
king and queen of different races. This experience of integrated education laid the foundation 
for my respect for others regardless of background and made apparent the need for varying 
teaching techniques within a diverse setting. I watched firsthand how teachers engaged and 
responded to students of poverty and students with special needs. The concept of meeting 
individual student needs with a variety of teaching techniques is fundamental to my belief 
about teaching and learning.

My appreciation of diversity also informed my educational studies later in college. I 
concentrated on the specific areas of gifted education, mental retardation, and behavior 
disorders. My student teaching experiences ranged from gifted and talented students to 
mentally challenged young adults. I learned that students must be assessed with regard to 
cognitive ability, learning style, and behavioral disposition. What works for one student 
doesn’t necessarily work for another, even within the same classroom.

Early in my career I became the coordinator of a newly formed program for gifted 
students. This opportunity allowed me to directly apply the instructional techniques I learned 
as a preservice teacher. This was my first practical experience in working with other teachers
and providing professional development opportunities. This was also the first setting where I learned the value of networking. Since I was the only person in the school district with this responsibility, I connected with other educators to learn from their expertise.

The next key experience in my career was as a classroom teacher in a mathematics and science magnet school in Des Moines. The school had a unique relationship with Iowa State University through the support of grant funding. University faculty provided professional development opportunities for practicing teachers and in turn the classroom teachers provided guidance to the university students. One of the university professors and I developed a working relationship that involved collaborative research and shared teaching. Our mutual efforts resulted in a long-lasting relationship through which we published shared works and presented our collegial efforts. The experience eventually led me to accept a two-year position as a teacher-in-residence at the university. In my new role, I worked with preservice teachers while serving as a K-12 educator to professors in mathematics, science, and engineering. Part of my job consisted of attending science and engineering courses for education students in order to provide a classroom teacher perspective. In this unique position I experienced learning as a student at the same time that I planned and reflected with instructors. It was in this exciting venue that I recognized an ability to work with teachers.

Mathematics Coordinator

My experience at Iowa State University further developed my credentials in curriculum and instruction, and I returned to my school district as the mathematics coordinator. As coordinator I am responsible for the professional growth of mathematics teachers, the selection of classroom resources, and the development of mathematics
curriculum and assessments. This leadership role helped to maintain my role with the university and expand my network with other administrators. In addition, my job as mathematics coordinator influenced my thinking about mathematics professional development, which later became the subject of this dissertation.

During these past four years I remained on the fringes of the Discourse Project mostly because I did not have any direct responsibility other than to set up continuing education credit for the project teachers. When Beth Herbel-Eisenmann, the project director, became a member of my dissertation committee, we discussed my educational interests with my dissertation director and we all agreed that the Discourse Project could serve as a means to study the impact of this particular professional development opportunity. My dissertation research differs from Beth’s research. She studies the nature of mathematical discourse in middle school classrooms and the incorporation of teacher research to improve mathematics instruction, while I am focusing on issues of professional development for teachers and the use of teacher research as a form of professional development.

**Purpose**

In this dissertation I examine the impact of teacher research as a form of professional development. The focus of my study is centered on eight middle school mathematics teachers who participated in a four-year project studying mathematical discourse and their individual efforts to improve classroom instruction.

Teacher research as a form of professional development requires time, resources, and support. As facilitators of professional development, universities and school districts need to study the impact of these inquiries on teaching and learning. By learning of the teachers’ experiences as participants in the discourse project, I aim to add to the knowledge base
regarding professional development opportunities for which classroom teachers find meaning and value.

Two main questions, each with more specific questions, organized the analyses of my study:

1) Why do teachers choose to come together for professional development?
   a) What do teachers believe to be essential components of effective professional development?
   b) What components of the professional development experience seem to assist teachers in reflecting on their own teaching practice?

2) What does it mean to do teacher research as professional development?
   a) How do teachers talk about the relationship between beliefs and knowledge and the changes in their classroom practice?
   b) How and in what ways does the professional development experience challenge the beliefs teachers hold about knowing mathematics and instruction?

**Dissertation Organization**

I began the introduction to this qualitative study by furnishing the reader with a respondent’s perspective of some of the themes that emerged from the data. Mike’s discussion of teacher-centered professional development is part of a larger national discussion about the purpose and design of professional development. Mike, along with seven other mathematics teachers, participated in a project aimed at improving mathematical discourse through teacher research. I studied the teachers’ experiences with the Discourse Project and learned that this opportunity addressed teacher needs not typically met through
In chapter 2, I discuss my qualitative methodology and the methods I used to collect and analyze the data. Briefly, I conducted two focus group interviews, one with four project teachers from an urban school district and one with four project teachers from a suburban or rural school district. I also conducted one individual interview with three of the teachers and one with the project director. Chapters 3 and 4 contain the data analyses and are interwoven with relevant literature reviews. In chapter 3 I discuss the project goals of the academic researcher and of the project teachers, I consider their specific roles within the Discourse Project, and I suggest how their unique perspectives support the learning of all. In chapter 4 I describe the relationship of the Discourse Project teachers’ beliefs and their enacted beliefs through classroom practices. Rather than view these constructs as isolated terms or as having a cause-effect association, I suggest that we consider their connectedness and seek to understand how the teachers in the Discourse Project reconnect, reaffirm, and reevaluate their beliefs as they strive to align beliefs with classroom practices. In chapter 5 I conclude with further analyses of my data collection process and summarize my investigation. I situate my findings in the larger educational conversations about professional development, teacher research, and school reform. Finally, I reflect on my personal growth as an educator and my professional growth as a teacher development coordinator.
CHAPTER 2: METHODOLOGY AND METHODS

Through my own involvement in professional development, I became interested in how mathematics teachers made meaning of professional development. In order to gain some insight into the perspectives of teachers, I was drawn to research methodologies that build a complex, holistic picture from the voices of teachers themselves. The focus of my inquiry could not be answered through analysis of quantitative data. Instead, the type of interaction needed to answer my questions required an interpretive and descriptive qualitative approach.

This chapter is divided into two sections: methodology and methods. Methodology differs from methods in that methodology is the underlying perspective for interpretation based on ideas, experiences, and social reality. Methodology is the framework that informs the researcher’s observations and interpretations, whereas methods are the procedures used to gather and interpret data. In the first section I discuss the methodological framework that informs my research. In the following section I describe the methods, or the process, of how I collected, managed, and analyzed the data. Within the methods section I provide a background of the participants, a description of the participant and researcher relationships, an explanation of focus group and individual interviews, and my method of data analysis.

Methodology

I begin with a discussion of methodology as it is a broad conception of the premise of one’s research approach. Methodology includes the theory of research and an understanding of the epistemology that frames why one chooses to use a particular approach. My research is informed by qualitative rather than quantitative methodology because the study of teachers’ experiences suggests interpretation of a phenomenon within a specific setting. Such understanding, then, can not be gained through replicable studies or through a reductionist
approach to numbers. Additionally, since qualitative research is interpretive, the beliefs and perspective the researcher brings to the study shape the understanding of the experience (Denzin & Lincoln, 2005, p. 3).

Constructivism

Consistent with the underlying view in this research study is the epistemological stance of constructivism. Crotty (1998) defines constructivism as “the meaning making activity of the individual mind” and suggests that each person’s way of making sense of the world is valid and worthy (p. 58). Constructivism implies that knowledge is not just passively received, but is actively constructed by the knower (Denzin & Lincoln, 2005). Because knowledge and experience is personal to each individual, different people may construct different meaning from the same event (Crotty, 1998). Therefore, the constructivist may interpret the language and actions of others through his/her own constructs, but s/he has to acknowledge that others have realities that are different from one’s own interpretations (Ernst, 1998). Constructivism is a suitable epistemological framework for this study because the focus of the research is to understand how teachers construe the experience of professional development through the Discourse Project.

Within constructivism is the theoretical perspective of interpretivism. An interpretivist approach to research involves an exploration of how participants make meaning of a phenomenon, process, or perspective views (Merriam, 2002). Using an interpretive perspective requires that meaning is made through the act of understanding (Arminio & Hultgren, 2002, p. 452). Interpretivism as a theoretical perspective allows the researcher to learn more about the multiple constructions and interpretations of reality at a particular point in time and in a particular context. An interpretive approach aids the researcher “to understand the meaning of events and interactions to ordinary people in particular situations” (Bogdan & Bilken,
1998, p. 23). It is through this lens, then, that I am guided by Patton’s suggestion that “our understanding comes from sensory experience of phenomena, but that experience must be described, explicated, and interpreted” (2002, p. 106). With rich description of multiple interpretations of their experiences, I present the teachers’ perspectives of their work.

**Experience**

Experience is the starting point for my work with teachers. Instead of depicting teachers as “prisoners of their pasts” (meaning school experiences) or “prisoners of the present” (dealing with workplace constraints), Zeichner (2005) suggests that researchers pay attention to both uniqueness and commonality among teachers while recognizing the process of teacher development as one of interaction. And instead of viewing experience as simply a result of past events, we must consider experience as that which changes with the passing of time, through variations in context, and as people interact. To study an experience or as what Clandinin and Connelly (2000) term to “experience an experience,” is to move forward and backward in time, and to move inward in thoughts and outward to the environment. The study of experience does not appear to be easy because it is not possible to know exactly what another person constructs as understanding. We can only try to make sense of another’s experience through “talk, text, interaction, and interpretation” (Reissman, 1993, p. 8). I chose the interpretive study of experience for two reasons: 1) the process can give voice to the multiplicity of perspectives in a particular context, and 2) it can “bridge the gap between the practice of teaching and the ways in which we study and describe teaching and the education of teachers” (Beattie, 1995, p. 59).
As Cole and Knowles (2001) explain, we research who we are; “We express and represent elements of ourselves in every research situation. The questions we ask, the observations we make, the emotions we feel, the impressions we form, and the hunches we follow all reflect some part of who we are as person and researcher” (p. 89). As I planned this study I paid careful attention to my own memories of conducting classroom research as a fifth-grade teacher. I remembered how I depended on the university researcher to guide me through the research process yet how I wanted to appear confident and in control of my position as the “knower” of my students. Yet at the beginning of this project it felt strange to switch roles and become the outside researcher. Because it was not so long ago that I was the teacher researcher, I thought about what Miller refers to as the “chasm that separates what outside researchers produce as reconstructions of teachers’ knowledge” (1990, p. 17) and wondered how I might work to bridge that chasm.

Among the many issues that perpetuate the gap between research and practice are the lack of communication between academic researchers and practitioners, the silenced voices of teachers in much academic research, the dismissive approach to teacher knowledge, and the view of teachers as users of knowledge rather than as participants in the construction of that knowledge (D'Ambrosio, 1998). I turn also to Goodson (2003), who reminds us that research involves not only different voices but “stratified voices.” Politicians and administrators who control schools are part of a stratified system where “those at the top have a more global view of what is going on than anyone else” (p. 96). Yet teachers, because of their position in the classroom, can offer special insights into the research process that those studying someone else’s practice are unable to do. Related to the belief that we bring the expertise of our own biographies to the classroom, this perspective seeks to foster in
teachers what Belenky, Clincy, Goldberger, and Tarule (1997) call “connected knowing;” the ability to interweave the perspectives and voices of “experts” with one’s own and others’ voices and experiences (pp. 101-103).

Understanding Experience through Focus Group Methodology

When planning how to best study the professional development experience of the Discourse Project, my first thought was to conduct individual interviews with each teacher. Yet as I considered how my dual role of “outside researcher” and “inside knower of mathematics professional development” might seem conflicting to the Discourse Project teachers from my own school district, I decided to pursue an interpretive approach that would reduce some of that tension. The underlying epistemological stance that frames the use of focus groups supported my situation. Therefore, I determined that focus group interviews would be the best fit.

Focus groups are small, structured groups of selected participants organized to explore individuals’ views and experiences (Morgan, 1996). Groups are focused in the sense that the participants respond to and build on the ideas and perceptions expressed by others in the group. Focus group research is useful for examining participants’ shared understandings of a particular event revealing through interaction the beliefs, experiences, and feelings of participants that are not feasible using methods such as individual interviews, observations, or surveys. Focus groups can provide insight on multiple views about activities of long duration, something that would take considerably more time and resources to observe directly.
As Litosseliti explains, focus group interviews are aligned to key assumptions of qualitative research (2003). First, in qualitative research multiple views of reality can exist. This idea is also a fundamental principle of focus group interviews. In fact, one of the strengths of focus group interviews for research in education is that individuals are invited to participate in a forum where their opinions and perspectives are recognized and desired.

Second, in qualitative research the nature of truth statements is such that “truth is influenced by perspective” (Vaughn, Schumm, & Sinagub, 1996, p. 16). In other words, truth is explained by describing a particular set of issues or concepts in relationship to a particular context. Through focus groups the researcher can support discussion that brings about an in-depth understanding of perceptions, beliefs, and experiences from multiple points of view.

One characteristic that distinguishes focus groups from other qualitative interview procedures is the group discussion. Through group discussion an emphasis is placed on the interaction among the group members themselves rather than between the interviewer and the participants. One advantage of this method is that with an atmosphere supportive of differing opinions, focus group interviews can reveal a more complete understanding of an event or phenomenon (Stewart, Shamdasani, & Rook, 2007).

Another advantage of focus group interviews is their “loosening effect” (Vaughn, Schumm, & Sinagub, 1996, p. 19). In a relaxed group setting where participants sense that their opinions and experiences are valued, participants are more likely to express their opinions and perceptions openly (Byers & Wilcox, 1988). The rationale is that the group environment allows greater anonymity and therefore helps individuals to disclose more freely (Beck, Trombetta, & Share, 1986). The focus group interview, then, can provide insight into individual perceptions and beliefs.
In addition to creating a relaxed environment, the peer support offered through focus group interviews may lessen the tendency for individuals to feel a need to impress the interviewer. And, because it is not required that each member answer every question or respond to comments that arise, the responses may be more genuine (Schoenfeld, 1988). The characteristics of focus groups led me to consider that I might gather more honest opinions from the participants who were also teachers in my school district than if I were to conduct individual interviews. Therefore, I used focus groups as the primary source of data and follow-up interviews as a supplementary source of data. I will discuss focus group strategies in more detail below.

Methods

In this section I describe the research methods I used to investigate the topic of teacher research as a form of professional development. I include the context of the study, descriptions of the respondents, reflections on the fieldwork, the collection of data, and the analytic procedures.

Guiding Questions

The questions that guided this study include:

- Why do teachers choose to come together for professional development?
- What does it mean to do research as professional development?

Acknowledging that these questions are broad, I discuss here some of the things to which I attended over the course of the study. As stated earlier, I was interested in how mathematics teachers made meaning of professional development. I was also interested in understanding what teachers believe to be essential components of effective professional development.
Additionally, I was aware that the teachers were in the midst of conducting their own classroom research. Therefore, I was interested to know more about whether and how this form of professional development impacted teachers’ thinking about themselves as professionals. Next, I provide the context of this study, describing the respondents, the methods of data collection, and the process of data analysis.

**Beginnings**

Although my research formally began two years ago, I was indirectly connected to the Discourse Project teachers several years earlier through my work of mathematics curriculum in the Two Rivers Public School District. One of my responsibilities as the mathematics coordinator is to provide professional development opportunities for teachers and administrators. Five years ago, in August 2004, Dr. Beth Herbel-Eisenmann approached district personnel asking for access to middle school mathematics teachers in our school district who might be interested in participating in an NSF project (#0347906). The study, which I refer to as the Discourse Project, was designed to learn how doing action research on one’s classroom discourse might impact a teacher’s beliefs and practices over time. I arranged for Dr. Herbel-Eisenmann to address all middle school math teachers during the district-wide preservice meeting scheduled at the beginning of the school year. Following the session, teachers interested in the Discourse Project volunteered to participate. As a result, four of the eight teachers selected to take part in the Discourse Project were from Two Rivers Public School District. These teachers, along with four other mathematics teachers, were from seven different schools and were selected to vary in gender, context of teaching situation, certification level, and years of teaching experience.
I continued to remain peripherally involved with the Discourse Project throughout the next two years in two separate roles. First, as a mathematics consultant and later the mathematics coordinator, I completed paperwork necessary for the teachers to obtain certification credits through our local education agency, a process that Beth Herbel-Eisenmann could not undertake in her position as a university professor. I also spoke informally from time to time with school principals whose teachers were participants in the Discourse Project. Because the four teachers from my district were involved in additional study, their principals had questions about the requirements and the nature of the project.

It was not until my work as a graduate student, however, that I became more closely connected to the Discourse Project teachers. Beth Herbel-Eisenmann agreed to serve as a member of my dissertation committee, and in the course of our meetings we discussed my interest in professional development for practicing teachers. Often in those early meetings I expressed concerns about district initiatives and frustration that the district professional development options appeared to lack teacher input. I thought of my own professional development as a classroom teacher and remembered how the experience of conducting classroom research brought about a sense of professionalism and fulfillment. When Beth explained that the Discourse Project teachers were about to enter the action research phase of the study, we thought about how I might learn from their experience. With my own perspective of classroom research, professional development, and graduate study, I approached the Discourse Project teachers with the hope that they would be willing to tell of their experiences. All readily agreed, one stating that she wished someone from her own school district “would care to ask.” Therefore, the Discourse Project teachers also became the respondents in this research. In this next section I provide a brief description of the teachers.
Respondents

The participants in the study are eight middle school mathematics teachers and the university facilitator of the Discourse Project. The teachers are part of the Discourse Project, established as a four-year study of a collaborative research project aimed at supporting practitioners in their undertaking of classroom research. Four of the teachers, Charla, Laura, Don, and Mike are teachers in the Two Rivers School District where I also serve as the mathematics curriculum coordinator. Karen and Annie teach together in a nearby rural school district, and Janet and Adam began the study working at a suburban school district in the area. Provided below is a brief description of each participant.

Charla has been teaching eighth-grade mathematics for 18 years. The urban middle school in which she teaches has a diverse population of students ethnically and socioeconomically. Because more than 70% of the students qualify for free or reduced lunch, the school receives Title I funding for additional math and reading support. Charla’s school is in its fifth year as a School In Need Of Assistance (SINA) in the area of reading and mathematics achievement as identified by No Child Left Behind (NCLB) legislation. As the department chair in her school, Charla is responsible for facilitating meetings, ordering materials, and serving on the building leadership team. The instructional materials in Charla’s district are considered traditional.

Laura has nine years of teaching experience in middle and high school mathematics. She teaches accelerated mathematics in an urban school for highly gifted and talented (g/t) students. Students who attend the g/t high school also take classes in their home high school throughout the metropolitan area. Laura’s role as the mathematics department chair involves the coordination of student math competitions and securing additional resources for college-
credit courses. She teaches from several different traditional resources that align with the Advanced Placement and International Baccalaureate curricula.

Don has been teaching sixth-grade mathematics for seven years. His school is located in an urban setting where 40% of the students qualify for free or reduced lunch. Don’s school is in its fourth year as a “school in need of assistance” in the area of reading and mathematics achievement as identified by NCLB legislation. Because of an increase in the student population, Don teaches in a portable classroom separate from the main building. He also coaches softball at the nearby high school and teaches middle school math during summer school.

Mike has nine years of teaching experience in middle and high school mathematics. Currently he teaches at an ethnically diverse urban high school where 35% of the students qualify for free or reduced lunch. Mike has an engineering background and teaches a course that connects mathematics with engineering principals. Mike is also a National Board Certified Teacher.

Karen, the discourse project teacher with the most years of teaching experience, has been teaching for 21 years and currently teaches sixth-grade mathematics. Her school is in a rural setting with a total population of 750 students in the district. Approximately 30% of the students qualify for free or reduced lunch, and about 97% of the students are Caucasian. Karen uses reform-based mathematics materials in her classroom.

Annie, who teaches mathematics in the same rural middle school as Karen, has 17 years of teaching experience. Annie has a Masters of Arts in Teaching degree and teaches seventh-grade mathematics. Annie also uses reform-based instructional mathematics materials.
Janet is an eighth-grade mathematics teacher and has 14 years of experience. She teaches in a middle school within a small, college town where 20% of the students are eligible for free or reduced lunch. Approximately 76% of the students in Janet’s school are Caucasian, 10% are African American, 10% are Asian, and 5% are Hispanic. No schools in Janet’s district are identified as SINA. Janet uses a reform-based mathematics textbook and teaches about 100 students.

Adam is the newest teacher in the group. Prior to his first year of teaching, Adam earned a bachelor’s degree in mathematics and a master’s degree in Mathematics Education. His two years of teaching experience are at the 10th-grade level in a suburban school district. In the large high school of about 1,900 students, approximately 85% are Caucasian, 5% Asian, 5% Hispanic, and 4% African American. About 16% of the students qualify for free or reduced lunch.

Beth is the university researcher who facilitates the Discourse Project. Beth is a former junior high school mathematics teacher and was a professor of mathematics education at Iowa State University throughout most of the Discourse Project. She currently is a professor of mathematics education at Michigan State University.

Project Meeting

In November 2007, I began my work with the teachers by sending each an individual e-mail explaining the focus of my research. I described the goal as an attempt to understand professional development from their perspectives as participants in the Discourse Project. My purpose in sending the e-mail was two-fold: to reintroduce myself to the teachers whom I did not know well and to ask permission to observe their next group meeting later that month.
Although I knew Mike, Charla, Laura, and Don through curriculum work, classroom visits, and district meetings, I specified that I wanted to know more about the ways in which undertaking classroom research influenced their work as teachers.

The group meeting was held at the administrative offices in a neighboring school district. The teachers explained that the meetings usually began with a light dinner and conversation about school issues or events. Following the meal the teachers would take turns sharing progress of their own research and presenting related matters for discussion. As I observed the interaction, I felt a camaraderie and closeness among the group that is not prevalent in many teacher gatherings. The group cohesiveness was so strong that I felt as if I were intruding upon their private meeting. As an outsider I was unfamiliar with each teacher’s research, I had not read many of the professional articles that informed their work, and I had not attended any of the meetings from the previous two years.

Compounding my role of “outsider” was my position as a district administrator. I struggled with the fact that the teachers thought of me first as an evaluator rather than as a fellow learner and colleague. I point this out not because of what was said to me, but rather what was not said. Even though the Discourse Project teachers knew that I had undertaken my own classroom research while a practicing teacher, no one asked questions about my experience or sought information about the process. I wondered if my coordinator role influenced their perception of me as different and added to the separation I felt. However, at this point it was enough to simply be given access within the boundaries of their work of teacher-as-researcher. I remained an unobtrusive observer and didn’t wish to disrupt the flow of the meeting any more than my presence might already be doing so.
Focus Group Interviews

A month after the group meeting I conducted two focus group interviews with subgroups of teachers in the project: four teachers from my own urban school district, and four teachers from other areas, two from a rural school district and two teachers in a small, college-town district. I decided to meet first with the four teachers from my own school district for two reasons: 1) I had no previous experience leading a focus group, and I wanted the comfort of working within a context with which I was more familiar, and 2) I felt a “group cohesiveness” among the Two Rivers teachers that could positively affect communication during the interview (Stewart, Shamdasani, & Rook, 2007). Beth, the Discourse Project director, agreed that dividing the teachers into two subgroups might allow for more comments from all respondents as well as separate two dominant personalities from other more reticent participants.

I conducted the focus group interviews during the school day at the meeting room of a local bed-and-breakfast. The teachers had gathered that day for a semi-annual retreat and had secured substitute teachers to cover their classes. The purpose of the retreat was to allow the Discourse Project teachers time to work individually on their research and come together for periods of group reflection. Although I had originally intended to meet with the two groups of teachers at the end of a school day, they found it more convenient to talk with me during this extended period of time away from school rather than gather yet again for another meeting. The bed-and-breakfast setting provided a relaxed yet professional atmosphere away from the classroom, an opportunity teachers rarely experience.

I developed questions based on my observation of the group meeting and my knowledge of the teachers’ individual research (See Appendix A). I expected, however, to
uncover unanticipated issues or areas of importance for which I could not plan appropriate questions. Therefore, I kept my few questions general so that I might be able to follow up with clarifying questions later in the group interview. This method supports the assumption that focus groups provide a permissive atmosphere that fosters a range of opinions, and, consequently, can offer the researcher a more complete and revealing understanding of issues (Vaughn, Schumm, & Sinagub, 1996).

I used a digital voice recorder to document the conversation and placed the recorder in the center of the group. I also instructed the teachers how to turn off the recorder in the event that any person would feel the need to do so during the conversation. The voice recorder remained untouched and appeared to be soon forgotten, possibly due to its small size. I began each session by glancing at my questions and jotting down a few notes, but I quickly found that I could not maintain eye contact or give my full attention to a speaker while I was writing. In each case I dispensed with note-taking, choosing instead to trust the recorder to capture voices and my eyes to communicate openness. Each focus group interview lasted approximately 70 minutes. After I left the research setting I compiled field notes depicting various details and included a description of my own reaction to the process. Within a couple of days following the focus group sessions I completed a transcription of the conversations, keeping all wording and utterances true to the recordings.

*Individual Interviews*

In February 2008, I conducted one semi-structured, in-depth interview with Dr. Beth Herbel-Eisenmann. The purpose of the interview was to learn about classroom research from the perspective of the university facilitator. Although teacher research is often written from
the facilitator’s perspective, little is written about the facilitator’s process (Goodnough, 2003). I especially wanted to understand what she had learned about the process of facilitating classroom research. I began to wonder if there was some way I too could support practicing teachers who might be interested in conducting classroom research. I used an audio recorder throughout the hour-long interview and took brief notes. Following the interview I completed a transcription verbatim.

Because Dr. Beth Herbel-Eisenmann was a member of my research committee, she also served as an advisor to my dissertation work. Earlier, I had shared the transcriptions of the focus group interviews and my notes about the emerging themes in order to keep her abreast of my progress. I also constructed my interview questions with her knowledge of how the teachers responded and her reflection of that response. I wondered later if Beth’s knowledge of the teachers’ responses influenced her own ideas about the facilitation of classroom research. As I struggled to separate my roles of both researcher and student, I considered how it might also be difficult for Beth to act as both facilitator and advisor. Our original agreement was for me to study how the Discourse Project activities influenced the teachers’ views of themselves as professionals and teacher-researchers. However, the direction changed somewhat as I began collecting data. I became more interested in the process of teacher research and less interested in the particular activities within the Discourse Project. I focused more on the ways in which teachers made meaning of classroom research because it was more personal to my own work as a designer and provider of mathematics professional development.
Focus group analysis is different from analysis of numbers. One particular difference is when analysis begins and ends. Rather than waiting to collect all data, analysis actually begins with the planning and facilitation of the focus group (Krueger & Casey, 2000, p. 127). As individuals tell about the experience and, later, as the researcher transcribes the discussion, meaning as informal interpretation is constructed. Here, Reissman (1993) points out, the researcher’s expectations have an influence on what parts of data fit into preconceived meanings of the inquiry. I noticed personal bias in my early work of data analysis, as well. Specifically, as I set out to code the focus group transcription, I maintained my own preconceived ideas of patterns I had expected to surface from the data. Yet while I worked to categorize the data, I noticed new ideas emerge rather than what I had thought might take shape. Therefore, I paid careful attention to the focus group transcriptions, rereading and writing notes in the margins before I moved ahead with any grouping of text.

Next, I began a form of open coding (Corbin & Strauss, 1990) by coloring various parts of the transcripts, compiling a chart of possible themes, and cutting and pasting text segments within the various arrangements of ideas that emerged. Sometimes the participants’ words fit into several categories. I read those selections multiple times, attempting to determine how to most accurately interpret their meaning. Reissman (1993) compares this phase of data analysis to one of communicating through photography such that “by displaying text in particular ways we provide grounds for our arguments, just like a photographer guides the viewer’s eye with lenses and by cropping images” (p. 13). Next, I compared themes and text segments with ideas that emerged from the facilitator interview. I continued to employ a means of constant comparison (Glaser & Strauss, 1967) as I sought to
revise, expand, and refine the codes by revisiting previously coded data. Along with the process of coding, I employed what Glaser (2002) terms as memoing. Memos are notes that help the researcher form ideas that result from a constant comparison of incidents and responses.

Briefly, some of the categories that emerged focused on the relationship between beliefs and classroom practices, the strength of the collaborative relationship of the group, and the sense of professionalism the teachers felt from engaging in a unique professional development process. From these categories, themes emerged as I grouped related categories together. These themes emerged into two subsequent chapters. Chapter 3 focuses on the theme of professional development as an effort to both foster a community of learners and support individual inquiry. In chapter 4 I explore issues of teacher research and professional identity.
CHAPTER 3: PROFESSIONAL COMMUNITY AND INDIVIDUAL INQUIRY

In the first chapter, I explained some of the central debates occurring in teacher professional development and teacher-conducted research. The issues in these debates, such as the perspective of teacher deficits versus teacher growth and of teacher research as credible work, are reflected in the respondents’ appreciation and valuation of the professional development experience.

In this chapter I describe how the Discourse Project teachers understood the professional development experience to be meaningful work. The experience positively influenced the group collectively as well as individually. First, as a professional community, the respondents mutually supported each other’s growth. Second, as individuals involved in teacher research, each person gained awareness of his or her own beliefs and practices.

This chapter is divided into two sections. In the first section, I investigate the effects of collaborative study and suggest that the teachers developed as professionals through their shared experience. I describe how collaborative study fostered a sense of trust, accountability, and professional intimacy among the respondents. In the second section, I explain how the professional development experience shaped the teachers’ perspectives of their own beliefs of mathematics teaching and understanding of their classroom practices.

Professional Community

Teaching is both widely familiar and deeply private. One of the interesting paradoxes of teaching is that while instruction is so immediately recognizable and often similar in format among educators, teachers usually work in isolation with little knowledge of what other teachers say and do (Little, 2002). Interaction among teachers, particularly in secondary
schools, is often limited to lunchtime conversations and discussions of management issues at faculty or department meetings (P. Grossman, S. Wineburg, & S. Woolworth, 2001). Both the design of most school buildings and cultural norms of teaching encourage little if any professional interaction among teachers (Lortie, 1975). In addition to the physical walls that limit interaction among teachers, the “culture of teachers” promotes privacy and self-reliance, which creates invisible barriers against genuine dialogue (Britzman, 1991).

Many secondary schools are structured in a way that teachers rarely have access to one another’s classrooms (Little, 1990). Sometimes individual teachers make an effort to discuss mathematics lessons with another teacher in their building. But if time for professional conversations is not built into the school day, the teacher talk remains brief. Mike, an experienced teacher who recently moved from the middle school level to high school, struggled to break down this isolation. He describes how he initiated conversations with other math teachers in his school in order to learn more about teaching high school math.

I’ve gone into three different math teachers’ classrooms this year, and I’ve hit one up four times, another one twice and the other one twice, and that’s all. And then the one or two minutes of conversation after those class periods, that’s been it that I’ve talked to them about what happened in that class. So, I mean, we talk 10 times, 100 times more [in the Discourse Project] about what’s happened in our classrooms than I have with my colleagues.

It is interesting that even though Mike is willing to give up his planning time during the school day to observe in other classrooms, there is no time for debriefing or reflection about
the lesson. Mike’s experience suggests that this type of interaction is not typical among teachers in his building, but important to him.

Why might teachers be hesitant or unwilling to reflect upon their instructional methods and make their work accessible to colleagues to break through the isolating structure of schools? Questions about instruction may be interpreted as requests for help rather than an attempt to learn more about others’ practices of teaching. In addition, discussions about teaching may appear to be judgments of competence. There is a sense in isolated settings that to seek advice from other teachers is to admit a lack of teaching competence. Teachers do not generally approach each other with requests for assistance or offers of advice because those actions convey an attitude of inferiority or superiority. Even teachers with many years’ experience and well-grounded views on effective teaching often refrain from advocating specific approaches even to beginning teachers (Little, 1990). Understandably, teachers may show little interest in discussing matters of instruction with their colleagues if doing so appears to jeopardize their professional standing.

Sometimes teachers feel such a sense of separation from their building colleagues that any kind of discussion about what it means to teach and learn mathematics is nonexistent. Don, who teaches sixth-grade math, is housed in a portable classroom behind the main building of his school. He describes his hesitation to engage in professional conversations with other teachers in his school this way.

You know, we’re so isolated at school the rest of the school day. I just don’t have the relationships developed where I would feel comfortable just going out and talking about this stuff… we’re just so distant from each other. I mean, we’re in the same school but I don’t ever feel like we’re working together.
The isolation Don describes refers to both a physical separation from his colleagues as well as a disconnectedness or absence of any collegial efforts among the faculty. This separation is sometimes referred to as an “egg crate school,” each teacher like an egg in its own little compartment (Lortie, 1975). The experiences both Mike and Don explain relate to the idea that teacher isolationism is a way to adapt when resources to meet instructional demands are in short supply or a condition that prevails when physical isolation is prevalent (Labaree, 2005).

Concerns about the professional isolation of teachers have led some to articulate a belief in collegial learning as part of building a professional culture as a basis for professional development (Fullan, 1985; Hargreaves, 1995). Structures of collaborative learning include communities of practice, teacher networks, and professional learning communities (Altrichter, 2005; Hipp & Huffman, 2003; Little, 2002; Nickerson & Moriarty, 2005; Wegner & Snyder, 2000). This community approach to professional development provides opportunities for teachers to commit themselves to topics that are of intrinsic interest to them and that arise naturally out of their work. Teachers build collegial learning communities where they have opportunities to take on roles of leadership and activism, explore educational issues, study student learning, and question their own classroom practices (Cobb, McClain, de Silva Lamberg, & Dean, 2003; Cochran-Smith & Lytle, 1999; Franke, Carpenter, Levi, & Fennema, 2001; Stein & Brown, 1997). Fundamental to this notion of teacher learning communities is the idea that teachers learn collaboratively, primarily in inquiry communities where participants struggle with colleagues to construct meaningful knowledge and where inquiry is viewed as part of larger efforts to transform
teaching and learning. These communities often involve participation by both teachers and university researchers who bring different kinds of knowledge and experience to the group.

Despite the enthusiasm toward professional learning communities, there has been concern that these structures may not lead to the intended improvements in practice. Hargreaves (1991) cautions that some forms of professional development that emphasize collegial interaction reduce questions about goals and values in teaching to questions of techniques and procedures while the moral, personal, and motivational aspects of teaching are ignored. Wenger (2002) suggests that communities of practice can even be counterproductive if allowed to foster prejudices and injustices of any kind.

Just because teachers meet as a team does not necessarily mean the group functions as a community of learners. One particular aspect of a collaborative environment is the degree in which each teacher is accepted as a worthy person with worthwhile perspectives. If alternative viewpoints and disagreements create divisions and conflict within the group, teachers may learn to suppress discussion that questions or challenges thinking. Adam, who has only been teaching for two years, already notices how teachers at his school hold their thoughts in check.

I think a lot of times we’ll go to a department meeting and when we have time to talk about departmental issues, all those conversations are colored by the fact that you know you’re going to have to work with these people again tomorrow. The fact that you already work together is going to change what you talk about and how you talk about it. Because we are from different schools in this project, our conversation changes … you can talk about things from your teaching and it’s not being colored by the perception of the school that you’re in or the department or the fact that we all had
to evacuate the building on Monday or whatever has happened that there’s not that influence on what’s going on.

Adam explains that nonconfrontational communication among his school colleagues is necessary in order to maintain working relationships. This superficial level of agreement within a group in order to suppress conflict is what Grossman and colleagues (2001) have termed “pseudocommunity.” In pseudocommunities members rarely challenge each other’s thinking and protect the privacy of the individual. These group norms exist in large, urban high schools for good reason as they prevent both outstanding and weak teachers from being noticed (Little, 1990). Hargreaves (1995) argues that what is actually happening in many schools that claim to support collaborative learning is not a genuinely collegial environment but instead an atmosphere of manipulation masked as collaboration. Rather than a collaborative culture owned by teachers, there exists an organizational power is owned by administrators who instead seek to control.

What all these data regarding the respondents’ opportunities for shared inquiry indicate is that their building and district professional development options lack the professional community these teachers seek. The teachers describe the pseudocommunity or lack of community within their schools and contrast it with the professional community established in the Discourse Project. This assertion is one of the significant points of this investigation. Teacher collegiality involving discussion of classroom practices is not only important for morale and teacher satisfaction, but is absolutely necessary for teachers to grow in their careers (Hargreaves, 1995).
In this section I describe three themes that emerged from the data as elements of the Discourse Project professional community: trust, accountability, and professional intimacy. I explain that the trust developed among the members of the Discourse Project, the accountability they held for themselves and each other, and the level of professional intimacy moved the communication beyond respectful interaction to a deeper level of a supportive, professional community.

**Trust**

Discussion about one’s beliefs of teaching and learning can be intimidating, especially when sharing personal stories, expressing opinions, or taking a stand. For talk to become rich conversation, people need to trust that they will not be judged or rejected. Clark (2001) suggests establishing a simple set of rules for discussion and sharing a meal as part of the meeting cultivate an attitude of trust and feeling of cohesiveness.

The very first gathering of the teachers in the Discourse Project involved a weekend retreat focused on relationship building. Beth’s intent was to establish a comfortable and caring atmosphere and to lay a foundation for open communication. The teachers negotiated a simple set of ground rules, agreeing that all discussions would remain confidential and that their responses to each other would be supportive and respectful. Beth describes the retreat this way.

I think my role early on was more about establishing trust and relationships and community, because without those things none of the other stuff would happen. And I mean that in a genuine way. Because I feel like the teachers feel safe with me and in the group to talk about things. And I think [my role] has shifted sort of to be a person
who asks hard questions, but they trust me enough to allow me to do that. And before
I may not have asked as hard of questions as I do now. I mean I think one of the
things this has given them is long-term relationship building, collaboration,
collegiality that they don’t get typically in most of the district level PD that they do.
The continual negotiation of relationships suggests a genuine partnership between Beth and
the teachers. The teachers are part of a inquiry process where all members of the group
regard each other as fellow learners and researchers rather than as experts and novices
(Rathgen, 2006).

Significant time together played a crucial part in allowing the Discourse Project
teachers to develop trust and acceptance. Of equal importance was the way in which they
spent that time. Beth pointed out that the teachers do not have time set aside during the
school day to study their own practices or share their observations with colleagues. As Don
explains, the lack of school conversation about teaching and learning mathematics limits the
opportunities for meaningful relationships among his faculty.

The relationships just aren’t there [among teachers in my school]. You have
vulnerability here now that you’re exposing yourself and your practice to everyone
else to take a look at and figure out what changes you could make. And we’ve been
here four years and it’s been an ongoing process, and now we’re pretty comfortable
with sharing whatever is going on.

Don’s reflection above reveals a willingness to publicly share his conception of teaching
mathematics as well as evidence of his instructional practice with the Discourse Project
teachers. Yet as presented earlier in this chapter, Don expressed a discomfort in sharing the
same type of professional work with the teachers at his own school. As the members of the
Discourse Project met month after month over several years, the foundation of trust and care created a community of mutually supportive relationships. These relationships result in a shared commitment to the group and a sense of accountability to each other.

/accountability/

Forming a professional learning community requires teachers to engage in both intellectual and social work, including new ways of thinking and reasoning collectively, as well as new forms of interacting interpersonally. Learning occurs because the group collectively knows more than any one teacher. But learning also occurs because individuals within the group think in new ways as a result of the different perspectives. Grossman, Wineburg, and Woolworth (2001) refer to this as a movement from “distributed cognition to cognition distributed.” They continue, “Teachers’ professional community must maintain a dual focus, both on its own collective learning and on the social group as the crucible for individual change” (p. 975).

The dual sense of accountability to oneself as well as to the group emerged as a second element within the Discourse Project community. In the following quotation Janet explains this double responsibility.

There’s an accountability to come prepared to discuss the readings and individual ownership regarding how you implement what you’ve learned and how you use that. And you really are more accountable to yourself and your own practice than anything else. There is an underlying assumption is that we’re supposed to get out of it what we need to get out of it, if that makes sense. And whatever that might be is fine, which is both very empowering and very scary.
Janet’s reflection above reveals ideas about how she perceives the teacher’s role as a producer of knowledge. Within the Discourse Project, teachers had the rare opportunity to study their own classroom practices free from a template of expected actions, yet that responsibility was both challenging and frightening. The uncertainty of moving away from “recycling knowledge” to that of “generating knowledge” is what Miller (1990) describes as “feeling the loss of familiar layers of authority and position within which we had wrapped ourselves for so many years” (p. 77).

The respondents’ experiences suggest that accountability to foster development of individuals is not often prevalent in scholarly activities that are large-scale or involve the entire faculty within a school. For example, Adam describes required professional development opportunities in his school district as lacking application to his instruction. He explains in the following reflection the difference between holding himself accountable to improve and being held accountable for implementing suggested instructional strategies.

I think that choice is an extremely, extremely important aspect of the discourse project. There’s not the threat of accountability from someone in a position of authority over you. That’s what accountability in school feels like to me. “Did you do this? Did you do this? Did you do this? Ok, then we’re done.” Whereas here [in the Discourse Project] there’s no checklist being presented.

Adam’s comment suggests frustration with administrators who seem to be more concerned with regular implementation of specific practices than with collaborative study and development of individual teachers.

Why is accountability within the Discourse Project so different from the accountability in a school district-led project, and to what do the teachers attribute that
difference? The data suggest that the trust and respect the Discourse Project teachers share for each other influences their desire to hold themselves and one another to high expectations. This sense of responsibility cannot be commanded or imposed, especially by the project facilitator. In contrast, as Adam explains above, mandated professional development often is accompanied by the “threat of accountability from someone in a position of authority.” Karen explains the difference in the following way.

In a school system there has to be a level of accountability for professional development for it to be done appropriately and correctly, and I don’t struggle with that. In this project we have major accountability, because she [Beth] expects us to figure things out, and that weighs on me.

Karen points out that the Discourse Project teachers feel a strong commitment to live up to Beth’s expectations of intellectual study and professional growth. It is important to note that the respondents consider the accountability associated with the Discourse Project to be more intense than the accountability associated with district professional development. Even though school-based initiatives are tied to evaluation measures such as individual growth plans or school improvement plans, the Discourse Project teachers have a greater sense of responsibility to their own work. Beth, however, is not surprised. Because so much time was spent in the first year of the project developing trust and establishing relationships, the Discourse Project teachers take ownership of each participant’s development. Beth explains,

I would say [they feel] accountability to me because of the relationships that we’ve established… And [they also feel accountable] to the group. If somebody comes to the group and they’re supposed to talk about something, it’s pretty rare that they’re not prepared. Or when we go do presentations, they’re prepared because they don’t
want to let the rest of the group down. And … they requested that we have meetings every two weeks even though I was only flying back once a month. So in that sense it’s accountability but it’s requested because they know when they come together they have two hours or three hours of time to share and look at stuff and ask each other questions.

Beth points out that this form of responsibility is indeed a form of accountability, but the group requests it rather than requires it of each other.

Professional intimacy

The trust and accountability created in a community in which each member is allowed to be both professional and personal (Clandinin & Connelly, 1995) leads to a community of “professional intimacy” (Fitzgerald, East, Heston, & Miller, 2002). Professional intimacy is not about being friends in the social sense. It is about being accepted as a worthy person with worthwhile experiences to share. A community with professional intimacy becomes a place where one’s failure can be discussed and where group members respond with questions and perspectives rather than answers and advice. These acts of trust become growth experiences for every member of the group and are only possible in an atmosphere of professional intimacy.

Gamoran, et al. (2003) present issues of teacher-researcher collaborations that are helpful to my research questions: 1) What is the nature of professional relationships developed within this study of inquiry?, and 2) What benefits of collegial learning are significant enough to keep teachers involved in the Discourse Project? They theorize that a
“critical collegiality” supports teachers by creating and sustaining a productive disequilibrium through self-reflection, collegial dialogue, and ongoing critique.

An important component of critical collegiality is the deprivatization of practice. This involves sharing student work, reporting on classroom activities, and making public one’s teaching. The discussion that follows these activities, however, is more important than the activities themselves. By listening to a teacher analyze his or her own actions during the lesson, group members glimpse the decision-making processes that are not commonly available.

The benefits of deprivatized practice do not come without a price. When presented with the initial analysis and videotapes of their math lessons, the Discourse Project teachers felt acutely aware of their own shortcomings and wondered whether they would ever reach a point where they would not react with such self-criticism. Karen remembers the experience with anguish.

It’s so painful to watch yourself on video. It really truly is. [I noticed] things that maybe I really thought I was doing but I wasn’t or things that I really want to improve or get to a better level, just things that were happening in my classroom and how I could facilitate the discourse better.

Like Karen, each teacher in the discourse project experienced anxiety when first confronted with data representing classroom practices. But rather than keep that information to themselves, many of the Discourse Project teachers chose to share with the rest of the group a video clip of one of their math lessons. Charla points out that she can overcome the discomfort of making her instruction public if she feels supported by her colleagues who are studying their own practices also.
So, it’s like, it allows me to try things in my classroom but not have to think about if it’s the wrong way, to come here and get the support I need and not have to worry about what others think.

The quotations from Karen and Charla provide evidence that the engagement in dialogue about one’s own teaching brought the Discourse Project teachers together in contexts that are much more professionally intimate than they were accustomed to.

If a teacher learning community facilitates teacher learning, such learning and opportunities to learn ought to be evident in the ongoing encounters that teachers have with one another (Little, 2002). Yet the data indicate that the respondents had little experience with their building colleagues in sharing their instructional failures and struggles. Through the Discourse Project the respondents created a community of professional intimacy. In this space one can be wholehearted because it is not required that certain topics or ideas are censored. As a community, each person is accepted as worthy with meaningful and worthwhile stories to tell (Fitzgerald, East, Heston, & Miller, 2002).

Section Summary

In this section, I discussed the teachers’ thoughts and perceptions about their desire for a professional community within their schools and contrasted it with the professional community established in the Discourse Project. What these data regarding the respondents’ opportunities for shared inquiry indicate is that their building and district professional development options lack the professional community these teachers seek. Through their participation in the Discourse Project, the respondents formed a collaborative group that
brought about a sense of trust, promoted accountability to oneself and to each other, and cultivated a space for professional intimacy.

**Individual Inquiry**

In the first section of this chapter I described how the Discourse Project affected the respondents as a collective *community* of teachers. In order to understand the significance of the professional development experience on the teachers as *individuals*, I now examine how the experience shaped the teachers’ perspectives of their individual beliefs and practices. In this section I will first explore the connection between teacher beliefs and professional development. Second, I will describe how activities within the Discourse Project influenced the Discourse Project teachers’ perspectives of their classroom practices in relation to their beliefs about teaching and learning mathematics. Finally, I suggest that the commonly held view that professional development experiences change teachers’ beliefs, which, in turn, changes their practices neither supports the perspective of the Discourse Project teachers nor dignifies teachers as knowers of their work.

*Connecting Beliefs and Professional Development*

Educational researchers have examined a variety of constructs pertaining to teachers in order to learn more about teachers’ classroom practices and the decisions that influence these practices. Areas of study include teacher attitudes, teacher knowledge and beliefs, and teacher behaviors. Teacher attitudes involve positive and negative feelings and, while connected to emotions, are more cognitive and stable in nature (McCleod, 1994; Philipp, 2007). As an example, teachers hold attitudes about their curriculum materials and their assessments. Teachers’ knowledge can be defined as their “beliefs held with certainty”
(Reed, 2008) such as knowledge about a particular subject and how to develop student understanding of the subject. In the following chapter I describe in more detail various types of teacher knowledge as they relate to professional development.

How are teacher beliefs and classroom practices connected? Research suggests that beliefs are one of the significant influences upon teachers’ classroom behaviors (Pajares, 1992; Richardson, 1994; Thompson, 1992). In other words, understanding teachers’ decisions requires understanding what knowledge teachers possess, how teachers decide what knowledge to call upon (D. Ball & Cohen, 1999), and how to react to student learning (Franke, Fennema, & Carpenter, 1997). Those decisions are a reflection of what a teacher believes to be important and reasonable (Pajares, 1992). In this study I use the term belief to refer to the personal ideologies, views, and values that shape classroom practice (Pajares, 1992; Raymond, 1997; Thompson, 1992).

In the attempt to distinguish between knowledge and beliefs, some researchers suggest that it may be inappropriate to consider a universal agreement and that “concern over a precise definition of belief pales in importance compared with the issue of understanding the nature of teachers’ thinking” (M. S. Wilson & Cooney, 2002, p. 3). Further expanding this idea, Philipp (2007) proposes that educational researchers ought to learn as much about how a teacher holds a notion as they do what one holds about that notion. He maintains that a person holds an idea as a belief if he or she can respect a position that might be in disagreement with one’s own view, but views an idea as knowledge if he or she considers the idea to be irrefutable. These two methods of holding information affect how one considers another person’s perspective. When two people hold contrary beliefs about a particular idea, through discussion they may find important points of agreement. Yet if one of the two people
holds the idea as knowledge, the notion is viewed as indisputable and meaningful dialogue remains difficult. Later in this chapter I explain that this distinction provides insight as I seek to understand how the Discourse Project teachers connect beliefs with classroom practice.

Some researchers propose frameworks separating beliefs from situations while other theorists connect beliefs with contexts. Kagan (1992) divides research regarding teacher beliefs into two categories: teachers’ sense of self-efficacy and content-specific beliefs. Self-efficacy refers to a teacher’s expectancy about his or her ability to influence students and reach certain outcomes (Bandura, 1977). One example of this theory is the suggestion that teachers who believe they can make a difference in student learning appear to believe that they have a responsibility for student failure as well as success (Kagan, 1992). Content-specific beliefs refer to teachers’ judgments about curriculum, instruction, and assessment and the nature of student learning. What important factors influence the decisions teachers make regarding mathematics teaching and learning? The beliefs a teacher holds about how children learn mathematics impacts a teacher’s daily decisions about lesson design, the selection and sequence of mathematical tasks, the teacher’s role in the classroom, and how students demonstrate skill proficiency and conceptual understanding.

If we agree that teachers’ beliefs are directly related to their classroom practices, then we might wonder if the support of teachers through professional development ought to focus on changing teachers’ beliefs or on changing teachers’ practices. In other words, does a transformation in beliefs affect one’s practice, or does a change in practices cause one to believe differently? Some studies suggest that changes in beliefs precede changes in practices (Pajares, 1992; Richardson, Anders, Tidwell, & Lloyd, 1991; Thompson, 1992). These studies are based on the idea that what a teacher thinks influences what the teacher
does. New insights fail to be put into practice because they conflict with deeply held internal beliefs of how the world works. Additionally, teachers must first believe that their behaviors can affect the education of their students. Without the belief that they can make a change either from a personal standpoint or a professional stance, meaningful change cannot occur (Enderlin-Lampe, 1992).

Other researchers maintain that teachers change their beliefs after they change their practices and see that these new practices positively affect student learning (Fullan, 1985; Guskey, 1986). In other words, only when teachers see positive results in student learning based on a change of classroom practices do teachers begin to change their own beliefs. Loucks-Horsley and colleagues (Loucks-Horsley, Love, Stiles, Mundry, & Hewson, 2003) explain that this is why many teachers find it difficult to change how they teach: they learned mathematics content in ways very different from those reflected in reform curriculum materials. Therefore, deep change occurs only when beliefs are restructured through new understanding and experimentation with new behaviors.

Although each of the preceding perspectives appears credible through supportive evidence, neither explains what happens when teachers challenge themselves to make changes in the behaviors that are not easily modeled or teaching practices that have not been observed. Yet when I began this research, I had expected to uncover evidence in support of one perspective or the other. Initially, I thought the perceptions of the Discourse Project teachers would suggest either a change in beliefs as a result of their participation in the project, or a change in classroom practices as a result of changed beliefs about mathematics teaching and learning. After listening to the respondents, though, I realized that my predetermined framework did not align with their underlying perspectives. In this next
section, I describe how neither viewpoint of beliefs affecting practice or practice affecting beliefs adequately interprets how the Discourse Project teachers consider their professional growth. In fact, I suggest that the assumption of changed teacher beliefs assumes a deficit view of teachers and point out that the experience of the Discourse Project’s teachers tells a different story.

Identifying and Reflecting Upon Beliefs and Practices

According to Fullan (1991), no real change will occur in schools without substantial change in practice, teaching approaches, and beliefs about teaching and learning. If the ultimate goal of professional development is to support teacher growth, which would in turn positively affect student learning, then teachers must first be cognizant of their current practices and conscious of their personal beliefs.

I begin this next section with a more in-depth look at three types of activities the Discourse Project teachers describe as having an impact on them as educators: professional readings, concept mapping, and video analysis. Then I describe the data that represents their understanding of the relationship between teacher beliefs and classroom practices.

Library of readings

The first year of the Discourse Project began with Beth, the university researcher, observing in the teachers’ classrooms and facilitating group gatherings aimed at developing a sense of community. However, in the Discourse Project teachers’ minds, the project really began the following summer with an in-depth study of professional literature. Beth had compiled a four-inch binder of articles and a stack of books for each teacher and suggested that they select items for study and discussion from what became known as “the library of
readings.” The Discourse Project teachers examined the field in depth, reading articles and book chapters relating to classroom discourse, mathematics classroom discourse, and action research. According to Beth, she had gathered such a large quantity of material not knowing what the teachers “would find compelling” that the library of readings soon became more than anyone could mentally reference. Beth explains:

If I were to do it again, I would select a fewer set of things for them to read because now it’s like, ‘Oh my gosh. We’ve read so much stuff that I can’t even remember where this idea came from.’

In the attempt to anticipate what each Discourse Project teacher might find interesting, Beth included what she describes as a “huge range of things.” But rather than feeling overwhelmed with the amount of material, the teachers appreciated the opportunity to learn. Janet found value in being exposed to such a wide variety of materials. She tells it this way:

We read a lot of things that I personally, you know, wouldn’t have known about and other things I would have never picked up to read, but it was effective. Particularly the ones that were more technically discourse oriented, linguistic oriented; so that’s been interesting. But it’s been interesting how those things come back into our conversation and bring some of the things we’ve talked about over time.

Janet’s comment suggests that she gained new knowledge of discourse practices through the professional readings and continued to draw upon that knowledge throughout the Discourse Project. Likewise, Karen refers to that time of study as intellectually demanding and describes the readings as “rejuvenating” and “powerful.” The fact that professional literature can have a powerful influence on teachers’ thinking resonates in Annie’s comments below.
We were like a study group together. Beth pulled all kinds of different professional articles, books, anything that had to do with discourse, whether it was mathematical discourse, science discourse, whatever, just to get our hands on as much background knowledge as we possibly could. It definitely opened my eyes to the idea of discourse. ... It just really set the tone and set my mindframe for where I wanted to go and what the possibilities were for what I wanted to do. Even though I thought I already had an idea before I came into the project, [the professional readings] had the biggest impact on me. Those readings still come back to me and I think about them and we continue to talk about different ones.

For Annie, the professional readings had such an influence on her understanding of teaching and learning that the ideas later became a foundation for her action research. Laura concurs, stating that the “intensive reading within a small amount of time” set the tone for the project and helped frame the possibilities of classroom research.

For some of the Discourse Project teachers, the literature also served as a tool for self-reflection. Karen explains the experience this way:

That summer of reading was so powerful to me. It rejuvenated me as a teacher. It reinforced things that I saw that I was doing well and pointed to things that I really wanted to improve on. And it gave me tons of background knowledge to help my practice.

Karen’s comments not only speak of professional renewal, but also of an experience that fostered critical reflection of one’s practice. Like Annie and Laura, who describe the readings as providing possibilities for individual research, Karen considers the literature to be a lens from which to consider her classroom behaviors.
Although the Discourse Project teachers consider reading and discussion to be a valuable learning opportunity, most classroom teachers rarely have time set aside during the school day to pursue this type of study. Charla and Karen admitted that they would not have taken it upon themselves to seek out professional publications, indicating that the lack of time, lack of easy access, and more immediate teaching demands take priority. Don concurs and provides this insight.

*Mathematics in the Middle School* and all those math magazines were never something I even knew, basically I didn’t even know they existed, wouldn’t have kept them around. If they were in our staff library I wouldn’t even have sought them out, so just being more engaged as a learner, too, and it excited me to go seek out information. But just being aware of that there’s more information out there, that I’m not by myself and then just kind of getting the willingness to seek it out because that wasn’t something that I had before. I didn’t really care. I just kind of did what I always did, and I didn’t really see any need to change.

Don speaks not only of a newfound professional awareness as a result of participating in the Discourse Project, but also conveys a sense of optimism. Instead of continuing to feel alone as a teacher and apathetic toward new ideas, his statement suggests a newly acquired sense of inquiry and purpose.

What these data regarding the study of professional readings indicate is that the Discourse Project teachers gained knowledge, experienced a sense of rejuvenation, and formulated ideas that guided their individual research. One might expect that this type of professional development activity would also change the Discourse Project teachers’
individual beliefs about teaching and learning mathematics. Yet as I will explain further, the respondents do not consider this to be the case.

*Concept map of beliefs “close to the heart”*

Toward the end of the second year of the Discourse Project, the teachers read a chapter from the book *Connecting mathematical ideas: Middle school video cases to support teaching and learning* (Boaler & Humphreys, 2005). The book is written from two perspectives, a middle school mathematics teacher (Cathy Humphreys) and a university researcher (Jo Boaler). In one of the first chapters, Humphreys describes her classroom and “what is closest to the heart” (p. 11) in her teaching. After discussing this section, Beth gave the Discourse Project teachers a pad of sticky notes and asked them to jot down thoughts and phrases over the following month that captured what is closest to their hearts in their teaching. At the next meeting a month later, the teachers arrived with their sticky notes and spent time arranging them in relationship to the center of the page, creating a concept map of professed beliefs that are close to the heart.

Some of the teachers found the process of creating a visual representation of professed beliefs difficult to complete. Janet explains that she found it “hard to put beliefs into words.” Yet each teacher agreed that the activity served to clarify understandings and deepen his/her own commitment to self-improvement. Laura maintains that she “actually does believe something” because she now can verbalize her beliefs. Mike describes the result as being “more comfortable” in his beliefs. But for Karen, the naming of beliefs did not become important until the last year of the Discourse Project.
Sometimes, for me, it was also a matter of the connection between the parts. When we had to identify what was near and dear to our hearts in our teaching, I did not understand how that activity applied to the Discourse Project. Now it’s coming full circle again, and I’m seeing the connections between that and the reading, and the classroom video tapings and how it’s all coming together.

Karen explains that the clarification of beliefs served as a foundation for the rest of the project and the phase of action research. I suggest that without this foundation, it would have been more difficult for the teachers to connect what they believe about mathematics to how they teach mathematics.

**Video analysis**

How might teachers study their classroom practices in relationship to their beliefs? Because the complexity of teaching is difficult to capture after the fact, many are turning to videotape to document their work. Videotapes can be an authentic way of looking at classroom practices because everything that is going on for the teacher and students seems to be available also to the viewer. But as Lampert (2000) points out, observation as an outsider presents a different perspective from the teacher’s viewpoint. If videotapes have no means of including the teacher’s interpretation as the knower from the inside, the method allows for others to question or make judgments about what they see.

Once a teacher’s classroom is captured on videotape, whose role is it to determine the selections for review? If a facilitator other than the teacher is the one who selects the video clips, the professional development continues to remain as something done *to* teachers or *for* teachers rather than *with* teachers. One example is a method in which the researcher selects
excerpts of video and uses them as prompts during an interview. “The teacher is asked to explain what he or she was doing during the excerpt and why” (Speer, 2005, p. 378). In some professional development experiences, even group discussions of one teacher’s lesson remain with an outside researcher, justifying that the role of the facilitator is “to moderate the discussion regarding the video footage, describe what teachers should look for in the video clip and help them to make sense of classroom events” (Borko, Jacobs, Eiteljorga, & Pittman, 2008, p. 429).

Since one of the goals of the Discourse Project was to support teachers as researchers of their discourse practices, the teachers rather than the university researcher were central in the decisions that led to their specific topic of study within the area of discourse. But before the teachers made that decision, Beth provided baseline data from the videotapes of each teacher’s mathematics lessons that she had collected in the first phase of the Discourse Project. Her coded analysis of the videotapes were based on the “activity structures,” meaning class time devoted to instructional components such as groupwork, seatwork, and review of homework (Lemke, 1990) that were prevalent in each Discourse Project teacher’s classroom. Along with the quantitative data, each teacher received definitions of the activity structures and with that information chose an activity structure for further study. Each teacher’s decision led to further videotaping and detailed analyses of that activity structure across four weeks of lessons. Midway through the year each Discourse Project teacher received a set of analytic classroom memos from which to read and react. Then, Beth suggested the teachers return to their mapping of individual beliefs and reflect upon any sort of disjuncture between what they say they believe and value and the description of their classroom discourse.
Despite the efforts of the university researcher to present each individual analysis free of emotion and judgment, the respondents nonetheless describe the data-review experience as a time filled with self-criticism about one’s own teaching ability. Many were surprised to be presented with documented actions that were so disconnected from what they had professed to believe about teaching mathematics. The Discourse Project teachers speak of feeling inadequate, disappointed, and even refer to the experience as “humbling” and “painful,” reaffirming that such strong feelings come from each teacher’s awareness of their limitations as well as the “emotionalness” of teaching (Nias, 1996). Mike describes the experience this way:

In the abstract I knew what I was doing was not the best thing, but I didn’t know what the best thing was. And I still don’t know, and that’s part of the frustration sometimes. The more you know, the more you think that you suck sometimes and we go back to where we were teaching maybe 10 years ago because that’s what we know and that’s easiest. But at least I have a better idea of where I want to go and where I want to push myself and what I want my classroom to look like five years from now.

It is important to note that Mike refers not only to a new awareness of his classroom practices but also to a deeper understanding of what might be better practice. Mike continues, explaining that his beliefs became a framework from which to study his teaching.

I think that I’m more comfortable in my belief that the students have the ability to learn on their own and can learn from each other. I had more discussions evolved from students, student-to-student discussion with kids up on the board and questioning each other than I did the previous three or four years because I relinquished a little bit of control. I realized in hindsight, as Beth and I talked about a
number of times, how I was teaching to control the kids, essentially, that I wasn’t giving up some control to let them learn and have the opportunity to discuss things among each other. And that was some kind of theme that was really woven throughout a number of articles and discussions.

Mike’s reflection summarizes ideas I have presented thus far; that the Discourse Project experience allowed the teachers to clarify their beliefs and recognize their current classroom practices. Next, I describe how these ideas influenced the Discourse Project teachers to transform their teaching.

“Not changing what you think, but altering what you do.”

I presumed before conducting the teacher interviews that I would learn more about a causal relationship between teacher beliefs and classroom practices. In fact, because of my own narrow perspective, I asked the Discourse Project teachers to explain whether their beliefs changed as a result of the experience or if their classroom practices changed as a result of changed beliefs about mathematics teaching and learning. Neither consideration correctly represents their insight. Charla points out my misconception in the following statement.

I’m not sure that my beliefs have changed but instead my understanding of what I was doing changed. I wanted kids to understand that math is about understanding and not just getting the right answer. When I viewed my video [and read the video analysis], there was a disjunction between what I believed and what I did. And so, what I’ve learned is how to try to get closer to doing what I already believe. So it’s
not so much that my belief has changed as much as it is an understanding of how to teach so that my actions join up with my beliefs.

Charla speaks of gaining a better understanding of her own actions in the classroom and connecting it to her beliefs about teaching and learning mathematics. She maintains that her beliefs did not change as a result of the Discourse Project experience. Charla continues:

That was the thing that triggered in me, you know, I really needed to change what I was doing. Where I thought I was trying to do some of the things, and obviously had, and obviously I wasn’t doing what I wanted to do. So, having an analysis and reflecting, truly reflecting, on my teaching, I think helped. It was the trigger for me.

Charla expresses what she saw as a disjuncture between her beliefs and her behaviors in the classroom. Adam echoes this idea in the following quotation.

It isn’t about beliefs changing but about this “do as I say; don’t do as I do” kind of thing. OK, what can I do if I’m really going to be interested in having students come to think that mathematics is dynamic and alive in some way, what can I do that’s actually going to create that goal? So, it’s not about changing what you think, but altering what you do to get more of what you want out of what’s going on in the classroom.

When Charla and Adam were able to see their practices on video, study their coded data, and reflect upon the beliefs they had made public, they were able to compare what they wanted to have happen in their classrooms to what was actually occurring. A disjuncture between the two is what Hopkins terms a “performance gap” (2002). Hopkins maintains that the personal reflection on one’s own practice plays an important role in the connection and alignment of beliefs and practice.
This teacher-centered approach to professional development used in the Discourse Project depicts teachers as the knower of their experiences. Rather than remaining focused on the judgmental distinction of what Speer (2005) terms as “professed beliefs” (what teachers state) compared to their “attributed beliefs” (what is reflected in teachers’ practices), teachers are given voice to reflect upon what it is they believe and explain why it is difficult to put those beliefs into practice. The data I present are an indication that the respondents’ beliefs remained solid throughout the Discourse Project, while the reflection that led to a comparison of beliefs and practices served as a catalyst for individual teacher research. This view contests the theory that teachers’ practices represent an inconsistency in beliefs (Speer, 2005) or that as situations differ, so do teachers’ beliefs (Hoyles, 1992).

If a reflection on beliefs and practices leads teachers to consider ways to improve their instruction, then we must reconsider what we think about professional development. The idea that professional development should somehow change what teachers believe presents an underlying assumption that teachers must believe the wrong things, thus perpetuating the deficit model of professional development. Philipp (2007) proposes that researchers, in their attempt to learn more about teachers and their beliefs, must move beyond the question of determining whether change in beliefs precedes or follows change in instruction. He contends that it is more important to support teachers to change their beliefs and practices in tandem as they learn new ways to make sense of what they observe. I suggest, however, that it is not a matter of supporting teachers to change their beliefs and practices, but to provide experiences that allow teachers to determine if and what changes should occur. By learning the perspective of teachers as they describe their professional development experiences, we can understand the ways in which they seek to reconnect and
reaffirm their beliefs about mathematics teaching and learning in light of corresponding change in practice. When given opportunities to reaffirm beliefs and reflect on classroom practices, teachers become the catalysts of reform and change.

**Chapter Summary**

In this chapter, I described how the Discourse Project was a meaningful experience for the teachers both collectively and individually. In the first section of the chapter, I provided data indicating ways in which the professional development influenced the teachers as members of a collective group. I discussed how the collaborative study offered a space for teachers to come together as a community of inquiry; breaking down the isolation and disconnectedness so often present in our institutional structure. I presented three themes from the data describing aspects of the professional development experience: trust, accountability, and professional intimacy. First, I explained that Beth spent significant time and effort to ensure a sense of trust among all group members knowing that trusting, supportive relationships are fundamental to public disclosure of one’s classroom practice. Next, I described the dual accountability as both an individual sense of responsibility to oneself and as a collective accountability toward the Discourse Project as a whole. Then, I proposed that the high level of trust and deep sense of accountability laid the foundation for an atmosphere of professional intimacy. These three themes provide a backdrop for our understanding of the teacher research experience that will be described in the next chapter.

In the second section of the chapter, I suggested ways in which the professional development experience influenced the Discourse Project teachers as individuals. I presented three specific activities within the Discourse Project that the teachers found meaningful. First, the study of professional readings appeared to provide the teachers with knowledge,
bring about a sense of rejuvenation, and focus their ideas for further inquiry. Then, the construction of a visual representation of beliefs served as a reflection tool from which to study classroom practices. Next, the coded analysis of the classroom videotapes provided a means for the Discourse Project teachers to examine the performance gaps between beliefs and behaviors. Taken together, these data provide evidence that the Discourse Project teachers’ beliefs did not change as a result of the professional development. Instead, the Discourse Project teachers were supported in ways to reflect upon their practices in light of their beliefs.

When teachers have the opportunity to articulate their beliefs about teaching and learning the professional development experience becomes personal and acts as a way to shape teachers’ work. In the next chapter I discuss how the examination of a performance gap became the impetus for each teacher’s classroom research.
CHAPTER 4: TEACHER RESEARCH AS PROFESSIONAL DEVELOPMENT

In chapter 3, I claimed that the professional development experience influenced the Discourse Project teachers as a community of learners and as individual teachers. I explained how structures within the Discourse Project led teachers to gain knowledge and clarify beliefs about teaching and learning mathematics. This information, when compared to evidence of classroom practices, provided the Discourse Project teachers with a means to identify the degree of disjuncture between what they profess to believe and how they enact those beliefs.

In this chapter, I take a closer look at how the Discourse Project teachers understand teacher research (in this chapter also called classroom research, teacher inquiry, and action research) as a meaningful form of professional development. I point out that because the Discourse Project teachers had little experience with types of teacher-centered professional development, they struggled to understand their role within the process of teacher research. This endeavor compelled the Discourse Project teachers to reframe their perceptions of themselves as knowers of their practice.

This chapter is divided into two sections. In the first section, I discuss how the Discourse Project facilitator and teachers negotiated their roles both as knowers and as learners of teacher research. I provide the reader with background information about teacher learning that relates to different theoretically grounded approaches to professional development. My literature review in this chapter focuses on knowledge and the ideological forces that have contributed to the disempowerment of teachers. Drawing from this literature,
I provide an analysis of the data and show how Beth and the Discourse Project teachers think differently about the ownership of teacher research.

In the second section, drawing on my interview data, I describe how the process of conducting teacher research influenced the Discourse Project teachers’ understanding of themselves as teachers, as researchers, and as professionals. To conclude this chapter, I reveal how the Discourse Project teachers come to a different understanding about teacher research as a form of professional development.

**Negotiation of Facilitator and Teacher Roles**

The idea that teachers who know more teach better has influenced efforts to improve education in the areas of policy, research, and practice by focusing on what teachers know or need to know. Yet, there are very different views of what “knowing more” and “teaching better” mean. Different views of teacher learning lead to very different ideas about the purpose and design of professional development (Cochran-Smith & Lytle, 1999). I begin by providing the reader with a brief literature review focusing on knowledge and professional practice and how these are related. These kinds of knowing will serve as an analytical framework for my analysis of how the Discourse Project teachers thought about teacher research as a form of professional development.

**Relationships of Knowledge and Practice**

Cochran-Smith and Lytle (1999) categorize the way in which teachers learn new knowledge through professional development as one of three types: knowledge-for-practice, knowledge-of-practice, and knowledge-in-practice. Acquiring knowledge-for-practice, or, as Sowder (2007) describes, knowledge belonging to one person and shared with teachers, is
what might be traditionally viewed as professional development. The thinking within this perspective hinges on the idea that knowing more (more subject matter, more theory, more instructional strategies) leads to more effective practice. Cochran-Smith and Lytle point out that people who think of professional development as knowledge-for-practice often speak of “the knowledge base” and believe that teachers must put into practice the knowledge they acquire from experts outside the classroom. This includes knowledge about how teachers organize instruction, sequence content, and assess student learning. Although teachers are considered knowledgeable about their practice, they are not regarded as researchers who generate knowledge or add to the theoretical base.

The second category, knowledge-in-practice, includes the practical knowledge of teaching which is acquired through experience and reflection. “It is not just what mathematics teachers know, but how they know it and what they are able to do to mobilize mathematically in the course of teaching” (D. Ball & Cohen, 1999, p. 95). Knowledge-in-practice involves the process of acting and thinking wisely in the classroom moment: making split-second decisions, interacting with students, and focusing on particular classroom problems. In order for teachers to become learners of knowledge-in-practice they must develop knowledge of the mathematics they teach as well as knowledge about mathematics. This means that in addition to concepts and procedures of mathematics, teachers need to know what their students might have trouble learning and how to support their thinking (D. Ball & Cohen, 1999). One important distinction of knowledge-in-practice is that teachers learn when they study the knowledge embedded in the work of expert teachers. Novice teachers are expected to learn practices by imitating the strategies of their more competent colleagues (Cochran-Smith & Lytle, 1999).
Finally, when teachers use their own classroom to study their own classroom practices and student learning, they generate knowledge-of-practice. The basis of this knowledge is that teachers play a central role in generating knowledge by making their own classrooms sites for inquiry, connecting their work to larger social issues, and taking a critical perspective on the research of others. Knowledge-of-practice differs from the first two forms in that there is no distinction between expert teachers and novice teachers. Teaching is understood as a way of acting upon the immediate decisions required in the classroom and therefore, the response to situations comes from outside experts as well as from inside the teaching profession itself. The idea is not to help teachers develop knowledge, but that through inquiry, teachers construct meaning about their work. Cochran-Smith and Lytle (1999) explain that this image of teachers as researchers is not meant to add to what teachers do, but instead “alter and transform teachers’ frameworks for practice in the intellectual, social, and cultural contexts of teaching” (p. 276).

Expectations of Teacher Research

The use of inquiry in the form of teacher research reflects a move away from professional development models of teacher training and retraining and toward a model of teacher learning through the process of asking and answering questions about the work of teaching. The inquiry becomes teacher-centered as teachers are the ones who formulate questions of interest, collect data to answer the questions, access outside sources of information, and document and share their research. In this way, the design of the Discourse Project was teacher centered. Beth wanted the Discourse Project teachers to be reflective of their practice and assist her in the understanding of their questions. As Beth explains, her
goal “was not to judge their teaching, but to understand what they were doing and why they were doing it.” She continues,

I wanted to better understand what ideas from discourse and discourse analysis are most interesting, compelling, and powerful for math teachers. …And a lot of the literature is using those ideas to critique teachers, not like in a demeaning way, but in a way to say, “OK, NCTM says we want this to happen, and here’s a teacher who’s trying to make that happen. But, oh, look how she interrupts students. Look how she does this.”

Beth recognizes that researchers, in their attempt to improve teaching, sometimes revert back to the notion that teachers must be fixed. Therefore, she made a conscious effort to provide a space for teachers to reflect upon their practice without fear of judgment or evaluation.

Another way Beth kept the Discourse Project teacher-centered was to place the focus of teacher inquiry in the hands of each teacher. In other words, the Discourse Project teachers determined the direction of the study through their decisions about what to read, discuss, and research. Beth explains that the project goals remain constant while the central focus shifts according to teacher interest.

I would say the goals have stayed the same [throughout the Discourse Project], but the ways that we’re [expressing the goals] have changed based on the participants and what things they want to study. So it’s more like before we were just talking more broadly about discourse, and now it’s become more about particular things because of the teachers’ interests or because of topics [within the study of discourse] that they’ve taken up as important.
It is interesting to note that even though Beth is an expert on the subject of discourse, she does not frame the Discourse Project from an expert/novice approach. Instead, it was Beth’s intention to purposely not know where the study might lead, thus allowing teacher-centeredness to come forward. By placing the Discourse Project teachers centrally in the design of the project, the facilitator could step to the side and serve as a support for teachers as they begin teacher research.

In her work with teachers as researchers, Freedman (2001) describes how she created a community in which teachers could take risks in their thinking about their research. She explains that at first it was difficult for teachers to feel as if they could take risks. Because the teachers felt as if everything they were doing differently was risky, they instead focused on the importance of the group and the safe haven it provided for them as teachers.

Stepping out of one’s comfort zone can indeed be a risky business. For the Discourse Project teachers, the risks were heightened when they entered the phase of conducting their own classroom research. This was in part because most of the Discourse Project teachers were used to structures of professional development in which experts disseminate information and theory with the expectation that the strategies be implemented as modeled. Charla compares this structure of professional development that she experiences within her school district to the expectations for teachers in the Discourse Project.

Schools sanction professional development that is imposed and prescribed. Here the focus is on improving what happens in the classroom. [Typical professional development] wasn’t necessarily helping the students in my classroom learn mathematics. Beth’s leadership style is to absolutely believe that we know what’s
best for us and for our students - far be it for her to say what the best thing is. But this is just like without a net. I don’t know how to think for myself and know what’s best. Charla’s last sentence is a significant statement. On the surface, it may appear as if she is simply expressing self-doubt about the complexity of teacher research. However, by declaring that she doesn’t know how to think for herself and know what is best for her students, Charla is referring to the deeper issue of the marginalization of teachers.

Many studies use the concept of “deskilling” to describe how teachers are marginalized in schools. Deskilling is a process which signals a loss of control over one’s work; where complex ways of working that have been developed over many years are broken down and reduced to simple, routine tasks (Briggs-Carter, 1991). Apple (1988) applies this concept to teachers, explaining that teachers are facing a situation where “more and more decisions are moving out of their hands (Apple, 1988, p. 322) These decisions include what to teach, how to teach, what materials to use, and how to assess student understanding. Pre-specified lists of competencies, pre-packaged materials and texts, and pre-designed professional development diminish teachers’ professional control over the goals and content of curriculum, and therefore, education more generally. As a result, “teaching itself appears to be more of an occupation than a profession” (Ballet, Kelchtermans, & Loughran, 2006, p. 210) and such reductions of professional responsibility of teachers lead to the decline of their professional standing (Runte, 1998, p. 20).

At the same time teachers are disempowered, schools have been “rationalized, cut-back, made more economically efficient, less of a tax burden and set in competition against one another for clients” (Hargreaves, 2000, p. 168). Education in this context is treated as a commodity or product rather than a service. Schools are evaluated by measures such as
standardized achievement data where results become public and compared across districts. Parents, instead of being a partner in their child’s education, become the consumer and make increased demands on teachers and schools (Troman, 2000, p. 211).

This increased external control leads to an intensification of teachers’ work and detracts from the ability of teachers to direct their own professional learning (Ballet, Kelchtermans, & Loughran, 2006). Characteristics of intensification that add to the difficulty of teachers’ work include less time to plan and reflect during the school day (Hargreaves, 1995), a greater sense of work overload (Apple, 1988), isolation from colleagues as a result of little time for collaboration, and creating doubts about one’s own competence (Ballet, Kelchtermans, & Loughran, 2006). As a result, teacher professionalism and collegiality seems to be replaced with accountability and distrust (S. J. Ball, 2003) and teachers become more socially isolated in their schools (Wong, 2006).

It is no wonder, then, that Charla describes the teacher research phase of the Discourse Project as working “without a net.” Even though she trusts Beth, Charla’s experience with school-based professional development is one that has been “imposed and prescribed.” Charla does not trust herself to be successful in a teaching situation that requires autonomy and knowledge of practice.

Professional development that is done to teachers often comes with the expectation that implementation of “new learning” will be monitored. Because knowledge-of-practice investigations don’t involve this same stance of authority, the question arises about the need for accountability. Unlike Charla who sees the teacher research phase as the lack of a net, Adam sees it as a freedom which is a welcome break from district imposed self-monitoring.
You go to these staff development things, and it’s like, “OK, we’re going to talk about something that I really don’t care about like reading strategies, and so we’re going to talk for 30 minutes about reading strategies and then later on we’re going to see how you’re implementing these reading strategies in your classroom.” Right? [But in the discourse project] no one’s coming in and being like, “So, have you implemented those discourse strategies yet? How’s your revoicing going?” In addition to freely choosing to be here we’re also freely choosing what we want to implement and what we don’t want to implement in our own classroom.

Charla and Adam reveal both what is difficult and what is beneficial about a knowledge-of-practice approach to professional development. Charla’s hesitancy to make decisions about her own inquiry points to the effects of teacher deskilling and reminds us that not all teachers initially see themselves as researchers (Dana, 1992; Zeichner & Noffke, 2001). Yet, Adam’s eagerness to design his classroom research suggests that inquiry of one’s practice can be professionally rewarding. Both perspectives are linked to larger questions about the professional development of teachers: Who makes decisions about initiatives? What are the purposes of classroom research? Cochran-Smith and Lytle (1999) point out that teacher inquiry “is associated more with uncertainty than certainty, more with posing problems and dilemmas than with solving them, and also with the recognition that inquiry both stems from and generates questions (p. 293). Even so, teachers are accustomed to having others in authoritative positions tell them both the appropriate questions and correct answers. This reliance of knowledge as determined by someone else’s research along with the uncertainty that accompanies classroom research lead to feelings of apprehension and uneasiness at the beginning of the action research phase of the Discourse Project. I now take a closer look at
how Beth and the Discourse Project teachers acknowledge these layers of uncertainty as they come to understand their roles within classroom research.

*Owning Teacher Research*

When teachers use their own classrooms to investigate their reasons, decisions, and responses to classroom situations, they begin with what they believe they are doing or trying to do in their classrooms (Watkins, 2006). Therefore, it is critical that teachers own the responsibility to determine the topic of action research and feel supported in their decision. Such ongoing support from researchers and colleagues allows teachers to negotiate their own changes in classroom practice (Cobb, McClain, de Silva Lamberg, & Dean, 2003). Keeping these ideas in mind, Beth planned for the Discourse Project teachers to begin the action research phase by moving away from “just talking broadly about discourse” to a focus on the particular issues important to each teacher. This shift in focus, though, was not an easy change for the Discourse Project teachers to make. Although the Discourse Project teachers were interested in conducting classroom research, some, such as Janet, questioned their own ability to take control of the process. Janet describes her experience this way,

> Actually the reading was almost the easiest part. It was demanding, but it was very structured. I knew what I had to read every week and what I had to do. The action research is just so broad and open at times that I just panicked thinking, “Oh, this isn’t going right. I’m not getting this done. What am I supposed to be doing? What am I supposed to be looking at?” Sometimes this is almost paralyzing. There are too many decisions, there’s too much to think about. How can I teach and think about all this stuff?
Janet speaks of the difficulty in knowing how to conduct the process of teacher research. Similarly, Karen compares the prescribed nature of professional development within her school district to the inexactness of teacher research.

Here’s the funny thing - we sat here and complained about professional development in our schools and how it’s very scripted, and now we’re all sitting here realizing that this action research component is so wide open and it’s totally up to us to figure it out. It’s that openness that’s so scary.

Janet and Karen use the words “panicked” and “scary” in their descriptions of teacher research. Their uncertainty is similar to Attard’s (2008) work as a teacher-researcher who describes his experience as travelling along “rough and bumpy roads,” adding that “uncertainty is a frightening thing” (p. 314).

Up to this point it had been Beth’s role to provide the framework of the Discourse Project by compiling the library of professional readings and the Discourse Project teachers’ responsibility to select what they wanted to read and discuss as a group. So, when the Discourse Project teachers moved away from the professional readings phase, or what Janet refers to as “the easiest part” of the project, they entered the more difficult component of the project where decisions became the responsibility of each individual teacher. Yet the teachers, in their desire to do the right thing, felt like they didn’t know what to do. When Janet wonders what she is “supposed to be doing” and what she is “supposed to be looking at,” she assumes there must be a right way to undertake her research. Karen expresses similar thinking in the following,

Beth just quietly sits back and provides the structure and the opportunity. She keeps us focused and then sits back and just observes. It’s not that she doesn’t probe and she
doesn’t question, but she does it in a way that’s not intended to steer you or influence you. She’s just letting us grow and learn and figure things out. And there are times when that is so frustrating because you just want somebody to tell you what to do.

Why would the Discourse Project teachers, after many hours of reviewing their lesson transcripts, reading analyses of their classroom practices, and watching their lessons on videotape, have difficulty determining a change in teaching that might impact their students’ learning? Beth answers this way,

Some of the teachers wanted me to pick their action research for them, because they didn’t really know what they wanted to do or because maybe they weren’t ready yet to scrutinize their practice. And so they wanted me to pick the thing because then it became easier to look at something.

From Beth’s point of view, the Discourse Project teachers wanted Beth to determine their research focus because they were not ready to look critically at their practice. Grimmet and Dockendorf (1999) describe a similar experience of facilitating teacher research. Rather than move through the “mazy pathways of teacher research” along with the participants, the facilitators felt locked in a linear path of providing answers for teachers. They describe the teachers as “wanting the recipe for solving their own dilemmas without owning the process” and needing someone to tell them “what to do and which door to enter” (p.90).

What I illustrate, though, is that it is difficult for many teachers to hold on to the idea of themselves as professionals capable of making informed decisions about their students, let alone their own learning. As I discussed earlier in this chapter, the deskilling of teachers removes practitioners from the process of problem-solving and reflection while at the same time infuses them with the idea that knowledge is something to be standardized and
controlled. In addition, the structural characteristics of school that question the authority and professionalism of teachers further compounds their inability to see themselves as skilled professionals. So, while many researchers find the process of implementing qualitative research to be unpredictable and difficult, teachers in particular can find it especially daunting (Langrall, 2006; Worrall, 2004). I also point out that the ambiguity of teacher research might have added to the Discourse Project teachers’ initial attitude of unknowing. Yet, a tolerance of uncertainty promotes ongoing inquiry (Attard, 2008) or, as Watkins (2006) describes her classroom research experience, “moving from a state of knowing to a state of unknowing and back to a state of knowing again” (p. 16).

Some who study teacher research attribute the difficulty teachers have in conducting research to a lack of confidence (Peters, 2004) or inability due to the complexity of conducting research in general (McTaggart, Henry, & Johnson, 1997). Others instead refer to the different priorities that exist for teachers and university researchers, pointing out that different concerns can bring about conflicting views (Whitford & Metcalf-Turner, 1999). I maintain, however, that the Discourse Project teachers felt inadequate not because they lacked confidence or because they lacked ability, but because they were accustomed to being told what to do in their classrooms and how to do it. With this kind of view of professional development, it is little wonder that the Discourse Project teachers also expected to be told how to conduct their own research.

**Facilitating Teacher Research**

Much is written about how the teacher acquires new skills as a teacher-researcher (Britt, Irwin, & Ritchie, 2001; Cochran-Smith & Lytle, 1999; DeMulder & Rigsby, 2003; ,
1999; Peters, 2004; Sherin, 2002; Zeichner, 2005) and takes on a perspective that is at once
inquirer/instructor/learner (DeMulder & Rigsby, 2003). Through classroom research teachers
explore issues of their practice by studying theories and by reconsidering their own
assumptions and reasoning processes. However, discussion of the role of the facilitator
remains implicit rather than explicit (Grimmett & Dockendorf, 1999).

Miller’s *Creating Spaces and Finding Voices* (1990) is a personal case study of a
teacher research group. As the researcher, Miller writes of her fear of imposing herself on the
collaborative inquiry from her position as a university teacher and thus “expert” of
conducting research and as framer of the inquiry project (p. 9). Miller speaks of becoming
aware of the balance that collaborative efforts require as well as the tensions that individual
differences create. Likewise, Beth experiences difficulty in knowing how to balance the
multiple expectations and assumptions of all members of the Discourse Project. She explains,

> I feel like I need to learn more about how to facilitate action research, because I feel
like maybe I should be doing a better job of that. But I don’t know which things are
really monumental in guiding their research decision. In some cases I’ve tried to help
teachers see a pattern or a theme in the thing that they keep talking about. I think
other people are scared to look closer at their practice… I have tried, as time has gone
on, to give them more guidance based on themes that I’ve been hearing across time.
But this is where I say I wish we had another year to continue with the research. I
think they would feel less unfocused or unsure about what they want to focus on than
they did this year.

Instead of being critical of the teachers’ reactions, Beth holds herself responsible and
suggests that more time devoted to research within the Discourse Project would have
lessened their struggles. Beth’s response also reveals ideas about her own uncertainty of how to provide support to the Discourse Project teachers without controlling their research. She continues,

“I’ve really been struggling this year because I’ve never really facilitated action research before and I feel like there are things about what I value that I’m trying not to impose, but those things that I value make me ask questions that maybe other people in the group wouldn’t. …And I’m learning a lot in the process, but I don’t really always feel like what I’m doing just by asking them questions is enough. But I don’t know what else to do. So I think if I were to do this again, I would be better prepared. I would have more of a plan. And I think that we would do [classroom research] over two years at least instead of a year, which is what my original plan was. But the teachers found the reading so interesting that it totally shifted my time frames, because we were supposed to just do readings over the summer and then do two years of cycles of action research.

In Beth’s struggle to negotiate her role in the Discourse Project, she experiences what Grimmett and Dockendorf (1999) describe as "the labyrinth of research-ing teaching" - that is, the complex dilemmas and issues that facilitators of teacher research face when they attempt to "deconstruct our role as presenter in order to reconstruct our role as facilitator" (p.90). So the teachers, as well as Beth, feel this push-pull relationship of wanting her to be a facilitator of action research and of wanting her to tell them what to do. This negotiation of roles is what Dana (1992), in her work with teacher-researchers, describes as a “kind of reciprocity,” a relationship that is continually shifting (p. 13).
Like teachers who grapple with the dilemma of determining the appropriate balance between student-initiated and teacher-directed learning experiences, facilitators of action research struggle with the uneven balance of guiding inquiry. It is this negotiation of roles that frames Beth’s development as a facilitator of the group and the teachers’ growth as producers of research.

**Reimaging as Teacher-Researchers**

Teacher research is a process that enables educators to make visible to themselves much of what is taken for granted about teaching and learning (Cochran-Smith, 2006). This process can also serve as a means of altering how teachers think of themselves, their practices, and their students’ learning. It is against this backdrop that I consider ways in which teacher research contributed to the Discourse Teachers’ professional growth. Two overarching themes emerge as foundations for teacher change: development of reflective skills and awareness of classroom practice. Together, these two insights build an understanding of self as professional.

**Reflection In and On Action**

A reflective teacher is one who is able to stand back from the classroom and become open to influence by oneself and others (Mezirow, 1981, p. 5). Reflection can occur both within the act of teaching and outside classroom instruction, or what Schön (1987) has termed reflection *in* action and reflection *on* action. Both types of reflection, that which occurs while in the midst of teaching as well as the thinking that happens afterwards, allow for the identification of consistencies and inconsistencies between intention and practice and consideration of changes that lead to improvement. But because teachers are often bound by
time and the busyness of the classroom, it is difficult for them to reflect while in the act of teaching. As a result, teachers naturally develop routines and make decisions that become intuitive and may remain unexamined (Day, 1999). It is important, then, that teachers have the space to reflect upon their practice.

The Discourse Project teachers consider self-reflection to be one of the most beneficial aspects of teacher research. Charla describes how reflection on her classroom instruction changed the way she makes adjustments to the types of questions she poses to students,

I’m more reflective in my teaching. I no longer think just about how a lesson didn’t go well, but now I think about what I’m going to do differently next time, and “Why didn’t it go well?” So because I was looking at changing my questioning techniques to get students to think more, and know it’s about thinking, I did more with prepping my questions. When I don’t get that thought process with my students, I look at the questions I asked. I reflect a lot more on the actual act of teaching than I did before I conducted this research.

For Charla, reflection means moving beyond criticism of her own instruction to construction of solutions for improved student learning. Instead of thinking only about the past, Charla considers how adjustments in her teaching techniques will impact future lessons.

Similarly, Janet experienced a change in the way she thinks about her classroom practices. She explains,

[The Discourse Project] has changed my practice. In addition to changing some of my talk moves in classroom discussion, I feel I am more analytical about what I am doing and what I might do. … I think the teacher research is definitely an effective
professional development experience, in that it has supported real thought about
teaching and real change in what I do.

Janet’s description of her thinking as becoming “more analytical” and “real” supports what
Day (1999) explains as reflective practice for effective instruction. He maintains that teachers
must be seen and see themselves as professionals rather than as technicians. As professionals,
teachers have a moral responsibility to engage routinely in the conscious, systematic
collection and evaluation of information about all that goes on in the classroom.

Karen also speaks of the importance of reflection. Here she refers to her own
behaviors along with her students’ actions.

My practice has definitely changed. I am constantly evaluating my lessons and
myself. I’m thinking about my discourse patterns, and my questioning techniques.
I’m encouraging my students to use strong math vocabulary and less non-specific
terms. I’m working on being more of a facilitator than the leader of the class.

Karen’s use of present-tense phrases such as “I’m thinking,” “I’m encouraging,” and “I’m
working” suggest that she is describing thoughts and actions that occur in the midst of
instruction rather than after the fact. This reflective way of teaching provides teachers with
what Koutselini (2008) describes as the opportunity to experience teaching as praxis. In other
words, teachers understand teaching to be a unique experience that is influenced by and
reflective of teacher judgments, ad hoc decisions, and justifications rather than as a
predictable system of skills and techniques. Koutselini maintains that teacher research is an
appropriate context for teachers’ attitudinal change in that it enables teachers to act and judge
their actions during actual teaching and in retrospect. For the Discourse Project teachers, the
experience of teaching as reflection-in-action and reflection-on-action promoted a new understanding of themselves and their practice.

*Practice Made Visible*

With all the complexities of classroom discourse, it is difficult to remember lessons for later reflection and analysis. One important reflection tool for the Discourse Project teachers is the videotaped lesson. With its ability to capture student and teacher action, video provided the Discourse Project teachers with a record of instruction that could be repeatedly examined without the immediate pressures of being within the midst of teaching. As Sherin and Han (2004) explain, “Video allows one to enter the world of the classroom without having to be in the position of teaching-in-the-moment” (p.13). Annie describes how the review of videotaped lessons helped her think differently about ways to improve her instruction.

I wanted my voice to become much less in the discussion and have student voices become much more. So it was all in the way that I was asking for input, and it's so subtle. And the video allowed me to see myself using the moves and show that more kids were participating or more kids were taking longer turns talking. [Before I began my research], none of those kinds of things were happening naturally. They were all happening as I started to try and implement these talk moves.

Annie speaks of reflecting on her teacher moves that she describes as subtle. Without being able to see herself teach, it was difficult for Annie to know what she might do differently to change the discourse patterns within her classroom. With the use of video, though, Annie’s practice was made visible. Once she could focus on her own actions Annie was able to notice
how students responded. Krull, Oras, and Sisask (2007) suggest that the ability to focus jointly on relevant teacher actions in conjunction with student learning is an important factor in making decisions about effective instruction. Annie continues,

Well, really what the research did more for me was make me aware of what it was that was keeping me from being able to have those discussions like I wanted to. It helped me see the things that I was doing that were not allowing those kinds of discussions to happen. [Once the class discussions] went like I wanted them to, I got to look at those and see why they happened. What did I do that made it happen? It gave me the opportunity to really analyze. Now I can move forward at the completion of my research and say, "OK, these are the things that make it good, and these are the things that make it shut down."

Annie talks about being able to “see” specific teaching moves as different from the general understanding she had of her classroom practice. Video helped her step back and study her practice from another perspective. By making practice more visible in this non-real time way, she was able to analyze what she was doing and reflect on what she could do differently. With the use of video, teachers have an increased ability to focus on the connection of teacher actions and student learning.

Previously in chapter 3, I described how the Discourse Project teachers reacted emotionally to Beth’s analyses of their classroom instruction as captured on videotape. So, I wondered if after multiple sessions of viewing themselves on videotape the Discourse Project teachers changed in the way they responded to the experience. Laura answers this way,

I feel much more comfortable about observing more neutrally what actually happens in the classroom. I value spending time occasionally observing on film or listening to
audio recordings of events that took place. I understand that my memory and observations at the time differ vastly from what I observe later. That means students’ perceptions at the time most likely differ vastly from what I intend or think is happening.

Laura describes her approach to video as “more comfortable” and “neutral.” This suggests that Laura has become more experienced as a teacher researcher. She views video as a tool that neither judges nor interprets, but only acts as a source of data. Laura also points out that memory preserves a picture different from what the documented lesson shows later. Some researchers have noted that video technology may help teachers closely examine their practice by slowing down the fast pace of the classroom so that specific moments can be further analyzed (Sherin & Han, 2004) or continually replayed in order to reflect from a different focus (Borko, Jacobs, Eiteljorga, & Pittman, 2008).

Video not only “slows” instruction, but also records lessons as moments frozen in time. Multiple video clips, then, can function as a source for reflecting on change and growth. Mike, an experienced teacher, explains how a chronology of lessons helped him notice changes in his teaching over time.

Some days I see that my teaching has changed quite a bit. I look back at tapes from two years ago during my first year [at the high school level] and watch with more satisfaction now than I had then. I see 9th graders function in groups of three, telling each other how they think without me prompting them…or last year as I challenge my geometry class to tell me why and what if…and I hear a student ask someone else, “Well what if the sign is in the other direction?” So I know that at times my teaching has improved and the students have benefited from it.
Researchers suggest that video offers unique opportunities for teachers to focus on “specific and detailed noticing” (Rosaen, Lundeberg, Cooper, Fritzen, & Terpstra, 2008, p. 357). We have seen that video influences ways in which the Discourse Project teachers examine their practice as made visible. Teacher change is promoted when teachers pay attention to what is important, connect theory to practice, and use what their knowledge to reflect on their own teaching.

**Professional Identity**

I have described how the Discourse Project teachers found meaning in a reflective way of teaching and how video influenced their understanding of classroom interactions. I now consider how these two experiences reframed their view of themselves as professionals.

Miller (1990) talks of teacher research as a process in which teachers reflect and think critically about their practices. The process of teacher research, in turn, leads teachers to know themselves and their work differently. Miller describes how a group of five educators shifted their perspectives of themselves as researchers while they “looked and looked again” at their classrooms in relationship to the broader structure of schooling (p. 143). Similarly, the Discourse Project teachers experienced a shift in the way they view themselves and their work. In the following quotation, Karen describes how her feelings about her professional self shifted over the course of the Discourse Project.

I never considered myself to be a strong math professional. Now, I’m beginning to see so much progress in my content knowledge that I feel far more professional. I also feel more secure in the education world, when it comes to relating and understanding the new jargon, content, discourse, or what ever. I feel like I have
more respect for myself as a teacher, and hopefully others will see me as a professional as well.

Karen, one of two Discourse Project teachers who are certified in elementary education, discloses feelings of inadequacy about her mathematics coursework in comparison to the other teachers in the Discourse Project. And yet, in this trusted place of learning, Karen takes pride in her growth as a mathematician and as a professional teacher. Karen speaks of feeling “more secure” and having “more respect” for herself, which suggests a shift away from a deficit view of professional development towards a focus on self growth.

As Dadds (1993) points out, we are at our most vulnerable when we study who we are as teachers, both the images others hold of us and those we hold of ourselves. As we deconstruct views of ourselves, our “existing images of the professional self will be challenged, questioned, re-thought and re-shaped in some degree. These processes are necessary if change and development are to occur and if self study is to lead to new learning” (p.288). As Karen considers who she was as an educator and who she has become, she reimages herself as a teacher by placing herself within this larger professional network.

In addition to naming oneself as “professional,” reimaging as a teacher-researcher includes taking ownership of professional development. I have described in chapter 3 how many of the Discourse Project teachers found little personal meaning in school-supported forms of professional development. In contrast, Annie alone speaks positively about her district professional development. Even so, she joined the Discourse Project because she recognized that she needed something more than what her school district had to offer. She explains,
The Discourse Project was just a different kind of professional development than I’d ever done before. It was intense and focused, and it was really something that I had really known that I needed to do in my classroom. So it was more personal than what I was doing with my staff professional development, more personal meaning that it was something coming from me, in my subject area with my students that I knew we needed to get better at. Whereas the district looks at all the student achievement data, the bigger picture, and comes up with a question like, ‘How are we going to help all content teachers get better at helping students become more effective in literacy?’ it wasn’t something that was part of my teaching in terms of being a math teacher.

Annie’s response echoes the overall message from all the Discourse Teachers. She emphasizes the need for professional development to have “personal meaning,” a component that was lacking in her district professional development. She found this “personalness” in the process of conducting teacher research: choosing her own question, considering her own teacher moves, and thinking about her own students.

Reimaging oneself as a teacher-researcher can also bring about changes in actions as a teacher-leader. While Annie speaks of finding personal meaning in the Discourse Project, Charla uses the experience to change how she supports other mathematics teachers in her school. Earlier in this study, Charla spoke of conducting research in her classroom, getting the support she needed, and “not worrying about what others think.” Yet, she expressed regret that as the mathematics department chair she had not found a way to “influence” her team to “do something different” in their classrooms. At the time Charla was concerned that she was not “as strong a facilitator as Beth” and that discussions about researching her practice would only “backfire.” However, a year later Charla speaks of how she coaches her
mathematics department to think differently about their instruction and how she encourages their development as teachers.

Following a lot of our professional development sessions [at our school], we come back to team meetings and we have to document how we are infusing the PD [professional development] topics. Most teachers want to just fill out the paper and turn it in and never look at it again. And I say to them, “You guys, no. Let’s look at it. This is how I tried it in my classroom.” And so I encourage them to continue with the follow-through. Before the Discourse Project I’d think the same way, saying, “Let’s get the paperwork filled out, turned in, and be done.”

The ownership Charla gained as part of the teacher research process influences the way she now approaches school-based initiatives. She adds a personal aspect by using an inquiry approach to professional development. Charla also found a way to provide leadership beyond the managerial duties of the department chair. When Charla publicly reflects on her teaching, she helps others realize that although she has many years of experience, she doesn’t stop asking herself questions about her classroom practice. By sharing her own ideas of self-reflection and inquiry, Charla reimages herself as a leader among teachers.

Koutselini (2008) describes action research as a relationship between teacher and student, and classroom and self, where “meaning does not lie in the experience but in understanding the experience.” From this point of view, teachers “live the experience” of teaching and learning as an ongoing process within which “dialogue with self and others is not just an intellectual-cognitive pursuit, but one of being in the world” (p. 35). In the following excerpt, Mike alludes to teacher research as a way of being.
The Discourse Project was an incredibly important and effective form of professional support. Even though I have not been a great “researcher” this year, I envision myself trying to document my changes to a more student-centered room. ‘Research’ is no longer a scary word but something that can be used to help solve a problem in your own classroom and start to analyze not only why the ‘problem’ occurs, but possible solutions with the goal of improving your teaching and the students’ learning.

Mike’s words convey a sense of both present and future, meaning that inquiry brings and will continue to bring about new understandings of himself as an educator. He considers himself to be a novice researcher, but he speaks of teacher research as an opportunity to “envision” and “analyze” his practice. The ability to see and interpret as part of a professional discipline is what Goodwin has termed “professional vision” (1994). Professional vision as “noticing” and “reasoning” influences the connections teachers make between pedagogy and student thinking.

Quiroz and Secada (2003) point out that as teachers enter the profession of teaching, we educate them to think of themselves as professionals. The authors argue, however, that once teachers are in the classroom, they are ignored in their development as professionals. Knowing oneself as a teacher-researcher, therefore, influences ideas about the professionalism of teaching. Mike describes how the Discourse Project experience changed his perspective of himself as a professional and about teaching as a profession.

[How I view myself] is probably the area that has changed the most--not only the “acceptance” but the pride in being a teacher. Because of my indecisiveness in college… I almost came about teaching in a backhanded way and my attitude
regarding teachers was not really positive. I think for several years I viewed teaching as a job I was going to do until I figured out what I was going to do with my life.

Early in the discourse project, Beth asked us for the reasons we were teachers. I replied ‘June, July, and August.’ I think that response was the first time that Beth politely chewed me out and talked about how that kind of attitude contributed to the overall lack of respect for the profession both at the national level and in communities around public schools. What really elevated teaching in my mind, though, was the amount of respect Beth showed me and the other teachers combined with the amount of effort she put into [supporting our learning].…This all combined to get me to reformulate the notion of teaching as a profession, and me as a professional teacher.

Previous to his participation in the Discourse Project, Mike considered teaching to be a job rather than a career. He did not view his work or even the work of other teachers as worthy enough to be considered with respect. It is interesting to note that although Mike had earned a masters degree in education and received National Board certification, he did not “accept” himself as a professional when he began the Discourse Project. This quotation, however, underscores a reimage of self as a professional and a new regard for the profession of teaching. According to Altrichter (2005), teacher research aspires educators to reflect upon and develop their competences and publically claim their status as professionals. This ultimately leads to a strengthening of professional identity that goes hand in hand with the development of professional practices. For the first time in his career, Mike publically claims his pride as an educator and names himself a professional teacher.

Up to this point, I have presented evidence that describes how the Discourse Project teachers found the teacher-research experience to be a lens from which to reflect on their
professional growth, a perspective from which to find personal meaning through inquiry, a way to support colleagues to inquire of their practice, and a means for developing a professional identity. These are powerful examples of how teacher-research transformed teachers in the Discourse Project. However, there is a downside to this transformative kind of change. One negative aspect has to do with the “intensification” or overload of teachers’ work. Factors that affect the process of intensification include both school and societal structures (Giroux, 1988). The number of students assigned to each teacher, the amount of time in which to teach, and the availability to plan and reflect all add to the intensity of the working context for teachers. In addition, there seems to be always more for teachers to do as society gives over widespread economic and social problems for schools to solve (Apple, 1988).

At the completion of their teacher research, two of the Discourse Project teachers wrote about the intensification of teaching and the difficulty that comes with transformative change. In the following quotation, Mike explains his perspective.

Because of the Discourse Project and because I know more about a variety of things…I get more stressed out, darnit all. It used to be a lot easier years ago when I thought I knew everything I needed to know and I could be fun and creative and entertaining…but now…ugh. This ties in with [the idea of seeing myself] as a professional. Since I have been ‘bequeathed’ with a certain bed of knowledge and a growing awareness, I now need to do more with it.

The stress Mike experiences has to do with the realization that in order to continually improve his classroom practice, he must have the time to do so. He is no longer content to
teach in a manner that is simply engaging, but instead understands his work to include reflection and inquiry. Similarly, Laura speaks of her internal struggle.

I feel and realize it is impossible to do what is right for my students. If anything, it seems/is more impossible now. Since I hold my convictions more strongly, it is with more resentment and disappointment that I understand that I am failing the students. Public school education is a strange, complicated, cumbersome economic/political beast. That is unfortunate for me to feel, but I do feel like I am a better teacher.

Laura’s comment attunes us not only to the frustration she feels about the impossibility of doing “what is right” for her students, but also the resentment she holds about her inability to affect the economic and political constraints upon education. Both Mike and Laura’s comments reveal perspectives of the pressures teachers face. These pressures can be externally defined such as the impossible expectations of student achievement as determined by No Child Left Behind, or internally defined such as self-imposed standards of perfection (Hargreaves, 2000; Smylie, 1994).

Knowing oneself as a teacher-researcher brings both rewards and challenges. By making space for teachers to reflect on their work, they can alter the way they think of themselves and their practices.

Chapter Summary

I began this chapter by describing the theoretical framework of knowledge and the relationship of knowledge to practice. I provided data suggesting that the teachers in the Discourse Project experienced the opportunity to develop a different kind of knowledge for teaching – knowledge not of ‘what to do next,’ but rather, knowledge of how to interpret and reflect on classroom practices. Inherent in teacher research is the appreciation and valuing of
the knowledge base of teaching and how that must come from a teacher’s perspective. However, because societal and school structures have disempowered teachers by reducing their decision-making ability about curriculum, instruction, and assessment, the Discourse Project teachers did not at first see themselves as professionals and as researchers. Instead, they initially struggled to understand their role within the process of teacher research. Yet, by developing reflective skills and becoming more analytical of their practice, the Discourse Project teachers found a new source of motivation and transformed the way in which they viewed themselves and their work.
CHAPTER 5: CONCLUSION

Professional development as a term and as a strategy has run its course. The future of improvement, indeed of the profession itself, depends on a radical shift in how we conceive learning and the conditions in which teachers and students work. (p.35) Michael Fullan (2007)

If you were to ask teachers to describe the typical forms of professional development in which they participate, most likely they would speak of workshops, programs, courses, and related activities that are designed to provide teachers with new skills, knowledge, and practices necessary for improvement in the classroom. Yet, what is almost always missing from their responses is enthusiasm, a love of learning, and a sense of self that comes from meaningful work. Without this component of teacher learning, external ideas alone can never be powerful enough, specific enough, or sustained enough to alter the culture of the classroom (Fullan, 2007). Having engaged in this project, what has become so clear to me is that teacher research as implemented in the Discourse Project can provide a context in which teachers engage in the learning of their practice and transform their thinking of themselves as professionals.

Although this study is about a small number of teachers, many stand to gain by considering the power of teacher research. Yet, if educators and administrators attempt to bring about type of work without careful thought, many stand to lose. I came to this realization late in my study of the Discourse Project. When I began this work, I had expected to learn how I might build the capacity for teacher-research in my own large, urban district. I remembered how my own research as a classroom teacher led me to new understandings about my teaching and about my students’ mathematical thinking. What I came to realize as a result of this study, however, is that teacher research as a collaborative effort requires intense
time, supportive structures, and committed efforts of all participants. It cannot be considered as yet another initiative to be scaled up and rolled out. Therefore, I must instead consider how I can provide professional development opportunities that are personal and meaningful for teachers and work to remove barriers that stand in the way of their growth. In this concluding chapter, I describe the influence of this project on my own professional self and point out ways in which we can support teachers to own professional development.

**Catalyst for Teacher Inquiry**

One of my main research questions focused on what it means for teachers to do research as professional development. Because it was the teachers themselves who generated questions for inquiry and designed the classroom actions, the professional development was teacher-centered. Three activities within the Discourse Project had a powerful influence on the teachers’ thinking about their practices: reading professional literature, creating a visual representation of professed beliefs, and studying classroom practices as documented on videotape. As a result, the Discourse Project teachers considered with new understanding what was actually happening in their classrooms as compared to what they wanted to have happen. This engagement in reflective practice was a significant component in their reimagining of themselves as professionals.

Reflection, as part of the Discourse Project, included naming beliefs and knowing practices. The relationship of beliefs and practices emerged as a topic related to my main question of what it means for teachers to be researchers. Current literature depicts various theories of beliefs and practice. One view contends that changes in beliefs precede changes in practice, or in other words, what a teacher thinks influences what a teacher does (Pajares, 1992; Thompson, 1992). Other theorists maintain that teachers change their beliefs after they
see positive results based on a change in classroom practices (Loucks-Horsley, Love, Stiles, Mundry, & Hewson, 2003). Still others suggest that teachers’ practices represent an inconsistency in beliefs (Speer, 2005).

I present a different understanding about the way teachers hold the relationship between beliefs and practices. I provide evidence that the teachers’ beliefs remained unchanged throughout the Discourse Project, even as they became aware of a disjuncture between beliefs and practices. In this sense the teachers reaffirmed their beliefs and reflected upon if and what changes should occur in their practice. If we want teachers to be reflective of their beliefs and practices, we must provide opportunities for them to “see” their classroom practice, and profess their beliefs within a space of shared trust and respect. However, building communities of reflective practice is not easy, for it often requires changes in what we consider to be the purpose of teaching and how we go about the business of evaluating instruction.

Throughout this study I found myself searching for ways within my own curriculum work with teachers and administrators where we could discuss our beliefs about teaching and learning mathematics. It was important to me that we identify a set of common beliefs so that when our work became difficult we could return to what we hold “close to the heart” as we made decisions. With one group of elementary teachers and administrators who were responsible for selecting new classroom instructional materials, this process worked well. Group members were willing to state their beliefs and respond to each other as we compiled our agreements. Even though we had not spent the time to develop the high trust and intense commitment as in the Discourse Project, the members of the elementary curriculum group valued the time spent professing individual beliefs and formulating a group response. This
was partly due to the fact that teachers had had previous professional development opportunities that exposed them to professional readings and challenged them to think about their own understanding of mathematics instruction.

With another group of teachers I was not as successful. A committee of high school mathematics teachers worked in a manner similar to the elementary teachers in order to select new instructional materials. What the high school teachers lacked, however, were professional development experiences that supported thoughtful conversations about what is meaningful for students to learn within mathematics and how they learn it. In that sense, I started the process of identifying beliefs too soon in our group meetings. Unlike Beth’s decision to provide the Discourse Project teachers with a library of professional readings and an extended amount of time within which to wrestle with ideas, I simply gathered two articles written by “experts” and expected the high school teachers to read them in between our summer meetings. In addition, I thought that by developing a list of beliefs to which the teachers could react rather than have them generate their own, I would be saving meeting time for more important discussions about actual materials evaluation. So, when I facilitated a discussion about shared beliefs that would shape our work together, the conversation was shallow and perfunctory. Our committee’s set of beliefs held no value for our group as a whole and even ran counter to some teacher’s ideas. As a result, the committee was divided and distrustful of me and of each other. I spent many hours meeting with individual teachers and making up for what I should have spent time doing in the initial stages of our work together. By disregarding what I was learning from the Discourse Project teachers, I unknowingly was perpetuating the top-down approach to professional development that I was attempting to abolish.
Within my school district, administrators and teachers have studied ways to establish collaborative communities of inquiry. What they have not addressed, though, are the imposed boundaries that accompany administrative decisions. Elements of prescribed implementation, performance evaluation, and teaching distilled into a list of “best practices” all send the message of subtle inequities of whose voice holds authority. But we must move beyond the idea that there is one right way to teach. In contrast to the traditional view that portrays teachers as technicians who implement prescribed methods of instruction, professional development must include opportunities to support teachers in the study of pedagogical strategies. If administrators evaluate teachers’ quality of instruction in the narrow terms of content coverage, extent to which students are on task, or use of curriculum materials, then there will be little reason for teachers to consider alternative approaches to classroom practice. On the other hand, educational leaders who communicate that reflective practice is a worthy effort support teachers to take an interest in developing insights into their practice.

My research shows that the collaborative relationship in the Discourse Project was a significant factor in the development of a trusting environment. Within that safe space, teachers took risks as they critically reflected on their practice. Therefore, administrators must develop school cultures that provide support for teachers to critically examine pedagogies and assumptions about teaching and learning. In addition, leaders must create an atmosphere that empowers teachers to capitalize on their strengths while at the same time nurtures new ways of knowing and learning. My study supports the claim that teacher research as “an ideal way for teachers to learn more about teaching and learning mathematics and to apply the results immediately to their own practice” (Borazi & Fonzi, 2002). I caution,
though, that the process of teacher research is difficult due to constraints that exist within teaching.

Making Space for Teacher Research: Challenging the Constraints of Time, Entrenched Educational Ideologies and Personal Doubts

If teacher research is to reach its potential as a significant part of future approaches to professional development, then administrators and professional developers need to pay attention to examining existing factors that can impede the growth of teacher research. One particular challenge that stands out is the issue of time. Much is written about time required to conduct research. Similarly, the teachers in the Discourse Project spoke of the time outside the school day spent on professional readings, group meetings, and data analysis as taking away from time needed for the daily business of teaching. Clearly, teacher research implies more, and often different, work for teachers that may also have the effect of intensification. These findings, then, also highlight the importance of making space for such work to be a part of teaching rather than something additional.

Throughout this study, time also was a challenge for me. Because I was sensitive to the amount of time the teachers spent outside the classroom as members of the Discourse Project, I was hesitant to ask for more of their time to participate in focus group or individual interviews beyond the school day. Therefore, I conducted all focus group and individual interviews during Discourse Project meetings or times the respondents named as most convenient. The day I was scheduled to conduct a focus group interview at the bed and breakfast, I was also committed to working with preschool and Head Start teachers at their monthly professional development. The preschool session lasted much longer than I had anticipated so I arrived later than expected to conduct the focus group interview. As a result,
the first session was interrupted by lunch, which made it difficult for the teachers to return to their intended points of reflection later on. This struggle with time remained an underlying current throughout the course of my research. I often felt as if I wasn’t meeting the responsibilities of my “day job” while at the same time failing to address the demands of my research in a timely manner.

In addition to making space for time during the school day to undertake the important work of teacher research, we must help teachers understand the value of questioning their own practices instead of simply surrendering all judgment to administrators and other outsiders. Clearly, the Discourse Project teachers understood improvement of classroom practices to include the process of determining what was happening within their classrooms as compared to what they wanted to have happen instead. Since Beth’s role was not to judge, the Discourse Project teachers had the freedom to take risks without fear of outside evaluation. Yet, they spoke of the difficulty of watching themselves on video and reflecting on classroom practices in part because they had had no previous experience or the support to do so. The school-based professional development activities most teachers are used to convey the message that teachers are implementers and that the monitoring of implementation occurs in exactly the same way for each teacher.

If we as educators work to remove the threat of evaluation for teachers who are willing to inquire of their classroom practices, how then might we support them to “see” their classroom practices and share their thinking with others? As an aside one day Mike suggested to me that he wished the teachers in his school would “embark on some sort of journey like the Discourse Project.” He suggested that teachers could work as partners to watch videotapes of each other’s lessons, read about common issues they had, and discuss
how they could alter their instruction to produce desired results. Of course, Mike’s idea implies the understanding that teachers, rather than outsiders, would determine the area of inquiry. Without the teacher-centeredness of classroom research, there is little chance of teacher investment.

As I think about Mike’s suggestion, I wonder how I might help to bring about those connections for teacher-research. At times it seems as if I have dual-citizenship in both worlds of classroom teacher and administrator and often feel as if I am just a visitor with no power and no real belonging to either land. When I periodically identify with one or the other and publicly explain that perspective, the “other” views me with skepticism. Some administrators, though, are open to innovative ideas and may be interested in hearing how teacher research can be a powerful and positive experience for teachers. They discount the quick fixes that are so deeply ingrained into beliefs about educational reform (Childress, Elmore, & Grossman, 2006). Mike’s principal is one such administrator, yet she knows very little about the Discourse Project and Mike’s involvement. As Mike seeks to alter the culture of his school structures that limit collaboration and prevent professional relationships among teachers, I can be the connection that builds the bridge between teacher and administrator.

Another insight I gained relates to the effects of transformative change. Throughout this study, I show that the Discourse Project teachers reimaged themselves as teacher-researchers. This reimage includes naming oneself as a professional, taking ownership to improve one’s practice, and caring to support others in their own professional growth. And yet, there is a downside to knowing oneself as a teacher researcher. Developing a professional identity also brings an awareness that can be problematic when other structures don’t allow teachers to fully realize that identity in their practice.
Watkins (2006) speaks of teacher research as moving from a state of knowing to a state of unknowing and back again to a state of new knowing. New knowing, however, illuminates issues that are bigger than the classroom; these issues are a result of systemic or structural conditions. Laura and Mike experienced a sense of frustration that “knowing more” also meant knowing what they alone do not have the power to change. So although the Discourse Teachers experienced personal benefits from the intensive work of teacher research, they also uncovered societal and educational issues that perpetuate disparity and powerlessness. At times this awareness leaves them feeling more overwhelmed and inadequate than before they took on this work.

How might we support teachers who have had this kind of transformative change? Miller and colleagues (2002) describe collaborative study as a trusted place where they can take risks and survive in places that may not feel so safe. They explain, “It seems our work in self-study, in particular the professional intimacy we so deeply value enables us to reach out beyond our safe spaces. As one of us said, ‘I have practice being authentic in a space without threat; that has helped me survive being authentic in a space where there are threats’ (p. 91). Although small groups of teachers who have learned some transformative ideas can change the way their classroom works, they will continue to experience tension about parts of the system they cannot change.

I maintain that what teachers also need to learn through professional development is how to make positive changes to the system. Yet, we do not know how to support educators like Laura and Mike who recognize that something is wrong with the system, or how to support Beth who facilitates their professional development. Laura described public school education as “a strange, complicated, cumbersome, economic and political beast.” Knowing
she cannot fight that beast alone leaves her to retreat to her classroom where she can at least keep the beast in a cage.

**Personal Reflections**

I brought to this study one perspective of what it means to do research. But as I reflect on the ways I maneuvered back and forth between the realities of conducting research for this dissertation, my perspective has changed. No longer do I carry the same idea, fueled by my own memories of teacher research, of what it means to undertake qualitative research. The realization of who I am as a researcher and how my professional identity affects my perspective came late in this project.

In the beginning, my own classroom experience of conducting teacher research influenced my thinking about the purpose of teacher research and added to my expectation that teachers would find it to be meaningful and valuable. Furthermore, my subjectivity led me to focus on the mathematics of the teachers’ research and look for changes in students’ mathematical thinking. Through careful analysis of my data and follow-up interviews, though, I realized that each Discourse Project teachers’ focus was on the examination of classroom practices more than the study of students’ mathematical thinking.

Throughout the research process, I wrestled with my multiple selves and tried to separate each according to role and responsibility. When I was collecting data, I was the researcher and the respondents were the researched. Because I was not a part of the Discourse Project, it was impossible for me to know the experience in the same way as the teachers and facilitator. I admitted my lack of understanding several times during focus group interviews and, therefore, sometimes paraphrased what I thought someone was trying to explain. The teachers and Beth were generous and patient with me and described their
thinking in different ways until satisfied that I had an adequate insight into what the research process meant for them.

Compounding this separation was my professional role that appeared to have status over the teachers. In order to compensate for the difference, I thought about ways to blur the lines between us. When I finally accepted the fact that I could not change our differences, I turned my attention to ways in which I could promote them as teacher researchers and support their continued professional growth. This became a turning point for me in the understanding of myself as a researcher in regard to my professional positioning. Bloom (1998) explains it as this critical self-reflection that helps us understand the responsibilities of who we are in relationship to those who are part of our research.

And so my path throughout the last ten years seems to have brought me full circle back to the teacher research conference in Albuquerque. Yet the landscape has changed, cultivated by many more teachers who engage in the study of their daily work and nourished by university faculty who support their inquiry. I, too, have changed as a result of this project. I identify myself as researcher, teacher, and learner. My perspective of what it means to “do” research includes a better understanding of the complexities teacher-researchers face and the kinds of support they need in order to undertake such intense study. For if teachers are willing to move through the “slow and uncertain process of meaningful learning” (Borko, 2004, p. 6), what they gain is rewarding. The reward is a sense of ownership in one’s professional development. This makes teacher research and the products of inquiry more than “good enough.”
APPENDIX A: FOCUS GROUP QUESTIONS

1. What would you like to tell me about being a part of the Discourse Project?
2. How has this impacted you as a teacher and a learner?
3. Were there some experiences you participated in that seemed to affect you more than others?
4. How do you see this as impacting what you do in your classroom? Can you think of an example?
5. How do the teachers in your building respond to your research?
6. Have you changed your beliefs in what you think about what instruction is? Or what it means to learn mathematics?
APPENDIX B: INTERVIEW QUESTIONS

Now that you’ve conducted classroom research and published your work:

1. In what ways have you changed your thinking about teacher research as professional development?

2. How have you changed your thinking about yourself as a professional?

3. How have you changed your thinking about your classroom practices?
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